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THE NEUROLOGY OF CERVICAL RIBS *

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CHICAGO

Supernumerary cervical ribs, as furnishing the cause of many obscure and some very serious nerve lesions affecting the arm, have not been sufficiently recognized in neurologic literature. It is almost startling that no textbook on nervous diseases makes the slightest detailed mention of cervical ribs in connection with brachial plexus disorders, excepting the English translation of Oppenheim. Even the great handbook of Levandowsky has only a slight reference to cervical ribs, and Chipault's "Surgery of the Nervous System" is devoid of any mention of the subject. Works on surgery and radiography have much more.

The frequency of cervical ribs is much greater than is usually understood. Fischel in Prague, in four years, found cervical ribs in 1 per cent. of all the bodies examined. Their most common location is in conjunction with the seventh cervical vertebra, next in relation to the sixth and seventh, and then to the fifth and fourth in descending order of frequency. They have never been observed attached to the first, second or third.

Historically, the cervical rib has been well represented for more than 150 years. Its first description was by Hunalt in 1740, and it was again fully described by Gruber in 1869. In 1894, Pilling collected seventy-six instances. Its first recognition during life was apparently by Cooper in 1818, and it was first surgically extirpated in 1861 by Coote. Since we have had the use of the roentgen ray it has often been unexpectedly found, and not infrequently the roentgen ray adds proof positive to the clinical diagnosis of cervical ribs, which in a general way can be rather definitely diagnosed from the nervous and vascular symptoms they sometimes produce. The very best paper on the subject of cervical ribs is that of Streissler,[1] who considers the subject from every point of view, giving 297 references and 200 cases.

Somewhat strangely in view of the fact that the female organism is supposed to be more stable and less subject to variation than that of the male, 63 per cent. of the cases of cervical ribs are found in women according to Walther, while Streissler found 70 per cent. female and 30 per cent. male.

Of course cervical ribs are congenital; but clinical manifestations rarely develop under the age of 10, commonly make their appearance between 10 and 30, and occasionally give rise to symptoms which first appear only in the later decades of life.

The supernumerary ribs are bilateral in a little more than half the cases, and when lacking in symmetry or represented only on one side, have a disposition to appear more frequently on the left. Occasionally they show hereditary tendencies or constitute a family marking. Thus, Russell[2] found them in sisters, Drehmann[3] in a family presenting eighteen cases, and I have seen them in a mother and daughter.

The disturbance occasioned by cervical ribs does not bear any definite relation to the size of the rib, some of the largest occasioning no symptoms at all, and some comparatively small ones being attended by very disabling and even destructive processes affecting the upper extremity.

Gruber is disposed to classify cervical ribs, according to their size, into four groups:

1. Consisting only of a node which does not extend beyond the lateral dimensions of the transverse processes of the vertebra.
2. A blunt finger of bone 4 or 5 cm. in length.
3. A rib which extends far enough forward to articulate with the first rib or even to be attached to the sternum by a ligamentous cord.
4. A complete rib having vertebral origin and costosternal cartilage.

These ribs are commonly associated with other skeletal abnormalities, especially those marking the sternum, the vertebrae and the ribs. The articulation of the cervical rib to the vertebra either is in the form of a full synostosis, or in some cases the union is partially osteal. Modifications of the scalene muscles are occasioned by the projection of this adventitious bony development, but the subclavian artery always curves above the rib or the fibrous cord, which extends from the tip of the rib forward to the sternum and which in certain cases causes as much difficulty and as much damage as a thoroughly developed bone.

The thorax is changed in its conformation to some extent, having higher apexes with salient arteries readily palpable above the level of the clavicle; sometimes visible pulsation can be made out in the triangles of the neck. This unusual extent of the pulmonic tissues and the feeling of bony hardness or osteal intumescence is a frequent source of mistaken diagnosis.

ETIOLOGY

The disturbances arising from the presence of cervical ribs, which commonly appear only after the end of the first decade of life, seem to be brought about by the naturally increasing rigidity of the bony and cartilaginous structures, reduction of elasticity of arteries and nerves, and the increased weight thrown on the upper extremities in the various activities of life. Occasionally the disorder in the arm is induced by traumatism, such as bruises or pressure occurring from carrying heavy weights on the shoulder or in the hands. Frank[4] reports a case in which a yoke used for carrying milk pails brought about disturbance in the arms in the case of a milkmaid who had cervical ribs, and Streissler has seen a case in which carrying a gun on the shoulder led to the development of disorder in the hand. In one of my cases, symptoms followed long continued efforts at cranking a gas engine, and in another, unusual lifting of heavy objects preceded the onset of symptoms.

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* Chairman's address, read before the Section on Nervous and Mental Diseases at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Streissler, E.: Die Halsrippen, Ergebn. d. Chir. u. Orth. **5**: 280, 1913.

[2] Russell, C. K.: M. Rec. **71**: 253.

[3] Drehmann, G.: Cervicodorsal Scoliosis and Supernumerary Ribs with and without Supernumerary Cervical Rudimentary Remnants, Ztschr. f. orthop. Chir. **16**: 12; Heredity and Family Groups, Ten Cases, Allg. med. Centr. Ztg., 1905, No. 2, p. 21.

Tuberculosis affecting the pulmonary apex has of course been found in frequent association with cervical ribs, and in some instances the contiguous inflammation seems to have disturbed the brachial nerve trunks in their passage over this adventitious structure. So pleurisy, exudation, and occasionally the loss of fat, thereby laying the parts subject to more intimate injury, have led to the development of these peculiar disorders. The fracture of the clavicle and the development of callus, encroaching on the space between the shoulder girdle and the thorax, have been the initial features in some cases. Periostitis of the supernumerary rib has occurred, and occasionally it is the seat of tumor growth. Nerves which are exposed to the disadvantage of passing over an additional rib, under general systemic toxic conditions, such as those associated with diphtheria and arthritis, have shown an additional vulnerability; and disorder in their peripheral distribution has subsequently followed. So, too, arteriosclerosis of the subclavian, which is in close apposition to the brachial roots above the supernumerary rib, can seriously affect these nerve structures as well as cause vascular faults in the hand.

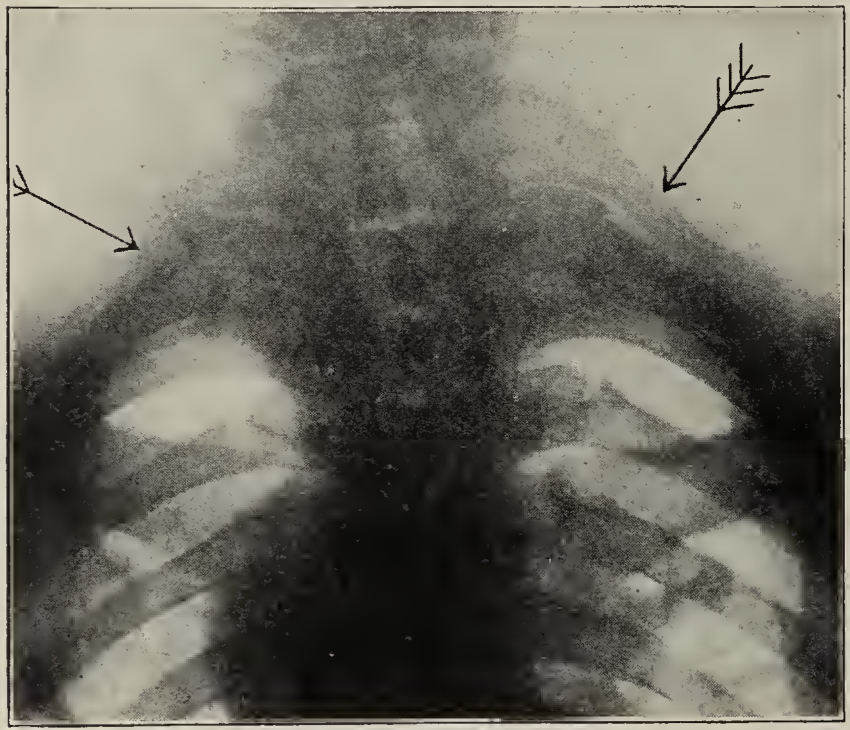

Fig. 1.—Very large right cervical rib, smaller left cervical rib, indicated by arrows. Cervical scoliosis with compensatory curves. Not attended by any vascular or nervous symptoms.

SYMPTOMATOLOGY

As already indicated, the symptomatology of disorder of the nerves and vessels due to cervical rib is not relative to the size of the accessory structure. These symptoms consist first of local signs. In some instances a tumor-like mass can be made out at the side of the neck, behind the clavicle, at the apex of the thorax; but the outline of the supernumerary rib cannot probably be ever determined by palpation. A more than usually salient subclavian artery and general widening of the root of the neck and a lofty lung apex are objective in character and capable of detection by the usual means of observation. The roentgen ray furnishes a very definite method of detecting these cervical ribs, but a certain amount of experience is essential in interpreting the plates. Cervical ribs of the first order laid down by Gruber are so clearly parallel with the transverse process that unless the negative is particularly definite and scrutinized with great care, a cervical rib of dimensions which do not carry it beyond the tip of the transverse process may be entirely overlooked. I know of a prominent surgeon who from the roentgenogram determined the presence of a cervical rib which on operation was not found; and subsequent roentgenographic examinations failed to show anything like the artefarct which was present in the original negative and which was certainly misleading. Again, when the supernumerary ribs are well developed and tolerably symmetrical, they may be mistaken easily for the first thoracic pair, and it is only by counting the cervical vertebrae and by lateral views that their exact nature can be determined. A rudimentary first dorsal rib has been mistaken for a cervical rib.

VASCULAR CHANGES

While vascular changes are not so common as nerve disturbances, as a rule, in some cases they are very prominent. A change may be found in the character of the pulse as compared with the sound side, and certain positions given the upper extremity may serve to stop the pulse altogether, as, for instance, in the case of a soldier whose pulse failed always when he carried his gun on any part of his shoulder, and equally could be extinguished by raising his hand to the same position. Sometimes by placing the hand above the head or by drawing down on the extremity, as in carrying burdens in the hands, the pulse can be reduced in amplitude and even extinguished. In other cases the pulse will vary with respiration, tending to disappear on full inspiration. In rare cases, disturbances of the subclavian by the pressure of the rib has resulted in thrombosis and loss of all pulse in the extremity. In other cases, aneurysm has formed at the point where the subclavian passes over the rib. Several of these conditions are competent to produce an inequality of the radial beat in the two extremities.

The peripheral circulation in the extremity is very frequently disturbed, and some cases of miscalled Raynaud's disease have been due to cervical rib. The fingers often present a blue, edematous or reddened condition, and this may be accentuated by the involvement of the nerves and the trophic changes and glossy skin that attend a neuritis. Many patients complain that the hand on the affected side is much more influenced by cold, and that the hand is invariably colder than the opposite one. Intense edema, vasomotor flushing, and hyperhidrosis are common in the severe cases.

NERVOUS SYMPTOMS

Nervous symptoms are the most common features in cases of cervical rib that affect the upper extremity. The sensory defect may be confined to the distribution of a single nerve or may embrace the entire member; and pains of a neuralgic character may radiate to the back of the neck, the back of the shoulder, the neighborhood of the ear, very frequently down the side of the chest in the axillary line, and in some cases are complained of over the entire side of the body. The sensory disturbance is usually most intense in the fingers and most commonly in the ulnar portion of the hand and in the ulnar fingers, although in a fair proportion of the cases the radial distribution in the thumb and index is the seat of the greatest complaint. Paresthesias, hypersensitiveness and hyposensitiveness of all grades may be found in varying cases, and Barker[5] has from personal experience called very definite attention to dissociation of sensation in the affected member similar to that found in syringomyelia. On the motor side weakness is very common, and if the painful manifestations are pronounced, disuse of the arm leads to a still greater weakness. Very rarely is there complete paralysis. All varieties of claw hand may be encountered, with the corresponding contractures due to the involvement of the roots of the brachial plexus in varying degree or in its entirety. There are commonly functional difficulties in the use of the hand, which sometimes in a minor measure are present only in the finer manipulations, such as writing. These patients usually experience inconvenience and sometimes intense pain when carrying burdens in the hand or on the arm, and frequently adopt a sling that supports the weight of the member and relieves the drag on the injured nerves and vessels at the point of pressure.

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[4] Frank, O.: Symptoms Induced by Carrying Milk Yoke, Direct Violence, Deutsch. med. Wchnschr., 1907, No. 14, p. 597.

TROPHIC DISTURBANCES

Disturbances of the trophic control in the small muscles of the hand and the forearm are very common, and usually the muscle group originating from the internal condyle is the one most involved in the forearm. With this may be found trophic disturbance of the skin, especially at the finger ends, trophic blebs, glossy skin, changes in the nails, and hemorrhages under the nails. Occasionally the sympathetic nerve has been involved, giving rise to pupillary disturbance, ptosis, and retraction or protrusion of the eye. The phrenic nerve may have been occasionally affected.

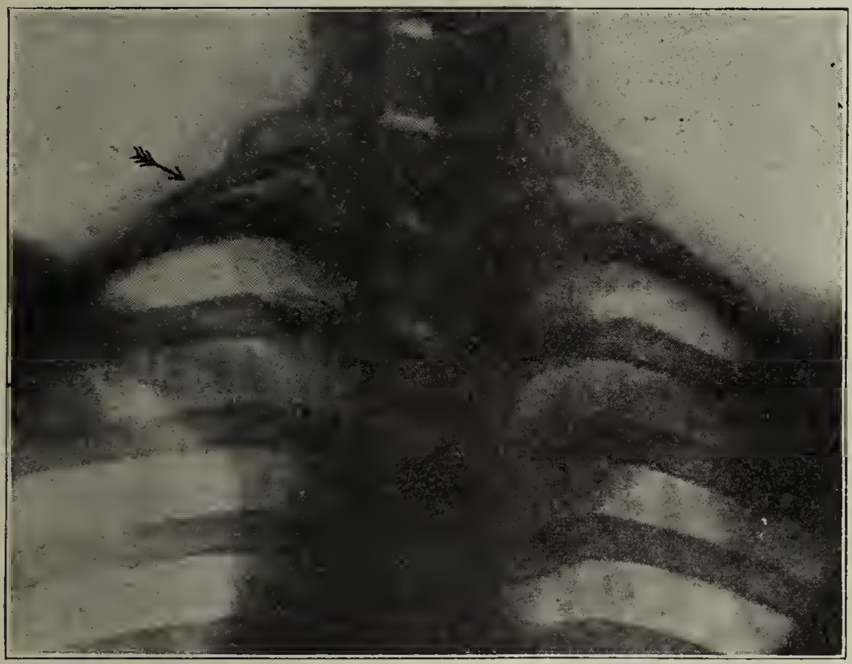

Fig. 2.—Bilateral cervical ribs, right one of the first degree, left one of the second degree, according to Grubbe. (Courtesy of Dr. Hollis E. Potter.)

In quite a number of cases, hoarseness is reported. Whether or not the right recurrent nerve which loops under the subclavian at the point where the subclavian arches over the supernumerary rib is ever involved is a somewhat disputed point. Streissler thinks it doubtful. Planet[6] described a case in which there was hoarseness, and Dr. Carl Davis of Chicago has reported two such cases. Weisenstein[7] reported a case in which a patient was aphonic every morning. This seems to have been hysterical rather than due to involvement of the recurrent. A similar case is reported by Ranzi.[8] Spiller and Gittings[9] noted one case in which there was atrophy of the tongue and larynx. I myself have had under observation an otherwise healthy woman who has a symmetrical pair of cervical ribs, and who presents at times paresthesia and numbness in the hands, particularly the right. She has had three very prolonged attacks of aphonia attended by paresis of the right vocal cord. At least two of these attacks have been brought on by overexertion in the way of lifting, and I think, after a faithful search for other causes, are undoubtedly due to involvement of the recurrent by the cervical rib.

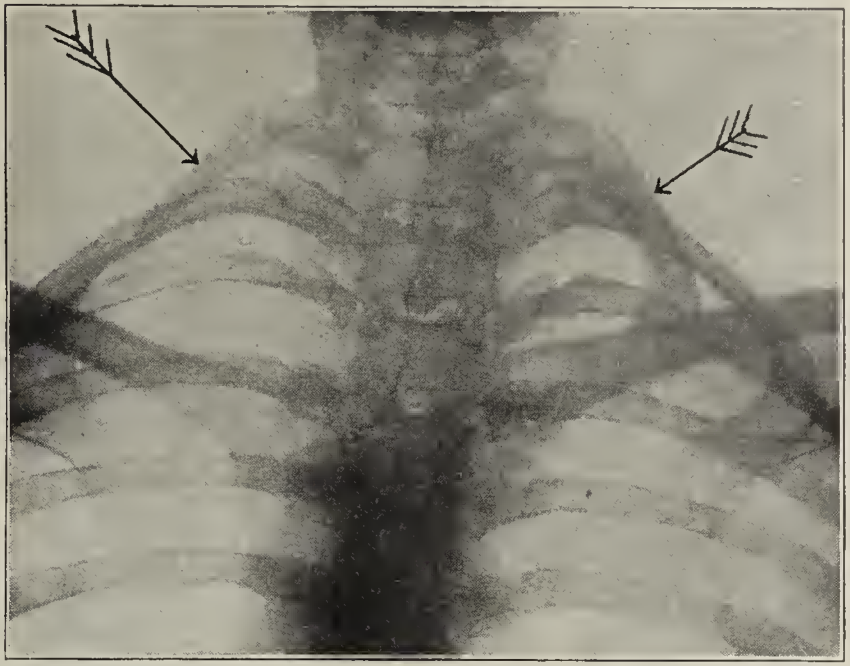

Fig. 3.—Large asymmetrical cervical ribs, indicated by arrows. Neuritis and vascular disturbances in the right arm. Very slight cervical scoliosis.

CERVICAL SCOLIOSIS AND CERVICAL RIBS

Ever since Garrè[10] called definite attention to the presence of cervical ribs, usually asymmetrical or unilateral, in conjunction with cervical scoliosis, the frequency of these observations has been increasing. Streissler found such a scoliosis in 16 per cent. of his cases. Frequently the cervical deviation is attended by more or less asymmetry of the face and of the skull, and of course is attended by compensatory curves in the dorsal region. The deviation of the spine does not always seem to be proportionate to the size of the supernumerary rib; but sometimes a supernumerary wedge-shaped cervical vertebra is found to which the supernumerary rib is attached. Of course such a scoliosis is attended by some postural displacement of the shoulder and scapula. In every case of cervical scoliosis, supernumerary ribs should be suspected.

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[5] Barker, L. F.: A Case of Unilateral Circumscribed and Elective Sensory Paralysis, J. Exper. M. 1896; Deutsch. Ztschr. f. Nervenh. **8**: 348, 1896.

[6] Planet: Tumeurs osseuses du cou, la septième côte cervicale, Thèse de Paris, 1890.

[7] Weisenstein: Zur klinischen Bedeutung der Halsrippe, Wien. klin. Rundschau, 1903.

[8] Ranzi, E.: Zur Kasuistik der Halsrippen, Wien. klin. Wchnschr., 1902.

[9] Spiller and Gittings: Muscular Atrophy of Cervicobulbar Type and Cervical Rib; Tongue and Larynx Muscle Atrophy; Shoulder Girdle and Upper Extremities Affected, New York M. J., Oct. 6, 1906.

[10] Garrè: Four Cases of Cervicoscoliosis and Cervical Ribs, Ztschr. f. orthop. Chir. **9**: 73.

DIAGNOSIS

The diagnosis of cervical ribs sometimes is attended with a great deal of difficulty, and a large number of other conditions can easily be confused with them. Tumors in the angles of the neck or growing from the cervical and upper dorsal vertebrae may bring about similar conditions in the related extremity. Aneurysms of the subclavian produce a similar symptom group. Quite a number of cases of Raynaud's disease have been found not to be due to the vascular disorder of symmetrical gangrene, etc., but to have been caused by the vascular and neuritic changes secondary to cervical ribs. As the cervical rib produces a brachial neuritis, its presence has been overlooked in this rather common disorder, the neuritis being attributed to systemic or local conditions of a different order; and so neuralgias affecting the upper extremity have perhaps in many instances been of mistaken origin. Subacromial bursitis and arthritis of the shoulder joint producing painful disability of the upper extremity might easily be confused with the effects of a cervical rib. Several cases have been diagnosed as pachymeningitis cervicalis, others as poliomyelitis, others as progressive atrophy, and still others as syringomyelia Further, owing to the involvement of the thoracic branches of the cervical plexus, some of these cases have been confounded with intercostal neuralgias, and the cervical scoliosis has for some furnished an acceptable explanation of the changes in the hand, without recognition of its association with and dependence to a large degree on the presence of cervical ribs. Dulness and conformation peculiarities of the lung apex have led to a diagnosis of phthisis, and of course their association, in view of the prevalence of phthisis, is not unusual. If one, however, has in mind the frequency of cervical ribs and their capacity for producing painful vascular and trophic changes and symptoms in the upper extremity, careful search of the case with the aid of the roentgen ray will usually make the diagnosis quite definite.

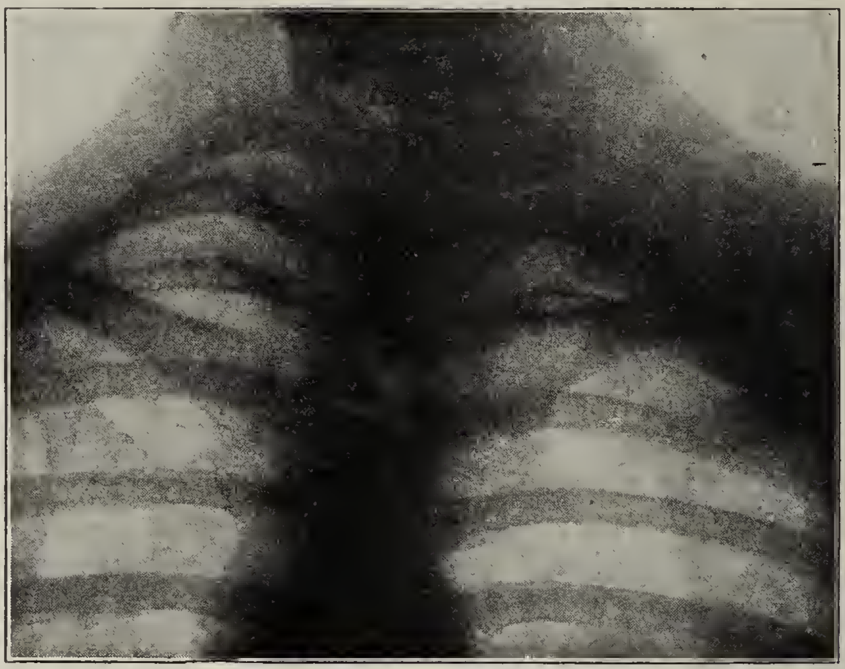

Fig. 4.—Same patient as in Figure 3 after operation for the removal of the right supernumerary cervical rib.

COURSE AND PROGNOSIS

Many cases show long periods of symptoms or even of very decided disability, with intervals of comparative or complete freedom. Nevertheless, the course of the disorder in the arm is usually protracted and sometimes continues for many years. Nerves and vessels placed at the disadvantage caused by the peculiar anatomic variation presented by cervical ribs can be easily injured in ordinary life pursuits and may recover under conditions of rest and protection. The case histories of numerous severe instances indicate that the tendency is for the disease to come on insidiously, to advance steadily, and to reach such a degree that amputation of the hand or arm or other heroic surgical intervention is readily accepted. The very severe cases are practically hopelessly short of surgery, which has for its proper object the removal of the cervical rib.

TREATMENT

In the milder cases a conservative treatment is altogether advisable. Rest, avoidance of strain and weight carrying, and the thorough support of the arm by a properly arranged sling all tend to avoid irritation of the nerves and vessels by rib contact. Electricity, massage, applications of heat and cold, and general measures, such as are commonly indicated in a brachial neuritis, have their very definite place in the management of these cases, but in the severer ones give rise to so much pain and inconvenience as to be almost insupportable. In cases of the more pronounced grade, recourse to surgery is the only avenue to cure.

The extirpation of a cervical rib constitutes one of the most difficult of major surgical measures, and must not be lightly undertaken. Not only does it require a very definite anatomic dissection, but dissection in a very dangerous location that is rendered more dangerous by unusual anatomic relations. A number of surgical mishaps have occurred. Jones[11] of Manchester reports injuries to the arteries, to the pleura, and to the subclavian vein. In a number of instances the incomplete removal of the cervical rib has been followed by its regrowth from the proximal stump and the reappearance of all the former disabilities. It seems to be highly important that the periosteum should be completely removed. In other instances, sufficient attention has not been given to the cordlike extension which represents the anterior portion of the incomplete rib, and symptoms have consequently not been relieved. When complete extirpation can be effected, the prospect for full relief and restitution of function is practically perfectly good; but chronic neuritic, vascular and trophic processes, often attended by contractures, require months and sometimes years of time and treatment to recede entirely.

My own experience is based on eleven cases, all of which have been verified either by operation or roentgenoscopy or both, and all of which have been relieved with one exception. In this instance a very competent surgeon removed most of the cervical rib. I must reiterate the view of Miller,[12] who insists that in every case of protracted discomfort, pain, or trophic disturbance in the arm, a careful search should be made for cervical ribs. The same advice applies to every case of cervical scoliosis.

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[11] Jones, H. L.: Difficulty of Extirpation and Harm to Plexus; Recurrences by New Bone Formation from Stump, Quart. J. Med. **1**: 187.

[12] Miller, J. L.: Observations on the Symptomatology and Diagnosis of Cervical Rib, Am. J. M. Sc. **142**: 811 (Dec.) 1911.

ENCEPHALITIS LETHARGICA *

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SAN DIEGO, CALIF.

AND

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About the middle of 1917, there was reported by von Economo[1] a number of cases, appearing in Vienna, in apparently epidemic proportions, characterized by somnolence almost simulating sleeping sickness, and ending sometimes after a few weeks or even months in death. The prodromes were headache, nausea and vomiting, suggesting a general infection or intoxication. In addition to these general symptoms, the frequency of the simultaneous involvement of some of the cranial nerves, manifested by ophthalmoplegias, such as ptosis and facial palsy, suggested a localization of the disease in the brain. Examination of the spinal fluid threw very little light on the nature of the disease, the cells in most cases being within normal limits, and repeated bacteriologic examinations yielding no positive results. In addition to the involvement of isolated nuclei of the bulb, there were, in some other instances, other signs of cerebral involvement, such as ataxia and tremor, which suggested disturbance of cerebellar function. Von Economo considered food intoxication as an etiologic factor, but ruled it out by the complete absence of gastro-intestinal disturbances. He also felt that typhoid, influenza and Heine-Medin disease could be excluded, and concluded that he was dealing with a specific disease caused by a living virus resembling, but not identical with, the virus of poliomyelitis. He gave the disease the name "encephalitis lethargica."

Early the following year, March, 1918, Breinl[2] reported from Australia nine cases of a mysterious disease, the prevalence of which had already been reported from Queensland and New South Wales. His cases were mostly among children, and usually began suddenly with convulsions, high fever, headache and malaise. The patients soon passed into a state of coma lasting from two to three days. The majority of these patients died with hyperpyrexia and respiratory failure. The symptomatology varied exceedingly; the Babinski reflex and Kernig's sign were not constant; the knee jerks were exaggerated in some, and absent in others. Sometimes there was nystagmus, with tremors in the arms and legs. Intestinal disturbances were not uncommon. Spinal fluid obtained by lumbar puncture was negative except for a slight increase in cells. The only symptoms constantly present were the onset with convulsions and high temperature, which were followed by a state of deep unconsciousness; the clinical picture suggested to Breinl an intense irritation of the entire central nervous system. He felt that the spinal fluid findings differentiated the disease from meningitis, the presence of fever from lead poisoning, and the symptomatology from gastro-intestinal disturbances causing death in convulsions. He concluded that the most important disease from which to differentiate it was poliomyelitis, for he states that in the various reports of poliomyelitis epidemics, there are cases of cerebral or encephalitic type in which drowsiness, deepening into coma, is predominant.

The pathologic picture of Breinl's fatal cases showed lesions that were typical of poliomyelitis—perivascular cell infiltration involving the brain as well as the cord. The gray substance of brain and cord showed a diffuse infiltration with leukocytes and round cells, collected here and there into small foci, around which the gray matter appeared softened. In addition to this the ganglion cells showed changes characteristic of neurophagia. This observer was able to transmit the disease to monkeys by inoculating them with the spinal fluid taken from typical cases. He was further able to transmit the infection from monkey to monkey —the animals showing pathologically the same lesions as seen in the human case. The conclusion was therefore made that the disease was caused by the same virus as that causing poliomyelitis.

About the same time that these observations were being made in Australia, similar cases were under investigation in France and England, and later, reports from Italy and Uruguay[3] give evidence that the disease, whatever its nature, was world-wide in its distribution.

In France, where the term "lethargic encephalitis" has found general acceptance, the clinical aspects of the disease have been carefully considered. Netter[4] regards the disease as a "maladie autonome," the specific agent of which is endowed with an affinity for the nerve centers. He insists that the clinical picture is not that of food intoxication or of a special form of influenza or poliomyelitis. Sainton,[5] in summing up the situation in regard to the disease, is inclined to regard the malady as a result of localization in the brain of the prevailing influenza. According to this writer, lethargic encephalitis is not identical with poliomyelitis.

In England the disease has received a variety of names, indicating the divergent opinions concerning its identity. During the early days of the epidemic it was felt by many that food intoxication (botulism) was the cause of the manifestations, and such a hypothesis found support in the fact that canned foods, owing to war conditions, were being used extensively. Later the possibility that the disease was a form of poliomyelitis was suggested in numerous reports in the literature. The subject was eventually taken in hand by the government, and a complete investigation into the nature and cause of the disease was completed in 1918 by the Local Government Board on Public Health and Medical Subjects.[6] According to this report, the work of McIntosh seemed to eliminate botulism in discussion of this disease, for he was unable to show its identity culturally or serologically. Also evidence was brought forward against its similarity to poliomyelitis on clinical (MacNalty), epidemiologic (James), experimental (McIntosh) and pathologic (Marinesco) evidence.

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[1] Von Economo, C.: Wien. klin. Wchnschr. **30:** 581, 1917, abstr. Rev. Neurol. & Psychiat. **16:** 188.

[2] Breinl, A.: Clinical, Pathological and Experimental Observations on the "Mysterious Disease," a Clinically Aberrant Form of Poliomyelitis, Med. J. Australia **1:** 209 (March) 1918.

[3] Morguio, L.: Lethargic Encephalitis Rev. méd. d. Uruguay **21:** 463, 1918.

[4] Netter, A.: Lethargic Encephalitis, Paris méd. **8:** 81, 1918; Bull. de l'Acad. de méd. **79:** 337, 1918.

[5] Sainton, P.: L'encéphalite léthargique, Presse méd. **26:** 487, 1918; Bull. et mém. Soc. méd. d. Hôp. de Paris **42:** 424, 1918.

[6] Report of Local Government Board, N. S. 121, London, 1918.

Although the disease was thought by many to be a new one, it was not long before the fact became apparent that similar epidemics had been described before, usually associated with the pandemics of influenza. Von Economo, in his original communication, mentioned that similar epidemics had been reported as early as 1712, and similarly in 1891, following pandemics of influenza. Netter also recalls the one of 1891 in France, and mentions that similar cases followed the influenza epidemic of 1895.

Biermer,[7] in 1865, gives Camerarius credit for having described an epidemic which occurred in Tübingen in 1712. The victims were seized with violent brain symptoms, passing into a prolonged coma; because of the coma the disease received the name of "Schlafsucht."

The epidemic of lethargic encephalitis of 1891 originated in the north of Italy. Before much scientific attention was paid to it the lethargy received considerable comment in the lay press throughout Europe. For some unknown reason the disease received the appellation of "nona." The origin of this designation is very obscure, although it is perhaps due to a typographic error in an early newspaper account, and should really be "koma."[8] Whatever its origin or significance, the designation has remained, and the literature of the time is filled with case reports and other references to it. Letters to the *Lancet*[9] and to the *British Medical Journal*[10] by their correspondents in Rome during 1890 attributed the circulation of stories concerning the so-called disease to native superstition. On the continent, however, a definite clinical entity was recognized as the basis for the reports, although the exact nature of the disease was never definitely settled. It was considered to have a close relationship to influenza or "la grippe," mainly on account of the almost synchronous appearance of that infection in the districts affected. To support this view it was repeatedly recalled that during influenza epidemics, serious central nervous system involvements are not uncommon, often manifesting themselves in protean symptoms.

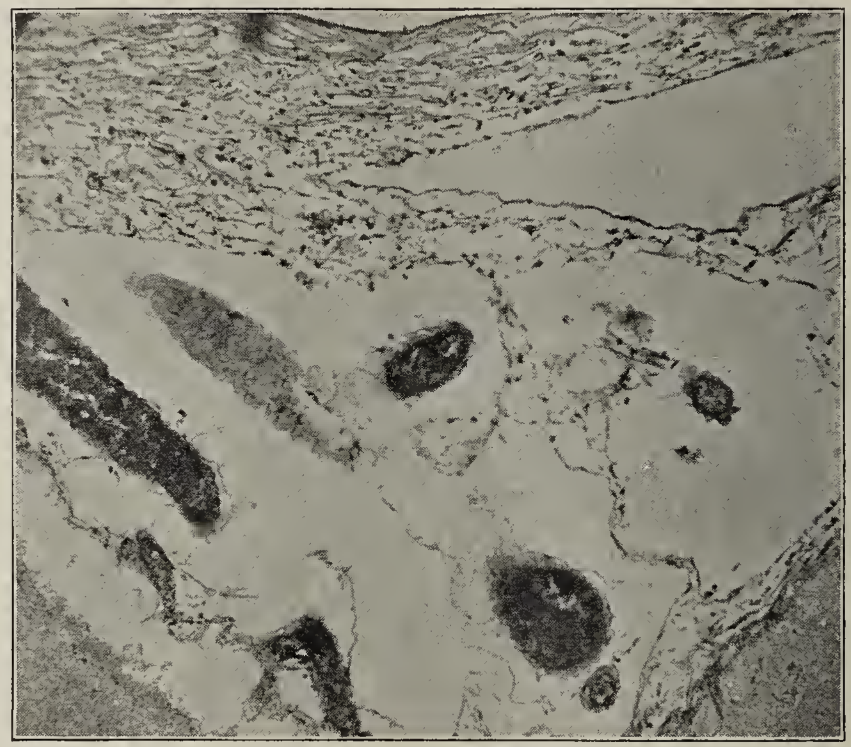

Fig. 1 (Case 6).—Cortical meninges, × 66: arachnoid trabeculae sparsely infiltrated with mononuclear cells and blood globules; pial vessels greatly engorged.

In this country, so far as we are aware, the first cases to which attention has been called are those which occurred on the medical service of Major Tasker Howard at Camp Lee, Va., the earliest in November, 1918, and later reported by Pothier.[11] Since then,[12] case reports have appeared from Illinois and from Iowa.

The following report is based on personal observation by one of us (P. W.) of five cases at Camp Lee, Petersburg, Va., together with postmortem material from four cases assigned to the other (J. B. A.) for examination by the Army Medical School and the Army Medical Museum.

The first four patients, seen by one of us (P. W.) are evidently convalescent:

Case 1.—Private A. F., aged 29, white, had had gastro-intestinal disturbances since 1911, accompanied by vomiting or acute pain. Jan. 19, 1919, he complained of having double vision, which continued for several days. On admission, Jan. 21, the patient was apprehensive and nervous. His right pupil was larger than the left, and both reacted sluggishly to light and accommodation. The knee jerks on each side were hyperactive. He was thought to have hysteria.

February 7, it was noted that there was a slight weakness of the muscles of the face, in the neighborhood of the left eye and the left corner of the mouth, and when talking the patient spoke from the right side. At this time the spinal fluid contained only 12 cells, and both sugar and albumin were normal. Eleven days later there were 150 cells present (90 per cent. mononuclears), and the chemical content was normal. Other laboratory examinations were negative. The course of the disease was practically afebrile, and the patient was discharged, March 9.

This patient, at the time of my arrival at the base hospital, was free from all symptoms, but the following still showed clinical signs of the disease:

Case 2.—Private M. S., aged 28, white, January 20, felt dizzy and weak and had a fainting attack. He felt nauseated but did not vomit. On admission to the hospital five days later, he complained of a feeling of lightness in the head and still had some nausea. At that time the face was flushed, the throat was congested, and the pulse was accelerated. His temperature was 101. By January 30 (five days after admission), the temperature dropped to normal but showed thereafter an occasional rise, but never exceeded 99.2.

Two weeks later, February 16, the patient was unable to close his right eye, the right pupil was larger than the left, the pupillary reflexes were sluggish, and he was mentally dull. The knee jerks were both very much increased, the Babinski reflex was present, and Kernig's sign was suggestive. The gait was unsteady, and the patient complained of double vision and dizziness. The diplopia passed off in a day, but the paralysis of the facial muscles progressed during the same time so that the entire right side was eventually involved. This palsy gradually cleared up, and when I last saw the patient, March 10, he was practically normal. Examination of the spinal fluid, February 17 (the day when the facial paralysis was at its height), revealed 150 cells (all mononuclears) with normal protein and sugar. The Wassermann test and cultures of the blood and spinal fluid were negative.

Case 3.—Corporal J. C. K., aged 23, white, with both family and personal histories negative, began to feel dizzy, January 18, and complained of double vision, which persisted for two days. This was followed by insomnia, and the patient became nervous and irritable. Examination of the eyes, January 20, revealed vision and extra-ocular movements normal (diplopia had disappeared the day before), but there was some congestion of the retinal veins of the left disk. The dizziness and insomnia persisted, but there was no nausea nor vomiting, and the diplopia did not return.

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[7] Biermer, in Virchow: Specielle Pathologique und Therapie, **5**, part 1, p. 620, 1865.

[8] Ebstein, W. Einige Bemerkungen über die sogenannte Nona, Berl. klin. Wchnschr. **41**: 1005, 1891.

[9] Lancet, **1**: 869, 1890.

[10] Brit. M. J. **1**: 748, 1890.

[11] Pothier, O. L.: Lethargic Encephalitis, J. A. M. A. **72**: 715 (March 8) 1919

[12] Bassoe, Peter: Epidemic Encephalitis (Nona), J. A. M. A. **72**: 971 (April 5) 1919. Ely, F. A.: Lethargic Encephalitis, J. A. M. A. **72**: 985 (April 5) 1919.

February 4, the patient's general condition was good, but he still complained of nervousness and a trembling of the lower extremities. He stated also that he felt as if his jaw was going to fall off. The next day he suffered from extreme headache, occipital pains, and soreness over the entire spinal column. Both knee jerks continued to be hyperactive and there was bilateral ankle clonus.

The patient's temperature on admission, January 25, was 100, and it had fluctuated thereafter between 98 and 99.6 until February 20, after which it remained normal.

The spinal fluid, February 1, contained 50 cells and two days later 64. Both times protein and sugar tests were normal. Cultures and Wassermann reaction of the blood and spinal fluid were negative, and a white blood count, taken February 4, was 7,600.

CASE 4.—Private M. H., aged 31, white, had received in October, 1918, a shrapnel wound of the shoulder which was followed by bladder disturbances and partial paraplegia. At the time his present illness began he was doing well and was able to get about with the aid of a cane.

February 16, he began to feel weak, having at times alternate sensations of hot and cold. The following day he remained in bed, but on the 18th, since he had no fever, he was persuaded to sit up. On the 20th, however, his temperature rose to 103 and he had a violent headache, followed by double vision and vertigo, the diplopia lasting twenty-four hours. He complained of drowsiness, but could not sleep well. His throat was very sore. The patient was very apathetic and toxic looking, and the skin was flushed. He was intelligent and well oriented, but was retarded mentally. The extra-ocular movements and pupillary reflexes were normal. The left masseter muscle was definitely weak, but the pterygoids were apparently unaffected. There was slight weakness in the facial muscles around the left angle of the mouth. Otherwise examination of the cranial nerves revealed nothing abnormal. The pharynx was very much injected, and the tonsils were swollen.

There was no stiffness of the neck nor Kernig's sign; the knee jerks were active. The white blood count was 6,000. Cultures and a Wassermann test of the blood and the spinal fluid were negative. The first spinal fluid, taken February 24, was normal and contained 8 cells; three days later the cells had risen to 40 (all mononuclears).

The disease ran a febrile course for a few days after the admission of the patient, but the temperature became normal, March 1. Complete recovery from the acute illness followed.

The four cases so far recounted all went on to recovery. They showed involvement of several of the cranial nerves, notably the oculomotor group and facial, together with symptoms indicating involvement of the long projection tracts to the extremities. The course was mildly febrile and was accompanied in the early stages by headache and nausea. In none of them, however, was lethargy an outspoken feature.

The three following patients succumbed to the disease:

CASE 5.—Private A. I., aged 22, white, had an attack of sore throat, February 3. Two days later he began to have griping pains through the abdomen which localized in the right iliac fossa; he felt nauseated and vomited, but had no fever. With a provisional diagnosis of appendicitis, he was under observation on the surgical service. About a week later, after subsidence of these early symptoms, his temperature rose to 102 and his right tonsil became larger and inflamed. He again complained of headache and pain in the abdomen, in addition to which he had considerable dyspnea, respirations, February 9, 10 and 11, reaching from 40 to 60. February 12, the respirations dropped to 30. Three days later he became unconscious and cyanotic, the respirations at this time being shallow, with frequent periods of apnea. All reflexes were absent; the pupils were 5 mm. in diameter and did not react to light. Artificial respiration was used for several hours, during which he would regain consciousness at times and answer questions, and in these periods of consciousness the tendon reflexes were exaggerated. Ophthalmoscopic examination was negative. There was no rigidity of the neck.

The patient died, February 18, the temperature having been normal for the two days that preceded the patient's death.

The urine contained a faint trace of albumin, but otherwise was negative. The leukocyte count, February 6, revealed 7,000, and February 12, 10,700.

The spinal fluid, February 2, 1919, contained 30 cells, (90 per cent. mononuclears). Sugar, albumin, 0. Culture and Wassermann negative.

CASE 6.—Private A. L., aged 24, white, admitted to the base hospital, January 31, complaining that he had not felt well for ten days, had a "swimming in the head" and for a few days previous to admission had felt weak. He was constipated, but there was no headache and his appetite was good. His temperature was 102 and the pulse 88. Physical examination revealed nothing positive except some congestion of the throat and a flushed face.

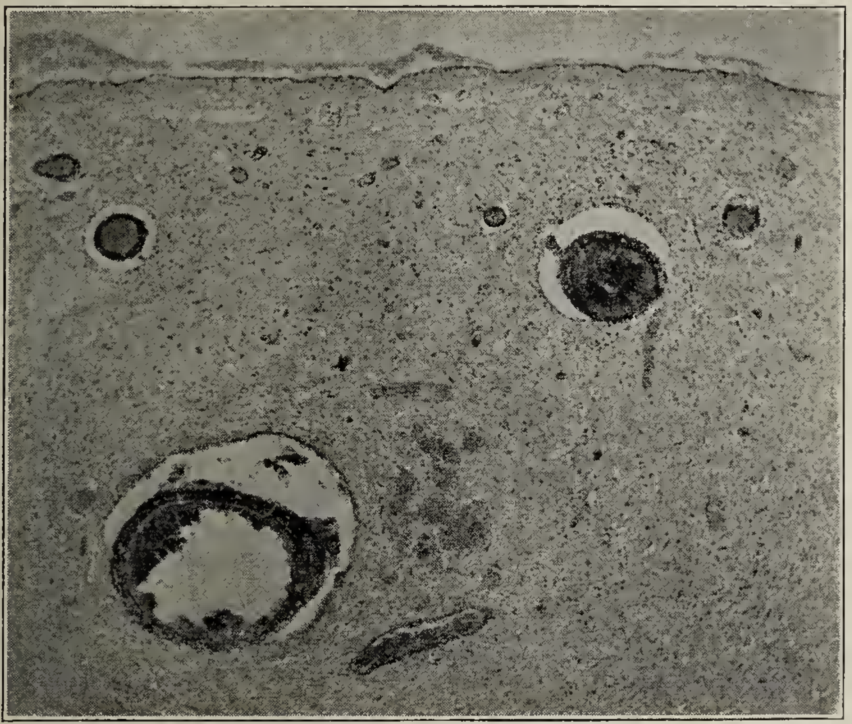

Fig. 2 (Case 6).—Pons, × 45: engorged vessels under fourth ventricle; vessels surrounded by collars of mononuclear cells; diffuse exudate in gray matter and several small hemorrhages to right of largest vessel.

February 2, the patient became noticeably lethargic and would lapse at times into a muttering delirium. The delirium became aggravated, and restraint was needed to keep him in bed. About this time he was having difficulty in swallowing, and would regurgitate food through the nose. Later he became incontinent. February 6, a left facial paralysis was noted, and the knee jerks were exaggerated. The delirium gradually subsided and lethargy ensued. The patient passed, February 11, into a semicomatose condition from which he could sometimes be roused. The following day the coma deepened and he became cyanotic. He died, February 19, the temperature rising just before death to 107.

Laboratory tests: Blood cultures, February 3 and 4, were negative. Throat cultures for diphtheria and hemolytic streptococci were negative. Leukocyte counts were: January 31, 8,200; February 2, 7,600; February 4, 7,900.

The spinal fluid, February 5, contained 29 cells (large mononuclears, 10 per cent.; small mononuclears, 90 per cent.); globulin, negative; February 7, 106 cells (large mononuclears, 6 per cent.; small mononuclears, 94 per cent.); globulin, negative; February 12, 110 cells (large mononuclears, 40 per cent.; small mononuclears, 60 per cent.); globulin, negative. Cultures and the Wassermann test were negative.

Case 7.—W. F. H., civilian, white, aged 32, seen in consultation with Dr. W. P. Hoy of Petersburg, Va., just before I left Camp Lee, March 11, was an electrician by occupation. He never had any serious illness before and was the father of three healthy children. January 29, he suddenly became prostrated, felt feverish, and went to bed. His wife did not call in a physician until February 2, five days later. At that time he complained of nausea, and he had vomited several times. There was a marked tremor of both upper and lower extremities, and his temperature was 102. The temperature had dropped in a day to 99, and had not risen above 100 subsequently. February 4, he became very lethargic, associated at first with a low muttering delirium, and for the next five weeks he slept continuously, it being necessary to rouse him to give nourishment. Typhoid fever was suspected, but repeated Widal tests and blood and stool cultures failed to verify the diagnosis. Wassermann tests on the blood were negative.

When I saw the patient, March 11, he was asleep on his side with both arms extended forward. Before the patient was roused, one of the arms was raised; it remained apparently fixed. The other arm was placed in a similar posture; it too continued to hold its position. The muscles of both arms tired in a few seconds and the limbs dropped. Later, when the patient was roused, similar catatonic phenomena were obtained. After being awakened, the patient was found to be extremely well oriented as to time and place, and answered questions intelligently, though sleepily. Examination of the cranial nerves detected a weakness of the left external rectus. The patient was asked if he saw double, but replied that whereas he had been very much annoyed by the "doubling up" of objects when he was first taken sick, this had passed off in a few days, and at the time of the examination this diplopia was not present. There was a slight droop at the left corner of the mouth, the weakness of the muscles in this neighborhood being more noticeable when he talked. The tendon reflexes were normal, but the cremasterics and abdominals were hypo-active. After the interview, the patient promptly fell asleep again, and subsequently after being roused sufficiently to assist in getting himself in position for a lumbar puncture, he fell asleep during the operation, which was done without anesthesia. The patient seemed to be improving, for during the last week the lethargy, though still marked, was not so profound as it had formerly been.

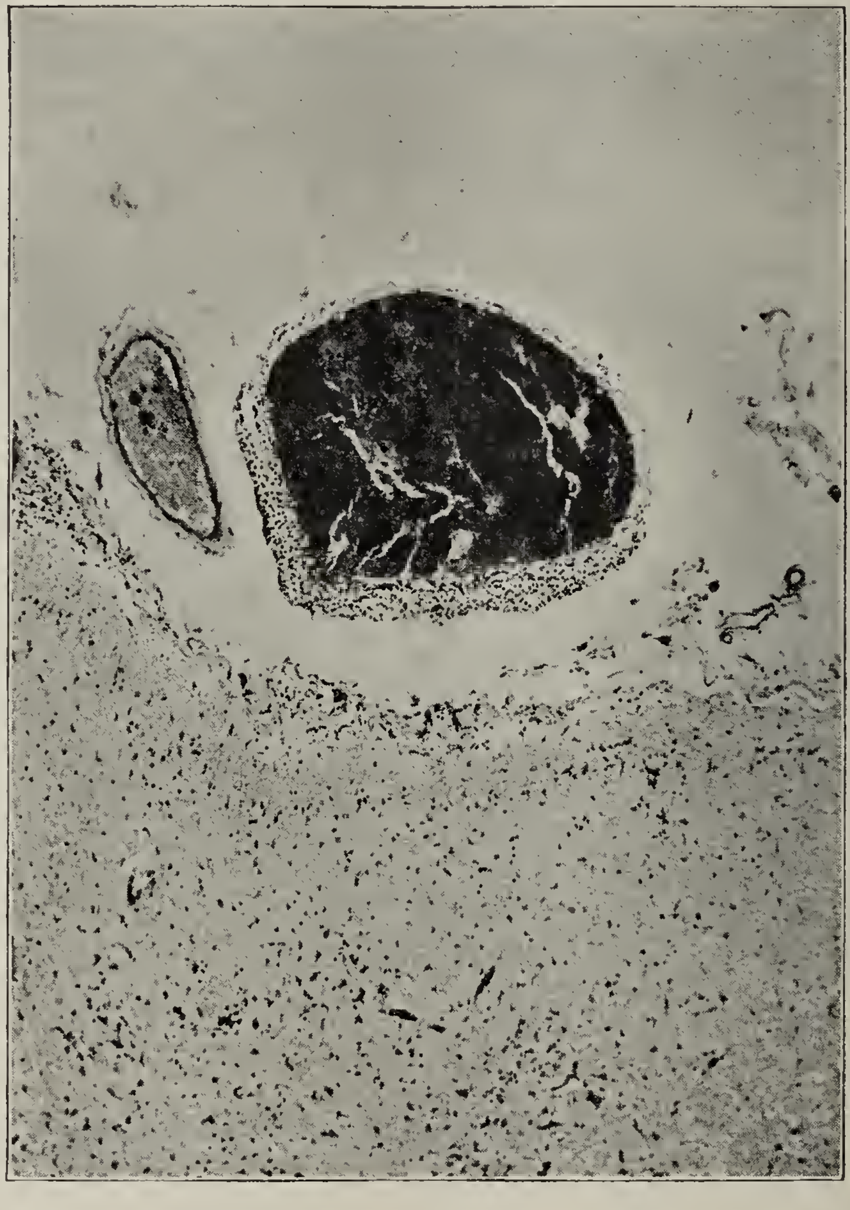

Fig. 3 (Case 6).—Midbrain, × 72: of the two vessels in the meninges the smaller appears normal; the larger shows a mononuclear cell infiltration of its wall for about one-half its circumference; there is almost no meningitis.

I did not see this patient again, but the following notes complete his history: March 12, he was given 50 c.c. of serum from a convalescent case of "lethargic encephalitis," plus 350 c.c. of physiologic sodium chlorid solution intravenously, and also 30 c.c. of serum by lumbar arachnoid injection. A marked febrile reaction resulted. March 14, this intravenous injection of serum was repeated, and 30 c.c. of 25 per cent. glucose were given in the same manner.

March 15, respiration rose to 38; March 17, the patient died in coma.

A necropsy was performed, and enough tissue has been seen to say that the lesions are similar in character and distribution to other cases of "lethargic encephalitis."

The following two histories were kindly furnished by the Army Medical Museum when the material for pathologic study was transferred to us:

Case 8.—Sergeant W. H. E., aged 27, white, admitted to the hospital, Jan. 22, 1919, about noon, complained of headache and seeing double, had been complaining of headache for three or four days, but did not seem sick. At the hospital he walked to the ward, but once in bed he dropped into a drowsy, semicomatose condition from which he could be roused to answer questions, but into which he would immediately return. Examination revealed nothing but fine râles in both chests. Blood culture was negative. He died at 6 o'clock the following morning, January 23, and was said to have had a convulsion before his death. No history of any drug habit or of recent drinking could be obtained from the man or his friends.

Case 9.—Private D. S., aged 23, white, a man of good habits, with no significant family or personal history, was taken sick, Jan. 23, 1919, complaining of severe frontal headache and pain in the eyes. He also found that he could not keep his eyes open, and he had been very drowsy since the onset. He was admitted to the hospital, January 25, at which time the only abnormality noted on examination was congestion of the eyes and enlargement of the tonsils. Nevertheless a provisional diagnosis of "acute encephalitis" was made.

During the following week the drowsiness of the patient persisted and there developed signs of organic neurologic disease — sluggish pupillary reflexes and diminished knee jerks and Babinski reflex, external strabismus and signs of meningeal irritability, Kernig's sign and stiffness of the neck, so that a diagnosis of "tuberculous meningitis" was made.

Another week passed in which the drowsiness of the patient deepened to stupor, and twitching of hands and arms was noted. The week following February 9 the patient seemed better, and would answer questions and smile; the reflexes at this time were found normal, but there was an ocular squint.

Toward the end of February, marked rigidity was noted, and the patient became markedly weaker. At this time the left retina was edematous. He died, March 3. Laboratory data were:

January 25, blood count, 14,600; polymorphonuclears, 83 per cent.
January 27, blood count, 13,600.
January 28, blood count, 16,600; polymorphonuclears, 74 per cent.
February 2, blood count, 15,600.
January 28, spinal fluid, 60 cells; globulin +.
January 31, spinal fluid, culture negative; smears revealed no organisms.
February 12, spinal fluid, no tubercle bacilli.
February 26, spinal fluid, 5 cells; globulin +; sugar +.
February 1, Wassermann test negative.
February 26, blood culture, sterile.

PATHOLOGIC EXAMINATIONS

Pathologic examination of four cases is given. As all four cases show varying degrees of what appears to be an identical pathologic process, the case presenting the most marked lesions will alone be given in detail:

Case 6 (Camp Meade, A:115).—Death occurred supposedly five days after the onset of symptoms. Necropsy was performed by Lieut. W. P. Finney four and one-half hours postmortem. The diagnosis from gross examination was: lobar pneumonia, very slight, right lower lobe; chronic fibrous pleuritis, right; moderate congestion of viscera. "No adequate anatomic lesions to account for death." The notes on the head at the necropsy were:

"The pia is thin and delicate; there is scarcely any fluid beneath it. The surface of the cortex is pinkish by numerous injected capillaries; the convolutions are not flattened. There is no exudate over the base of the brain, and only a small amount of clear cerebrospinal fluid. There is no bulging of the brain into the foramen magnum."

On examination of the formaldehyd-hardened brain at this laboratory the following notes were made:

Everywhere blood vessels, arteries and veins are considerably more prominent than normal, though not greatly so. The pia-arachnoid is nowhere certainly abnormal, although the cerebral markings underlying some of the sulci of the convexities are more obscure than normal. Similarly, over the base the nerve roots cannot be traced to their cerebral connections with the clearness that is usual. Films made from the cortical subarachnoid space show a few red corpuscles and a few mononuclear cells, some containing granules. The convolutions all seem a little flattened. On section, the ventricles are of customary size, the ependyma and choroid plexuses probably normal, though the latter are slightly redder than usual. Throughout, the cut surfaces show unusually prominent vessels; but no frank hemorrhage is seen and no other abnormality noted. Pieces were fixed in liquor formaldehydi and Zenker formaldehyd solution (formol).

Microscopic Examination.—Blocks were cut and embedded in paraffin, sectioned at 10 microns and stained with hematoxylin and eosin, toluidin blue, methylene blue and eosin, Mallory's connective tissue stain and neuroglia stains.

Sections from the cerebral cortex (temporal, occipital and parietal lobes) showed in each instance slight involvement of the meninges. The arachnoid appeared more prominent than usual because of an increased number of young cells and fibers which appeared to be concerned with the abnormally dense arachnoid trabecular network present in this case. In the meshes of these trabeculae were seen scattered red corpuscles and numerous mononuclear cells, mostly large and frequently with pigment granules or blood inclusions. No polymorphonuclear leukocytes and no organisms were seen. The cortical gray and subcortical white matter appeared normal except for engorgement of vessels (Fig. 1).

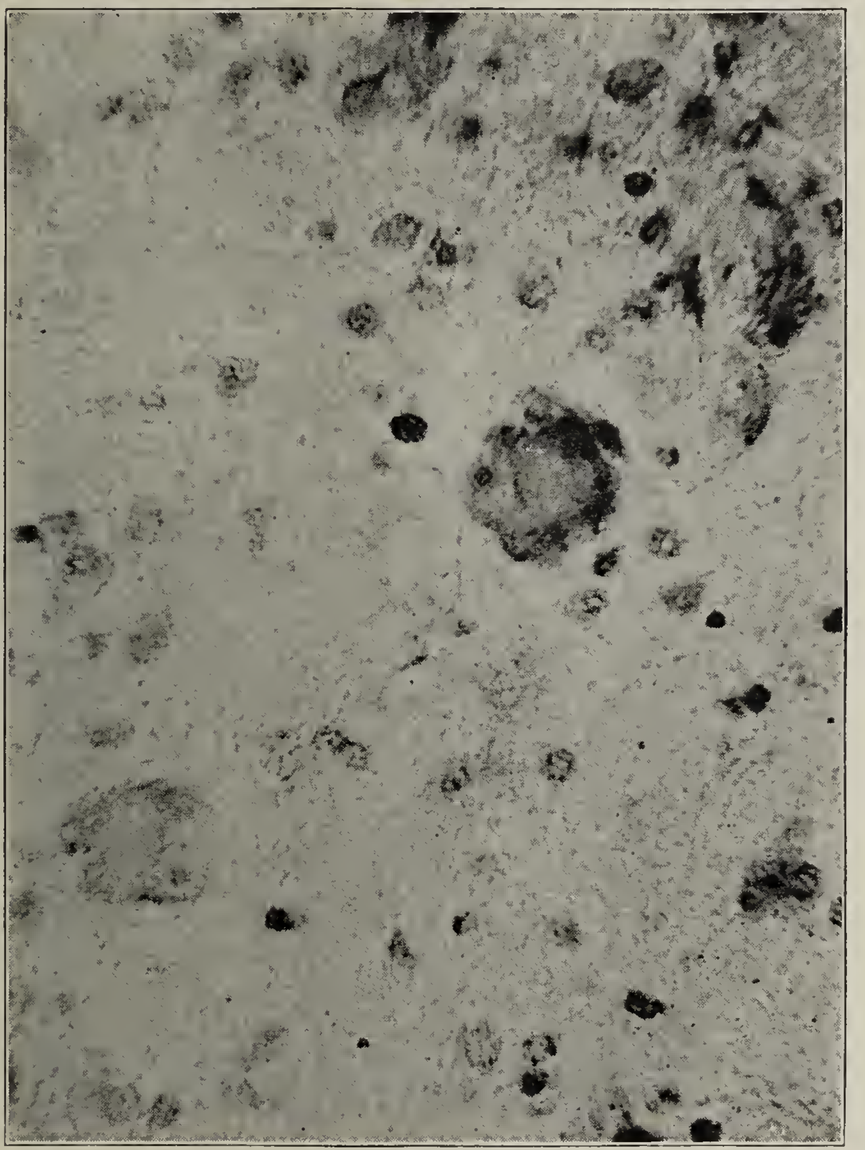

Fig. 4 (Case 6).—Midbrain, × 610; diffuse mononuclear exudate with neurophagia in gray matter near Sylvian aqueduct.

A single block from the internal portion of the brain showed the following: The corpus callosum contained two small hemorrhages, the larger just visible to the naked eye, evidently several days old, but without signs of reaction about it, and in the lenticular nuclei several vessels of small caliber showed in their perivascular spaces a few red corpuscles and mononuclear cells. This picture in much more conspicuous form in sections of the brain-stem will be described later.

The third and lateral ventricles, together with the choroid plexus of each, appeared normal, as did the fornix and internal capsule.

Six sections of the brain-stem were studied at three levels of the medulla, two of the pons, and one of the mid-brain. All sections showed an intense perivascular infiltration of many of the vessels, both large and small. The vessels lying just under the fourth ventricle most constantly showed this picture in the highest degree, and here too an occasional small hemorrhage was visible (Fig. 2). Perivascular infiltration was, however, not confined to vessels of the dorsal portion or to the gray matter, but was frequently intense in the region of the fiber tracts. Occasionally a vessel was cut in such a way as to communicate with the meninges, and the perivascular exudate might be seen extending out apparently into the subarachnoid space. Several vessels in the meninges cut transversely also showed collars of cells closely surrounding them; there was, however, no evidence of a generalized meningitis except of a very mild degree, as already described as occurring over the cortex (Fig. 3). That this perivascular infiltration was not confined to the central nervous system was also evident from such a vessel appearing in the root of the twelfth nerve. The cells making up this perivascular ring consisted chiefly of small mononuclear cells, some of which were unquestionably lymphocytes and plasma cells, and some larger mononuclear cells containing pigment granules; one cell was here seen in mitosis; also there was usually a number of red corpuscles, at times fibrin and frank hemorrhage. In many of the smaller vessels there was evidence of proliferation of the intimal cells of moderate degree; the walls of larger vessels appeared normal with the methods employed.

A second type of lesion was a diffuse invasion of the nervous tissue by mononuclear cells, including lymphocytes and plasma cells, and in some places by mononuclear phagocytes. This was especially true of the gray matter, but it was also seen in the white. Neither polymorphonuclear leukocytes nor organisms were seen. This diffuse invasion was always noted in greatest degree about engorged vessels and about those showing considerable perivascular infiltration. The nerve cells in areas of infiltration might be normal, but more frequently showed chromatolytic changes; only in the denser areas of cellular infiltration was there death of nerve cells and neurophagia (Fig. 4). Many cells thought to be young glia cells were present in these areas, and occasionally mitosis was visible; no young glial fibrils, however, were seen. While the exudate appeared predominantly in the gray matter, there was no evidence of selection for the nuclei of the cranial nerves. These, however, were seen to be affected, notably the motor nuclei and especially those of the fourth and the fifth cerebral nerves.

The cerebellum showed few examples of perivascular exudation and none of diffuse infiltration. The Purkinje cells with the methods used showed much variation in staining properties, and many appeared to be absent. This condition was also noted by Marinesco.

The spinal cord was not removed at necropsy.

Microscopic examination of the heart, small intestine, and lung failed to show vascular or exudative lesions as described in the brain, and in other respects appeared essentially normal.

Case 7 (Camp Lee, A-245).—Death occurred fifteen days from the onset of symptoms. Necropsy was performed by Lieut. C. H. Iden one hour postmortem.

The diagnosis from gross examination was old adhesive pleuritis. The primary cause of death was not determined.

A note on the brain at necropsy read: "Over the left parietal lobe there is moderate injection of the blood vessels. Spinal cord shows no abnormality."

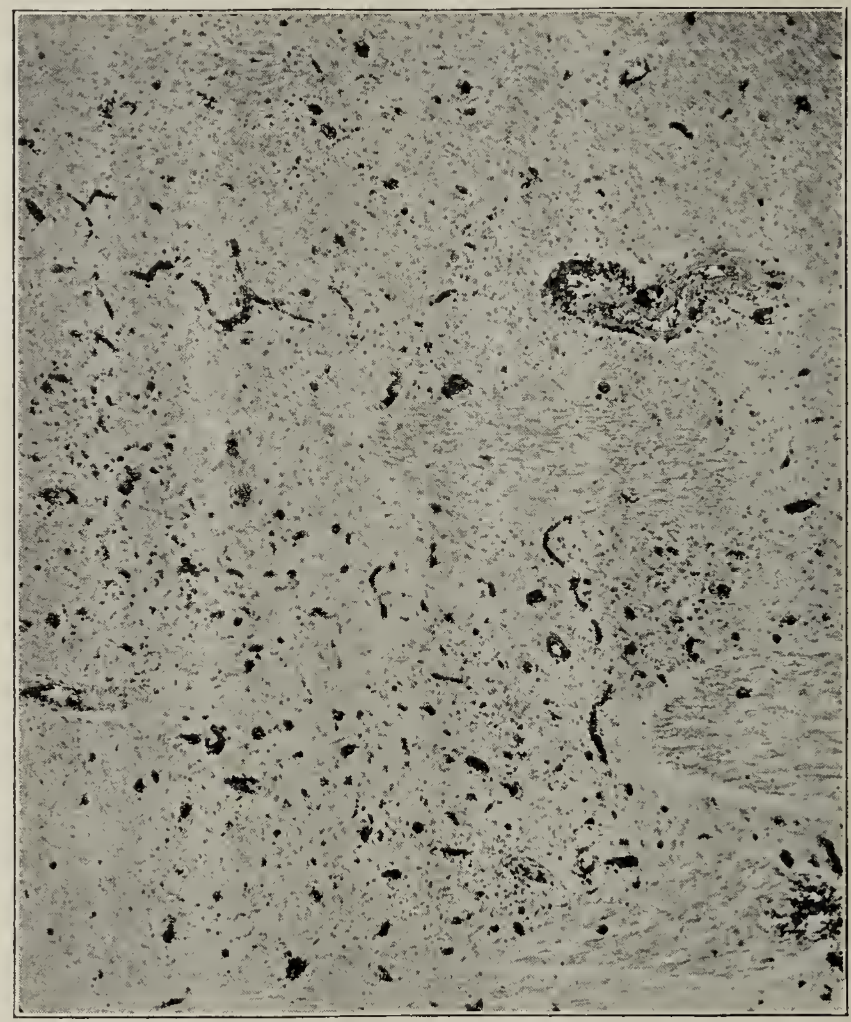

Fig. 5 (Case 8).—Midbrain, × 66; capillary engorgement and perivascular exudate; also diffuse exudation of white matter.

The formaldehyd-hardened brain in gross showed: "Only abnormality made out is intense congestion of all vessels, arteries and veins. No opacity of leptomeninges anywhere. Brain does not seem swollen. On palpation, however, whole brain is soft and feels as if ventricles were dilated. On section, however, this sense of fluctuation is found to be due to the softness of structure, the ventricles being normal in every way."

Blocks were cut and placed in Zenker-formeldehyd solution, embedded in paraffin, and cut and stained as in the previous case.

Microscopic Examination.—Two total sections through the medulla and three through the pons were studied. Perivascular exudate, similar in type to the foregoing case, was seen throughout the brain-stem from the lowest level (pyramid decussation) to the highest (the nucleus of the fourth nerve). The picture was less marked than in the first case both in the amount of exudate and in the number of vessels involved. The same distribution was shown, vessels in the gray matter about the canal, under the fourth ventricle, and around the aqueduct being most affected, although vessels in the fillet and anterior motor columns also are involved. The asymmetrical appearance of these vessels was striking. Diffuse cellular infiltration was neither extensive nor intense in this case, and was frequently closely confined to the region of vessels with perivascular exudate. Perhaps the greatest amount appeared in the medulla at the level of the twelfth and the tenth nerves, some of the nerve cells of which showed degenerative changes. Some sections, however, were entirely free from exudate, even in areas about infiltrated perivascular spaces.

In the basal ganglions and internal capsule very few vessels were seen to have little perivascular and intra-adventitial exudate; and no diffuse exudate appeared in this territory.

The cortex in three areas was essentially negative. An occasional vessel here presented only a few blood cells and granule-laden phagocytes in the perivascular space.

Sections at practically every level of the cervical cord, and two sections from the thoracic cord, showed rarely a little perivascular exudate, but no obvious abnormality of nerve cells.

The meninges presented a picture similar to Case 1, a small amount of free blood and numerous large mononuclear cells being present. No organisms anywhere were seen.

Case 8 (Camp Lee, 246).—Death occurred twenty-nine days from the onset of symptoms. Necropsy was performed five hours postmortem by Lieut. C. H. Iden.

Diagnoses from gross examinations were: myocardial insufficiency; dilatation of heart (right); right lung, hypostatic, pneumonia base, lobar; left lung, passive congestion; passive congestion of liver.

A note on the brain at necropsy read: "Blood vessels of the pia are markedly injected. The surface of the pia is of a more pinkish tint than normal."

The brain and spinal cord were immediately sent to the Army Medical School, where cultures and inoculations were made as described below.

At this time (twenty-eight hours after the necropsy), great engorgement of the cerebral and spinal vessels was the only abnormality noted. On section, the ventricles appeared of normal size and contained a small amount of clear fluid. The cut surface of the brain and cord everywhere showed dilated vessels but no hemorrhage nor other abnormality. Tissues were fixed in Zenker-formaldehyd solution.

Microscopic Examination.—Five sections from different parts of the cortex showed no abnormality other than a little free blood in the subarachnoid space.

Numerous sections from the cervical and thoracic spinal cord showed excessive vascular congestion, but only rarely a little perivascular exudate, and no diffuse infiltration and no certain nerve cell changes.

The brain-stem was studied in six sections, extending from a point just below the pyramidal decussation to the level of the third nerve nucleus. The same types of lesion were apparent in this case as in the two preceding, but were less marked and less extensive. In the medulla and lower pons the slightest possible perivascular exudate was seen in a few of the vessels, and no abnormality of parenchyma was evident. At the upper pons level, more vessels showed a moderate amount of exudate and there was an accompanying diffuse infiltration of the subependymal gray. Nerve cells, however, showed little change. More marked was the very considerable exudate which is seen in the white matter just external to the red nucleus, in the neighborhood of the substantia nigra. Here were seen large numbers of mononuclear cells (some phagocytic), lymphocytes and plasma cells (Figs. 5, 6 and 7).

Sections of the basal ganglions and internal capsule showed vessels with perivascular exudate in both. In the thalamus there were limited areas of diffuse parenchymatous exudate of mononuclear cells and cellular gliosis.

In the anterior lobe of the pituitary, two vessels showing perivascular infiltration were seen.

Throughout the brain there was the same slight mononuclear meningitis as described above.

Case 9 (Camp Custer, A-249).—Death in this instance occurred thirty-nine days after the first symptoms had manifested themselves.

At necropsy, the diagnosis from gross examination was: acute cardiac dilatation, right auricle and ventricle; congestion of all viscera. Erosion of stomach (postmortem?).

A note on the brain at necropsy read: "There is a slight flattening of the convolutions. The surface vessels of the brain are more engorged than usual. No changes are to be noted in or along any of the vessels. The pia-arachnoid is smooth and everywhere normal in appearance. . . . The whole brain is very soft. On section there is marked engorgement of all vessels, little droplets of blood welling up from all the vessels cut across. . . . The ventricles are not distended and the ependyma is normal. There are no changes to be made out in any of the cranial nerves."

Microscopic.—The lesions were the same in this case as in the others. Also the distribution was similar. Throughout the brain-stem, from the pyramidal decussation to the corpora quadrigemina, and in the lenticular and caudate nuclei and thalamus, there were many vessels surrounded by dense collars of mononuclear cells, frequently with blood elements intermixed. No hemorrhage into the parenchyma was seen.

If one may judge by the intensity of the perivascular and diffuse exudate, the severity of the process in this case was greatest in the upper region of the pons. In this case, more than in any other, was seen extreme invasion of the white matter, the lemniscus being the seat of intense mononuclear cell infiltration.

Here, as in other cases, there was no predilection for the cerebral nerve nuclei, and while abnormal nerve cells were seen, no typical picture of neurophagia could be found. Sections from all levels of the cervical cord appeared normal. The cortical gray showed no abnormality, but in the subcortical white matter there was an occasional vessel with a small amount of exudate or merely a cell or two.

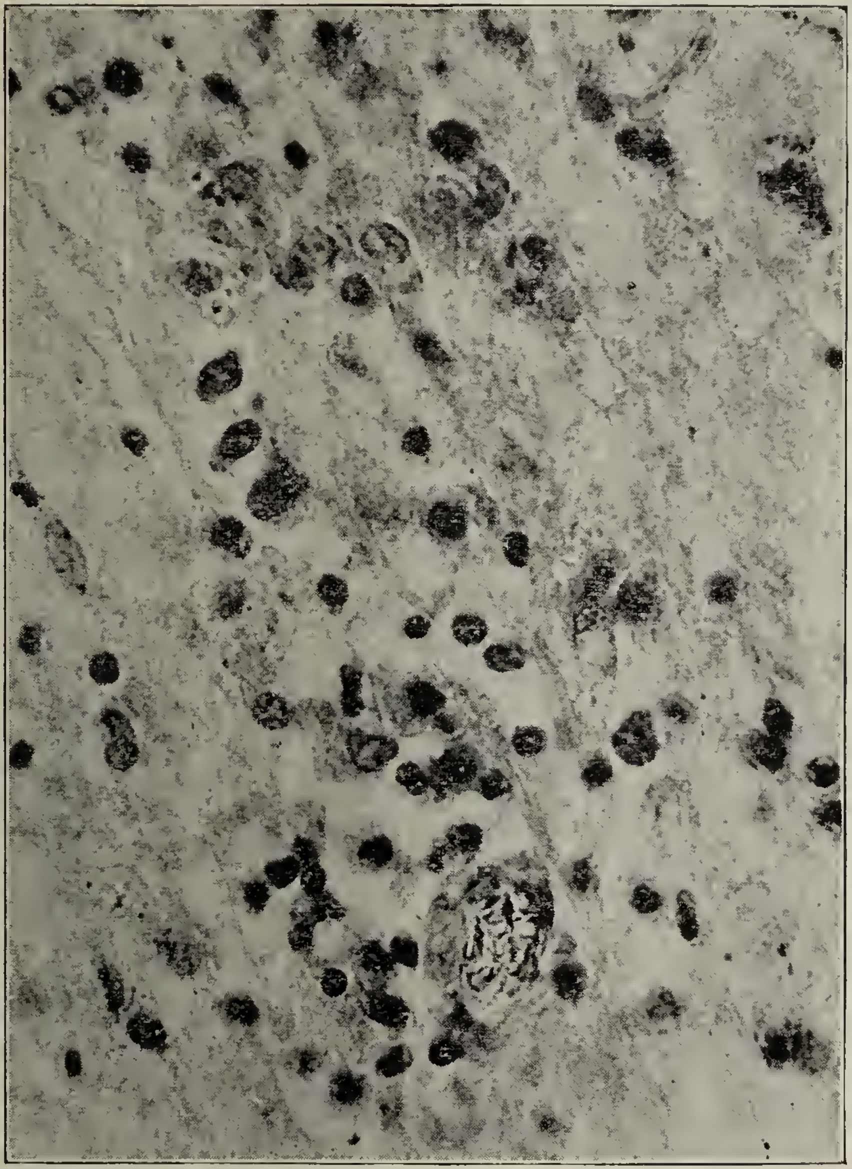

Fig. 6 (Case 8).—Midbrain, × 720: same area as Figure 5; type of diffuse infiltration with plasma cells and lymphocytes.

SUMMARY OF PATHOLOGIC FINDINGS

The pathology of these four cases of so-called "lethargic encephalitis" was presented with a varying degree of completeness. The brains all appeared alike. A great degree of engorgement of all vessels was conspicuous; moreover, the pia was noted as pinker than normal, and this is explained by the free blood present in the meninges. The brains were abnormally soft to touch. In every case the chief seats of the lesions were the brain stem and the basal ganglions. The important lesions may conveniently be divided into (1) perivascular exudation, and (2) diffuse infiltration of parenchyma. While both types of lesion vary greatly in intensity, extent and symmetry, they were seen especially in the gray matter about the canal, fourth ventricle and aqueduct, though deeper tissues were also affected, and white matter was not spared. The cells concerned in both types of lesion were all mononuclear; a small mononuclear cell and a large mononuclear cell, frequently phagocytic, many of which appear to be neuroglia cells, together with the lymphocyte and plasma cell, were recognized. Polymorphonuclear leukocytes were conspicuous by their absence even in the case of short duration. Mitotic figures appeared in small numbers both in the perivascular and in the diffuse exudate. That the two processes were interrelated is apparent from the appearance of diffuse exudate chiefly in the immediate neighborhood of affected vessels. That the diffuse infiltrating exudate was not necessarily related to a destructive process is borne out by the normal or only slightly changed appearance of nerve cells in its midst; however, when the exudate was excessive, marked nerve cell changes, including neurophagia, resulted.

Bacteria were sought for with care and none were seen.

Lesions that may be considered subsidiary in our cases were hemorrhage and meningitis. Hemorrhages were few in number and very small, so insignificant, in fact, that they utterly failed of detection in the gross examination. However, a certain amount of free blood and fibrin, mixed with the perivascular exudate, was frequently seen. Blood vessel changes were of two types. There was almost constantly evidence of proliferation of the intima in vessels in areas of exudation, those in unaffected territory usually showing no abnormality. The second type of lesion noted was infiltration of the vessel walls (especially intra-adventitial), with mononuclear cells, chiefly lymphocytes and plasma cells. This condition was observed by itself in the meninges (Fig. 3) and associated with perivascular exudate in the substance of the brain. It is likely that more of the exudate was intramurally situated than appearance indicates; this would explain the very moderate cellular infiltration of the meninges and associated low cell-count in the spinal fluid.

The cord and organs in the cases examined appeared essentially normal. It is unfortunate that no notes on the root ganglions are available.

Lesions in the cerebral cortex were in all either nonexistent or negligible.

EXPERIMENTAL INOCULATIONS

Inoculation experiments were carried out with fresh material from Case 8 at the Army Medical School, Washington, by Colonel Russell. Under aseptic precautions the spinal dura was opened twenty-eight hours after death, and cultures (aerobic) were taken from the subdural and subarachnoid spaces, respectively; these cultures were found to be negative. With sterile precautions, specimens from three levels of the cord were then removed, macerated with sand and saline, and filtered through cotton. Injections with the filtrate were made as follows:

Monkey 1 received 1.2 c.c. by intracerebral inoculation. Monkey 2 received 2.5 c.c. by lumbar subarachnoid injection. A rabbit and a guinea-pig each received 1 c.c. intraperitoneally. A mouse received 0.5 c.c. intraperitoneally.

None of these animals became in any way sick, the monkeys remaining under observation for seven weeks.

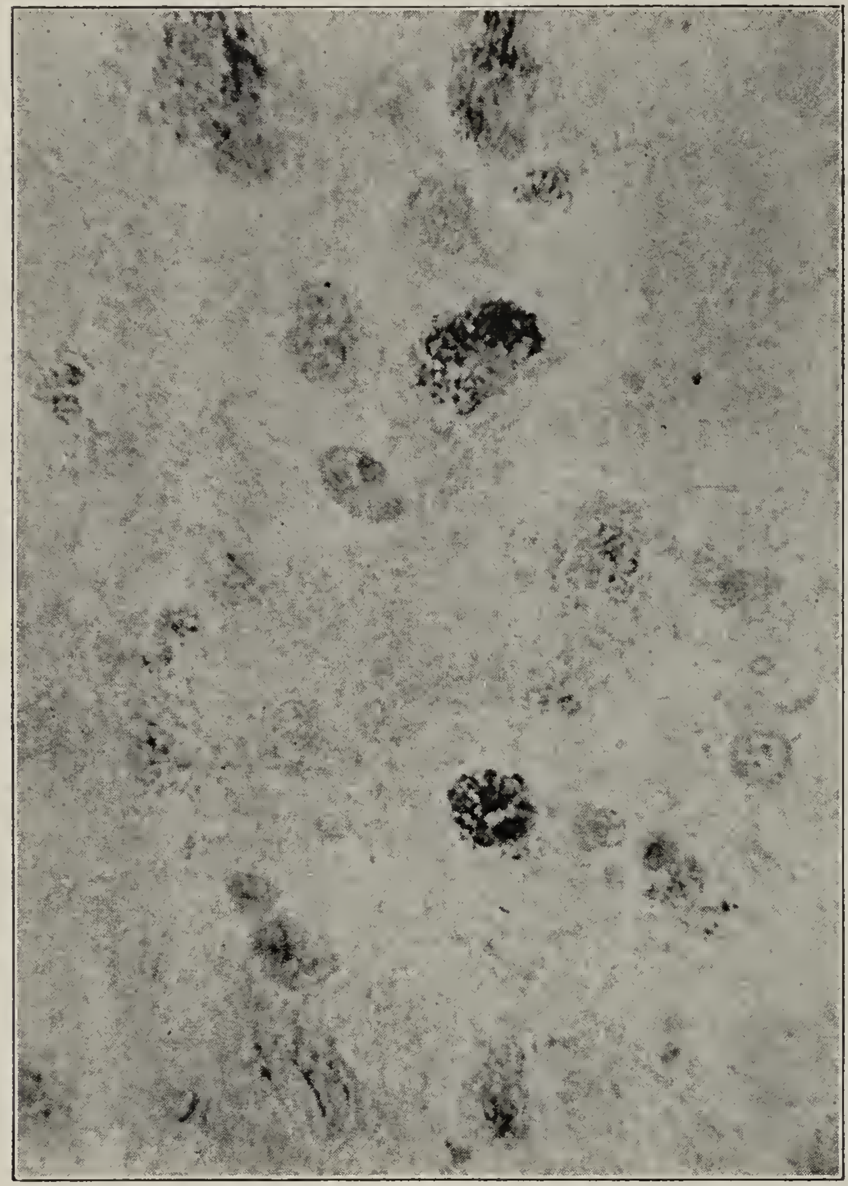

Fig. 7 (Case 8).—Midbrain, × 1060: same area as Figure 5; granule-laden mononuclear phagocytes.

Cultures taken from the lateral and third ventricles (twenty-eight hours postmortem) were negative.

The failure to reproduce the disease in these two monkeys does not exclude definitely the possibility of future transmission to such animals, for in the first place the filtrate used was from the spinal cord, which did not show pathologic changes to any extent, and secondly, the patient died late in the course of the disease (twenty-ninth day).

From Patient 3, eleven days after the earliest symptoms, spinal fluid was removed and injected as follows:

Monkey by lumbar inoculation, 3 c.c. Rabbit by puncture of the cisterna magna, 2 c.c. Rabbit by puncture of the cisterna magna, 2 c.c., together with a small amount of horse serum given to produce a sterile meningitis.

All of these animals remained unaffected.

SUMMARY

All of the nine cases presented may be logically grouped under the title "lethargic encephalitis."

The onset of symptoms was always insidious, headache, malaise, weakness and vertigo being commonly complained of. Early symptoms of probably greater significance were sore throat, diplopia and always fever. That the prodromes are likely to be confusing is certain from the diagnosis "hysteria" having been made in two cases, in one of which the patient died within five days of the onset.

It was unusual to find signs of organic nerve disease in the first week of illness, and although symptoms referable to such disease undoubtedly occurred early, they were usually of such transitory character that their significance was often not appreciated until later.

By the second week—sometimes later still—a widespread organic neurologic disorder became evident, when cerebral symptoms appeared. Drowsiness occurred in almost every case, frequently developing into coma, and at times alternating with a state of irritability or anxiety. In spite, however, of an apparently clouded mental condition, orientation and cerebration were usually unaffected, until just before death.

Long projection fiber tracts to arms and legs showed profound disturbance in seven cases, as indicated by ataxias, spasticities, the Babinski reflex, and clonus. The only symptoms and signs of a focal character were referable to the brain-stem, and these were present in all. Diplopia was complained of in seven of the nine cases, although, curiously enough, oculomotor palsy was seldom actually seen, doubtless because of its transitory nature. The second most frequent focal disorder was weakness of the facial muscles, usually one-sided, a condition seen in five cases. Pupillary disturbance, irregularity, inequality and abnormality of reaction were common, and weakness of the jaw muscles was observed three times. Profound disturbance of respiration was twice noted.

Several points on the clinical side should be emphasized; the insidiousness of the onset, the recurrent and incomplete nature of the paralyses, and implication of cerebral nerves confined to motor function. To this add spasticities and ataxias caused by interference with the projection fiber systems, and a syndrome is presented which is admirably explained by the diffuse infiltrating exudative process of this disease.

The symptomatology and pathology as shown in our cases correspond very closely with the descriptions as given from France, Vienna, and England, and with other reports from this country.

As to etiology: Wiesner and Breinl assert that they have transmitted the disease to monkeys, but the former apparently did not see the organism in the original tissue, and the cases of the latter as reported suggest more typical poliomyelitis rather than this disease. Marinesco finds two types of organisms in his slides. We have neither seen organisms, nor have we been able to grow them from the cerebrospinal fluid or from the nervous system postmortem; inoculation experiments, so far as they go, are negative, as were those of McIntosh. It is our opinion, however, that further attention should be given to inoculation work.

We wish to acknowledge here the valuable service rendered to us by Major Tasker Howard at Camp Lee, Major Russell Cecil and Lieut. John E. Dwyer of the Army Medical School, and Major R. G. Hussey and Lieut. Henry R. Muller of the Army Medical Museum.

THE DISPOSITION OF THE SAC IN HERNIA

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CHICAGO

Since the earliest times, efforts have been made to cure hernia by operation, and these efforts have constantly been renewed and methods have been improved on because of the unreliability of the older methods of retention. Good results were not obtained until the beginning of the antiseptic era, and at the present day the procedures formerly adopted have only a historical interest. For centuries the radical operation was practiced only by strolling laymen, who were known as "hernia cutters" (Bruchschneider). The results were poor; and in the most frequent variety, the inguinal hernia, the ligation of the sac was always accompanied by castration. For this reason the operation fell into disrepute. The craft was considered dishonorable; and in the eighteenth century, when reputable surgeons began to operate for the relief of hernia, the hernia cutters completely disappeared.

The first to apply antiseptics to the surgery of hernia were the English. They were promptly followed by the Germans, who became extreme antiseptists, and commenced to cut freely on reducible hernia. The Americans, who were largely influenced by the German school, soon followed, while the French and Italians have been the latest to adopt kelotomy.

It is my purpose here to present the various methods of the disposition of the sac, and to submit for consideration a method which I have been unable to find in the literature, and which I have found to be very successful.

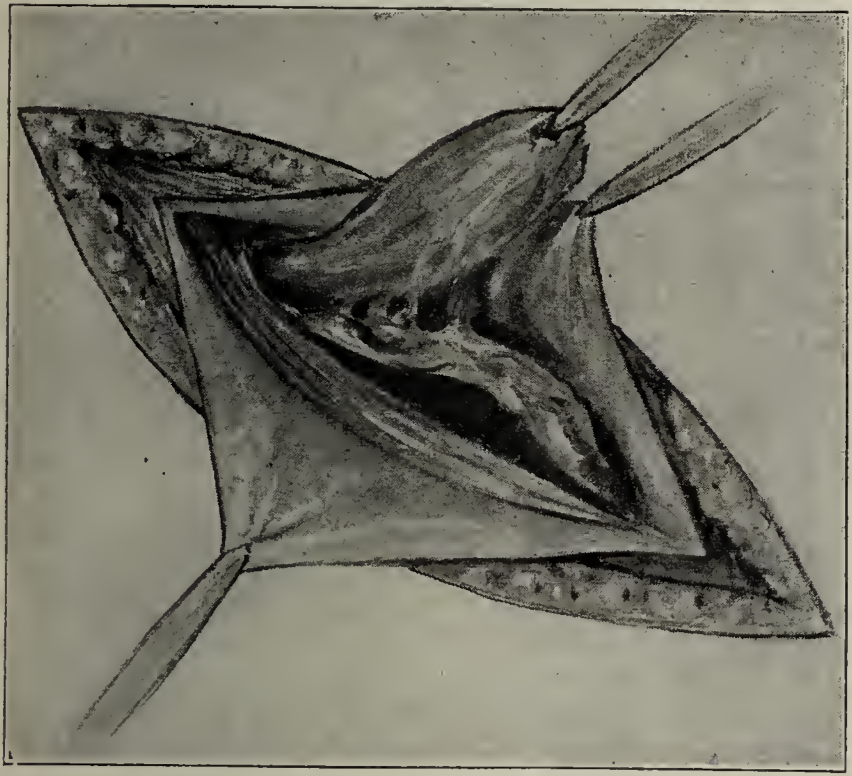

Fig. 1.—Isolation of the sac from the surrounding structures well into the internal abdominal ring.

THE BASSINI METHOD

1. The Bassini method is doubtless the most common. When the sac has been exposed at the site of the superficial ring, it is traced backward through that opening to its junction with the parietal peritoneum lining the general peritoneal cavity; then after opening it is removed flush with the parietal peritoneum by transfixation and ligature. Then it is cut away, the stump retracting into the abdomen.

2. When the sac cannot be isolated flush with the parietal peritoneum, owing to adhesions to the wall of the sac or in sliding hernias, the sac is transfixed by ligatures as high as possible, the redundant sac is cut off, and the stump is brought underneath the muscles (conjoined tendon) by a staple suture.

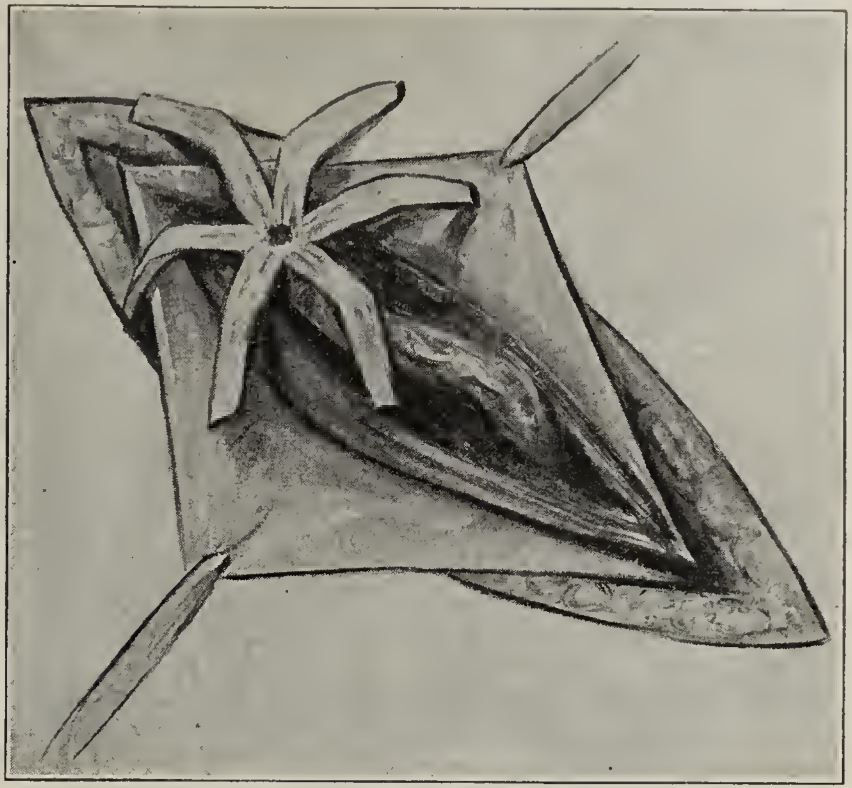

Fig. 2.—Sac cut into six ribbons.

MACEWEN'S METHOD

3. The Macewen method consists in throwing the sac of the hernia into a series of folds by the introduction of a suture along the length of its long axis and then fixing the retracted sac into the tissues near the site of the deep ring.

KOCHER'S METHOD

4. *Original Method.*—A. An incision is made through the aponeurosis of the external oblique above and external to the site of the deep ring sufficiently large to introduce a pair of forceps down the inguinal canal. The forceps catch hold of the sac and drag it bodily upward and outward through the opening in the aponeurosis, and there it is fixed in front of this layer by means of suture.

B. *Modification of Method. Invagination and Transplantation (Verlagerung).*—This method is used when the sac is complete, not incised or torn in previous manipulations. Curved dressing forceps grasp the apex of the sac; the sac is then invaginated around the forceps; the forceps now enter the external oblique ring and pass underneath the aponeurosis of the external oblique until it is opposite the internal ring. A small incision is made in the aponeurosis over the forceps and deepened until it cuts through the external layer of the sac. The invaginated sac is grasped by artery forceps, pulled out and caught, transfixed, ligated and cut away, and the stump is allowed to slip back.

C. *Modification of Method. Lateral Transplantation (Verlagerung).*—This method is used if the invagination method is impossible because of the shortness, tension, and thinness of the sac, or when it has required incision. The tip of the sac is caught in curved dressing forceps and is then passed through the external inguinal ring underneath the aponeurosis of the external oblique up to a point opposite the internal ring. At this point a small incision is made in the aponeurosis, and through it the sac is pulled out (not invaginated), then pulled taut, transfixed, ligated and the distal portion cut away. The stump slips back and the small incision in the aponeurosis is sewed up.

BALL'S METHOD

5. By Ball's method the sac is twisted into a dense cord, so as to throw it into a series of folds, thereby producing a prominence internally rather than an infundibuliform depression. To prevent untwisting, a ligature is tied as high as possible, and it is also transfixed below the ligature by a suture, the ends of which are passed through the abdominal parietes.

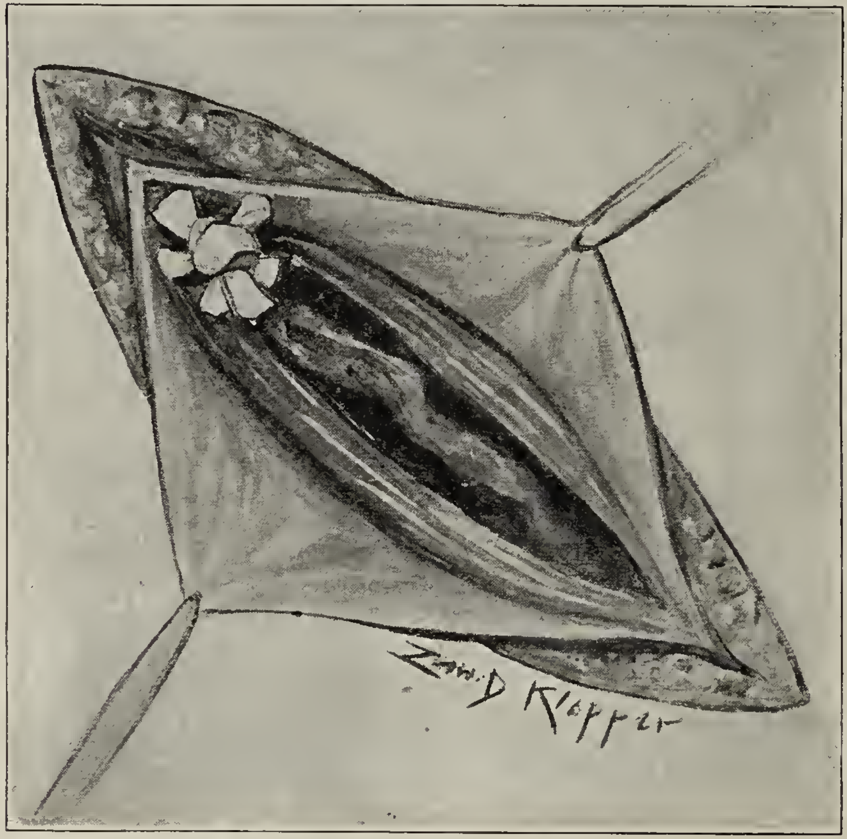

Fig. 3.—Pad of knotted sac ribbons after tying of each pair of ribbons, but not yet replaced into the internal abdominal ring.

BARKER'S METHOD

6. In Barker's method, the neck of the sac is isolated, ligatured and divided, the fundus being left in situ, while the suture used in tying the neck is employed as the first suture to close the deep part of the canal. By this means it is hoped that the neck of the sac will be displaced and, hence, more satisfactorily occluded—which I doubt very much.

AUTHOR'S METHOD

The method which I would present I term the "auto sac closure." It consists (when the sac is long enough) in the usual isolation of the sac from the cord and the surrounding structure well into the internal abdominal ring. When the sac is opened at its apex, it is freed from its contents and divided longitudinally into four, six or eight ribbons, which run nearly to the base of the sac. Then each opposite two ribbons are seized with hemostats and tied together with a single knot, each successive knot overlying the preceding one, thus forming a solid pad of the sac itself. To prevent slipping of the knots, a catgut ligature, if desired, can be placed around the entire knot and the ribbon ends cut off. Then this pad of knotted sac ribbons is reduced into the internal ring, and one proceeds with the usual method of closure of the canal.

The advantages of this method are:

1. The solid bulwark of knotted sac which lies internal to the internal abdominal ring prevents the abdominal contents from again descending into the canal.
2. It does away with the infundibular shape of the sac, which is conducive to recurrence.
3. There is less likelihood of transfixing any of the sac contents by ligature.
4. The introduction of a foreign body like catgut into the peritoneal cavity, especially if it should not be sterile, is eliminated, though this point, to be sure, is of minor importance.

I have used this method in innumerable cases in my service at the Michael Reese Hospital, and have yet to see a recurrence of the hernia.

5 North Wabash Avenue.

EXFOLIATIVE DERMATITIS DUE TO ARSPHENAMIN

REPORT OF A FATAL CASE

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It has been recognized for some time that arsphenamin could, when given intravenously, cause arsenical poisoning. At the base hospital at Camp Jackson, there have occurred four cases within the past five months. The most typical of these—a fatal one—is here reported.

This fatal result followed the intravenous administration of 0.8 gm. of arsphenamin. The case, in its general features, bears the stamp of arsenical intoxication. The clinical diagnosis was confirmed by abundant laboratory data.

REPORT OF CASE

J. C., a private, aged 27, in a routine examination of his company gave a positive Wassermann reaction. He had at that time no symptom or sign of syphilis, and denied any venereal history. His physical condition was excellent. An injection of 0.4 gm. of arsphenamin was given intravenously. The reaction following this was so marked that he was kept a week in the hospital. He was then sent to duty, although there was present, at the time of his discharge from the hospital, a peculiar keratoid condition of his face and neck. From his second dose, received one week later, he experienced no apparent reaction. Ten days following the second injection, he was admitted to a medical ward at the base hospital. On admission, he had no complaint other than that the skin of the face and neck was hard and red and knobby to the touch, and was burning and tingling considerably. Even then, the process was showing a tendency to generalize. On the skin of the face and neck, in addition, there were to be found areas of superficial branny desquamation. Where the process was oldest, the skin color had faded to a dull red. In the superficial layers there was a marked amount of a dirty brown pigmentation. The eyes were the seat of a moderate conjunctivitis. The ocular media were normal. The fundus showed no sign of inflammation. The external ear showed, from the first, a distinct seborrheic eczema, which was apparently an independent process, so markedly did it differ from the other skin condition.

There was, at this time, no demonstrable evidence of polyneuritis. Reflexes were equal and well balanced, and there were no sensory disturbances. It was only after the first week that he showed any laryngobronchial catarrh. At no time during his illness did he have abdominal pain or diarrhea. The urine content and output were within normal limits. Arsenic, while present in easily demonstrable amounts, was productive apparently of no renal irritation. The phenolsulphonephthalein output at this time was 60 per cent. for the two hour period.

Four days after admission, the patient's skin began to exfoliate. The skin of the face and arms showed this most markedly. As the exfoliation became generalized, there appeared a moderate fever. The pigmentation, mentioned before, became extreme; especially was this true in the axillae and on the forearms. At the same time the skin of the face—at first dry and hard—now began to fissure and to weep a viscous fluid, intensely disagreeable in its odor.

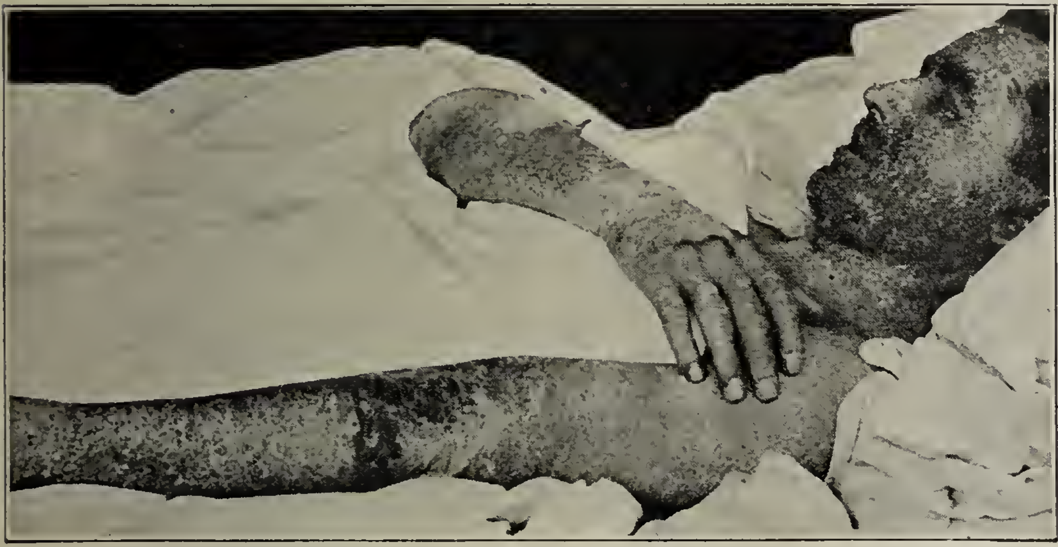

Fig. 1.—Exfoliative dermatitis: marked pigmentation.

Exfoliation became steadily deeper and more extensive, reaching its maximum about thirty days following the first dose of arsphenamin. The scales, which at first had been thin and parchment-like, now began to increase in size and in thickness and to slough away, leaving a basement layer which was soft and bleeding. With the scales disappeared the pigmentation. The mouth became very sore; especially was this true of the tongue, the papillae of which were enormously enlarged, the mucosa being covered by a thick fur.

Even at this time, four weeks after the first dose of arsphenamin, the only evidences of constitutional disturbance were the continuing moderate fever, and a pronounced and peculiar leukocytosis which will later be described in detail. The mind was absolutely clear. The skin inflammation, however, caused so much tingling and discomfort that sleep was impossible except as an effect of opiates.

Prior to the beginning of the deep exfoliation, the heart remained strong and the lungs clear. As the exfoliation progressed, toxic symptoms appeared and ran hand in hand with it. Blood pressure, which had up till then remained at 130 mm. or above, now sank to below 120 mm. The pulse rate mounted steadily, as did the fever. Râles appeared in the lungs; the voice became husky, and a slight, productive cough appeared. The picture was that of the so-called laryngobronchial catarrh, which is so often found in the literature referring to chronic arsenical poisoning.

Coincident with the foregoing, the urine output steadily declined, and there was, for the first time, a trace of albumin. During the seven-day period, the phenolsulphonephthalein excretion index sank from 60 per cent. to 37 per cent. for the two-hour period. The latter reflected accurately the progressive physical and mental deterioration of the patient. During the same seven-day period the nonprotein nitrogen of the blood remained low, at the conclusion of the period being 0.0576 gm. per hundred c.c., whereas one week before it had been 0.056 gm.

As the exfoliation became more and more extreme, mental hebetude gradually deepened. Now, for the first time since his admission to the hospital three weeks before, there was some sensory disturbance, in that the whole left upper extremity became very insensitive to both pain and temperature. The patient suffered very little now, probably because his mental acuity was so much decreased. Fever was constant, and showed a distinct tendency to rise. Stupor deepened into coma, and despite active eliminative therapy, light convulsions began to occur, these being preceded and followed by localized muscular tremors. As a result of hot packs, the mental condition cleared somewhat, and the convulsions disappeared; the general condition, however, remained very poor.

It was only after three weeks in bed that the patient began to waste. This may be explained partly by the fact that he suffered at no time from either vomiting or diarrhea, and partly by the circumstance that up to within a day or two before his death, he partook willingly of large quantities of liquid nourishment. Toward the end, however, his mouth became so sore that feeding by means of the stomach tube had to be resorted to. When wasting did appear, it was very rapid. The body was now devoid of skin, so far as function was concerned. Bleeding fissures extended down and in places through, the basement layer. The exposed deeper layers had none of the pigmentation and induration of the original process.

The blood vessels showed, early in the course of the disease, evidence of severe trophic disturbance, in that the blood would extravasate from the capillaries at the slightest trauma. In the toes, this was apparently spontaneous, but the condition was especially marked in the fingers following needle puncture for blood counts. That this condition was due to blood vessel degeneration, rather than to any fault of the blood itself, is indicated by the fact that the coagulation time remained within normal limits throughout, never going above seven minutes.

The eyes, which had, as noted before, from the first shown a conjunctivitis, now began to show evidence of involvement of the deeper structures. The globes became sunken and flaccid, and there was decided atrophy of the orbital fat. The media became too cloudy to admit of fundus examination. When last seen, there was no optic atrophy. Cultures made of the conjunctival sac showed only the white staphylococcus.

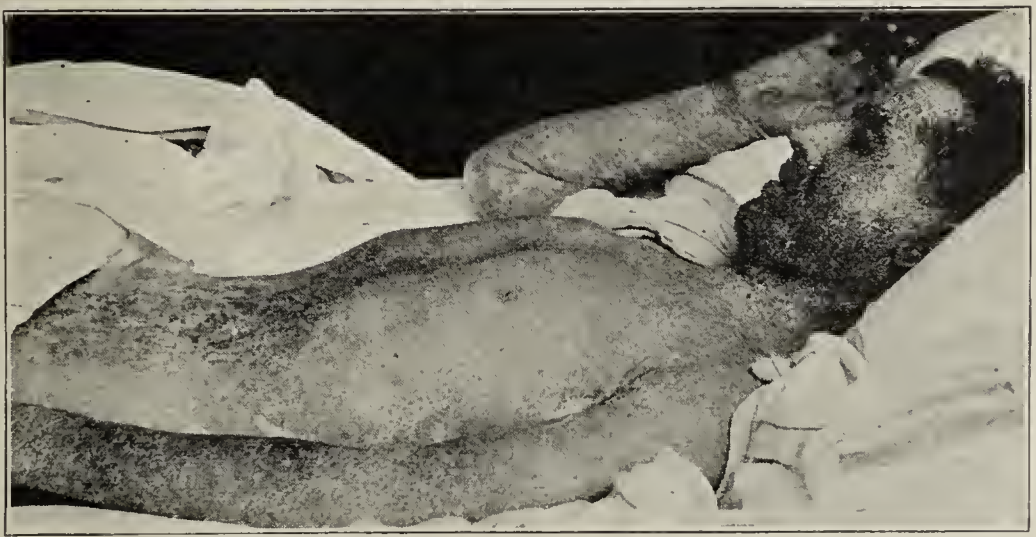

Fig. 2.—Exfoliative dermatitis: more advanced stage, with increased pigmentation.

On the thirty-fourth day after his first dose of arsphenamin, the patient lay in coma. The lung signs, which had been those of a moderate bronchitis, now began to be those of a bronchonpneumonia. The heart sounds became almost inaudible except for the sharp snap of the second pulmonic. The patient's condition progressively deteriorated and he died on the thirty-eighth day following his first dose of arsphenamin.

The laboratory data, especially the blood picture from day to day, constitute the most interesting feature of the case.

TRACES OF ARSENIC IN URINE

The urine showed traces of arsenic as late as the thirty-fourth day. The urine remaining in the bladder after the patient's death also showed presence of arsenic. It was only toward the end that there was evidence of renal irritation. Considering the comparatively small dose of arsphenamin administered, it is rather remarkable that arsenic appeared so long and so consistently. Severi[1] found in repeated experiments that, with a single dose of toxic quantity administered by mouth, the metal was completely eliminated within five days, provided the kidneys were previously normal. Witthaus[2] considers this to be the usual result. Almqvist and Welander,[3] however, found weighable quantities in the urine as late as sixty days after the stoppage of the poison. The latter condition is more apt to occur when repeated small doses have been given. Yet Wood[4] found arsenic in the urine as late as ninety-three days after a single toxic dose. In the case under discussion, the slight renal irritation which developed toward the end cannot with justice be ascribed to arsenic, when one remembers the extreme impairment of skin function. Certainly, if it had been due to arsenic it might have been expected to exist from the first; but such was not the case.

The total arsenic equivalent of the drug given was a little over 2½ grains. As might have been expected from the smallness of the dose, it was only after large quantities of the exfoliating skin were subjected to test that arsenic was found in it.

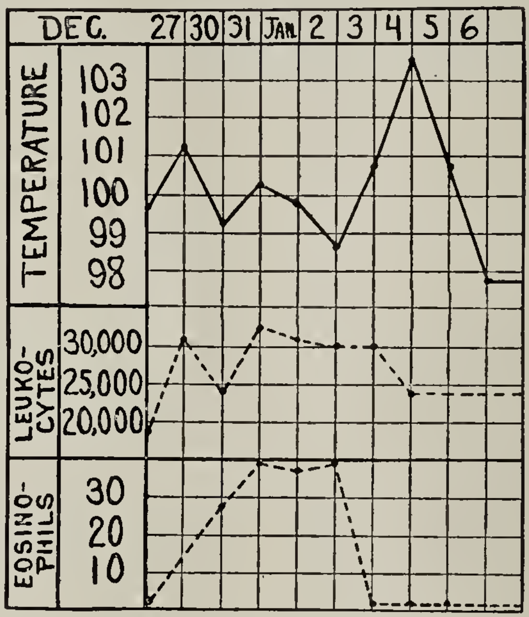

Fig. 3.—Relation between fever, leukocytosis and eosinophilia: Black line, temperature; upper broken line, leukocytes; lower broken line, percentage of eosinophils in the peripheral blood.

The blood showed consistently a high polymorphonuclear leukocytosis. This persisted up to within a day before the patient's death, being closely related in degree to the height of the fever. As exfoliation progressed and skin function began correspondingly to suffer, there appeared a remarkable eosinophilia. The latter condition is found in many skin diseases, notably in pemphigus and dermatitis herptiformis, psoriasis and eczema. In all of these, however, the percentage runs usually between 5 per cent. and 15 per cent., being seldom above. At the crest of this patient's illness, the eosin cells formed over 40 per cent. of the total leukocytes. At one time there was transient improvement in the patient's condition. It was then that the eosinophils were most numerous. As the man's resistance lowered, they disappeared from the peripheral blood. During the last three days of his life, the percentage sank to zero. The accompanying chart shows graphically the relation between the fever leukocytosis and eosinophilia.

NECROPSY FINDINGS

There was everywhere evidence of atrophy of the subcutaneous fat. The tissues themselves were very dry.

The lungs showed an extensive passive congestion, and, at the right base, was an area of bronchopneumonia.

The heart and liver were soft and pulpy to the touch, and in many places showed extensive areas of fatty degeneration. The spleen was large, very soft and pulpy.

The kidneys were somewhat congested, but did not show either macroscopically or microscopically any definite nephritis. The suprarenals were decreased in size, and the medulla was replaced by a waxy white substance, which no longer took the chromic stain.

The mucosa of the stomach and the intestine was covered by an adherent mucus; chemically, it showed the presence of arsenic. It must be remembered that the bowel is a very important pathway for the excretion of the poison from the body.

Analysis of the liver, brain and skin, as well as of the pericardial fluid, revealed the presence of arsenic.

SUMMARY

1. A fatality followed a therapeutic dose of arsphenamin, the equivalent of less than 3 grains of metallic arsenic.

2. Diarrhea and vomiting were absent during all stages of the intoxication.

3. Nephritis was not a marked feature at any time, and appeared only at the end.

4. There was apparently a decided affinity of the poison for the skin or for the trophic nerves supplying it. From first to last all the toxic symptoms may logically be ascribed to impairment of skin function.

5. Arsenic was persistently present in the urine. This was remarkable in the absence of accompanying renal inflammation.

6. There was a high leukocytosis and eosinophilia, the latter related closely to the patient's resistance. The height of the leukocytosis followed that of the fever.

7. Arsenic was found at necropsy in every tissue in which it was sought.

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[1] Severi: Ann. di chim. et di farm. **18**: 33, 1893.

[2] Witthaus: Manual of Toxicology, p. 547.

[3] Almquist and Welander, quoted by Heffter: Ergebn. d. Physiol. **2**: 115-116, 1903.

[4] Wood: Boston M. & S. J. **118**: 414, 1893.

Tuberculosis in Brazil.—According to the statements of Dr. O. Clark in a recent pamphlet on the need of organizing a Service of School Hygiene in Rio de Janeiro, tuberculosis causes an average of 4,000 deaths every year in the urban section of that capital, in spite of the fact that the climate is most mild, the air most pure, that there is plenty of sunshine; no congestion of population, no factories, and no subways; that there is no poverty, nor any alcohol problem; that the temperature changes but little all the year round, and that there are plenty of gardens and parks and miles of beaches. It is estimated that among all the large cities of the world, Rio de Janeiro has proportionally the largest tuberculosis mortality. Taking as a basis the usual proportion between deaths and cases, the above figures mean that there are at Rio de Janeiro all the time 40,000 cases of open tuberculosis.

THE FUNCTIONS OF THE INTERCOSTAL MUSCLES [*]

FURTHER OBSERVATIONS

C. F. HOOVER, M.D.
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In two former publications[1] I sought to show how observations on the respiratory movements of the costal margins give us information which enables one to gain definite conceptions about the conformation of the diaphragm. Briefly stated, the intercostal muscles and the diaphragm are antagonists. The minus barometric pressure produced in the pleural cavity during inspiration is due entirely to the excursion of the ribs and the diaphragm. The costal excursion increases the capacity of the thorax in its anteroposterior and transverse diameters, and the phrenic excursion alone increases the longitudinal diameter of the thorax. If all these muscles are activated at the same moment, it is clear that to accomplish an excursion of the ribs and diaphragm, the intercostal muscles and the diaphragm must each reciprocally overcome the minus pressure created by the other. The diaphragm must overcome the minus pressure produced by excursion of the ribs before there can be phrenic excursion, and the intercostals must overcome the minus pressure produced by excursion of the diaphragm before there can be any costal excursion. The lower six intercostal muscles and the diaphragm are also antagonists in controlling the movements of the costal borders.

Unopposed by phrenic action, the intercostal muscles will cause the entire costal margin to move away from the median line and, unopposed by the intercostals, the diaphragm will draw the entire costal margin toward the median line.

If the diaphragm is paralyzed, or its costal attachments are cut away, the outward movement of the costal margin will be greatly exaggerated. If the intercostal muscles are paralyzed, the costal margins will move toward the median line during inspiration.

The intercostal muscles and the diaphragm are antagonists in determining the direction in which the costal margins will move during inspiration, but the direction in which the costal margins may move does not in any way express the intrapleural pressure during inspiration. Nor does the direction in which the costal margins move give expression to the inspiratory excursion of the lung. In other words, there may be adequate (not normal) inspiratory enlargement of the lungs in all three dimensions whether the costal borders move in a median or a lateral direction.

Former interpretations of respiratory movements of the costal borders were based on the experiments and interpretation of Duchenne, which considered only the factor of increased intra-abdominal pressure during descent of the diaphragm as the source for lateral movement of the costal borders.

CONTROL OVER COSTAL MARGINS

I proved by clinical observations and animal experiment that the balance of control over the costal margins depended on the arch of the diaphragm. In human beings the intercostal muscles have a small margin of superiority over the diaphragm in determining the direction in which the costal margins will move. The more nearly the curve of all, or any part of, the diaphragm approximates a plane, the greater the mechanical advantage will that part of the diaphragm have in control of the costal margin to which it is attached. The anteromedian portion of the diaphragm is less arched than its lateral-posterior portion; consequently less depression of the anteromedian portion is required to give that part of the diaphragm mastery over the costal margin to which it is attached than is required in the case of the lateral-posterior part of the diaphragm.

The phrenic muscle fibers which underlie the pericardial sac are assigned to the costal margins from the subcostal angle to the eighth cartilage on the costal margin. When all the chambers of the heart are enlarged, as in decompensated hearts from myocardial or mitral disease, and when the pericardial sac is enlarged, then the anteromedian or sternocostal part of the diaphragm is depressed, and, as a consequence, the examiner will see a symmetrical narrowing of the subcostal margin during inspiration; but beyond the eighth costal cartilage the costal margins are seen to move away from the median line during inspiration.

The balance of control over the costal margin is so nicely adjusted, and depends so wholly on the curvature of the diaphragm, that any asymmetry of phrenic curve to the two sides of the median line will make itself apparent in asymmetrical movement of the costal margins.

If the left ventricle is enlarged and the right ventricle and right auricle are not greatly enlarged, the left costal margin (to the eighth rib) will move less in an outward direction than the corresponding right side, and the left side may move toward the median line if there is sufficient flattening of the diaphragm. If the right ventricle and right auricle are enlarged, and the left ventricle is not enlarged, then the right costal margin, as far as the eighth rib, will be restricted in its outward movement and may, indeed, move toward the median line with inspiration. So the direction of movement of the subcostal angle and the symmetry, or asymmetry, of movement of the two sides may be employed to interpret the arch of that part of the diaphragm underlying the pericardial sac; and, inferentially, we gain valuable evidence concerning the size of the pericardial sac and also evidences of the size of the left ventricle, right ventricle and right auricle.

SYMMETRY OF MOVEMENT

The symmetry of movement of the entire costal borders gives evidence of the symmetry of the right and left vaults of the diaphragm. Any condition which will increase the arch of one side of the diaphragm, such as enlargement of the liver or subphrenic abscess, will cause the costal margins to move farther laterally, and more promptly, than the costal margin of the other side. When the right thorax, in one instance, was filled with pus which followed the rupture of a large subphrenic abscess through the diaphragm, the right costal margin moved farther away from the median line during inspiration than did the left margin where the lung was perfectly normal.

The movement of the costal borders is a reliable index of the elevation or depression of the arch of the diaphragm.

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[*] Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Hoover, C. F.: The Functions of the Diaphragm, Arch. Int. Med. **12**: 214 (Aug. 1913; Diagnostic Signs From the Scaleni, ibid. **20**: 701 (Nov.) 1917.

When the lung is enlarged by atrophic emphysema or by hypertonus of the bronchiolar musculature, the costal margins are drawn toward the median line during inspiration.

In cases of pneumothorax and empyema, when the under surface of the diaphragm is convexed, the costal margin moves away from the median line during inspiration. When air is released, or fluid is aspirated so that the leaf of the diaphragm is no longer convex on its under surface, the costal margin will move toward the median line when the diaphragm is activated, although under such conditions there can be no phrenic excursion.

The movement of the costal margin is determined by the activation and arch of the diaphragm and is not dependent on the excursion of the diaphragm.

The failure to differentiate between evidences of excursion and evidences of activation of the phrenic leaf, and the failure to appreciate the mechanical significance of the diaphragmatic arch have led to misinterpretation of the action of the diaphragm.

Study of the respiratory movements of the costal margins gives valuable information concerning the conformation of the entire diaphragm, and it also enables us to recognize any disturbance of balance between the intercostals and diaphragm when the existing impairment is on the part of the intercostal muscles.

In former years, when evidences of excursion were wanting, the diaphragm was supposed to be paralyzed, and no significance was attached to the direction or degree of excursion of the costal margins.

The excursion of the abdominal wall is a measure of the excursion of the diaphragm, but the excursion of the costal margins simply indicates the resultant of the two forces which are evidenced in the direction and degree of excursion of the costal margin. These two forces are derived from phrenic and intercostal muscle activation and must not be confused with evidences of excursion of the diaphragm.

PHRENIC AND INTERCOSTAL MUSCLES

The more nearly the phrenic muscle approximates a plane, the greater mechanical advantage will it have in procuring mastery of the costal border; and the more curved the plane of the diaphragm, the less evidence will there be of its activation. It matters not whether the diaphragm is convexed downward, as in empyema and pneumothorax, or convexed upward, as in hepatic enlargement or subphrenic abscess. Although the diaphragm moves upward (in some cases of pneumothorax and empyema) during inspiration, the costal margins of the affected side will move outward during inspiration. This experience, which can be seen plainly with the fluoroscope in patients who have a pneumothorax under positive pressure, very definitely disposes of the old interpretation of inspiratory spreading of the hypochondria, which was based on Duchenne's experiments.

Movement of the ribs and the degree and direction of movement of the costal borders give valuable aid in detecting evidences of paresis of intercostal muscles. The costal excursion very faithfully mirrors the excursion of the underlying lung. This is of great importance in physical examinations, for it enables the examiner to detect regional modifications of pulmonary excursion.

By physical examination the physician should form very definite ideas of the size, density and extensibility of the lungs. Indeed (with the exception of a few adventitious signs), all of our methods of pulmonary examination are directed toward an estimate of these three attributes of the lung. Of the three attributes, namely, size, density and extensibility, the last is the most exquisitely responsive to pathologic changes. Extensibility is the first physical attribute of the lung which is modified in all diseases of the bronchi, lung tissue and the pleurae. It requires only a few moments to palpate the respiratory excursion of all the ribs and determine the character of excursion of the costal margins. When these observations are critically performed, the examiner will have formed a definite conception of the conformation of the diaphragm, and also a clear idea of the extensibility of the upper and lower lobes of the lungs.

Although paralysis of the intercostal muscles will diminish the vital capacity of the lungs in direct proportion to the extent of the lesion, all paralyses are well tolerated excepting one combination, and that is a paralysis of the upper half of the intercostals when the remaining lower half of the intercostal muscles are active.

REPORT OF CASES

Case 1.—A plump, healthy looking boy, aged 2 years, was brought to the hospital on account of what seemed to be paroxysms of suffocation. Stenosis of the upper air passages was suspected.

The child lay very comfortably on his back in bed and exhibited no signs of distress unless he was engaged in play, and laughed or cried. Any activity which was attended with an increase of respiration was attended with pronounced cyanosis. Dyspnea and cyanosis were so pronounced it frequently seemed that suffocation was imminent.

Cyanosis and respiratory discomfort increased in a vicious cycle as any incentive to deep breathing was employed. The more deeply and rapidly the child tried to breathe, the worse it breathed. There was no prolongation of either expiratory or inspiratory phase. It was also observed that during these violent inspiratory efforts, the upper thorax was violently retracted and the lower thorax was violently distended, with exaggerated spreading of the hypochondria and protrusion of the abdomen. There was a genuine see-saw between the upper and lower thorax. The scaleni were intact, as was evidenced by fixation of the first rib of each side and a want of descent of the manubrium during inspiration.

During an inspiratory effort the ribs on both sides, from the second to the sixth inclusive, were strongly retracted. The seventh rib (on both sides) was stationary. From the eighth rib to the twelfth (inclusive) there was an exaggerated excursion in a normal direction.

It was clearly evident in this case that there was a marked diminution in volume of the upper lung and exaggerated distension of the lower lung during a violent inspiratory effort; the lower lung was, therefore, distended in part by air which was displaced from the upper lung during inspiration; so the patient was ventilating his lower lung in large part by alveolar air from the upper lung, and during expiration, alveolar air from the lower lung was driven into the upper lung. There was a reciprocal expansion and contraction between the upper and lower lung. During strong inspiratory efforts, alveolar air was shunted back and forth between the upper and lower portions of both lungs. Tranquil breathing was attended with adequate ventilation, but forced breathing developed a vicious reciprocal contraction and expansion between the upper and lower parts of both lungs, which caused intense air hunger and cyanosis.

There were no physical signs to indicate any disease of the bronchial tract, or lung parenchyma or pleurae. A roentgenogram revealed marked signs of tuberculous disease of the bodies of the upper six dorsal vertebrae, in other respects revealing a perfectly normal thorax.

There were no other neurologic signs obtainable which would indicate any disease of the spinal cord or the intercostal nerves. The respiratory distress and inspiratory retraction of the second to the sixth ribs (inclusive), associated with the disease of the vertebrae revealed by the roentgen ray, seemed, however, to justify a diagnosis of motor paralysis of the intercostal muscles, which normally accomplish the ventilation of the upper parts of the lungs.

The vicious cycle of rebreathing established between the upper and lower lung was due to the flexibility of the child's ribs, as well as to the motor paresis of the upper intercostal muscles. Had the same extent of motor paralysis occurred in an older person, with more resistant ribs, there would probably have been little or no respiratory distress. This is the only occasion in which I have seen paralysis of the upper intercostals when the lower intercostals were active, and is the only intercostal paralysis which will cause reciprocal rebreathing between two regions of the lungs. I have frequently seen paralysis of the lower intercostal muscles when the upper muscles were intact and, on one occasion, motor paralysis of all the intercostal muscles with scaleni and diaphragm intact; but the patients had no respiratory distress, because there was no rebreathing between different parts of the lung.

Paralysis of all intercostal muscles on one side is also well tolerated.

Case 2.—A girl, aged about 6 years, was brought to the hospital directly after she had fallen to the ground from a ladder on which she was climbing. The resident physician palpated what he interpreted as the body of the third cervical vertebra projecting into the posterior pharyngeal wall. The projecting mass was pushed back into position. It was then discovered that the child had motor paralysis of the left upper and lower extremities, and it was also observed that the left side of the thorax did not move with respiration. A lumbar puncture revealed a large amount of free blood in the subarachnoid space. There was complete paralysis of all the intercostals of the left side of the thorax, and there was no demonstrable evidence of any activation or excursion of the left side of the diaphragm. All the pulmonary ventilation was accomplished by the intercostals and diaphragm of the right side.

The child was not cyanotic, she had no air hunger, and there was no inspiratory retraction of the left thorax. The entire left thorax was completely immobilized. There must have been some ventilation of the left lung because there would certainly have been cyanosis at least, had all the blood passing through the left pulmonary veins been unrespired. A very moderate increase in respiratory excursion of the normal right lung would have compensated for an increase of carbon dioxid contributed to the aortic blood by unrespired blood from the left lung; but superventilation of the right lung could not prevent cyanosis from appearing under such circumstances. We would have seen the same degree of cyanosis that appears in fibrinous pneumonia of the entire left lung. Were there no ventilation of the left lung under such conditions as presented in this child, then the only area for the escape of carbon dioxid and absorption of oxygen for the left lung would have been the cross section of the left bronchus.

When we consider the estimated area of the total respiratory membrane of an adult lung to be 90 square meters, it is apparent that although a bronchus to a lung may be open, it offers a negligible area for transpiration of gases. In the case of this child, with all the intercostal muscles and diaphragm of the left side paralyzed, the only manner in which anoxemia could have been prevented would have been through some respiratory excursion of the mediastinum, for there certainly was no respiratory excursion in a longitudinal or anteroposterior diameter. There must have been some respiratory movement in the third dimension. With the disturbance of equilibrium between the right and left pleural cavities which attended intercostal and pleural excursion of the right side, the mediastinal structures moved toward the right. In this manner the transverse diameter of the left pleural cavity was enlarged during inspiration and diminished during expiration. There was therefore no rebreathing between any two portions of the lung.

To summarize, paralysis of all the intercostal muscles, of both sides, or of one side, or the lower half of both sides, or the lower half of one side, produces no respiratory distress nor cyanosis when the patient is at rest.

Paralysis of the upper half of the intercostals of both sides, however, produces severe respiratory distress when the ribs are sufficiently flexible to admit of reciprocal expansion and contraction between the upper and lower parts of the lungs so as to cause rebreathing between the upper and lower lung.

Although this manner of intercostal paralysis is the only kind which will per se produce suffocative symptoms, intercostal paralysis of a moderate extent will diminish the vital capacity of the lung.

Case 3.—A man suffering from syringomyelia of the cervical and dorsal cord had very moderate emphysema which was not sufficient to cause flattening of the diaphragm; but the pulmonary volume was enlarged so that the lower border of the lung stood one intercostal space lower than is normally found. The striking feature about this patient was the very small margin of cardiorespiratory reserve, which was disproportionately small for the very moderate emphysema. Physical examination and the roentgen ray both failed to detect any signs of lung or heart disease which could in any way explain the small vital capacity of the lung, which was only 1,100 c.c.

Pulmonary emphysema which would reduce the vital capacity to so small an amount must be a severe emphysema, and this man did not have severe emphysema, nor was there any evidence of cardiac enlargement, or stasis in the pulmonary circulation, or other disease of the bronchi, or lung parenchyma or pleurae. The striking disparity between the moderate emphysema and great reduction in the vital capacity could be accounted for only by evidences of paralysis of the intercostal muscles from the third to the seventh rib (inclusive) of the left side. The left costal border, from the subcostal angle to the eighth rib, was drawn toward the median line during inspiration. The left costal margin below the eighth rib and the entire right costal margin moved laterally during inspiration. When the ribs of the left side were palpated successively from above downward, all could be felt to move normally excepting the fourth to the eighth ribs, which, on palpation, revealed inspiratory retraction.

There was no evidence of disease of the underlying lung, and there was not merely a want of normal excursion of these five ribs, but there was a genuine retraction of the ribs during inspiration.

The retraction of the costal border of the left side, from the angle to the eighth costal cartilage, was explained by the normal diaphragm in this region being unopposed by intercostal muscles. Further confirmation of this interpretation of the small vital capacity was found in evidences of marked paresis of the abdominal muscles of the left side. During expiration the abdominal wall was seen to be rotated on a longitudinal axis; the median line was drawn toward the right side during forced expiration, and the umbilicus moved upward and toward the right when the patient coughed.

During the act of coughing, one could palpate an equal bursting tension over the left and right sides of the abdomen; but the abdominal wall to the left of the median line was clearly seen to be protruded, while the right side was retracted. To the left of the median line the abdominal wall was passively distended; but to the right of the median line the abdominal wall was actively contracted, when the patient coughed or made a forced expiration.

An analysis of this patient's peculiar respiratory limitations and movements became quite clear when the movements of the costal margin were employed to study the balance of power between the diaphragm and the intercostal muscles; but aside from this point of view, his respiratory movements became a hopeless tangle.

INTERCOSTAL MUSCLES AND DIAPHRAGM

In several cases of syphilis of the spinal cord it has been possible to demonstrate paralysis of several groups of intercostal muscles by observing the respiratory movements of the entire costal margin. When the diaphragm is unopposed by intercostal muscular action, the costal border will be drawn toward the median line during inspiration; but the retraction of the costal border does not prove that there is impaired muscular power of the intercostal muscles—the intercostal muscles may be normal and the costal margin be retracted because the flattening of that particular part of the diaphragm gives the phrenic muscle mastery over the costal end. When retraction of the costal margin is an evidence of paresis or paralysis of the intercostal muscle, then the involved rib will be seen to retract throughout its course, whereas, the anterior end of the rib will be retracted, and the rib in its course will be normally elevated, when flattening of the phrenic arch is responsible for retraction of the costal border.

In studying the respiratory excursion of the ribs, one must differentiate between the significance of excursion of the costal ends, namely, the costal border, and excursion of the arcs of the ribs. The direction of the excursion of the ends of the ribs (costal border) is quite independent of excursion of the diaphragm and excursion of the arc of the rib. The costal border (rib ends) will move either toward the median line, or laterally, according as the pull of the diaphragm or of the intercostal muscle may have the mastery of the ends of the ribs. When the intercostal muscles are paretic or paralyzed, the costal border formed by the ends of the affected ribs will be drawn toward the median line during inspiration, and the arc of the affected ribs will also be retracted during inspiration.

When the diaphragm is flattened and the intercostal muscles are normally activated, then the costal border will be drawn toward the median line during inspiration; but the course of the rib will move in the normal "bucket handle" arc.

Careful study of the respiratory excursions of the arcs of the ribs and of the costal border gives very valuable information on the innervation of the diaphragm and the intercostal muscles. By this study we are also enabled to visualize the conformation of the leaves of the diaphragm, and by such observations we also gain valuable information about the extensibility of the lung.

CONCLUSION

Costal movements accurately mirror the movements of the underlying lung.

When the respiratory excursions of the thorax are studied in this manner, the lung and its bounding walls take on an entirely new significance.

The lung will be appreciated as a very lively organ, which has a motility quite different from the popular conception of an elastic bag which is alternately expanded and contracted en masse in obedience to changes of barometric pressure within the pleural cavity.

1903 East Seventy-Fifth Street.

ABSTRACT OF DISCUSSION

Dr. Henry Sewall, Denver: Since Hutchinson, in 1834, showed that the lung activity could be separated into three cycles, residual, complemental and tidal air, we have learned nothing. Dr. Hoover did not speak of the relation of the blood flow through the lungs. That is a matter of supreme importance, of course. In one subject the blood goes through in two or three times the volume that it does in another subject, and every time there is a cry or a deep respiration, that blood flow is accelerated or retarded. When a person changes his position there is a tremendous gravimentary pull on that blood, and in some people that blood does not get back to the heart, and you may think that blood does not go through the lungs. Of course, that is not just right—the blood is retarded. Very often in going about in an automobile, I feel as though I were going to faint. I know that is due to the blood being retarded and I can correct it by voluntary contraction of the abdominal muscles; I pump that blood up into my brain just as you would pump the blood into a tube. There are peculiar relations which the doctor spoke of—of one part of the lung pumping blood into another part. This is a very interesting fact. You can demonstrate certain practical conclusions by the use of this method voluntarily. Hold your breath as long as you can, say for one minute. Have your glottis closed, and when you cannot hold the breath any longer, contract your chest and expand your abdomen and you churn the air back and forth in your lungs and you can hold it for a minute and a half. Remember that if you get caught out in the surf. Just as the surgeons are waking up to the fact that there is a field of thoracic surgery, the clinicians must wake up to the fact that there are mechanics of respiration which they have always avoided because they lack mechanical training. It is just as important as the study of the signs of appendicitis.

Dr. Charles L. Minor, Asheville, N. C.: For a number of years I have believed that the presence of a very small focus in the upper portion of the lung will manifest itself as clearly by limitation of the base as in any other way. I have given a great deal of study to the isthmus, and there is nothing more useful than an otherwise unexplained limitation of the motion of the base. That is extremely more valuable than the fluoroscope. The fluoroscope shows the advance and the retardation of the diaphragm; it does not show advance or retardation in the complemental space. Remtree's stethometer measures the motion of the second, third or fourth rib. The diagnosis of tuberculosis depends on the little things and summation of the different points.

Dr. Charles F. Hoover, Cleveland: The point Dr. Sewall mentioned—holding the breath—is somewhat aside from the subject matter which I presented; but inasmuch as Dr. Sewall brought it up, I will mention that the holding of the breath is pretty difficult to explain. For instance, if anyone of us would take a deep inspiration, if we superventilate our lungs for probably four or five inspirations and then take a deep inspiration and then close the glottis, we cannot hold the breath for more than about a minute. Then we exhale, and we find that the concentration of the CO_2 in the exhaled air will be about 6.23. Now, however, if we ventilate our lungs with pure oxygen, we cannot hold our breath any longer because of the rise of the partial pressure of CO_2 in the aortic blood. This is not due to a want of oxygen, but to the fact that the elevation of CO_2 in the aortic blood has compelled an inspiratory impulse. Now, if we ventilate the lung several times and take a deep inspiration of pure oxygen, we will find that we can hold the breath for three minutes. Then if we explore the air, instead of the 6.23 we will have 9.23 CO_2. So that according to all our teaching of inspiration a man must have in his aortic blood a concentration of CO_2 which balances the alveolar air, and yet you can hold your breath very comfortably provided you have an adequate amount of oxygen. If you reduce the oxygen, you cannot hold it so much. There is no explanation of the tolerance of CO_2 in the presence of oxygen, and the intolerance of CO_2 in the presence of diminished oxygen. I simply want to show that we have not by any means explained what we term shortness of breath. It is an extremely difficult thing to explain.

STUDIES ON MALARIA CONTROL

IX. EFFECTIVE AND PRACTICAL TREATMENT OF MALARIA TO DISINFECT INFECTED PERSONS AND TO PREVENT RELAPSE *

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When a physician is called on to treat a case of malaria, usually the chief object he has in view is to relieve all clinical symptoms. The disinfection of the patient and the prevention of relapse receive secondary consideration, if any. There is great variation in the treatment of clinical cases of malaria, and still greater variation in the treatment for the purpose of disinfecting the patient. Disinfection is of greater importance than it is generally considered to be, because of the fact that if not disinfected the patient is likely to have latent malaria or to relapse with more or less harmful effect, and because of the further fact that during all the time he is a potential source of infection to others.

In a study of the frequency of malaria relapse made on 3,815 persons in Sunflower County, Mississippi, during 1918, the information obtained showed that between 50.77 and 68.86 per cent. of all persons who had attacks of malaria during the year had relapses and not new infections. It is not uncommon for persons to have from one to several attacks of malaria every year, for a period of two or three years. There are plenty of instances in which the possibility of reinfection was entirely eliminated, showing that they were relapses and not new infections.

The importance of disinfecting infected persons has not received as much consideration by practitioners as it deserves. Using the data that have been obtained in a study of malaria control in the Mississippi delta during the past three years, I have been able to estimate with a fair degree of accuracy the reduction in the prevalence of malaria that would take place if all physicians disinfected all the cases they treat. It was shown that malaria would be reduced approximately 90 per cent. in ten years' time by this means alone.[1] Every case of malaria means that the patient will continue as a potential source of infection until disinfected, and every malaria patient disinfected means the destruction of one or more sources of infection.

Malaria is one of the diseases in which the clinical symptoms are relieved a long time in advance of the disappearance of the specific infectious agent. No high degree of effective immunity is conferred by an attack of the disease in the majority of instances. Whenever sufficient treatment is given to reduce the number of parasites sufficiently, the symptoms cease, but the infection continues. Small numbers of parasites may remain in favorable locations in the tissues of the body, and probably continue to reproduce. Later, when conditions become more favorable, they may, and often do, give rise to a return of clinical symptoms, or relapse.

Though blood examination demonstrates the presence of parasites in practically all cases of clinical malaria, and in many instances of persons who are infected but have no recognized clinical symptoms at the time, it fails to demonstrate their presence in many persons who have smaller numbers but are still infected. The number of parasites may be so small that no practical examination of the blood would demonstrate their presence. As long as the patient has one viable parasite in him, he remains infected. Treatment for the purpose of disinfection is not effective, therefore, until every parasite is destroyed. When this is accomplished, no relapse occurs, nor is the patient a source of infection to others. Treatment which will destroy every parasite, and which is practical at the same time, is my subject here.

The disappearance of clinical symptoms and of parasites from the peripheral circulation cannot be depended on, therefore, to show when disinfection has been accomplished. In many instances, patients carry the infection for months, sometimes as long as a year, or even longer, without showing any clinical symptoms whatever. Then something happens that reduces the effectiveness of the means by which sufficient resistance has been maintained to retard the multiplication of parasites, and clinical symptoms of malaria develop. Such things, for instance, as sudden chilling of the surface of the body, getting wet, eating large quantities of indigestible food, the shock of surgical operations, or injuries, are frequently sufficient to precipitate attacks in persons who are infected but who have been able to resist the disease sufficiently to prevent clinical symptoms.

THE DURATION OF PROPER QUININ TREATMENT

The duration of proper quinin treatment is the only reliable guide as to when disinfection has been accomplished. Since the disappearance of clinical symptoms and of parasites in the peripheral circulation, presence of which affords the basis for a diagnosis of malaria, cannot be depended on as a guide as to when disinfection has been accomplished, we must rely on methods of treatment which have been demonstrated by experience to prevent the occurrence of relapse. Quinin is the only drug known which destroys malaria parasites and is capable of disinfecting. It is, fortunately, a very perfect specific, and I believe it can confidently be said that when properly used it will disinfect any patient. My opinion is that there are no exceptions. Perhaps the amount of quinin and the duration of administration required may, in exceptional cases, be much greater than what the average patient requires; but there surely is a dose and a duration that would be effective in every instance. Failure simply means that proper doses of quinin have not been administered or that there has not been proper duration of treatment, and not that the patient cannot be disinfected by treatment with quinin.

AVOIDANCE OF INCONVENIENCE AND DISCOMFORT

Practical treatment must be convenient and must not produce great discomfort. Even after the acute symptoms of malaria have been relieved, the patient must be given quinin for a considerable length of time to make reasonably certain that he is disinfected. On account of the fact that the treatment must be so long continued, long, in fact, after the patient thinks he is

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* From the Department of Experimental Medicine, Tulane Medical College.

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*This is one of a series of papers to be published, based largely or entirely on malaria control work conducted jointly by the International Health Board and the Mississippi State Board of Health.

[1] Bass, C. C.: Studies on Malaria Control, V, The Importance of Disinfecting All Cases Treated as a Factor in Malaria Control in a Locality of Great Prevalence, South. M. J., to be published.

well, the quinin must be given in a convenient form. During the prolonged treatment the patient is usually up and about at his usual occupation, and any treatment that puts him to considerable inconvenience would be much less likely to be continued than one that did not. Quinin is a drug that is slowly absorbed and slowly eliminated, and it is not necessary, therefore, that it be given at frequent intervals. For the purpose of disinfection, one dose a day is just as effective as any larger number of doses, and it is much more convenient to take one dose daily than a larger number. Generally speaking, it is much more convenient to take it at night before retiring than at any other time of day.

If the treatment produces great discomfort it is also not as likely to be carried out as if it did not. When given hypodermically, great discomfort is produced and, in practice, few patients are ever disinfected when this method of administration is prescribed. Sometimes quinin is given by mouth in acid solution. This is one of the most nauseating doses, and any physician who has been in the habit of prescribing quinin in this form, or who contemplates doing so in the future, should take it for a while himself. He will then be better able to decide whether or not to prescribe its use in this fashion. It is much better to give it in the form of tablets, for those who can swallow tablets, and in the more or less tasteless form of quinin in aromatic syrup of yerba santa for young children. The discomfort caused by quinin injection and by taking it in acid solution by the mouth is often a cause of abandoning the treatment before the patient is disinfected.

Quinin causes considerable discomfort, such as tinnitus, urticaria and nerve irritation, in a great many persons. Susceptibility to these unpleasant effects varies greatly with different persons. Some are rendered quite uncomfortable by even small doses, while others may take considerably larger doses without discomfort. Fortunately, there is, in the great majority of instances, no great unpleasantness produced by the amount necessary for disinfection. It is very important that the necessary dose should not be greatly exceeded because of the resulting discomfort. Otherwise, the treatment is much more likely to be abandoned before the desired results have been accomplished. There is no other specific remedy for malaria and, therefore, no other treatment to choose. Those who are affected unpleasantly by it are unfortunate, but still their only specific remedy is quinin. The sooner this fact is learned and appreciated by the medical profession, as well as the laity, the better it will be for malaria sufferers.

SPECTACULAR METHODS AND UNUSUAL SALTS

Since the treatment must be kept up for a considerable length of time to disinfect, and since the success depends very much on the patient's confidence and cooperation, spectacular methods and special salts and preparations of quinin should not be used, even if they should be as effective, dose for dose, which they often are not. So far as I have been able to learn from experimental studies,[7] and from observation of treatment of those who have malaria, in a group of more than 40,000 persons living in a heavily infected section, there is no salt of quinin any more effective in disinfecting a patient than ordinary sulphate, and there is no method of administration that is as effective or practical for this purpose as administration by mouth.

During 1916 and 1917, those who were found to have malaria among 31,459 persons examined in Bolivar County, Mississippi, were furnished quinin in different forms and in different size doses, to be taken for variable lengths of time in different groups. A blood examination was made of these persons subsequently, to determine the results of the different methods of treatment. From the data obtained, it appears that 10 grains of quinin a day for a period of four weeks disinfects about 60 per cent., and that 10 grains a day for eight weeks disinfects about 90 per cent. There were some instances of relapse in the case of persons who took the full eight weeks treatment faithfully.

It was also found that patients take 10 grains of quinin daily better, and more systematically, than they will take larger doses, such, for instance, as 20 grains daily. They will not take the large dose so well because of the discomfort produced, including, especially, tinnitus and dizziness, which often occur in laborers and in people under the influence of quinin working out in the heat of the sun.

As a result of this experience, we have adopted 10 grains of quinin daily, to be taken, preferably, before retiring, for a period of eight weeks, as the minimum dose that can be depended on to disinfect. (Children should be given a proper proportionate dose.) Patients thought likely to be especially resistant should be given a somewhat longer course of treatment. If judgment and care are used, most of the patients who would fall in this group can be found by giving attention to the history, which usually tells of previous relapses. Patients who give a history of previous relapses should be put on longer than eight weeks treatment.

SUMMARY

Disinfection of the patient has not received the consideration that it deserves in the treatment of malaria.

The disappearance of clinical symptoms and of demonstrable parasites in the blood cannot serve as a reliable guide as to when disinfection has been accomplished. Nor can any other known method of examination determine when the infection is eliminated. The most dependable guide at our command is the duration of a treatment that experience has shown to be effective.

Quinin, in sufficient doses for a sufficient period of time, is effective in all cases. I believe that there are no exceptions to this statement. Instances in which the treatment that is successful in average cases fails to disinfect are examples, not of the failure of quinin to disinfect, but simply of the failure of quinin in that particular dose and for that particular length of time. If the treatment be continued for a sufficient length of time, it always succeeds, even in these exceptional cases.

The treatment, to be practical, and to be carried out by the patient, must not cause great discomfort or inconvenience. One dose at night is usually more convenient than a larger number of smaller doses, and it is equally effective. Less discomfort is produced also.

The treatment recommended, one to disinfect infected persons and to prevent relapse, is 10 grains of quinin sulphate at night, before retiring, for a period of eight weeks. When there is good reason to think a given patient will be more difficult to disinfect than the average one, the treatment should be continued considerably longer than eight weeks.

Note.—What has been said refers to the treatment of cases without acute symptoms, or after active symptoms have been relieved. Active clinical symptoms are relieved in practically all cases by three doses of 10 grains of quinin, during each day, for three or four days.

ABSTRACT OF DISCUSSION

Dr. C. S. Williamson, Chicago: We do not see very much malaria in Chicago, and yet when we do see it, it presents some interesting problems. During the past five years three cases have come under my care under almost identical conditions. The patients were young men; the diseases came on after exposure to cold in February, and the diagnosis in each case was lobar pneumonia. None of these patients had been out of Chicago for many months. None of them knew that they had had malaria before; the diagnosis was confirmed by blood examination. The symptoms were such as to lead inevitably to a diagnosis of lobar pneumonia. In one case the patient was given quinin sulphate for five months in doses of about 30 grains a day, followed by an acid solution, and at the end of that time there was a relapse. The patient had not left Chicago.

Will Dr. Bass tell us whether he believes that the temperature of Chicago might reawaken an old malarial infection or whether there is some particular strain of the parasite which must be accounted for. These cases impressed themselves on my mind because it seemed to be almost impossible to have malaria in the cold winter. One patient was working on a bridge, and you would naturally think of pneumonia and not of malaria and mosquitoes.

Dr. Charles C. Bass, New Orleans: I do not think that we know just how exposure to cold and other influences that lower the vitality of the individual will cause relapses. It is a most common experience where there is much malaria that, given a group of men many of whom are infected and who are getting along well, if it rains and many of them get wet, sudden chilling of the surface of the body is followed in three or four days by chills and fever, although the patients had not had chills and fever before; but this sudden chilling of the body seems to affect them. Another observation that most of us who have studied malaria have made is that a constant even temperature, when there is little variation between the noon to night temperature, not as many malaria relapses are noted as during the early season of the year and later in the fall when there is great variation in the extremes of temperature. It seems reasonable to suppose that this is one of the many things that may lower the general vitality of the individual and in some way interfere with the resistance by which he holds back or prevents relapse. The shock of a surgical operation may do the same thing. Perhaps, however, when we know more about the immunity processes by which individuals are able to prevent relapses and eliminate the relapses without treatment the relapses will be fewer.

Is Your Community Fit?—A nation-wide campaign for the prevention of venereal diseases has been organized. Have you consulted your health officer on the part your city should play in this important work? Is your community planning to take advantage of the recent federal enactment and appropriation for the control of venereal diseases throughout the United States? Has an ordinance been passed which will enable your health department to take up this matter in an effective manner? Proper reporting of dangerous sources of infection and their adequate treatment and control beyond the contagious stages is essential. The establishment of places where infected persons can be given expert treatment and advice will greatly aid in limiting the spread of these diseases which are so disastrous to mankind.—*Pub. Health Rep.*, April 25, 1919.

DESIRABILITY OF PREVENTING STERILIZATION IN YOUNG WOMEN

WHEN OPERATING FOR TUBERCULOUS PERITONITIS *

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DETROIT

Tuberculous peritonitis generally occurs in the young, principally in women, although it may affect either sex. After considerable experience with abdominal operations, I have found that tuberculous peritonitis is usually cured by a celiotomy. The simple opening of the abdomen without anything else being done, nothing being removed and no irrigation being instituted, has sometimes resulted in a cure. At other times, complications have been found which had to be remedied. Often the operation was performed for pus tubes, which were very properly removed on account of mixed infection.

It has become a custom with some surgeons when operating for tuberculous peritonitis to remove the tubes whether there was mixed infection or not, simply in order to close an avenue for the entrance of tubercle bacilli, which were supposed to be poured out from the end of the tube into the peritoneal cavity. I have protested against this practice for many years, because the tubercles in the peritoneum are all absorbed in the course of time, and it is my belief that the tubercles on the tubes and uterus would likewise be absorbed.

It has been asserted that in operating for appendicitis, it is often found that the trouble is of tuberculous origin. In that case I always remove the appendix, and I should also remove the tubes if the nidus of the disease seems to be there. It is at times very difficult to tell where the original infection was, or where the disease in the peritoneum started. There may be big masses of tuberculous deposits, even in the omentum, some of them solid and from 2 to 3 inches in diameter, but I never remove them nor do I take any other action. They all disappear in a remarkable manner by simple opening of the abdomen. I remove the appendix in all these cases, because the appendix is a dangerous organ to leave behind. As the result of the tuberculous infection, adhesions, twisting, and kinking of the appendix often occur, which in the future are liable to cause an acute inflammation of this organ even after all tuberculous deposits have disappeared. In the case of the tubes this danger does not exist. The patients are nearly all young women, perhaps unmarried, or married only a short time, and to remove the tubes and thus deprive them of the opportunity of motherhood I consider a bad practice.

ORIGIN OF TUBERCLES IN THE PERITONEUM

As to the origin of the tubercles in the peritoneum, on the appendix and the tubes, they are brought in and are deposited there from the lymph channels. Some of them may pass from within the intestine by a process of diapedesis into the peritoneal cavity. Most of them are probably absorbed into the circulation and are deposited. These tubercles may differ from those usually affecting the lungs. They may be, as many think, of the bovine kind, such as are also supposed generally to affect the joints of children and to be due to drinking milk from tuberculous cows.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

This tuberculous trouble of the peritoneum seldom comes from the vagina and uterus, and is not poured out of the end of the tube. In fact, such a case has never been demonstrated. I have curetted several hundred patients. I have had them all examined microscopically, and in only one case was there a tuberculous condition on the mucous membrane of the uterus, and that was in a woman, aged 55. I have also seen only one case of tuberculosis in the vagina.

SYSTEMIC ORIGIN OF TUBERCULOUS PERITONITIS

One point I want to make is that tuberculous peritonitis is of systemic origin, and does not come from the outside through the tubes; hence, there is no occasion to remove and close them.

Another point I want to bring out is that, whereas there are thousands and thousands of tubercles deposited in the peritoneum in large bunches, even on the omentum, forming hard, firm tumors from 3 to 4 inches in diameter, all these are rapidly absorbed after a simple operation without any apparent trouble. If nature takes care of all the tubercles in the peritoneum and omentum, the dozen or two that are on the uterus, or on the peritoneal covering of the fallopian tubes, will also be taken care of, and the woman will be restored to perfect health with all her generative organs in good condition.

INDICATIONS FOR THE REMOVAL OF THE TUBES

The only case in which the removal of the tubes is justifiable is when another kind of infection has also taken place in the tubes, and they have been closed either before or after the tuberculous deposit in the peritoneum has taken place. Then we are obliged to remove the pus tube completely in many cases, and there is no reason why we should not do that even though the patient has a tuberculous peritonitis. But even in these cases, we sometimes merely resect the tube or some part of it, with the view of possible pregnancy in the future, and we can do this also in some cases with the disease under consideration.

REPORT OF CASE

Mrs. P. T., aged 28, operated on by me, July 27, 1916, for tuberculous peritonitis, made an excellent recovery, gained rapidly in flesh and blood, and menstruated normally until April 13, 1918. September 1, she felt life, and was delivered, Jan. 25, 1919, by Dr. A. R. Moon. She had a retroverted adherent uterus, and had had no children. When operating for this condition I found she also had tuberculous peritonitis.

I had one other case in which I operated, July 16, 1918, and in which the patient became pregnant in January, but aborted.

These cases show that after a conservative operation for tuberculous peritonitis, women may become pregnant; hence, no woman in the child-bearing period should be sterilized unless there are other causes than tubercles in the peritoneum.

DIFFICULTY OF THE DIAGNOSIS

The difficulty of making the diagnosis is well known. I often find symptoms and indications that there might be such trouble, and when operating find some other kind of infection in the tubes. In other cases in which I simply operate for displacements and adhesions, I suddenly run across a tuberculous peritonitis.

AUTHOR'S METHOD OF OPERATION

All physicians differ in their technic more or less, and I do not know that the differences are very important. In my earlier cases I washed out the peritoneum with a 1:10,000 mercuric chlorid solution. A quart of the solution is poured in, the opening is closed with the hand, and the body is shaken so that the fluid comes in contact with every part of the peritoneum. I think this irritates and stimulates the peritoneum—probably produces phagocytosis. I do not know whether the mercuric chlorid does any good, but I know it does no harm, as I empty the peritoneum and then put in a saline solution—gallons and gallons of it—and wash the peritoneum out thoroughly so as to be sure that there is no mercuric chlorid solution left behind to produce poisoning. I then sew up the abdomen with No. 2 plain catgut in layers, closing first the peritoneum, then the muscle, and then the fascia with a running suture. I never sew up the skin. I use sterile adhesive plaster, and the wound generally heals promptly. Formerly, I used silkworm-gut or silk sutures, but as these act as a drain, and in the tract of each suture a deposit of tubercles made its appearance, and each stitch hole showed a dark red spot as seen in healing or healed tuberculous sinuses, I stopped this method of closure. Drainage of the wound is not considered, because it first of all does not drain, and secondly, is liable to result in the development of fistulas and ulceration of the bowel.

CONCLUSION

If nature will remove the myriads of tubercles in the peritoneum in whatever part they may be, nature will also remove the few that can be found in the tubes, and the latter need not be removed on that account, and the women be thus needlessly sterilized.

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ABSTRACT OF DISCUSSION

Dr. J. Shelton Horsley, Richmond, Va.: Not many years ago every surgeon had his own particular pet method of treating tuberculous peritonitis. One would let the sunlight in, another put in drainage tubes and still another would have his own mixture of dusting powder. The peculiar part of the matter is that nearly all the patients got well. This is not due to the particular method used but to the fact that each man was unconsciously working on the principle of producing hyperemia, which is the enemy of tuberculosis. When Dr. Carstens opens the abdomen and removes the appendix or any other organ he induces hyperemia, and this conduces to the recovery of the patient. As to the question of drainage; that is important. In ordinary peritonitis we did not drain in a mechanical way; every abscess in the peritoneal cavity was drained uphill and patients get well from appendiceal abscess drained uphill as readily as do those drained by the culdesac, because the drainage tube acts as an irritant, promotes hyperemia and that assists in curing the tuberculosis. Mutilation of the patient by taking out the tubes because she has tuberculosis does not remove the pathology.

Dr. J. H. Carstens, Detroit: All I want to plead against is this everlasting removal of tubes and the sterilization of women for every little measly thing that might be the trouble. I decidedly object to that as it is bad practice. When a person has tuberculosis of the lungs or some other organ of the body, you do not remove those organs; you treat the patient systemically. Why should you not do that in this kind of a case? The bacilli are killed and then disappear.

DIETETIC HELPS IN DIABETES

ROSE R. DONK, M.D.
BUFFALO

The treatment of diabetes demands exact regulation of diet. That proper dietetic management is amply rewarded by good clinical results has been shown by Allen. That such management admits of fairly definite lines of procedure has been further shown by Joslin.

It is with difficulty that the practitioner finds time to carry out such estimations of diet as are necessary in treating diabetes. The problem is to get the patient sugar-free and acid-free and to teach him to keep so. This is to be done primarily by the regulation of protein, fat and carbohydrate intake.

Is it possible to prearrange such combinations of food in series as shall form a convenient basis for the estimation of diabetic diets?

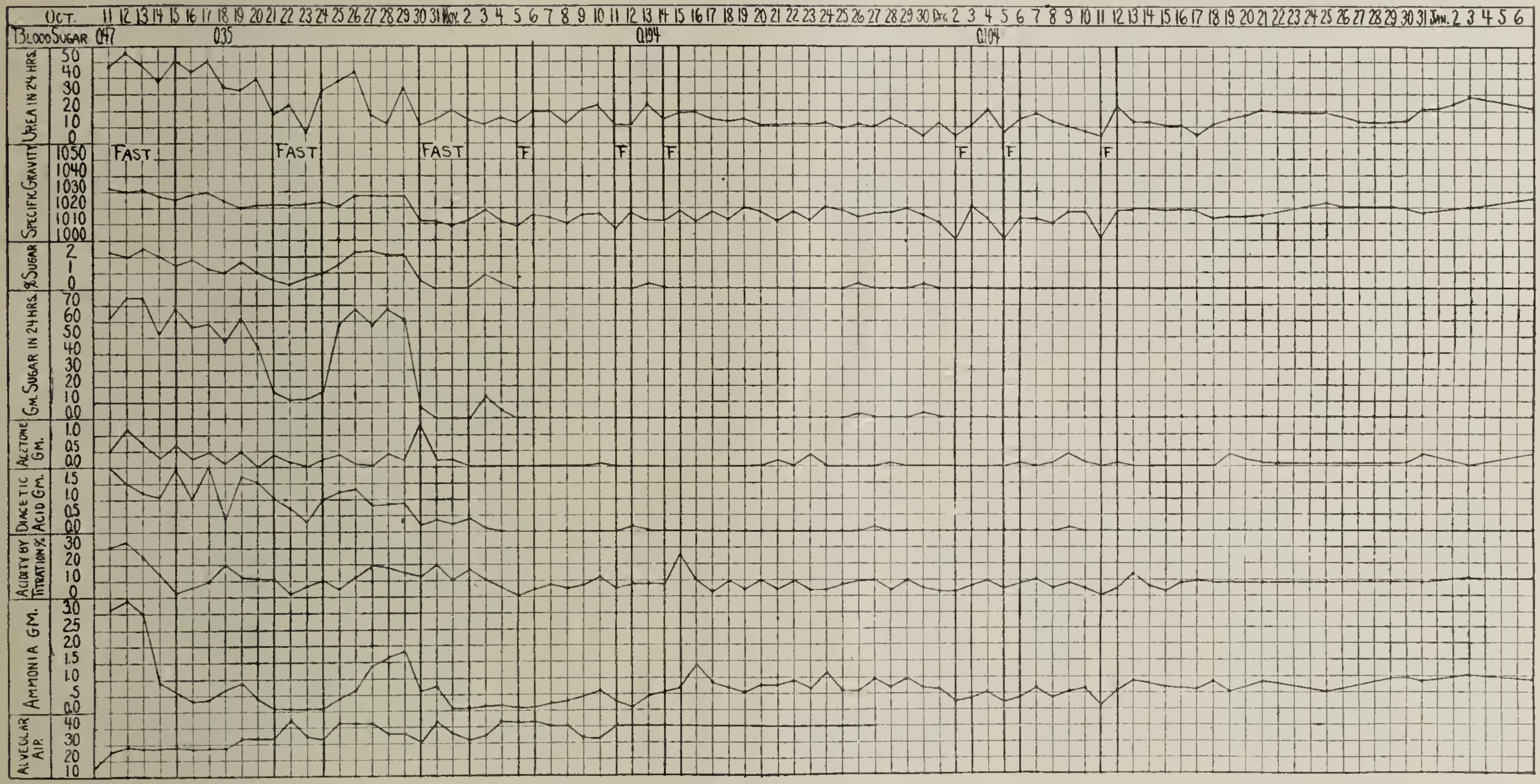
The dietetic requirement depends on the age and weight of the patient, on his accustomed diet and his adaptability to changes, on his condition as to obesity or leanness, and on his habits of exercise. Acidosis must be prevented. The metabolic derangement in diabetes concerns protein and fat as well as carbohydrate. The benefit from fasting, or "rest" days is due to this fact. Carbohydrate tolerance is in itself relative. This is shown in those cases in which the carbohydrate tolerance improves when the protein allowance is not kept at too high a level.

Laboratory analyses are a necessary guide for feeding. Such study, besides helping to secure improvement of the patient, is full of interest and suggestion. With a low blood urea the diabetic patient commonly puts out a large amount of urea in the urine. Like the patient with hyperthyroidism or with fever, he overexcretes and overconcentrates. However much this represents disturbed general metabolism, it may well represent also increased kidney stimulation and overwork. If, in becoming sugar-free and acid-free, the patient lowers a high urea index, he has scored an extra point.

The use of fat will be regulated by the patient's condition and by laboratory determinations of acetone, diacetic acid, ammonia and acidity of the urine. Alveolar air determinations are a reliable guide concerning acidosis. The Marriott apparatus is simple and sufficiently accurate.

The laboratory record of a case of severe diabetes is shown in the accompanying chart. The periods of fasting are indicated. The early record, showing acidosis and considerable sugar, contrasts with the later maintenance of a good report. When the patient went home he was able to take care of 83 gm. of protein, 147 of fat and 58 of carbohydrate—1,887 calories. The record of this case is shown through the kindness of Dr. Charles G. Stockton.

The patient, on presenting himself, had the clinical appearance of severe acidosis. His alveolar air was 17 mm.; that is, close to the danger point. The blood sugar was 0.47 gm. in 100 c.c. of blood. The urinary ammonia was high, as were also the acetone and diacetic acid. These figures and others are shown in the chart.



Laboratory record of a case of severe diabetes.

Various gradations of diet are necessary between the fasting periods, and thereafter, until the patient shall have become accommodated to caloric values that will maintain him satisfactorily. The morning's laboratory findings may show necessity for a change which may need to be made in time so that orders may be given both to the cook and to the grocer.

What combinations of protein, fat and carbohydrate are likely to be needed? Tables here shown illustrate such values as are helpful in following the scheme of treatment outlined by Joslin,[1] which he presents also in the form of directions to the patient.[2]

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[1] Joslin: Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1917.

[2] Joslin: Diabetic Card, Form J. 8, Boston, Thomas Groom & Co., 105 State Street.

A diet virtually fat-free precedes the fasting period. Patients not having special tendency to acidosis are, according to this plan, put on from 100 to 200 gm. of 5 per cent. vegetables[3] and any desired amount of thin broth (containing no fat, little salt and low protein). Patients accustomed to full feeding must start with higher values of carbohydrate. Daily halving of these amounts will precede their final removal for the days of fasting, and avoid putting the patient too quickly on his own reserves of fat.

Table 1, Column 1, shows values for the 5 per cent. group of vegetables increasing 200 gm. at a time, protein being thus increased 4 gm. and carbohydrate 6 gm. for each two hundred. The 10 per cent. vegetables may be calculated in this column, 100 gm. of these being equivalent to 200 gm. of the 5 per cent. group. Any desired amount of 15 per cent. vegetable multiplied by 4 is approximately expressed as 5 per cent. vegetable. When feeding values are low, the 5 per cent. vegetables help satisfy appetite by their bulk. If values are higher, some of the 10 per cent. or of the 15 per cent. group are selected.

Table 1, Column 2, adds 30 gm. of potato to Column 1; Column 3, 30 gm. more, and Column 4, 30 gm. more. Columns 5, 6 and 7 represent the addition of bread, 30 gm. at a time. Throughout the tables here given, each column represents the amount of the preceding column plus the amount of a given food indicated at the head of the column.

TABLE 1.—VALUES FOR THE 5 PER CENT. GROUP OF VEGETABLES AND OF THE POTATO AND BREAD INCREASES

Column 1				2			3			4			5			6			7		
5 per Cent. Vegetable or Equivalent				Column 1 and 30 Gm. Potato			Column 2 and 30 Gm. Potato			Column 3 and 30 Gm. Potato			Column 4 and 30 Gm. Bread			Column 5 and 30 Gm. Bread			Column 6 and 30 Gm. Bread		
Gm.	P.	CH.	Cal.	P.	CH.	Cal.	P.	CH.	Cal.	P.	CH.	Cal.	P.	CH.	Cal.	P.	CH.	Cal.	P.	CH.	Cal.
200	4	6	40	5	12	68	6	18	96	7	24	124	10	42	208	13	60	292	16	78	376
400	8	12	80	9	18	108	10	24	136	11	30	164	14	48	248	17	66	332	20	84	416
600	12	18	120	13	24	148	14	30	176	15	36	204	18	54	288	21	72	372	24	90	456
800	16	24	160	17	30	188	18	36	216	19	42	244	22	60	328	25	78	412	28	96	496
1,000	20	30	200	21	36	228	22	42	256	23	48	284	26	66	368	29	84	452	32	102	536
1,200	24	36	240	25	42	268	26	48	296	27	54	324	30	72	408	33	90	492	36	108	576
1,400	28	42	280	29	48	308	30	54	336	31	60	364	34	78	448	37	96	532	40	114	616
1,600	32	48	320	33	54	348	34	60	376	35	66	404	38	84	488	41	102	572	44	120	656
1,800	36	54	360	37	60	388	38	66	416	39	72	444	42	90	528	45	108	612	48	126	696
2,000	40	60	400	41	66	428	42	72	456	43	78	484	46	96	568	49	114	652	52	132	736
2,200	44	66	440	45	72	468	46	78	496	47	84	524	50	102	608	53	120	692	56	138	776
2,400	48	72	480	49	78	508	50	84	536	51	90	564	54	108	648	57	126	732	60	144	816
2,600	52	78	520	53	84	548	54	90	576	55	96	604	58	114	688	61	132	772	64	150	856
2,800	56	84	560	57	90	588	58	96	616	59	102	644	62	120	728	65	138	812	68	156	896
3,000	60	90	600	61	96	628	62	102	656	63	108	684	66	126	768	69	144	852	72	162	936
3,200	64	96	640	65	102	668	66	108	696	67	114	724	70	132	808	73	150	892	76	168	976
3,400	68	102	680	69	108	708	70	114	736	71	120	764	74	138	848	77	156	932	80	174	1,016
3,600	72	108	720	73	114	748	74	120	776	75	126	804	78	144	888	81	162	972	84	180	1,056
3,800	76	114	760	77	120	788	78	126	816	79	132	844	82	150	928	85	168	1,012	88	186	1,096
4,000	80	120	800	81	126	828	82	132	856	83	138	884	86	156	968	89	174	1,052	92	192	1,136
4,200	84	126	840	85	132	868	86	138	896	87	144	924	90	162	1,008	93	180	1,092	96	198	1,176
4,400	88	132	880	89	138	908	90	144	936	91	150	964	94	168	1,048	97	186	1,132	100	204	1,216
4,600	92	138	920	93	144	948	94	150	976	95	156	1,004	98	174	1,088	101	192	1,172			
4,800	96	144	960	97	150	988	98	156	1,016	99	162	1,044	102	180	1,128						
5,000	100	150	1,000	101	156	1,028	102	162	1,056												

Table 1 serves in the days immediately preceding or following a fast, when fat is to be given in negligible amounts.

ILLUSTRATION OF THE METHOD

The patient has been limiting carbohydrate of his own accord, is a moderate eater, and has no particular tendency to acidosis.

He may be given 100 gm. of carbohydrate (provided this is not more than he has been having and not too sudden a decrease). Fats should be omitted. Protein, from 50 to 100 gm., may be given.

Table 1, Column 5, at 102 gm. of carbohydrate calls for 2,200 gm. of 5 per cent. vegetable or equivalent, 90 gm. of potato, and 30 gm. of bread. This represents 50 gm. of protein and 102 gm. of carbohydrate.[3]

The diet here given contains the equivalent of 2,200 gm. of 5 per cent. vegetable, 90 gm. of potato and 30 gm. of bread. It contains 102 gm. of carbohydrates and 50 gm. of protein, as shown in Table 1, Column 5.

ILLUSTRATIVE DIET CONTAINING 50 GM. OF PROTEIN AND 102 GM. OF FAT

	5% Vegetable, Gm.
Breakfast—	
Coffee	
Half of small orange, approximately equivalent to...	200
Tomatoes, 200 gm.	200
Celery, 100 gm.	100
Lettuce, 100 gm.	100
Dinner—	
Broth, 300 c.c.	
Potato, 60 gm.	
Beets, (10% group), 100 gm.	200
Cabbage, 300 gm.	300
String beans, 300 gm.	300
Supper—	
Potato, 30 gm.	
Bread, 30 gm.	
Squash (10%), 100 gm.	200
Turnip (10%), 100 gm.	200
Spinach, 300 gm.	300
Water cress, 100 gm.	100
Total	2,200

Table 2 provides for increasing amounts of 5 per cent. vegetable plus 300 c.c. of broth. In Column 3 of this table, fish (such kind as contains little fat) is first added. Column 4 adds one egg. If carbohydrate tolerance and fat tolerance are low, it is rarely possible to gain much by too great an increase of protein. Consequently, in Column 5 another egg (6 gm. of protein and 6 of fat) is added. If greater increase of protein is desired before the admission of fat, the whites of eggs may be given (the white of one egg contains 3 gm. of protein). In the next two columns, the use of cream and butter leads to a slow increase of the fat, though this is still kept below the protein. Addition of lean meat, 30 gm. at a time, makes possible a gradual protein increase, and 20 gm. of cheese (American pale)[4] increases both protein and fat moderately and contains only a decimal part of carbohydrate. Since the protein is ordinarily not to be increased to exceed the normal of 100 gm., addition of fat is now made slowly but more continuously, the protein in the table having reached from 74 to 102 gm.

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[3] For lists of the 5, 10 and 15 per cent. vegetables see publications cited in either Note 1 or Note 2.

[4] Atwater and Bryant: The Chemical Composition of American Food Materials, Bull. No. 28, U. S. Dept. of Agric., Washington, D. C., 1906.

It is to be noted that eventually, if the diabetic is to get good caloric value, he must do so by habituating himself to the use of fats, even allowing that he has good tolerance for carbohydrate; and, if one supposes, for example, such tolerance to be at 100 gm. the patient can have 100 gm. of protein and 100 gm. of carbohydrate, 800 calories. If he is to have even as high as 2,000 calories a day, 1,200 of this amount must then be given as fat, i. e., 133 gm. of fat.

When carbohydrate is being reduced the patient may be so relieved by diminished thirst that he takes pride in drinking very little. This tendency should be counteracted by the prescribing of the amount of fluid intake.

TABLE 2.—VALUES FOR THE 5 PER CENT. GROUP OF VEGETABLES AND OF THE VARIOUS INCREASES (BROTH, FISH, EGG, FAT, LEAN MEAT, ETC.)

Column 1	2			3			4				5				6				7			
5% Vegetable or Equivalent	Column 1 and 300 C.c. Broth			Column 2 and 90 Gm. Fish			Column 3 and 1 Egg				Column 4 and 1 Egg				Column 5 and 30 C.c. 20% Cream				Column 6 and 10 Gm. Butter			
Gm.	P.	CH.	Cal.	P.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.
200	13	6	76	31	6	148	37	6	6	226	43	12	6	304	44	18	7	366	44	26	7	438
400	17	12	116	35	12	188	41	6	12	266	47	12	12	344	48	18	13	406	48	26	13	478
600	21	18	156	39	18	228	45	6	18	306	51	12	18	384	52	18	19	446	52	26	19	518
800	25	24	196	43	24	268	49	6	24	346	55	12	24	424	56	18	25	486	56	26	25	558
1,000	29	30	236	47	30	308	53	6	30	386	59	12	30	464	60	18	31	526	60	26	31	598
1,200	33	36	276	51	36	348	57	6	36	426	63	12	36	504	64	18	37	566	64	26	37	638
1,400	37	42	316	55	42	388	61	6	42	466	67	12	42	544	68	18	43	606	68	26	43	678
1,600	41	48	356	59	48	428	65	6	48	506	71	12	48	584	72	18	49	646	72	26	49	718
1,800	45	54	396	63	54	468	69	6	54	546	75	12	54	624	76	18	55	686	76	26	55	758
2,000	49	60	436	67	60	508	73	6	60	586	79	12	60	664	80	18	61	726	80	26	61	798
2,200	53	66	476	71	66	548	77	6	66	626	83	12	66	704	84	18	67	766	84	26	67	838
2,400	57	72	516	75	72	588	81	6	72	666	87	12	72	744	88	18	73	806	88	26	73	878
2,600	61	78	556	79	78	628	85	6	78	706	91	12	78	784	92	18	79	846	92	26	79	918
2,800	65	84	596	83	84	668	89	6	84	746	95	12	84	824	96	18	85	886	96	26	85	958
3,000	69	90	636	87	90	708	93	6	90	786	99	12	90	864	100	18	91	926	100	26	91	998
3,200	73	96	676	91	96	748	97	6	96	826	103	12	96	904								
3,400	77	102	716	95	102	788	101	6	102	866												
3,600	81	108	756	99	108	828																
3,800	85	114	796																			
4,000	89	120	836																			
4,200	93	126	876																			
4,400	97	132	916																			
4,600	101	138	956																			

8				9				10				11				12				13				14			
Column 7 and 30 Gm. Lean Meat				Column 8 and 30 Gm. Lean Meat				Column 9 and 30 Gm. Lean Meat				Column 10 and 20 Gm. Am. Pale Cheese				Column 11 and 30 C.c. 20% Cream				Column 12 and 30 C.c. 20% Cream				Column 13 and 10 Gm. Butter			
P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.
52	31	7	515	60	36	7	592	68	41	7	669	74	48	7	756	75	54	8	818	76	60	9	880	76	68	9	952
56	31	13	555	64	36	13	632	72	41	13	709	78	48	13	796	79	54	14	858	80	60	15	920	80	68	15	992
60	31	19	595	68	36	19	672	76	41	19	749	82	48	19	836	83	54	20	898	84	60	21	960	84	68	21	1,032
64	31	25	635	72	36	25	712	80	41	25	789	86	48	25	876	87	54	26	938	88	60	27	1,000	88	68	27	1,072
68	31	31	675	76	36	31	752	84	41	31	829	90	48	31	916	91	54	32	978	92	60	33	1,040	92	68	33	1,112
72	31	37	715	80	36	37	792	88	41	37	869	94	48	37	956	95	54	38	1,018	96	60	39	1,080	96	68	39	1,152
76	31	43	755	84	36	43	832	92	41	43	909	98	48	43	996	99	54	44	1,058	100	60	45	1,120	100	68	45	1,192
80	31	49	795	88	36	49	872	96	41	49	949	102	48	49	1,036	103	54	50	1,098								
84	31	55	835	92	36	55	912	100	41	55	989																
88	31	61	875	96	36	61	952																				
92	31	67	915	100	36	67	992																				
96	31	73	955																								
100	31	79	995																								

15				16				17				18				19				20				21				22			
Column 14 and 10 Gm. Butter				Column 15 and 30 Gm. Bacon				Column 16 and 30 C.c. 20% Cream				Column 17 and 30 Gm. Lean Meat				Column 18 and 1 Egg				Column 19 and 10 Gm. Butter				Column 20 and 15 C.c. Olive Oil				Column 21 and 15 C.c. Olive Oil			
P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.	P.	F.	CH.	Cal.
76	76	9	1,024	81	91	9	1,179	82	97	10	1,241	90	102	10	1,318	96	108	10	1,396	96	116	10	1,468	96	131	10	1,603	96	146	10	1,738
80	76	15	1,064	85	91	15	1,219	86	97	16	1,281	94	102	16	1,358	100	108	16	1,436	100	116	16	1,508	100	131	16	1,643	100	146	16	1,778
84	76	21	1,104	89	91	21	1,259	90	97	22	1,321	98	102	22	1,398																
88	76	27	1,144	93	91	27	1,299	94	97	28	1,361	102	102	28	1,438																
92	76	33	1,184	97	91	33	1,339	98	97	34	1,401																				
96	76	39	1,224	101	91	39	1,379	102	97	40	1,441																				
100	76	45	1,264																												

In addition to the tables herewith shown, many others may well be made out following whatever course is indicated. Familiarity with such outlines gives a comprehensive view of the dietetic procedure. Comparison of dietetic changes with laboratory charts and with the condition of the patient makes a definite picture of the course of diabetic cases.

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VITILIGO AND SYPHILIS

AN EXAMINATION OF THE EVIDENCE FOR THE SYPHILITIC ORIGIN OF VITILIGO [*]

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In the general confusion of dermatologic terminology, the achromias and dyschromias are particularly conspicuous, and vitiligo perhaps stands preeminent among them for the vagueness with which the name is used and for the variety of meanings attached to it. There is no general agreement among dermatologists as to what is meant by vitiligo, and almost every one who has written on the subject in English has given it a different signification, a fact to which I have previously called attention.[1] A recently observed designation of white scars, such as are produced by gummas or by tubercular syphilids as vitiligo, is an extreme example of what appears to me to be a misuse of the term.

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[*] Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Lane, J. E.: Albinism, Leucoderma, Vitiligo, Med. Rec. **90**: 986, 1916.

In this paper I use vitiligo as defined by the French school of dermatologists, not with the intention of making an etiologic distinction between some of the different dyschromias, but because the French definition is clear, definite and limited; because it is the one definition that is accepted by an entire school of dermatologists, and because I see no escape from confusion except by limiting the subject under discussion. The obscurity of the etiology of many of the dyschromias necessitates, for the present at least, the clear differentiation of the distinct clinical types, although it is possible and even probable that many of them have the same causation, and vary clinically with the degree of activity of the etiologic factor, as it is also possible and likely that some identical manifestations may have different etiologies.

DIFFERENTIATING SYMPTOMS

Since Hardy and Bazin, the French have differentiated vitiligo and leukoderma, which had previously been used synonomously, and which to a large extent are still so used by German, English and American dermatologists. Referring to the German usage, Besnier and Doyon,[2] in their translation of Kaposi, said that "for us there is no achromatic vitiligo; vitiligo is always both achromatic and hyperchromatic."

Vitiligo, then, is defined as an acquired dyschromia, characterized by the development of one or more sharply limited spots of depigmentation surrounded by a more or less extensive hyperpigmented border, showing no modification of the structure or function of the skin.

It is sharply differentiated from leukoderma, which is an acquired achromia only (that is, achromia without any attendant hyperchromia), and it does not include the rare leukomelanoderma of Fournier nor the areolar pigmentary syphilid of the neck, described by Hardy in 1853, and later so thoroughly studied by Fournier and others.

FORMER VIEWS OF ITS ETIOLOGY

Those who have studied vitiligo have suggested many diseases as its cause, in fact almost all of the diseases with which it is occasionally associated have been considered. As is usual in diseases of obscure etiology, disturbances, defects or diseases of the nervous system have frequently been invoked to cover a lack of information, and such different nervous conditions as tabes and sudden fright are suggested. One case is even reported in which a fright during the night was, the next morning, found to have produced a patch of vitiligo (I suspect the author meant leukoderma) covered with hair which had bleached at the same time.[3] Among other diseases which have been mentioned as possible causes of vitiligo are hyperthyroidism and hypothyroidism, exophthalmic goiter and myxedema, Addison's disease, chorea, psoriasis, pernicious anemia, colitis, various diseases of the biliary organs, scarlet fever, various diseases of the eye, traumatism and autointoxication, lichen planus and giant colon. And McDonagh[4] has recently suggested disturbances of the sympathetic nerve system.

RECENT VIEW OF ITS ETIOLOGY

The possibility of vitiligo being of syphilitic origin is a comparatively recent suggestion, though in 1882 Leloir[5] had noticed its frequent occurrence in tabetics. This, however, was before tabes had been accepted as a syphilitic disease. In 1889 Tenneson[6] called attention to the occurrence of vitiligo in syphilitics, and a few years later others noted the same thing. Little or no attention was paid to these observations and it was not until 1902 that syphilis seriously entered into consideration as a possible cause of vitiligo. In that year Marie and Guillain,[7] Souques[8] and Marie and Crouzon[9] reported cases and aroused considerable interest in the subject by definitely propounding the question of whether there was an etiologic relationship between them.

In 1905 Thibierge[10] published an article reviewing the previous observations on the question and at the same time reported three cases of vitiligo in patients in whom vitiligo had been present for some time before the acquisition of syphilis. He recognized the possibility of the acquired syphilis being a second infection of a patient with attenuated hereditary syphilis, but deemed it improbable, as demonstrated cases of such infections were extremely rare. Thibierge did not entirely reject the theory of the syphilitic origin of vitiligo but remarked, as previous observers had, that the question was difficult and that a large number of observations would have to be collected before a conclusion could be reached.

Thibierge's observations apparently discouraged interest in the subject for some time, as it attracted almost no attention from that time until four or five years ago. The discovery of the Wassermann reaction had in the meantime added a means of demonstrating syphilis in many cases in which it had previously not been demonstrable. In 1914 Crouzon and Foix[11] and others called attention to the presence of vitiligo in hereditary syphilitics.

The following recent statements are fairly typical of the various opinions that are now held in regard to the syphilitic etiology of vitiligo:

Darier[12] says, "I have been struck with the relative frequency of syphilis in patients having vitiligo, as have several other authors; we cannot, however, at present admit that a syphilitic origin exists, and still less can we admit that all vitiligo is dependent on this infection." Pautrier[13] says, "The syphilitic origin of vitiligo is manifesting itself more and more frequently since it has been searched for systematically especially by means of the Wassermann reaction." Hudelo[14] says, "In spite of everything, the opinion which tends to attach certain cases of vitiligo to syphilis is becoming general." Milian[15] says, "Vitiligo is a pure syphilitic manifestation."

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[2] Besnier et Doyon, in Kaposi: Leçons sur les maladies de la peau, Paris **2**: 151, 1881.

[3] Hesse: Ein aetiologisch interessanter Fall von Vitiligo, Deutsch. med. Wchnschr. **35**: 1753, 1909.

[4] McDonagh, J. E. R.: Treatment of Some Skin Diseases Based on the Theory of Oxidation and Reduction, Brit. J. Dermat. **30**: 67, 1918.

[5] Leloir: Recherches cliniques et anatomo-pathologiques sur les affections cutanées d'origine nerveuse, Thèse de Paris, 1881.

[6] Tenneson: Vitiligo et syphilis, Ann. de dermat. et syph. **10**: 345, 1889.

[7] Marie et Guillain: Vitiligo avec symptomes tabétiformes, Rev. neurol. **10**: 273, 1902.

[8] Souques: Vitiligo et signe d'Argyll-Robertson, Rev. neurol. **10**: 247, 1902.

[9] Marie et Crouzon: Vitiligo et syphilis, Bull. Soc. franç. de dermat. et syph. **13**: 414, 1902.

[10] Thibierge: Sur les relations du vitiligo et de la syphilis, Ann. de dermat. et syph. **6**: 128, 1905.

[11] Crouzon et Foix: Vitiligo et hérédo-syphilis, Bull. et mém. Soc. méd. d. hôp. de Par. **37**: 780, 1914.

[12] Darier: Précis de dermatologie, Ed. 2, 1918, p. 360.

[13] Pautrier et Rabreau: Vitiligo chez un syphilitique présentant encore des lésions erythémateuses en bordure des placards achromiques, Bull. Soc. franç. de dermat. et syph. **25**: 314, 1914.

[14] Hudelo: Discussion of Pautrier et Rabreau, Bull. Soc. franç. de dermat. et syph. **25**: 318, 1914.

REPORTS OF CASES IN WHICH ITS RELATION TO SYPHILIS IS DISCUSSED

In this paper I have attempted to collect the case reports in which the question of the relationship of syphilis and vitiligo is discussed, and have examined most of the literature on the achromias and dyschromias published since 1906, that date being a convenient starting point, as it was the year of the publication of the discovery of the Wassermann reaction. It has, however, been impossible to consult much of the German literature of the last few years.

It is impossible in a paper of this sort to relate the details of the individual cases reported. It suffices to say that I have included only such cases as conformed to the definition of vitiligo given above and only those cases in which the question of the presence or absence of syphilis was mentioned. As might be inferred from previous remarks, it was surprising to find how many conditions are described under the name of vitiligo, and hence the large number of cases so reported that could not be included in this summary.

It should be noted that a considerable number of the cases were in patients suffering with quaternary syphilis of the central nervous system, although I have not indicated them. Table 1 gives the results obtained.

In a total of 118 cases of vitiligo sixty-one, or 51.7 per cent., were demonstrated to be syphilitic; nineteen, or 16.1 per cent., were hereditary syphilis; fifteen, or 12.7 per cent., had suspicious though not characteristic signs of hereditary syphilis; forty-two, or 35.6 per cent., were negative, or if the suspicious but unproved cases are included, fifty-seven, or 48.3 per cent., were negative.

There are, however, certain evident characteristics of statistics of this sort which prevent them from being taken at their face value. The chief one is that they are composed for large part of reports of one or two cases by different observers, many of whom have reported positive cases only, perhaps having been interested in the subject for a short time and having chanced on a case or two in which syphilis was evident. Such statistics are bound to give an unwarrantedly high percentage of positive cases. The statistics are likely to be of more value when a considerable number of cases have been carefully studied by one observer. Among the reports given above, those of Joltrain, Vignolo-Lutati, Withe and his associates are of especial interest.

Joltrain examined eighteen patients with vitiligo, of whom thirteen, or 72.2 per cent., were syphilitic; three, or 16.6 per cent., hereditary, and five, or 27.8 per cent., were negative. The details of the examinations made by Joltrain are not given, but they were undoubtedly thorough, though examination of the spinal fluid was probably not made in the negative cases.

Vignolo-Lutati examined fifteen patients, of whom five, or 33.3 per cent., were syphilitic; three, or 20 per cent., hereditary, and ten, or 66.7 per cent., were negative. The reports of positive cases showed careful investigation of the patients and though nothing is said in regard to those found not syphilitic, it is to be presumed that these were examined with the same care. Here again it is probable that the spinal fluid was not examined in the cases that were otherwise negative.

The report of Withe and his associates is of the greatest value and deserves closer examination. The patients on whom the report was based were studied at the weekly meetings of a group of English, French and Belgian army officers during the war. All but two of the patients were soldiers, two were women. The opportunities for study of the patients were ideal, as all desired examinations could be made. The patients were all carefully examined, spinal fluid examinations and provocative injections of salvarsan were made in doubtful cases, revealing three positive cases that would otherwise have remained negative or unproved.

TABLE 1.—CASES OF VITILIGO IN ITS RELATION TO SYPHILIS THAT HAVE BEEN GLEANED FROM THE LITERATURE

Author, Title and Publication	No. Patients Examined	No. Syphilitic	No. Hereditary Syphilis	No. Negative
Danlos & Dehérain: Pelade et vitiligo, Bull. Soc. franç. de dermat. et de syph. **17:** 148, 1906; also in Ann. de dermat. et de syph. **7:** 268, 1906	1	1	..	..
Marsh: A case of vitiligo with a history of heredity, New York Med. Jour. **92:** 371, 1910	1	1	1	..
Erdman: Zur Frage eines Zusammenhangs zwischen Vitiligo und Augenleiden, Klin. Monatsbl. f. Augenh. **49:** 129, 1911	1	..	..	1
Marie & Crouzon: Vitiligo et syphilis, Bull. et mém. Soc. méd. d. hôp. de Paris **34:** 8, 1912	1	1	..	..
Gaucher, Gougerot & Audebert: Vitiligo et syphilis, Bull. Soc. franç. de dermat. et de syph. **24:** 259, 1913	1	1	..	..
Bacaloglu & Parhon: Sur un cas de vitiligo à topographie en ceinture, Nouv. iconog. de la Salpétrière **26:** 309, 1913	1	1	..	..
Delacour: Vitiligo, syphilis et hérédo-syphilis, Thèse de Paris, 1913-1914	4	4	..	..
Joltrain: Discussion of Pautrier et Rabreau, Bull. Soc. franç. de dermat. et de syph. **25:** 318, 1914	18	13	3	5
Hudelo: Discussion of Pautrier, Bull. Soc. franç. de dermat. et syph. **25:** 318, 1914	1	1	..	..
Etienne: Vitiligo, épilepsie et hérédo-syphilis, Bull. et mém. Soc. méd. d. hôp. de Paris **36:** 955, 1914	1	1	1	..
Merklen & Le Blanc: Vitiligo generalisé avec signe d'Argyll Robertson, bull. et mém. Soc. méd. d. hôp. de Paris **37:** 947, 1914	1	1	..	..
Crouzon & Foix: Vitiligo et hérédo-syphilis, Bull. et mém. Soc. méd. d. hôp. de Paris **37:** 780, 1914	1	1	1	..
Pautrier & Rabreau: Vitiligo chez un syphilitique présentant encore de lésions érethémateuses en bordure des placards achromiques, Bull. Soc. franç. de dermat. et syph. **25:** 314, 1914	1	1	..	..
Arullani: La vitiligo nell'eredo-sifilide, Policlinico **24:** 1033 (sez. prat.), 1917	2	2	2	..
Guillain & Laroche: Paraplégie spasmodique avec vitiligo généralisé, Bull. et mém. Soc. méd. d. hôp. de Paris **37:** 91, 1914	1	1	..	..
Merklen: A propos de l'origine syphilitique du vitiligo, Bull. et mém. Soc. méd. d. hôp. de Paris **41:** 769, 1917; also in Jour. de méd. de Paris, **37:** 15, 1918	2	1	..	1
Khoury: Deux cas de vitiligo syphilitique: Importance de la pathogénie syphilitique du vitiligo dans les foyers endémiques de lèpre, Bull. et mém. Soc. méd. d. hôp. de Paris **38:** 85, 1914	2	2	..	..
Lane, J. E.: Personal cases not previously reported: clinical examination and Wassermann reaction: spinal fluid not examined	3	1	1	2
Auer: Vitiligo and syphilis of the central nervous system, Am. Jour. Med. Sc. **154:** 592, 1917	4	4	..	..
Gougerot: Vitiligo familial et hérédo-syphilis, Bull. Soc. franç. de dermat. et de syph. **25:** 334, 1914	1	1	1	..
Pautrier: Vitiligo et syphilis, Bull. Soc. franç. de dermat. et de syph. **25:** 335, 1914	2	2	1	..
Balzer & Galliot: Contribution à l'étude du vitiligo syphilitique, Bull. Soc. franç. de dermat. et de syph. **25:** 357, 1914	3	1	..	2
Vignolo-Lutati: Vitiligo e siphilide, Gior. ital. d. mal. ven. **57:** 317, 1916 (this article is abstracted in Jour. Cutan. Dis. **25:** 269, 1917)	15	5	3	10
Withe, Dawson, Brown, MacWirter, Vanhaecke, Campinchi, Dujardin & Colard: Vitiligo et Syphilis, Presse méd, **69:** 640, 1918 *	50	14	5	21
Totals	118	61	19	42
Percentages		51.7	16.1	35.6
Negative (including suspicious but unproved cases)				57 48.3%

* Number suspicious (not proved), 15 (12.7%).

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[15] Milian: Discussion of Pautrier et Rabreau, Bull. Soc. franç. de dermat. et syph. **25:** 319, 1914.

Fifty patients were examined, of whom fourteen, or 28 per cent., were syphilitic; five, or 10 per cent., were hereditary; fifteen, or 30 per cent., showed signs suspicious but not conclusive of hereditary syphilis; twenty-one, or 42 per cent., were negative; or counting the suspicious but unproven cases as negative, thirty-six, or 72 per cent., were negative.

The results obtained by these three observers show a striking similarity. Taken together, they give the results shown in Table 2, all unproved cases being classed as negative.

TABLE 2.—RELATION OF VITILIGO TO SYPHILIS IN THE CASES OF THREE OBSERVERS

	Number of Patients	Syphilitic		Hereditary		Negative	
		No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Joltrain........	18	13	72.2	3	16.6	5	27.8
Vignolo-Lutati..	15	5	33.3	3	20.0	10	66.7
Withe et al.	50	14	28.0	5	10.0	36	72.0
Total..........	83	32	38.5	11	13.2	51	61.5

Of eighty-three cases of vitiligo, thirty-two, or 38.5 per cent., were in syphilitics. Not included in the figures given in Table 2 there were in Withe's series four additional patients who had vitiligo previous to contracting syphilis. These observations confirm those made previously by Thibierge, though their deduction differs from his. They conclude that "this fact is not an objection to a primary hereditary infection. Binary syphilis must be especially frequent in the attenuated forms of hereditary syphilis."

Remarking on the fifteen patients who showed signs suspicious of hereditary syphilis, but in whom syphilis could not be certainly demonstrated, Withe and his associates say that "if vitiligo begins in infancy, it frequently coexists with signs which may be interpreted as belonging to a benign form of hereditary syphilis; on the other hand, the classical signs of hereditary syphilis are lacking in such cases." The deduction made by them from their results is that "it is impossible to arrive at the definite conclusion that there is a relation of cause and effect between syphilis and vitiligo, but the intensive study of the cases (including reactivation) is causing this hypothesis to gain ground."

It seems to me that this is a conservative conclusion to be drawn from their cases, as well as from the other cases here collected, and that it is as far as present evidence permits us to go.

Up to the present no other disease has been demonstrated to be present in anything like this proportion in patients with vitiligo, and one deduction at least is certain, that the search for syphilis is demanded in every case of vitiligo.

I will close with the subject with which I began by making the suggestion that while the etiology of the dyschromias remains as obscure as it is at present, it will assist a little in clarifying the discussions on them, to differentiate the different clinical forms as sharply as possible. The use of the term vitiligo as defined by the French school seems to be the logical one.

ABSTRACT OF DISCUSSION

Dr. William Allen Pusey, Chicago: With reference to the distinction between leukoderma and vitiligo, which the French make, there is no ground for such a distinction. Leukoderma means a loss of pigment in an area with an increase of pigment around it. I have never seen a case without this increase of pigment around it and when it did not appear macroscopically it could always be found microscopically. I submit that the opinions on vitiligo and syphilis are not conclusive and until they are proved conclusively why should we suppose that anybody with a white spot on his skin has syphilis? Why should anybody who sees a dyschromia on a person's skin think of syphilis? It quite often causes it but in quite a different form, just as syphilis causes an alopecia, but a true alopecia is quite different from syphilitic alopecia. We have a number of other granulomas, why not indite them? Leukodermias are not rare; vitiligos of the type Dr. Lane describes are not rare, and in my experience they have not occurred in people in whom I could find syphilis or where I had good grounds for suspecting syphilis. I have not made a Wassermann test for vitiligo and I have not made spinal punctures for vitiligo because I feel that a person who is still alive is entitled to some consideration, but I have watched for syphilis in cases of vitiligo and I am willing to say that in my experience I have found nothing to strengthen that ground.

Dr. Harry G. Irvine, Minneapolis: It would be extremely unfortunate to regard with suspicion any one who has a white spot on the face. I have watched very carefully, with negative results. We examined fifty patients carefully for syphilis. After examining twenty-five or thirty the results were so much in the negative side, only two or three cases having been found in which syphilis was present, that we gave up the work.

Dr. Fred Wise, New York: I agree with Dr. Pusey that I cannot differentiate the French vitiligo and our leukoderma. I also agree with Dr. Pusey in regard to the relationship between vitiligo and syphilis. However, vitiligo may be produced in people due to changes which syphilis may also produce. Vitiligo may be produced by headaches or cholecystitis or any other reason in the same way that syphilis produces it, by the endocrine glands.

Dr. Jay Frank Schamberg, Philadelphia: I have seen vitiligo begin simultaneously in a young woman who developed an exophthalmic goiter. There are numerous reports in the literature referring to disturbances in the thyroid gland and concomitant to vitiligo. Syphilis is such a widespread disease that we must expect to find a certain percentage of vitiligo in syphilis. Dr. Lane's paper is valuable because it enables us to study the two affections. I believe with Dr. Wise that the lodgment of spirochetes in certain places may result in vitiligo. We all recall that in recent years there was a tendency on the part of some authors to associate scleroderma and syphilis. There is no doubt that vitiligo may be found in a large number of syphilitics, but I cannot believe that syphilis is the cause of vitiligo.

Dr. Joseph Zeisler, Chicago: I have had a lady under my observation for several years who has had vitiligo which did not change very much. About six months ago she developed a scleroderma and recently a zoster on the chest. It is well known that all these conditions are attributed by many observers to disturbance of the trophic nerves. So far as vitiligo and syphilis are concerned, I have noticed a few cases of coincident syphilis and vitiligo and also diffused symptoms of syphilis, but not of causal relationship, simply a coincidence.

Dr. Henry H. Hazen, Washington, D. C.: It seems to me that the matter of pigment around the edges of these patches is due to the amount of exposure to the sun. I know of one instance in which seven members of the family have vitiligo, but when they are in the house in the winter or when they are ill there is practically no pigmentation. In the summer time when they are exposed to the sun the border is more pronounced. I cannot see that there is much difference between the cases with hyperpigmentation and those without; I think it is a question of sunlight. I have examined twenty-one patients who consented to a blood Wassermann test, and only one had a positive Wassermann reaction.

Dr. Henry R. Varney, Detroit: We are familiar with the conception of the French, but I must agree with Dr. Pusey that I cannot differentiate these two conditions. I believe that much is due to the color and race of people who are examined.

Dr. John E. Lane, New Haven, Conn.: I do not think Dr. Pusey thought I had an argument of the syphilitic origin of vitiligo. I did not intend to give that impression, but the frequency with which syphilis occurs in the general population accounts for much of it. We get reports which are not accurate because they are reported by different observers, who get only 33 per cent. of syphilis. That is considerably more than the French give, but we certainly could not put it down as of etiologic significance. Dr. Schamberg refers to exophthalmic goiter. I found a large number of such cases recorded in the literature and that a cause looks likely in a certain number of cases. As far as the pigmentation being due to the sun is concerned, I do not believe that is entirely so. It may be in some cases, but some of the most deeply pigmented patches occurred on the body where it was covered with corsets and other clothing, where the action of sunlight could have very little, if any, effect. My point in separating vitiligo from the other dyschromias was not for differentiation. My point in calling attention to that was to impress on us that we cannot give a different definition for vitiligo every time we write on the subject. I think it is perfectly satisfactory to use the terms vitiligo and leukoderma synonymously. If everybody would define them as Schamberg does in his book, a white spot with a hyperpigmented border, that would be absolutely satisfactory; but when you look through the textbooks on the subject you are merely confused. McDonough says it is usually surrounded by a hyperpigmented border; but at the end of the paragraph he says this certainly is the exception and not the rule. Some authors say the change may be primary or secondary. You cannot include the syphilid of the neck in vitiligo; we know the etiology of that, and it simply is to differentiate the pure achromias which we are studying that I brought that point out.

THE PSYCHIC FACTOR AS AN ELEMENT IN TEMPERATURE DISTURBANCE

SHOWN BY SOME OBSERVATIONS IN THE SELECTIVE DRAFT *

FRANK B. WYNN, M.D.
INDIANAPOLIS

Medical men are quite familiar with the temperature variations associated with the commoner clinical syndromes. Pneumonia, typhoid and similar conditions often present such typical febrile reactions that physicians are prone to associate the merely clinical picture with the temperature curve, little considering the underlying pathologic physiology of the variation. But fever and temperature elevation are hardly synonymous. In the words of MacCallum[1]: "Although elevation of body temperature is one of the salient points, it is by no means the only characteristic, nor is it itself always to be regarded as an infallible sign of fever."

Clearly, it is of considerable practical importance to recognize and interpret the type of temperature change which is unaccompanied by noticeable clinical signs. This kind of variation has been noted repeatedly, particularly by physiologists, who have definitely shown, both in the case of man and of certain experimental animals, that exercise,[2] the taking of food[3] and changing of posture[4] are accompanied by very distinct temperature variations. In the literature are numerous instances of diurnal temperature fluctuation in man and lower members of the animal kingdom. The daily amplitude of the crow is 3 degrees F.[1] The thrush, sea-gull, pigeon and owl have a fairly constant curve, the amplitude varying inversely with the size of the bird.[5] Monkeys have a definite diurnal curve, rising and falling with activity and rest, with an amplitude of 4.5 degrees F. Man's diurnal wave resembles the monkey's, except that the limits of variation are narrower, and the contour of the curve seems less affected by changes in activity.[6]

The credit for observing and attempting to interpret some of these obscure temperature changes belongs, principally, to the physiologists. In large measure, they are also responsible for studying and ascertaining, at least in part, the physiologic determinants of body heat control. It will be well to review briefly some of these forces and the influences modifying them; for it is only through familiarity with these facts that temperature variations, particularly of the nonfebrile type, become explicable.

HEAT REGULATION

That body temperature depends on a balance between heat production and heat dissipation is generally accepted, but the mechanism maintaining the balance is a mooted question. The evidence of earlier workers seemed to establish the existence of a "heat center" at the base of the brain.[7] Richter[8] noted that a dog with a normal temperature of 101.5 F. shivered on lowering, and perspired on rising, the temperature from this point; the same dog, with a fever of 104.7 F., showed the same reaction when his temperature was varied from this new level. Another investigator[9] observed no temperature variation following antipyretics or septic injections after section of the basal cerebral nuclei. With the "heat center" theory came the convenient and attractive "thermostat" concept[10] of febrile reactions: that the center is set for one level in health and another in disease, the latter, of course, representing the optimum for the body's defensive mechanisms. According to Hewlett,[11] in disease "the nervous centers which normally control the body temperature appear to be so deranged or, one may say, so stimulated, that they regulate the body temperature at a new and abnormally high level."

But despite this evidence, many more recent workers[12] are less certain of a special heat center. Pembrey,[13] after several weeks of careful postnatal observation of heat control in young mammals and birds, concludes that the compensation between heat production and loss brought about by physical and chemical means is enough in itself to regulate temperature. Moore,[2] noting no temperature change in animals after needling the caudate nucleus and then extirpating it and the cerebrum, believes there is no cerebral heat center. In cautiously reviewing the question, Sollmann[14] concludes that while it is attractively convenient to assume a special heat regulating mechanism

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* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] MacCallum, W. G.: Harvey Lecture, 1908.

[2] Moore, L. M.: Regulation of Body Temperature in Rabbit, Am. J. Physiol. **46**: 244 (June) 1918. Galbraith: Proc. Physiol. Soc., London **30**: 29, 1903.

[3] Moore (Footnote 2).

[4] Kraus: Arch. f. exper. Path. u. Pharmakol. **72**: 97, 1903.

[5] Galbraith (Footnote 2).

[6] Galbraith: Proc. Physiol. Soc. London **30**: 19, 1903.

[7] Aronsohn and Sachs: Arch. f. d. ges. Physiol. **37**: 232, 1886.

[8] Richter: Virchows Arch. f. path. Anat. **123**: 118.

[9] Sawadowski: Centralbl. f. d. med. Wissensch. 1888, p. 145.

[10] Cushny, A. R.: Textbook of Pharmacology, Philadelphia, Lea and Febiger, 1915, p. 479.

[11] Hewlett: Oxford Medicine **1**, pt. 2, 1919, p. 139.

[12] Sachs and Green: Am. J. Physiol. **42**: 603, 1916. Mosso, Arch. f. exper. Path. u. Pharmakol. **26**: 316, 1890.

[13] Pembrey, M. S.: Lancet **2**: 217 (Aug. 5) 1916.

[14] Sollmann: Manual of Pharmacology, 1917, p. 448.

(probably throughout the midbrain, especially in the region of the corpora quadrigemina) there is no binding evidence of such a center.

Whatever the regulating medium—be it physiologic balance or specific nervous mechanism—the physical processes it controls, the actual determinants of the balance, are heat production and heat dissipation. Heat dissipation, since largely dependent on such processes as sweating and vasodilatation, is manifestly under sympathetic control.[1] Heat production has been variously attributed to changes in muscle tone[15] and to variations in metabolism.[16] Many physiologists—among them Pembrey and Starling—believe that the muscles, which "comprise by weight over one half of the soft parts, are the main element in heat production, heat formation varying with the state of their tone." Though Hirsch and Rolly,[17] after studying curarized animals, deny this function of the muscles and believe carbohydrate combustion in the liver responsible, the work has not been confirmed. In fact, curarized animals have since been observed to be poikilothermic.[18] If this conception of temperature-determining forces is kept clearly in mind, the explanation of nonfebrile variations in body heat becomes less difficult.

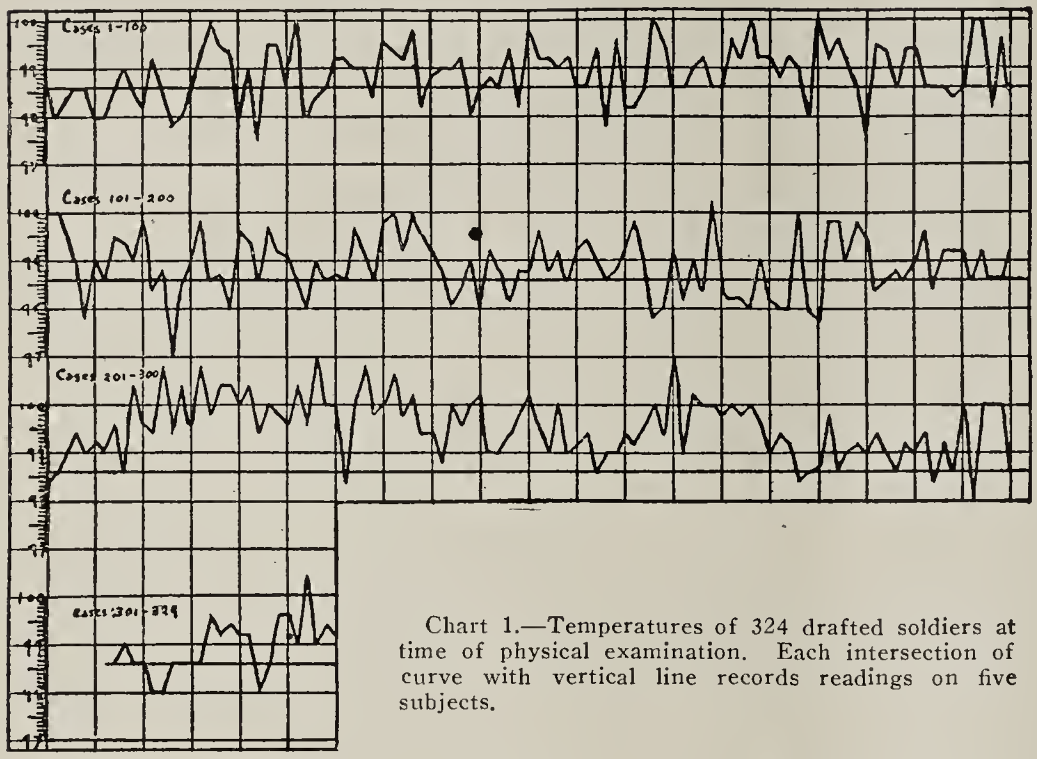

Chart 1.—Temperatures of 324 drafted soldiers at time of physical examination. Each intersection of curve with vertical line records readings on five subjects.

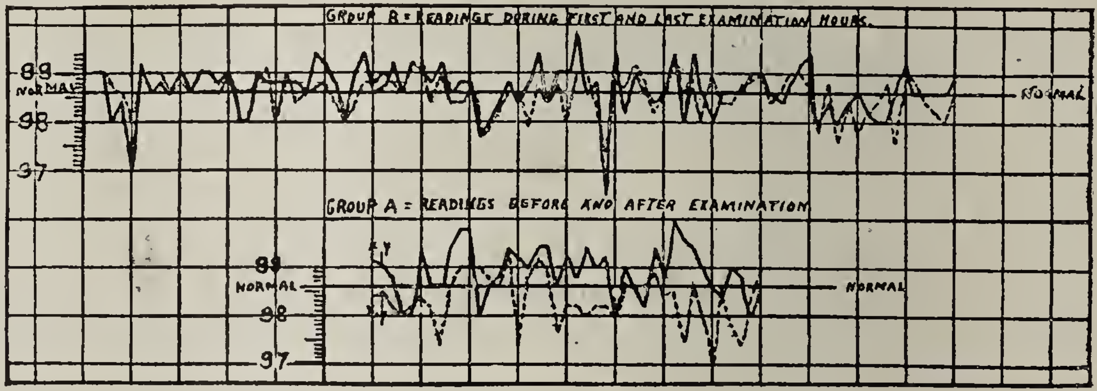

Chart 2.—Temperatures of 130 nurses before, during and after state board examination: solid line, first reading; broken line, second reading. Each intersection of curve with vertical line represents readings on five subjects; thus, *x, x* is amplitude for one nurse, and *y, y* for another.

PSYCHIC INFLUENCES

Physiologists some time ago made a start in associating definite physical causes with the characteristic fluctuations of the diurnal curve. Of more practical clinical significance would seem to be the relation of such psychic states as suspense and anxiety to temperature. Obviously, animal experimentation is impracticable in this connection. The frightened rabbit, tied to the operating board, shows temperature elevation,[3] but whether from fear, struggle or both is manifestly uncertain.

Because of these difficulties, most investigation in this direction has been on man. The temperatures of the human brain itself,[19] and of the body,[20] during mental activity, have been noted with somewhat varying results. Though Clifford Allbutt,[21] in a lengthy series, found no changes in body temperature after mental work, other observers have noted rises of 0.2 to 1.3 degrees F.[22] The data of this paper have reference, not so much to mental activity, as to fear and suspense in their relation to temperature variation. Membership on a draft examining board has enabled me to observe a fair number of selective service candidates at the time of their physical examinations (Series 1 in the accompanying tabulation.) It has also been possible to take temperature of 130 applicants taking a nurses' registration examination (Series 2). In forty of this series (Group A), the temperature was taken immediately before and after the examination; in the other ninety (Group B), during the first and last hours of the examination. The data may be thus summarized:

Series 1. The average temperature of 324 subjects, over two thirds of whom showed temperature elevation, was 99.3 F. Of the remainder, about one half were normal; the rest, subnormal.

Series 2, Group A. The average temperatures of forty subjects immediately before and after state board examination were 98.9 F. and 98.3 F., respectively.

More than two thirds showed 0.6 F. elevation before the examination. Three fifths showed over half a degree depression after it. About three fourths showed an average fall of 0.9 F. between readings.

Group B. The average temperatures of ninety subjects during the first and last hours of state board examination were 98.7 F. and 98.6 F., respectively. Only one half showed a fall between readings, averaging scarcely half a degree.

The draft figures clearly indicate a tendency to temperature elevation which is too uniform to be attributable to diurnal variation alone. Unfortunately, the exact time of the readings was not recorded, but the examinations extended through the day, and the tendency to elevation apparently characterized morning as well as afternoon. At the time of the observations the men were stripped and were in a well-heated and ventilated room, quietly waiting their turn for physical examination. (Only 5 per cent. of them gave evidence of acute infection or active tuberculosis.) Bodily surface exposure, as perhaps the only obvious physical basis for the temperature disturbance, should be borne in mind; but its importance is questionable, since its absence in Series 2 did not modify the tendency of the readings. The men naturally presented a fairly uniform mental complex—suspense, mental concern, and unrest.

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[15] Pembrey (Footnote 13) Wilson: Brain **36**: 427, 1913. Starling: Textbook of Physiology, 1915, p. 1170.

[16] Senator and Richter: Ztschr. f. klin. Med. **54**: 16, 1904.

[17] Hirsch and Rolly: Deutsch. Arch. f. klin. Med. **75**: 307, 1903.

[18] Starling (Footnote 15).

[19] Cavazzani: Arch. ital. de biol. **18**: 328, 1893.

[20] Mosso: Proc. Roy. Soc. London **51**: 83, 1892. Hill, Nabarro: J. Physiol. **18**: 218, 1895. Roy, Sherrington: Ibid. **11**: 85, 1890.

[21] Allbutt, quoted by Pembrey: Schafer's Physiol. **1**: 808.

[22] Davy: Phil. Tr. Roy. Soc. London, 1845, pt. 2, p. 319. Speck: Arch. f. exper. Path. u Pharmakol. **15**: 882. Rumpf: Arch. f. d. ges. Physiol. **33**: 601, 1884. Gley: Compt. rend. Soc. de biol. 1884, p. 265.

The rôle of nervous tension in elevating temperature is equally interesting in Series 2. The average temperatures for each of the groups showed a most suggestive relation to the time they were taken. For example, before receiving the examination questions, the average elevation was 0.3 degree F.; during the first hour of the examination, it was 0.1 degree F.; during the last hour there was no elevation, and after the examination there was 0.3 degree F. depression. It is reasonable to suppose that with the beginning of the actual work — the expending of pent-up nervous energy, as in question answering—the tension was relieved and the heat regulating mechanism began to reapproach its normal. Furthermore, the relaxation after examination may conceivably have resulted in a general hypotonia sufficient to produce subnormal deviation. It is, after all, primarily a physiologic question whether in both series the psychic state of tension in some way retarded heat dissipation, set the "heat center" at a higher level, or through more direct nervous pathways increased muscle tone or bodily metabolism. The important clinical fact is the obvious result—temperature elevation from apparently psychic, rather than physical, influences.

EFFECT OF SUSPENSE AND ANXIETY ON TEMPERATURE [*]

Series 1:	
Average temperature: 324 men at draft examination, 99.3 F.	
Percentage showing normal temperature	17
Percentage showing subnormal temperature	16
Percentage showing elevated temperature	67
Percentage showing temperature between 99 and 99.5 F.	34
Percentage showing temperature over 99.5 F.	19
Percentage showing temperature over 100 F.	15
Percentage acknowledging acute infection or tuberculosis, or showing physical signs of one or both	0.05

Series 2:	Group A[†]	Group A Abnormal Deviations	Group B[‡]	Group B Abnormal Deviations	Variations between Readings: Group A	Variations between Readings: Group B
Average temperature: first reading	98.9	+0.3	98.7	+0.1		
Average temperature: second reading	98.3	—0.3	98.6	0.0		
Percentage with elevation at first reading	68.0	+0.6	51.0	+0.4		
Percentage with normal at first reading	18.0	0.0	22.0	0.0		
Percentage with depression at first reading	18.0	—0.5	27.0	—0.6		
Percentage with elevation at second reading	25.0	+0.4	41.0	+0.3		
Percentage with normal at second reading	13.0	0.0	17.0	0.0		
Percentage with depression at second reading	60.0	—0.6	34.0	—0.5		
Percentage with rise between readings	18.0	.....	28.0	.....	+0.4	+0.4
Percentage with no change between readings	10.0	.....	19.0	.....	0.0	0.0
Percentage with fall between readings	73.0	.....	53.0	.....	—0.9	—0.4

[*] The author is well aware of the inaccuracy of the oral thermometer. For more refined physiologic work its unreliability has been demonstrated (Pembrey: Brit. M. J. 1:475 [Feb. 27] 1904). However, the fact remains that it will continue to be the average physician's guide. And, though more desirable, it was quite obviously impracticable in these series to observe rectal temperatures or that of the freshly voided urine. Instead, three minute oral readings were taken, with accurately standardized thermometers, which were carefully shaken down between readings. Special care was taken to place each instrument properly and to see that the lips were kept tightly shut around it.

[†] Group A consisted of forty nurses. First reading taken before passing out state board questions; second, after completion of the examination.

[‡] Group B consisted of ninety nurses. First reading taken during first hour of the examination, that is, after the passing out of the questions and the resultant break of the suspense of anticipation. Second taken during the last hour of the examination.

APPARENT FEVERS

The clinical application of the data is plain. If psychic states can so elevate temperature, it is obvious that such an elevation, plus a diurnal rise, might well simulate a genuine febrile reaction. Fortunately, such an apparent fever would be less likely to mislead the clinician now than formerly. Thanks to the growing tendency of internists to assume the physiologic point of view, it is now not the individual symptom alone, but the entire clinical complex, that governs in making a diagnosis. Nevertheless, in a certain group of cases (for example, incipient pulmonary tuberculosis), paucity of physical signs may render most important the accurate interpretation of the single question of temperature variation. Before sending to the mountains that borderline pulmonary case with the "afternoon fever," the physician must first ascertain that there *is* fever, and that the rise is not merely the aggregate result of the mental state and a normal afternoon increase in metabolism. This is accomplished only by enlisting the individual patient's confidence and carefully and repeatedly determining the temperature at times and under circumstances which, in the particular case, minimize the psychic element.

SUMMARY

1. Physicians are prone so to forget the physiology of heat control that they associate with various temperature curves definite clinical entities, despite the fact that temperature elevation does not necessarily mean fever.

2. Though early work suggested the existence of a special heat center, present evidence is that a complex of bodily factors controls the balance between heat production and heat dissipation, the latter depending largely on cutaneous vasomotor and secretory changes; the former, on variations in muscle tone.

3. Two series of individuals observed by the author, under circumstances associated with considerable nervous tension, showed distinct elevation of temperature in a large percentage of cases, the degree of elevation varying directly with the gravity of the situation facing the individuals.

4. The fact that psychic states can so influence temperature should make the clinician cautious in interpreting apparent febrile reactions when clinical signs are meager. In such cases, a psychic rise plus diurnal elevation may lead to false conclusions, unless the actual physiology of temperature variation and the influencing factors are kept clearly in mind.

ABSTRACT OF DISCUSSION

Dr. F. M. Pottenger, Monrovia, Calif.: This question of temperature is an interesting one to me. If we could get away from the idea that there is an absolute normal, it would help. Of course, there is a near normal, but not an absolute normal. The point in temperature is the difference between heat production and dissipation; 85 per cent. is dissipated through the skin. The vasomotor nerves are under sympathetic control. When a patient comes to me for examination, I always allow from half a degree to 2 degrees according to the condition of the patient. One cannot deduct anything from the temperature at the time of the first examination because the patient is nervous, anxious and worried and a little elevation of temperature means nothing. There is no doubt that there is a nervous temperature because certain types of nervousness act through the sympathetic nervous system and cause disturbance of the vasomotor system which dissipates the heat. It does not seem to be well known that a temperature elevation preceding menstruation is apt to be greater than following the menstruation. In many women we see a temperature of 99 F. for the days before menstruation and a drop immediately after. I think we have done harm in depending on temperature elevation for a diagnosis in tuberculosis work. Dr. Wynn's work is interesting and suggestive. The men in the tin mines of Cornwall work in four hour shifts because they work at a temperature of 102 to 104 F. Any one who plays tennis in the hot sun will find that his temperature goes up to 102 F., but it is physiologic and dilatation of the peripheral vessels soon follows. If an individual has not control of the peripheral vessels, his temperature will not fall soon.

Dr. Emanuel Libman, New York: The question that Dr. Wynn has brought up is one of great importance because there are quite a number of causes of febrile action without a focus of infection. Rise of temperature can be produced by disturbance of the ductless glands, by cerebral causes or by disturbances of the sympathetic nervous system; from pressure on the liver; in embolism without bacteria; injecting salt solution into the blood stream, which causes a hemolysis and rise in temperature; plugging of the ureter by an aseptic stone. I have had two such instances where the culture behind the stone was absolutely sterile. Dr. Pottenger referred to menstrual temperature. I have seen not only gradual rise of temperature before the menstrual period but a chill. One patient was operated on for appendicitis and no appendicitis was found. Thyroid disease may elevate the temperature. It is not generally known that women may have elevation of temperature off and on for years caused by ductless gland disturbance. In the whole group of erythemas described by Osler there is temperature elevation. In cases of cerebrospinal meningitis, after the meningitis has run its course and only scar tissue remains at the base, the patient has a high temperature without any infection being present. After lumbar puncture the temperature may rise, without infection. I know one case in which such an elevation persisted for one week. There is no doubt that in Dr. Wynn's cases there was excitement. It is necessary to exclude tuberculosis and to exclude infections in the sinuses.

Dr. H. S. Plummer, Rochester, Minn.: Temperature regulation is an equilibrium between heat production and heat elimination. It is a question of heat elimination and not of heat production. If you do not disturb heat elimination, heat production can go up enormously. We see temperature elevation in hyperthyroidism, but this fact shows how well the body is able to take care of heat production when the elimination is perfect.

Dr. Fenton B. Turck, New York: This is a physiologic question which is subject to experimental methods, and does not require clinical guessing. I introduced thermometers into the stomach and into the bowel; I placed them on the skin. Then interrupting the circulation in the leg caused autolysis and by massaging the leg a drop in the temperature took place. When autolyzed tissue reaches the circulation the reaction against it causes the rise in temperature. Many diseases are produced by autolysis of the tissues. By means of antibodies you can immediately increase the temperature and restore it to normal by these biologic methods.

Dr. George D. Head, Minneapolis: It seems to me that in a number of these subjects we have been reasoning in a circle. All the observations with regard to temperature on so-called normal men have not been controlled as carefully as they ought to have been. Our experience in the war clearly proved that many of our young men after repeated examinations by local boards and by our best specialists were inducted into service harboring a concealed form of some infection, a tuberculous infection, in the large percentage of cases. At Camp Devens we were astonished at the large number of men returning to this country from France with active tuberculosis. No matter how well a man may look or how well he may feel, if you are going to make any scientific observations with relation to temperature elevation, you must first determine whether they are tuberculous. There is one of the defects in our observations with relation to temperature elevations in so-called normal persons. How do you know that they are normal? I protest against calling these men neurotics or circulatory asthenics or effort syndrome until we know whether they are normal.

Dr. Edward F. Wells, Chicago: I was a member of one of the advisory boards of Chicago. One of our boards sent a number of draftees to us with temperatures from 99.5 to 102 F. Many of these young men showed no evidences of local infection but they had a temperature elevation which could scarcely have been of psychic origin because in each instance we saw them three times. The inference was that there was some local infection.

Dr. Frank B. Wynn, Indianapolis: I agree with Dr. Turck that the factor back of it all is biochemical in nature, but the contention of my paper is whether the etiologic factor causing this change was one of suspense and anxiety in entering the service. There was a nervous and muscular hypertonus, the equivalent of muscular exercise, increasing metabolism in the body, and as a result I think there was a biologic change. Primarily, however, it was a psychic factor.

Clinical Notes, Suggestions, and New Instruments

REPORT OF A CASE OF PYLORIC ULCER PERFORATED DURING FIRST WEEK AFTER GASTRO-ENTEROSTOMY

Earl I. Carr, M.D., Lansing, Mich.

I desire to report a disastrous occurrence which unexpectedly took place in a case which seemed to be one of a common class, in which cure is expected and in which it would seem that a fatality could occur only because of error or lapse in technic. However commonly this occurs, I think it is not frequently recognized, and I feel that attention should be called to this possible accident.

HISTORY OF CASE

April 12, 1919, W. J. W., aged 40, machinist, came to me complaining of stomach trouble which had existed intermittently for fifteen or sixteen years. His family history was negative. He stated that he had never been seriously ill except for scarlet fever in childhood, and had never had any physical trouble except that for which he came. The present trouble, which had been an annoyance for many years and had caused him to choose his diet carefully at times, had not presented a serious aspect until within a few months, during which time his loss in weight had amounted to about 10 pounds. A dull, nagging pain in the epigastrium had interfered with thought and work and had caused him to decide to have a thorough investigation and to be willing to submit to any necessary treatment. The distress he experienced a short time after eating he described in classical fashion, but he did not give a history of having vomited or of having passed black stools. He had been greatly constipated of late.

Examination revealed a slender man weighing 125 pounds, 69 inches tall, with small panniculus and normal color, and with an anxious expression. The nose, throat and chest were negative. There was a sore spot which the patient could pick out with one finger in the epigastrium near the center. The abdomen was scaphoid and the musculature tense. Fluoroscopic examination six hours after the last barium meal showed a 25 per cent. stomach residue; a dilated duodenum, which seemed to contain the sore spot; ileac stasis; free colon, and the appendix not tender and not filled. The Wassermann was negative and the urine normal.

TREATMENT

He was operated on, April 17. An indurated ulcer about the size of a large hickory nut, with a crater which would just admit the tip of the index finger, was found in the anterior side of the pylorus. There was firm scar tissue about the base but no adhesions to the base; there was no suggestion, even, of impending perforation. The appendix was fibroid. A low posterior gastrojejunostomy and appendectomy were done under nitrous oxid anesthesia. The patient was returned to bed in good condition, and the usual postoperative treatment was followed. Proctoclysis was instituted, and the liquid was retained. For slight nausea and sense of fulness the patient was given a lavage on several occasions, and the washings showed bile but no blood. His progress was considered fairly normal until the sixth day, when the patient's expression changed and he became restless. He vomited on that day, and a lavage was done, the washings, which were completely recovered, containing bile. On the seventh day the circulation was impaired, and later in the day the patient died. A necropsy revealed the gastrojejunostomy wound to be completely healed. The induration about the ulcer had subsided to one half its former size, and the base was perforated, the diameter of the perforation being equal to that of an ordinary lead pencil. There was suppurative peritonitis.

Just when this perforation occurred I do not know. Thinking over the case, I can recall no time that can be decided on as the time of perforation. This condition of the patient on the sixth day suggested peritonitis, and on the seventh day that diagnosis seemed certain, but from an undetermined cause. That the patient's condition was critical became apparent only a few hours before his death, and not until investigation was regarded as out of the question.

EXAMINATION FOR PLASMODIA

J. W. Torbett, M.D., Marlin, Texas

I have noticed for years that patients with latent malaria often, after a hot bath, are taken with a chill and fever. For more than a year it has been our custom to have all patients suspected of having malaria take a hot blanket pack with hot fomentations over the spleen and liver one-half hour before the blood is taken for examination. Plasmodia can be found in many such cases otherwise negative.

Open Safety Pin Passes Through Baby.—Dr. W. F. Doolittle, Cleveland, writes: March 30, Harriet B., a nursing infant, put into her mouth an ordinary tin-tipped safety pin 1⅛ inches long. The mother tried to reach it by inserting her finger, but the child gulped the open pin down backward without seeming to be distressed. Roentgenographic examination disclosed the pin lodged in the stomach and open at an angle of 20 degrees. The pointed portion was downward and directed toward the pylorus. As no disturbing symptoms were apparent, and especially on account of the delicate age of the infant (8½ months), it was decided not to risk an operation, but to follow, at least temporarily, an expectant plan of treatment. The nursing babe was started on well-cooked oatmeal, mashed potato, bits of softened bread, etc., in addition to the breast feedings, with the idea of their bulking about the pin and assisting its passage. A little powdered slippery-elm was daily mixed with the food as a mild demulcent, selected as least likely to cause too vigorous peristaltic action of the bowel. The parents were directed to screen each stool carefully and report promptly anything unusual in the child's condition. The patient continued to show no signs of distress, but thrived on the mixed diet so that a marked facial eczema due to exudative diathesis became quite cleared up. Another roentgenographic examination, May 1, revealed the pin as still in the stomach, but with its back now toward the pylorus. There were no disturbing symptoms, and the mode of treatment was continued. Just two weeks later the pin passed the anus uneventfully.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

CHLORCOSANE (See New and Nonofficial Remedies, 1919, p. 137).

Chlorcosane (McNeil).—A brand of chlorcosane containing from 35 to 40 per cent. of chlorine in stable (nonactive) combination.

Manufactured by Robert McNeil, Philadelphia, Pa. No U. S. patent or trademark.

When assayed by the Carius method chlorcosane (McNeil) contains from 35 to 40 per cent. of chlorine.

DICHLORAMINE-T (See New and Nonofficial Remedies, 1919, p. 138).

Dichloramine-T (McNeil).—A brand of dichloramine-T complying with the N. N. R. standards.

Manufactured by Robert McNeil, Philadelphia, Pa. No U. S. patent or trademark.

Pituitary Solution-Abbott.—Liquor Hypophysis, U. S. P.—A sterilized solution of the water soluble extract of the posterior portion of the pituitary glands of cattle. It is free from chemical preservatives. It is standardized according to the method of Roth (Bulletin 100, Hygienic Laboratory, U. S. P. H. S.).

Actions and Uses.—See New and Nonofficial Remedies, 1919, p. 204.

Dosage.—From 0.5 to 1 Cc. to be injected intramuscularly or subcutaneously. May be increased or diminished according to indications.

Manufactured by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Ampules Pituitary Solution-Abbott, 0.5 Cc.—Each ampule contains pituitary solution-Abbott 0.5 Cc.

Ampules Pituitary Solution-Abbott, 1 Cc.—Each ampule contains pituitary solution-Abbott 1 Cc.

Posterior lobes of the pituitary body of cattle are finely minced, extracted with slightly acidulated water, the solution boiled for ten minutes and filtered. The resulting extract is sterilized and then adjusted so as to correspond with the Pharmacopoeia standard.

Pituitary solution-Abbott is a transparent liquid, colorless and having a faint characteristic odor.

Pituitary Extract-Lederle.—A sterile solution containing the active principle of the posterior lobe of the pituitary body. It is physiologically standardized according to the method of Roth (Bulletin 100, Hygienic Laboratory, U. S. P. H. S.).

Actions and Uses.—See New and Nonofficial Remedies, 1919, p. 204.

Dosage.—Usually 0.5 to 2 Cc. intramuscularly, cautiously increased if necessary.

Manufactured by the Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Ampuls Pituitary Extract-Lederle, 0.5 Cc.—Each ampule contains pituitary extract-Lederle, 0.5 Cc.

Ampuls Pituitary Extract-Lederle, 1 Cc.—Each ampule contains pituitary extract-Lederle, 1 Cc.

Posterior lobes of the pituitary body of cattle are extracted with water slightly acidulated with hydrochloric acid, and containing a little camphor. The extract is standardized and filtered into ampules.

Pituitary extract-Lederle is a clear, almost colorless solution having a faint characteristic odor.

It is standardized so that 1 Cc. of the solution diluted 20,000 times is equal in activity to a 1:20,000,000 dilution of betaiminazolylethylamine hydrochloride when the isolated uterus of the virgin guinea-pig is used.

ANTIDYSENTERIC SERUM (See N. N. R., 1919, p. 269, and The Journal, April 19, 1919, p. 1136).

Lederle Antitoxin Laboratories, New York.

Antidysenteric Serum (Polyvalent).—Marketed also in syringes containing 50 Cc. each with sterile needle.

STREPTOCOCCUS VACCINE (See N. N. R., 1919, p. 291, and The Journal, April 19, 1919, p. 1136).

Lederle Antitoxin Laboratories, New York.

Streptococcus Vaccine (Polyvalent).—Marketed also in 10 Cc. and 20 Cc. vials; in packages of four 1-Cc. vials containing, respectively, 50, 100, 200 and 400 million killed streptococci; and in packages of four syringes containing, respectively, 50, 100, 200 and 400 million killed streptococci.

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SATURDAY, JULY 5, 1919

BREAD AND BRAN

The question of the physiologically preferable mode of milling wheat cannot be regarded as a new problem raised by the war. It is an old issue which was brought anew into prominence by the shortage of bread grains throughout the countries whose food supplies were directly menaced by the great conflict. Every bread-eating nation clings to bread as long as possible. The immense significance of this fact is emphasized by the official estimate of the part which wheat plays in the dietary of the American people. Thus it is stated[1] that, excluding the widely consumed breakfast foods, macaroni, spaghetti and similar products, and referring only to the three common flours, patent, entire and graham, they supply one fifth of the protein and one quarter of the carbohydrate of the average dietary. The government specialists remind us that in times of stress even greater reliance is placed on bread, and it is a matter of repeated observation that those of relatively small incomes tend to make bread a predominating portion of the diet. If we are short of bread grains, says Taylor,[2] we must modify our bread. In case of a very great shortage, other cereals must be substituted for bread.

In the most common modern milling processes the germ, together with a large portion of the outer layers of the wheat kernel, is removed. The removal of the germ which contains practically all of the wheat fat or oil lowers the energy value somewhat but improves the keeping quality of the flour. Our standard wheat flour represents less than 75 per cent. of the original weight of the cereal grains from which it was prepared. The remainder appears in the trade as grain offal or mill-feed, and is chiefly used as a protein concentrate in the feeding of live stock, especially dairy cattle. In this way the fraction of the wheat not directly eaten by man is nevertheless converted indirectly through the medium of animal feeding into food fit for human consumption.

There is a widespread belief that the highly milled flour, which has lost some of the protein and the vitamins of the original wheat kernel contained in the outer layers of the latter, is less nutritious on that account. Against this may be arrayed the argument that bread made from wheat flour including the whole of the wheat germ (graham flour) or a part of it (entire wheat flour) and the outer layers of the kernel has a lowered digestibility, particularly in the case of the protein. Obviously any gain in energy-producing elements or in protein in a richer initial product may be more than offset by the failure of the human alimentary apparatus to utilize it. From a careful review of the experimental literature on this subject a government expert in the U. S. Department of Agriculture has reached the following conclusion:

> The results of numerous studies conducted both in this country and abroad to determine the digestibility of wheat flours containing little, if any, bran as compared with the digestibility of flours containing all the bran normally present in the grain show that the protein and carbohydrate of flours from which the bran has been largely removed is more completely utilized by the human body than the protein and carbohydrate of flours prepared from the whole grain.[3]

Since vitamins are available in abundance in many types of foods other than the cereal grains, the removal of this category of food factors from wheat through milling need not become a matter of serious concern unless the dietary becomes exceedingly restricted in respect to the sources of its nutrients. It is, of course, readily conceivable that an enforced ration of highly milled cereals, meat, vegetable fats and sugars may lead to malnutrition. For example, Chick and Hume[4] have reported that among groups of people living on restricted diets in which bread made from patent flour formed a large proportion of the total ration, beriberi was very common; whereas people living on similar diets, but with bread made from the entire kernel replacing that made from patent flour, were rarely affected. The food habits of most persons living amid a liberal variety of dietary opportunities are such that under ordinary circumstances deficiency disease as a result of the use of highly milled cereal is scarcely to be feared.

What shall be said of the bran factor in the relative digestibility of different grades of flour? The widespread use of wheat bran as a laxative is based on the assumption of the comparative indigestibility of this portion of the grain despite its admitted richness in protein. Strangely enough there are few, if any, accurate data from human subjects regarding the actual degree of utilization of wheat bran apart from its inclusion in flour. Hence we welcome the new report on this subject[3] from the Office of Home Economics in the U. S. Department of Agriculture. The results of tests with fine bran indicate that the protein supplied by the bran was 45 per cent. and the bran carbohydrate was 57 per cent. digested, while the results of the tests with coarse bran indicate a digestibility of 28 per cent. for the bran protein and 56 per cent. for the bran carbohydrate. This tallies with the statement of Pannwitz,[5] who found that the protein of fine rye bran was 44 per cent. digested. Although the extreme comminution of the bran which supposedly renders the hard particles more pervious to the alimentary digestive juices improves its digestibility somewhat, even in this most advantageous physical form the outer layers of the wheat kernel are at best poorly utilized. The quantities of bran eaten were large; and Holmes,[3] who conducted the experiments, reports, as might be expected, that the amount of feces voided by the subjects during the tests was larger than normal. This condition was noted by all the subjects regardless as to whether they were of active, athletic or sedentary habits. Some of the subjects found the bran diets decidedly laxative. Little, if any, difference was noted by the subjects as a whole between the laxative effects of the fine and of the coarse brans.

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[1] U. S. Department of Agriculture, Office Experiment Stations, Circular 110, 1911, p. 26.

[2] Taylor, A. E.: War Bread, 1918.

[3] Holmes, A. D.: Experiments on the Digestibility of Wheat Bran in a Diet Without Wheat Flour, U. S. Department of Agriculture, Bull. 751, 1919.

[4] Chick, H., and Hume, M.: Tr. Soc. Trop. Med. and Hyg. **10**: 141, 1916-1917; Proc. Roy. M. & Chir. Soc. London, Series B **90**: 44, 60, 1917.

Another feature associated with the presence of an abundance of bran in the diet is clearly brought out by the government digestion experiments. The "coefficients of digestibility" of the other nutrients—the fats and carbohydrates of the diet—are somewhat diminished by the presence of the bran in the ration. In explanation of this altered utilization of the entire diet it is suggested that the bran may stimulate peristaltic action to such an extent that the food materials are not as completely absorbed as is normally the case when they pass through the alimentary tract without increased peristalsis. In any event, we now know more definitely than hitherto what becomes of bran in the diet and how it influences the fate of the constituents of the ration during their alimentary sojourn in the body.

PHYSICAL EXERCISE AND PHYSIOLOGIC FITNESS

Enthusiasm for an end or object that is unquestionably good sometimes defeats its own purpose by encouraging extremes of performance which damage rather than improve. This has doubtless often been true of athletics. Pursued ostensibly to promote personal welfare, physical exercise is not infrequently carried to a point of overdoing which results in ultimate injury rather than benefit.

At the present time the value of exercise in the development of good physique is being menaced, we fear, by the extreme claims of propagandists whose chief aim is to exploit the physical unfitness of the average American business man for their own personal advantage. Widely advertised systems of exercise, gymnasiums for the "busy man," physical training "institutes," and work-to-be-fit wonders have become part of an organized commercial effort to "save" the lethargic American gentleman.

Possibly many of these schemes represent a wholesome beneficial influence. A serious difficulty lies in the lack of suitable criteria as to the benefits derived; or rather in the failure to recognize where the limitations of muscular effort lie for the untrained. Perhaps some index will be found in the recent studies on aviators. In an address before the Harvey Society, Henderson[1] pointed to the increasing frequency among aviators of a condition of "air-staleness." This is described as the effect of repeated slight oxygen deficiency of a person who does not become acclimatized. It is a condition, Henderson says, closely similar to, perhaps identical with, "overtraining" or staleness, the physical and nervous impairment of athletes.

The Manual of the Medical Research Laboratory of the War Department's Air Service states that the ability to endure comfortably and well high altitudes is dependent on the ease and quickness with which the adaptive responses in the breathing, the blood and the circulation take place. An explanation of the difference in reaction observed among the members of a group of men when at a high altitude is to be found in the degree of individual, physical fitness. In persons damaged by disease, overwork, unhygienic living, or weakened by inactivity and by loss of sleep, the power of adjustment is as a rule below par. The normal equilibrium of the body is so nicely adjusted that under usual conditions the physiologic balance is largely maintained by adjustments that are made with little or no expenditure of energy. There is a certain range of greater or less breadth through which the external factors of the environment may be varied and yet be met by an automatic adjustment of the physiologic processes in the body which will preserve the vital balance of the mechanism. But beyond a certain point, specific for each organism, changes in the external conditions will necessitate more radical alterations which will tax the compensating mechanisms to the utmost capacity in order to prevent disaster. Theoretically the organism which has been called on repeatedly to make a certain kind of adjustment will be the one most capable of responding when an extraordinary demand is made.

Translating these observations from the new physiology of aviation to the physiology of training for fitness in everyday life, we are probably justified in concluding that the test of exercise as a beneficent performance lies in the physiologic adjustments that it induces. If the heart reduces its rate of beating and is less sensitive to moderate exertion, the training is commendable. Training should make the heart and other muscles work better and endure fatiguing exercises better than the untrained heart does. Consequently, if the heart reacts excessively as a result of work; if there is a rapid rise in pulse rate which returns only after a long interval to its normal, the fundamental aim of exercise for health has not been accomplished. The symptoms of an overtaxed mechanism are at hand. However advantageous vigorous training may be in the great majority of cases, failure to adjust to the increased demands of work is always a signal to desist and an indication that other modes of perfecting the organism should be sought.

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[5] Pannwitz: Nährwerth des Soldatenbrotes, Inaug. Diss., Berlin, 1898, p. 100.

[1] Henderson, Y.: The Physiology of the Aviator, Science, May 9, 1919, p. 431.

TISSUE POISONS IN THE GENESIS OF SHOCK

A biologist recently remarked that our laboratories resemble "up-to-date shops for quantity production of fabricated hypotheses"—that they are full of fashions and go from one extreme to another. A reviewer of the literature on shock might well have the same conviction. Shock, like many other pathologic phenomena, is the result of an interplay of numerous agencies which may be initiated in different ways. One observer centers his attention on some particular factor in the community of causes while he notes the familiar end-result. Another person concentrates his interest on a different link in the chain of events to which he, in turn, assigns the cause for the identical final occurrence. The symptomatic similarity is obvious to all. The confusion of etiologic standpoints has been caused by the narrowness of vision.

Despite the steady succession of rejected theories of shock, we must not despair of obtaining sooner or later a clearer conception of the underlying pathology. It is a distinct step in advance to be able to assert what shock is not. The nervous system has been relegated to an inferior rôle, at best, in the newer attempts at an explanation. It would seem that the theory of fat embolism as a prominent predisposing cause may also be set aside[1] as secondary in moment. At present greater interest is being centered in certain chemical factors which may underlie many, if not all, types of shock. To understand their possible significance we must recall the now admitted underlying manifestations. Circulatory collapse may occur in spite of arterial constriction; in this a diminution of the output of the heart is a prominent factor, if not the sole cause. Such fall of the cardiac output occurs almost invariably, however, without any considerable impairment of the activity of the heart. It is not a primary failure of this organ. The systolic output fails because the diastolic filling is inadequate. The arterial blood has lost in volume and is not to be found accumulated in the heart or great veins; but it finds its way into the peripheral vessels of the abdominal viscera and skeletal muscles. An added feature, long recognized and described as a characteristic feature of shock, is the fall of effective blood volume due to the loss of plasma. As the fluid leaves the blood, the corpuscular content consequently increases.

In studying the action of histamin, which produces symptoms resembling in many ways those of traumatic and surgical shock, Dale and Laidlaw[2] call attention to the characteristic features. There is an oligemia, partly due to passage of plasma out of the blood vessels, partly to retardation of the flow of blood at the periphery. They believe the evidence to favor the view that this is due to a general loss of tone by the capillaries throughout the body. The excessive permeability of these vessels, which allows escape of plasma, is regarded as a further stage of the same type of action. Histamin applied locally in very small doses causes redness, swelling and the formation of an edematous wheal.[3] Dale and Laidlaw make the interesting comment, in relation to such mild inflammatory reactions to a chemical substance, that the widening of the capillary lumina, the opening up of channels normally empty, the transudation of plasma through abnormally permeable endothelium, and the tendency to stasis of the concentrated blood—these phenomena, when occurring in an area so restricted that the general arterial pressure is not materially affected, will produce the familiar sequence of redness, swelling and edema. Large doses, on the other hand, produce something more than local effects. The circulatory collapse may be regarded as the outcome of a more widespread poisoning of the capillary endothelium depending on the mode of application or the magnitude of the dose.

According to the view just mentioned, certain chemical substances can thus be responsible for either local inflammation and edema or the more widespread circulatory collapses seen in shock. Histamin is a compound with which both sorts of phenomena can be effected. If we conceive of the liberation of a comparable substance into the circulation as the result of tissue injury (traumatic toxemia) or damage to viscera (surgical shock), an analogy is promptly afforded. Anaphylactic shock may be interpreted, on this hypothesis, to be the outcome of physical changes in endothelial cells leading to relaxation of their tone and ultimately to abnormal permeability. The shocklike symptoms occasionally following administration of arsphenamin may also depend on an acute endothelial intoxication. The common factors in all the cases are a poison and an altered capillary permeability. Whether and how such endogenous poisons actually enter the circulation remains to be demonstrated. At any rate our attention is temporarily diverted from the nervous system to the blood vessels and chemical agencies in the attempt to elucidate the genesis of shock.

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[1] Shock and Fat Embolism, Current Comment, J. A. M. A. **72**: 1848 (June 21) 1919.

[2] Dale, H. H., and Laidlaw, P. P.: Histamine Shock, J. Physiol. **52**: 355, 1919.

[3] Sollmann and Pilcher: J. Pharmacol. & Exper. Therap. **9**: 309 (March) 1917.

Current Comment

THE NEW INDUSTRIAL PHYSIOLOGY

The necessity of conserving the health of the working man and woman has long been regarded as a part of the public health program. The recognition of certain diseases as indisputably occupational has resulted in establishing corresponding schemes of vocational hygiene. The well-being of the worker has been the keynote of such endeavors. The measures instituted have tended toward the elimination of accident and other health hazards in the trades. The problems have been approached from medical, social and, in lesser degree, economic points of view. Protective legislation and education have paved the way for progress. The war, which has called for unexpected speeding up of industrial performances in many fields of production, has emphasized a somewhat different feature of the human machine. In order to be in a position to work efficiently, in the industrial sense, not only health and strength must be conserved but the physiologic mechanism must also be allowed to act to the best advantage. Fatigue factors must be taken into account in relation to the output of work as well as to the conservation of the health of the worker. The needs and limitations of an intricate combination of living organs and tissues with their chemical and nervous regulations must be taken into account. These newer physiologic aspects of industrial activity have created problems for study to which Lee[1] has given the name "industrial physiology." By this is designated "the sum of knowledge pertaining to the working of the human mechanism in industrial activity, and it thus includes psychological phenomena as well as those more technically recognized as physiological." We may expect to hear much more in the near future of the new studies which have as their object the scientific need of learning how the industrial worker actually performs his work and what the conditions are under which he can work most efficiently and can produce the largest output, while at the same time maintaining his body in health and in the best working condition. The practical objects of industrial physiology are to establish in all working places the conditions which conduce at the same time to the maximum output and the maintenance of the maximum power of the worker.

THE PRODUCTION OF MEDICINAL PLANTS IN THE UNITED STATES

Under the stimulus of war-time needs there was a revival and an extension of backyard gardening in the United States. Neglected plots of land were cultivated and made to yield some contribution to the country's store of food. No one can estimate with any accuracy what the extent of this production was, but it undoubtedly represented a considerable increment to the food supply and a wholesome addition to the variety of diet under times of stringency in the food market. This impetus to individual gardening will probably continue to produce results for some years to come. Stimulated by a heralded shortage of medicinal plants, suggestions have occasionally been made toward the augmentation of the supply of botanical drugs by similar modes of individual effort. Cushman[1] has, however, sounded a warning relative to this laudable ambition. The production of medicinal herbs in America, he asserts, depends largely on the labor cost, and can be made a profitable enterprise only when it is conducted on a scientific basis and on a sufficiently large scale to absorb the high cost of labor involved in the tilling, planting, cultivating, harvesting, curing and packing operations. At the same time, the drug grower faces an uncertain and precarious market for his wares, for, although his drug plants are needed, the need is strictly limited, and the slightest overproduction is either entirely unsalable or salable at a price less than the cost of production. But this is not the only obstacle to individual initiative on the part of uninformed growers. Crude botanical drugs must meet certain pharmacopeial standards that involve special chemical or biologic tests. Cushman asserts that unless a producer is able to hold his belladonna to an assay at least twice as strong as the U. S. P. requirement, it would not be worth producing at all under American conditions. Crude drugs of such high potency can be obtained only by the application of trained scientific knowledge to the problem. To the extent that the growing of medicinal plants is to become an agricultural feat rather than the haphazard gathering of wild forms, scientific considerations must go hand in hand with the practical procedures.

HONORARY DEGREES IN PUBLIC HEALTH

THE JOURNAL has already commented on the encouraging tendency to standardize degrees in public health work that is being manifested by several universities interested in the training of various kinds of public health experts.[2] It hardly needs argument to convince one that if, as is highly desirable, certificates and degrees in public health are to be regarded as necessary prerequisites to official positions, then a considerable measure of uniformity in training and experience must be correlated with the holding of a specific degree. This is generally recognized by the teachers in public health work in this country. It is somewhat disquieting, therefore, to find that certain educational institutions are conferring an "honorary" degree with exactly the same titles—such as doctor of public health—that are elsewhere given only for a comprehensive course of study and research. It is evident that, unless this practice can be checked, hopeless confusion will result in the public mind as to the real significance of degrees in public health. One reason why the Ph.D. degree has so high a standing in our educational system is that it is never given as an honorary degree by any reputable university. Unless degrees in public health can be made to stand likewise for definite academic training and achievement, it is

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1. Lee, F. S.: The New Science of Industrial Physiology, Pub. Health Rep. **34**: 723, 1919; this issue, page 57.

1. Cushman, A. S.: Growing Medicinal Plants in America, J. Heredity **10**: 32 (Jan.) 1919.
2. Standardization of Degrees in Public Health, Current Comment, J. A. M. A. **72**: 941 (March 29) 1919.

plain to see what fate will overtake them. If honorary degrees are to be given in public health, they should have a specific and unambiguous nomenclature. Meritorious public health workers should accept no other.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending June 27, there were 13,144 officers in the Medical Corps, a decrease of 321 from the previous week. The Medical Corps contained 2,715 officers. The total number of physicians discharged since the beginning of the war is 19,097. The records of the discharge branch of the general staff show the following discharges of officers of the Medical Department from Nov. 15, 1918, to noon, June 26, 1919: 2 brigadier-generals, 55 colonels, 404 lieutenant-colonels, 1,994 majors, 8,023 captains, 9,952 lieutenants, making a total of 20,430 officers discharged to date. Nov. 15, 1918, there were 30,591 medical officers on duty; June 26, 1919, there were 10,161 officers on duty in the Medical Corps.

Appointments in Army Medical Service

Col. Walter D. McCaw and Lieut.-Col. Robert E. Noble, both of the Medical Corps, have been recommended by the President to the senate for appointment as assistant surgeon-generals with the rank of brigadier-general in the medical department of the United States Army, from March 5, 1919. The senate has not yet acted on these recommendations but will do so in executive session shortly. The following officers, now first lieutenants in the Medical Officers' Reserve Corps, have been recommeded by the President for appointment as first lieutenants in the Medical Corps of the Regular Army: Earl Hazelton Hare, Robert Effinger Cumming, Thomas Mathew Calladine, Jr., William Davis Gill, Harvey David Thornburg, Charles Smith Moss and Irwin Bradfield Smock. These recommendations are now before the senate and will be acted on shortly.

Retirement of Members of the Nurse Corps

A bill authorizing the retirement of members of the Army Nurse Corps (female) has been introduced by Congressman Julius Kahn of California, chairman of the House Committee on Military Affairs. The measure provides that members of the Army Nurse Corps who have had active service therein for twenty years, including time served as contract nurses, shall on application to the Secretary of War, be placed on a retired list and shall thereafter receive 75 per cent of the pay, exclusive of foreign-service pay, which they were drawing at the time they became entitled to retirement on completion of the required twenty years' active service. As the author of this bill is chairman of the military committee of the house, it is expected that he will get early and favorable action on it.

Recognition of Members of Draft Boards

Suitable recognition for members of the medical advisory draft boards is provided for in three measures recently introduced in Congress. A bill introduced by Senator Henderson of Nevada authorizes the President to award brevet commissions and suitable medals to the physicians who assist in the draft. Senator Randall of Louisiana has introduced a similar measure, as has Congressman Kahn of California, but the Randall and Kahn measures do not provide brevet commissions. In addition to appropriate medals, the thanks of Congress are extended. It is fully expected that one of these measures will be passed at this session, but it is not believed likely that brevet commissions will be favored.

Bill to Provide Hospital Care for Government Employees

All Army and Navy hospitals would be open to civilian employees of the government when the employees are suffering with tuberculosis, under the terms of a bill introduced by Senator Sheppard of Texas.

Organization for Providing Scholarships in American Universities for French Students

Major Leonard D. Frescoln, now at the Besancon University in France, writes that, at the completion of their courses, a number of delegates from the fourteen universities of France, attended a meeting in Paris, May 28, and as an expression of thanks for the interesting work given to the American soldiers in French universities, it was agreed to found fourteen scholarships, enabling fourteen Frenchmen to study for one year in America.

Army Surgeons Decorated

JAMES H. KEELING, Captain, M. C., U. S. Army, Albany, N. Y., who has been on duty with the Britsh Forces for twenty-one months, has been decorated twice by the king.

HARVEY FRASER, West Salem, Wis., has been awarded the Italian Distinguished Service Medal for work overseas.

Colonel Seaman Cited

GILBERT E. SEAMAN, Colonel, M. C., U. S. Army, Milwaukee, formerly chief surgeon of the Thirty-Second Division, has received a personal letter from General Pershing commending him for his work as division surgeon overseas, and expressing his appreciation of the valuable services rendered to the American Expeditionary Forces as division surgeon and later as corps surgeon of the Sixth Army Corps.

Awards of Distinguished Service Medal

The distinguished service medal has been awarded by the commanding general, American Expeditionary Forces, to the following named British and French civilians:

DOCTEUR COUSSERGUE. For exceptionally meritorious and distinguished services. As médecin régulateur at St. Dizier he rendered the American Expeditionary Forces valuable service in making possible the evacuation of the forward areas during the St. Mihiel and Argonne offensives. When the number of American hospital trains available were found insufficient, he placed at our disposition the facilities of the French, laboring personally, day and night, in order that there might be no interruption of the service.

M. MOURIER. For exceptionally meritorious and distinguished services. As a member of the French government and the civilian chief of the Medical Department of the French Army, he placed all available of his great department, both in material and personnel, at the disposal of the American Expeditionary Forces. His advice was of great value, aiding us in the solution of many problems, and he rendered services of inestimable value in assisting us in securing proper evacuation and hospitalization for the sick and wounded.

The distinguished service medal has been awarded by the commanding general, American Expeditionary Forces, to the following named officers of the American Expeditionary Forces:

WILLIAM J. CROOKSTON, Colonel, Medical Corps, United States Army, Pittsburgh, Pa. For exceptionally meritorious and distinguished services. As division surgeon he displayed marked ability of organization and administration throughout the service of the Twenty-Eighth Division in France. With keen judgment he supervised the location of dressing stations and field hospital and used remarkable discretion in directing the entire work of evacuation of a large number of casualties. By constant vigilance and unceasing effort he provided for the health and treatment of the troops with whom he served, displaying professional attainments of a high order.

WILLIAM L. KELLER, Colonel, Medical Corps, United States Army. For exceptionally meritorious and distinguished services. As director of the professional services, Medical Department, American Expeditionary Forces, he displayed marked ability in the organization and assignment of the forces at his disposal for hospital at the front and in the rear areas. He was discerning in his knowledge of conditions, using his insufficient personnel to the maximum advantage in relieving the suffering of our sick and wounded, and in obtaining prompt treatment for battle casualties. His comprehensive grasp of the problems which presented themselves resulted in the saving of many lives.

THOMAS L. RHOADES, Colonel, Medical Corps, United States Army. For exceptionally meritorious and distinguished services. As division surgeon of the Eightieth Division, he had charge of the Medical Department's work of that unit throughout its combat activities. Due to his skilful administration, it functioned smoothly and with precision at all times, caring promptly for a large number of the sick and wounded. As chief surgeon of the First Corps, and later of the First Army, he displayed executive ability of high order, being constant and zealous in devotion to his arduous tasks.

ALBERT P. CLARK, Lieutenant-Colonel, Medical Corps, United States Army. For exceptionally meritorious and distinguished services. As medical representative on, and later as General Staff member of, the first section, General Headquarters, American Expeditionary Forces, he displayed sound judgment and wide comprehension of existing conditions in the management of ocean tonnage allotments, and devised and efficiently operated a system of supply for the Medical Department of the American Expeditionary Forces. Largely through his personal efforts, energy and farsightedness the difficulties in the procurement and shipment of medical supplies for the sick and wounded were successfully overcome.

JOSEPH F. SILER, Colonel, Medical Corps, United States Army. For exceptionally meritorious and distinguished services. He has been in charge of the Laboratory Service of the American Expeditionary Forces. Due to his untiring zeal and professional attainments, he has been able to render invaluable service in the prevention of the spread of infectious disease among our troops. Under his valuable instructions, medical officers were sent out equipped to handle the new medical and surgical problems of war in a manner not believed possible before the present war.

JAMES D. FIFE, Colonel, United States Army. For exceptionally meritorious and distinguished services. In command of Base Hospital No. 21, he served with distinction with the British Expeditionary Forces. He was later assigned to duty in the office of the chief surgeon in charge of hospital planning and construction, procurement of permanent buildings, establishment of hospitalization, liason with the French authorities, the General Staff, and with the Engineers. In the performance of these multifarious duties he displayed conspicuous ability.

A. PIATT ANDREW, Lieutenant-Colonel United States Army. For exceptionally meritorious and distinguished services. Coming to France at the beginning of the war, he showed remarkable ability in organizing the American Field Service, a volunteer service for the transportation of the wounded of the French armies at the front. On entry of the United States into the war, he turned over the efficient organization he had built to the United States Army Ambulance Service, and by his sound judgment and expert advice rendered invaluable aid in the organization of that organization. To him is due in a large measure, the credit for the increasingly valuable work done by the light ambulances at the front.

JOSEPH M. FLINT, Lieutenant-Colonel, Medical Corps, United States Army, New Haven, Conn. For exceptionally meritorious and distinguished services. When placed in a position of great responsibility as commanding officer of Mobile Hospital No. 39, at Aulnois-sous-Vertuzey, France, he used extraordinary skill and sound judgment in the organization and operation of that unit, the first of its kind in the American Expeditionary Forces. In its formative period he was faced by great and unforeseen difficulties, but with untiring energy and genius he surmounted all obstacles, making his unit a model for all those subsequently organized.

NATHANIEL ALLISON, Colonel, Medical Corps, St. Louis, Mo. For exceptionally meritorious and distinguished services. As chief of the orthopedic work in the zone of the Army, he personally directed, in a most conspicuous and painstaking manner, splinting and orthopedic work, which resulted in the saving of many lives and greatly relieved suffering among our wounded.

CHARLES M. FOX, Captain, M. C., U. S. Army, Chicago, on duty with the Three Hundred and Fifty-Third Infantry, for extraordinary heroism in action. Gassed near Bontheville, France, Oct. 26, 1918, Captain Fox maintained his battalion dressing station under a terrific bombardment of gas and high explosive shells, which almost demolished his station. He quit only when blindness made it impossible for him to work.

Honors to Officers

HARRY N. KERNS, Major, M. C., U. S. Army, evacuation officer at the port of embarkation, has received a decoration from the mayor of Langres, France, in recognition of his services in assembling and organizing Base Hospital 53, which rendered such distinguished service in and around Langres.——DR. WILLIAM J. MAYO, Rochester, Minn., has been awarded the congressional medal of honor, with the following citation:

"DR. WILLIAM J. MAYO, formerly Colonel, U. S. Army, for exceptionally meritorious and conspicuous service, in addition to manifold service to the Surgeon-General by furnishing needed advice and counsel, he distinguished himself by exceptionally meritorious service to the government in his work in the organization of the surgical service and his invaluable assistance in the reorganization of the medical department on the scale demanded by the war."

The mayor of Langres also presented WALTER E. FOLEY, Lieut., M. C., U. S. Army, Davenport, Iowa, with the French Tri-Color and Coat of Arms of the city in appreciation of his service in relieving and ministering to the needs of the city of Langres and in recognition of medical care and treatment given to about 300 French wounded.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

ALABAMA

Ariton—Dykes, H. R. (L.)
Auburn—Kimball, I. (M.)
Bessemer—Garmon, C. N. (L.)
Wright, S. W. (C.)
Birmingham—Dickson, J D. (L.)
Spencer, O. M. (C.)
Walker, A. A. (M.)
Blocton—Allgood, H. W. (L.)
Camden—Jones, J. P. (C.)
Camp Hill—Hamner, L. H. (C.)
Dadeville—Banks, J. T. (L.)
Florence—Ellis, L. C. (L.)
Gainesville—Harwood, R. E. (L.)
Geneva—Chapman, C. H. (C.)
Gunthersville—Fennell, R. F. (C.)
Hayneville—Marlette, G. C. (C.)
Hope Hull—Crenshaw, F. (C.)
Jasper—Williams, V. H. (C.)
Robertsdale—Peavy, J. F., Jr. (L.)
Russellville—Gresham, W. A. (C.)
Selma—Kenan, J. (M.)
Tuscumbia—Pierce, W. M. (C.)

. *ARIZONA*

Phoenix—Palmer, C. B. (M.)
Sweek, W. O. (L.)
Tucson—Huffman, I. E. (M.)

ARKANSAS

Crossett—Matthews, W. M. (L.)
Hope—Allen, V. K. (C.)
Little Rock—Goldstein, D. W. (C.)
Scarborough, J. I. (M.)
Visonhaler, F. (L. C.)
Marvell—Meadors, R. C. (L.)
Texarkana—Norwood, F. A. (L.)
West Helena—Lee, H. W. A. (L.)

CALIFORNIA

Bakersfield—Marshall, M. Y. (C.)
El Monte—Saylin, J. (C.)
Fresno—Webster, D. P. (C.)
Los Angeles—Alden, E. (C.)
Beck, H. R. (L.)
Coller, F. A. (M.)
Fellows, A. (C.)
Miller, U. G. (C.)
Shuman, L. (C.)
Modesto—Brace, R. W. (C.)
Oakland—Smith, K. B. (C.)
Oroville—Wilson, J. W. (C.)
San Diego—Black, E. C. (L.)
Grant, J. F. (C.)
San Francisco — Brusco, H. D. (L.)
Wolff, M. B. (L.)
Vallejo—Leachman, R. S. (L.)
Williams—Salter, N. M. (L.)

COLORADO

Denver—Elliott, J. T. (C.)
Powell, C. (M.)
La Junta—Hall, H. E. (C.)
Olathe—Lockwood, C. E. (C.)
Plateau City—Watson, W. V (L.)
Pueblo—Bronson, W. T. (L.)
Taylor, R. R. (L.)

CONNECTICUT

Hartford—Martelle, H. A. (L.)
New Haven—McGuire, W. C. (C.)
White, H. R. (C.)
Wallingford—Sweet, W. N. (C.)

DELAWARE

Wilmington—Crossan, E. T. (C.)
Miller, H. S. (L.)
Spackman, J. G. (L.)

DISTRICT OF COLUMBIA

Washington—Gray, A. C. (C.)
Johnson, L. A. (C.)
Maxwell, C. E. (C.)
Talbott, J. A. (L. C.)
Wells, W. A. (M.)

FLORIDA

Blountstown—Crozier, G. T. (C.)
Gainesville—Tillman, G. C. (C.)
Hosford—Davis, K. M. (C.)
Jacksonville—Cordes, H. B., Jr. (C.)
Harris, H. H. (L. C.)
Quincy—McEuen, H. B. (C.)
Tallahassee—Gwynn, G. H. (C.)
Tampa—Halliday, J. (C.)
McRae, E. H. (M.)

GEORGIA

Atlanta—Ballenger, E. G. (M.)
Corry, J. E. (C.)
McGehee, H. M. (L.)
Quillian, W. E. (C.)
Augusta—Silver, D. M. (L.)
Columbus—Johnson, R. F. (C.)
Dearing—Sams, J. R. (C.)
Douglas—Clark, T. H. (L.)
Dublin—Walker, S. (M.)
Fitzgerald—Frazer, J. L. (C.)
Flintstone—Barker, H. M. (L)
Macon—Council, M. D. (C.)
Scottsdale—Allgood, C. L. (L.)
Stone Mountain—Osborne, V. W. (C.)
Sylvester—Stewart, W. K. (L.)

IDAHO

Burley—Cooper, G. H. (L.)
Cambridge—Hopper, S. (C.)
Twin Falls—Coughlin, J. F. (C.)

ILLINOIS

Alton—Sciwell, H. S. (C.)
Antioch—Smith, H. A. (L.)
Cairo—Brown, W. S. (C.)
Charleston—Dudley, G. B. (C.)
Chicago—Anderson, G. H. (L.)
Bromberg, C. B. (L.)
Chamberlin, H. N. (L.)
Christofferson, O. H. (L.)
Clark, J. W. (C.)
Corper, F. J. (C.)
Dolan, J. E. (C.)
Fisher, E. F. (C.)
Foley, J. L. (C.)
Franchere, C. M. (L.)
Graybeal, J. (C.)
Greenburg, L. M. (L.)
Griffiths, E. H. (L.)
Hallock, E. K. (C.)
Hargreaves, O. C. (L. C.)
Harvey, J. A. (L. C.)
MacDonald, E. J. (C.)
Martin, L. W. (C.)
Mix, C. L. (M.)
Morales, G. M. (C.)
Rowan, J. E. (M.)
Sevcik, J. L. (L.)
Van Paing, J. F. (L.)
Weymouth, D. G. (L.)
White, E. W. (L.)
Williams, W. C. (C.)
Du Quoin—Kelly, T. B. (L.)
East St. Louis—Applewhite, L. D. (M.)
Genoa—Ovitz, J. W. (L.)
Hebron—Tupper, H. W. (C.)
Jerseyville—Lewis, C. F. (L.)
Joliet—Roberg, F. E. (C.)
Kankakee—Greenman, E. N. (L.)
Manougian, K. M. (C.)
Lincoln—Rhoads, L. T. (C.)
Moline—Freeman, D. B. (L.)
Mount Olive—Floreth, G. A. (L.)
Oak Park—Potthoff, E. W. (C.)
Oregon—Roe, J. B. (L.)
Pana—Danford, R. C. (C.)
Peoria—Sholl, J. R. (L.)
Riverside—Hobart, M. H. (L.)
Sandwich—Dudley, E. F. (L)
Secor—Nagel, F. E. (C.)
Springfield—Bernard, E. L. (C.)
Maurer, F. (C.)
Ottis, D. M. (L. C.)
Smith, R. E. (C.)
Van Wormer, W. W. (C.)
Staunton—Hazel, J. B. (C.)
Stonefort—McSparin, J. M. (L.)
Taylorville—Morton, D. F. (M.)
Warsaw—Loomis, D. (L.)
West Chicago—Kinne, H. W. (C.)

INDIANA

Anderson—Jones, T. M. (M.)
Indianapolis—Carmack, J. W. (L.)
Dubois, E. J. (C.)
Ward, J. H. (M.)
Warfel, F. C. (C.)
La Fayette—Arnett, A. C. (M.)
New Castle—Westhafer, E. K. (M.)
Sheridan—Young, E. M. (C.)
South Bend—Clapp, F. R. (C.)
Terre Haute—Johnson, G. T. (C.)
Weinstein, J. H. (C.)
Vincennes—Pea, E. H. (C.)
Wakarusa—Eicher, F. I. (L.)

IOWA

Allerton—McCall, J. H. (C.)
Ames—Puffett, G. F., (L.)
Audubon—Mathias, D. F. (C.)
Chariton—Gutch, R. C. (C.)
Defiance—Meyer, V. J. (C.)
Des Moines—Fleischman, A. G. (L.)
Eagle Grove—Christensen, J. R. (C.)
Grand Junction—Reed, A. I. (L.)
Keokuk—Brown, W. F. (L.)
Lamoni—Peterson, O. H. (C.)
Marshalltown—Hermance, G. E. (L.)
Moorland—Farlow, C. T. (C.)
Muscatine—Stiers, J. W. (C.)
Pleasantville—Bare, E. A. (C.)
Sioux City—Watkin, C. R. (L.)
Toledo—Pace, A. A. (M.)
West Union—Whitmore, F. B. (C.)

KANSAS

Burlington—Salisbury, H. T. (M.)
Burton—Hempstid, I. E. (C.)
Canton—Mallison, S. M. (L.)
Cimarron—Klein, R. G. (C.)
Claffin—Jury, H. W. (C.)
Council Grove—Lewis, A. J. (C.)
Greeley—Mills, L. D. (L.)
Haven—Kirkpatrick, W. H. (L.)
Hepler—Mosley, C. L. (L.)

Kansas City—Howell, J. F. (M.)
Speck, R. T. (C.)
Langdon—Ungles, J. B. (L.)
Marion—Coffman, J. F., Jr. (C.)
Ness City—Venard, T. S. (C.)
Newton—Hartman, R. C. (C.)
Parsons—Cornell, J. C. (C.)
Pratt—Atkins, H. (M.)
Topeka—Rogers, H. S. (L.)
Wichita—Logsdon, R. O. (C.)

KENTUCKY

Bowling Green—Cartwright, F. D. (C.)
Clinton—Hunt, C. (L.)
Covington—Hunter, G. G. (C.)
Northcutt, E. W. (L)
Yates, F. I. (M.)
Earlington—Nisbet, W. K. (M.)
Garrison—Henthorn, A. C. (C.)
Georgetown—Barlow, E. C. (C.)
Glasgow—Miller, T. F. (C.)
Lebanon Junction—Johnson, O. E. (L.)
Lewisburg—Felts, L. (C.)
Louisville—Bailey, E. R. (L.)
Baker, M. C. (L.)
Garth, C. M. (C.)
Purdom, D. M. (C.)
Lovelaceville—Thompson, G. L. (L.)
Middletown—Wetherby, S. D. (C.)
Owensboro—Hoover, I. J. (C.)
Lockhart, R. (C.)
Owingsville—Goodpaster, J. S. (C.)
Shelbyville—Weakley, A. C. (C.)

LOUISIANA

Gilbert—Gill, D. D. (C.)
Merryville—Frazar, F. R. (L.)
New Orleans—D'Aunoy, J. R. (C.)
Milholland, W. G. (C.)
O'Ferrall, J. T., Jr. (C.)
Silverman, D. N. (L.)
Plaquemine—Landry, A. A. (C.)
Shreveport—Heath, A. G. (C.)
Nelson, A. B. (C.)
Vixen—Funderburk, V. J. (L.)

MAINE

Biddeford—Youland, W. E. (C.)
Ellsworth—Parcher, A. H. (C.)
Madison—Kennison, W. H. (L.)
Oxford—Farris, H. R. (L. C.)
Portland—Thaxter, L. T. (C.)
Unity—Whittaker, P. W. (C.)

MARYLAND

Baltimore—Blake, H. C. (M.)
Coolahan, E. V. (L.)
Edmunds, P. (L. C.)
Gately, J. E. (L.)
Jones, S. B. (M.)
McLaughlin, J. L. (C.)
Mohr, D. H. (C.)
O'Connor, J. J. (M.)
Peltckian, H. K. (L.)
Rogers, H. L. (L.)
Rosenthal, G. W. (C.)
Titlow, H. B. (C.)
Toulson, W. H. (C.)
Warner, H. H. (L.)
Wheeler, H. L. (L.)
Chestertown—Hines, F. B. (C.)
Easton—Palmer, W. N. (L.)
Pikesville—Naylor, H. A. (C.)
Roland Park—Laverty, G. L. (L.)

MASSACHUSETTS

Beverly—Sears, H. E. (L. C.)
Boston—Chandler, T. E. (M.)
Codman, E. A. (M.)
Haskins, A. (L.)
Hornor, A. A., Jr. (C.)
Mason, N. R. (C.)
McMann, W. H. (C.)
Medalia, D. B. (L.)
Sawyer, A. R. (C.)
Brookline—McDonald, W. J. (M.)
Framingham—Biondi, G. C. (C.)
Kingston—Dudley, C. (L. C.)
Lawrence—Scanlon, J. M. (C.)
Lowell—Perkins, R. S. (C.)
Tabor, E. O. (L.)
New Bedford—Bronelle, A. L. (L.)
Newton—Fried, A. R. (L.)
Salem—Hennessey, W. W. (L.)
South Weymouth—Field, H. M. (L. C.)
Springfield—Hirsch, H. L. (L.)
Peck, R. H. (C.)
Rabinowitz, B. (C.)
Turners Falls—Vinal, C. R. (C.)
Verona—Spencer, C. E. (C.)
Westboro—Chambers, R. M. (C.)
Winthrop—Parker, R. B. (M.)
Wollaston—Lacey, W. H. (L.)
Worcester—McMahon, M. F. (L.)

MICHIGAN

Ann Arbor—Town, F. R. (L.)
Detroit—Agnelly, E. J. (L.)
Bookmyer, R. H. (M.)
Browne, W. H. (M.)
Buck, J. D. (M.)
Buesser, F. G. (M.)
Candler, C. L. (C.)
Darling, M. A. (C.)
Downing, D. B. (L. C.)
Gruber, T. R. K. (M.)
Hanna, C. (C.)
Kane, W. J. (L.)
MacArthur, N. (C.)
Manton, W. W. (M.)
McAfree, F. W. (C.)
Owen, R. W. G. (M.)
Pound, P. L. (C.)
Schlegelmich, W. G. (C.)
Vardan, C. C. (L.)
Flint—Manwaring, J. G. R. (C.)
Grand Rapids—Dixon, W. L. (L.)
Holcomb, J. N. (C.)
Vermeulen, P. (L.)
Jackson—Cooley, R. M. (M.)
McCormick, J. J. (M.)
McLaughlin, M. J. (C.)
O'Meara, J. J. (L.)
Kalamazoo—Stern, L. D. (L.)
Lansing—McCrumb, R. R. (C.)
Mancelona—Walton, W. W. (C.)
Marlette—Tuck, R. G. (L.)
Mount Clemens—Berry, H. G. (L. C.)
Whitmore Lake—Alway, G. G. (L.)
Wyandotte—Coan, G. L. (M.)

MINNESOTA

Aitkin—Kelly, B. W. (L. C.)
Alexandria—Swanson, R. E. (M.)
Aurora—Pearsall, R. P. (C.)
Austin—Coleman, F. B. (C.)
Bemidji—Marcum, E. H. (C.)
Braham—Dedolph, T. H. (L.)
Duluth—Sansing, C. (L.)
Minneapolis—Boreen, C. A. (L.)
Cavanor, F. T. (L.)
Hartig, H. J. (L.)
Head, G. D. (M.)
New Richland—Hagen, H. O. (C.)
Osakis—Haberman, E. (L.)
Princeton—Dunn, G. R. (C.)
St. Cloud—Kern, M. J. (C.)
St. Paul—Burch, F. E. (M.)
Christianson, A. (C.)
Hammes, E. M. (C.)
Jester, R. F. (L.)
Martineau, J. L. (C.)
Tintah—Doleman, N. F. (C.)
White Earth—Bernstein, A. (L.)
Zumbro Falls—Radabaugh, R. C. (L.)

MISSISSIPPI

Alligater—Nichols, J. L. (L.)
Arkabutla—Brevard, S. A. (C.)
Black Hawk—Diggs, G. W. (L.)
Brookhaven—Parsons, I. L. (M.)
Camden—Melvin, J. W. (C.)
Hattiesburg—Donald, R. M. (M.)
Jackson—Stewart, N. (M.)
Kiln—Goss, F. Z. (L.)
Lambert—Crothers, V. M. (L.)
Soso—Williamson, E. H. (C.)
Water Valley—Armstrong, J. C. (C.)
Winona—Lusk, W. J. (M.)

MISSOURI

Ashland—Pryor, H. B. (L.)
Berger—Cutler, R. R. (C.)
Breckenridge—Peck, J. H. (C.)
Butler—Crabtree, R. E. (C.)
Lusk, C. A. (C.)
Glendale—Armstrong, J. H. (C.)
Holden—Murray, S. A. (C.)
Holliday—Urquhart, W. H. (L.)
Kansas City—Billick, E. J. (L.)
Clark, M. H. (C.)
Edmonds, D. D. (C.)
Foster, F. F. (L.)
Gist, W. L. (M.)
Skinner, E. H. (L. C.)
White, E. C. (M.)
Wilhelm, D. E. (C.)
Macon—Smith, E. S. (C.)
Maplewood—Townsend, V. F. (L.)
Mexico—Jolley, J. F. (L.)
Pattonsburg—Nigh, J. W. (C.)
Princeton—Perry, J. M. (C.)
Sarcoxie—Boyd, J. W. (C.)
St. Joseph—Gebhart O. C. (M.)
Schmid, O. A. (C.)
St. Louis—Belsey, W. A. (C.)
Clancy, J. F. (L.)
Drake, G. S. (C.)
Dudley, C. R. (C.)
St. Louis—Jaracz, W. J. (L.)
Johnson, E. H. (M.)
Kelly, I. D., Jr. (C.)
Kennedy, A. F. (C.)
Kieffer, R. S. (C.)
Kimball, A. C. (C.)
Kouri, M. F. (C.)
Newell, Q. U. (C.)
Rogers, C. H. (L.)
Swahlen, P. H. (C.)
Thomson, D. A. (L.)
Stoutsville—Wilson, J. M. (C.)
Vichy—Brennan, J. T. (M.)

MONTANA

Cut Bank—Nelson, R. G. (C.)
Froid—Fleischmann, C. B. (L.)
Hilger—Cotton, F. W. (C.)
Livingston—Greene, P. L. (C.)
Moore—Soltero, J. R. (L.)
Sweetgrass—Merritt, C. H. (L.)
Toston—Lukins, A. T. (C.)

NEBRASKA

Ansley—Higgins, R. P. (C.)
Columbus—Koefoot, T. H. (C.)
Dorchester—Panter, R. C. (C.)
Fairmont—Deffenbaugh, M. H. (C.)
Hastings—Hamel, E. B. (C.)
Lincoln—Webb, A. H. (C.)
Omaha—Fitzgibbon, H. M. (C.)
Hahn, F. M. (L.)
Needham, C. T. (C.)
Offerman, A. J. (L.)
Shickley—Elwood, L. W. (L.)

NEW HAMPSHIRE

Manchester—Bergeron, P. (C.)
O'Connor, J. C. (M.)

NEW JERSEY

Arlington—Willan, E. H. (L.)
Atlantic City—Joy, P. C. (L.)
Trager, H. (C.)
Bayonne—Chayes, S. (C.)
Bloomfield—Thompson, D. C. (C.)
Bordentown—Buermann, R. (C.)
Camden—Ramsdell, E. S. (L.)
Court House—Washburn, P. C. (C.)
Cranford—Gilpin, F. B. (C.)
East Orange—Hulett, A. G. (L.)
Minard, E. L. (L.)
Elizabeth—Bunting, P. D. (C.)
Steinke, F. (C.)
Hammonton—Bitler, J. C. (C.)
Harrison—O'Conner, B. A. (C.)
Highlands—Rowland, J. J. (C.)
Hoboken—Chidester, H. S. (L.)
Walker, J. J. (C.)
Jersey City—Calandriello, J. (L.)
McNenney, C. E. (C.)
Montclair—Morrison, M. (L.)
Neshanic—Whiton, W. H. (L.)
Newark—Alling, F. A. (C.)
Curtis, E. A. (C.)
Emory, G. B. (C.)
McCormick, J. E. (C.)
Rawitz, S. B. (C.)
Wolfs, J. F. (L. C.)
Ocean City—Whiticar, J. H. (L.)
Ocean Grove—Dorr, H. B. (L.)
Oradell—Vandewater, S. A. (C.)
Passaic—Simon, M. L. (L.)
Temple, A. H. (C.)
Paterson—Halnan, J. J. (C.)
Whalen, W. J. (C.)
Springfield—Dengler, H. P. (L.)
Trenton—Haggerty, D. L. (C.)
Weehawken—Callery, W. T. (C.)
Windsor—Silver, E. D. (C.)

NEW MEXICO

Deming—Ward, E. L. (L.)

NEW YORK

Amsterdam—Ormsby, F. H. (C.)
Binghamton—Nunn, S. J. (C.)
Boonville—Honan, W. F. (L. C.)
Brooklyn—Cook, W. H. (C.)
Cooney, M. J. (C.)
Glenn, W. S., Jr. (C.)
Goldman, S. (C.)
Kaplan, C. (L.)
McQuillin, J. P. (M.)
Murphy, M. A. (L.)
Robert, D. R. (C.)
Skidmore, W. E. (C.)
Steers, W. H. (L. C.)
Weatherford, J. E. (L.)
Weldon, T. F. (L.)
Buffalo—Beals, L. S. (M.)
Cohen, J. Y. (L.)
Sperry, F. E. (C.)
Zimmerman, J. J. (C.)
Cortland—Reilly, D. R. (C.)
Elmira—Foley, T. F. (C.)
McCanna, L. E. (L.)
Flushing—Lawrence, G. J. (M.)
Geneva—Grove, C. W. (C.)
Greenwich—Rogers, M. A. (C.)
Highland—Rivenburg, W. T. (L.)
Huntington—Pendill, W. C. (L.)
Jordan—Osgood, W. W. (C.)
Little Falls—Smith, W. R. (L.)
Long Island City—Goldman, H. (L.)
Mount Vernon—Woodruff, W. S. (C.)
New Rochelle—Reardon, J. S. (C.)
New York—Anderson, W. D. (L.)
Barringer, T. B., Jr. (M.)
Berens, C., Jr. (M.)
Boas, E. P. (C.)
Bodenheimer, M. (M.)
Burston, J. (L.)
Cavallo, M. E. (L.)
Caverly, C. E., Jr. (C.)
Dowd, H. L. (C.)
Erskine, J. P. (M.)
Faller, C. P. (C.)
Flynn, E. A. (C.)
Freed, F. C. (C.)
Freiberger, M. (C.)
Harkins, J. C. (M.)
Hart, A. J. (L.)
Hunt, H. L. (C.)
Irvin, J. S. (C.)
Jackson, H. W. (M.)
Lasher, W. W. (L.)
Levison, H. (C.)
Levy, I. J. (L.)
McEvitt, J. L. (L.)
Meleny, F. L. (L.)
Mencher, S. (L.)
O'Neill, O. R. (M.)
Rambaud, G. G. (M.)
Schroeder, M. J. (L.)
Seibels, R. E. (M.)
Sengstack, J. L. (L.)
St. George, A. (C.)
Steibel, L. R. (C.)
Strauss, M. J. (L.)
Szerlip, L. (L.)
Van Ness, A. E. (L.)
Wallach, J. I. (L.)
Washton, J. (C.)
Webb, R. C. (C.)
Weiss, J. J. (L.)
Ossining—Barry, T. R. (M.)
Oswego—Dowdle, E. (M.)
Ovid—Gordon, J. G. (C.)
Perry—Brownell, J. R. (C.)
Peddle, G. (C.)
Poughkeepsie — Neumann, T. W. (L.)
Rochester—Boswell, C. O. (M.)
Percy, W. W. (L. C.)
Syracuse—Demong, C. W. (L.)
Trenton—Denelsbeck, J. O. (C.)
Union—Humphrey, R. H. (M.)
Utica—Owens, F. T. (C.)
Vernon—Shipman, J. D. (M.)
Waterloo—Hoehn, F. V. (C.)
Watertown—Thornhill, P. E. (C.)

NORTH CAROLINA

Asheville—Herbert, W. P. (M.)
Caroleen—Brackett, W. E. (L.)
Chapel Hill — Abernethy, E. A. (L. C.)
Charlotte—Gallant, R. M. (L.)
Hovis, L. W. (M.)
Concord—Hartsell, J. A. (C.)
Gibson—Livingston, E. A. (L.)
Greenville—Edgerton, M. T., Jr. (C.)
McGawon, C. (L.)
Kenby—Woodard, G. B. (C.)
Scotland Neck—Morgan, A. D. (C.)
Stedman—Bullard, J. B. (L.)
Stocksville—Morgan, B. E. (L.)
West Durham—Brooks, B. U. (M.)

NORTH DAKOTA

Carrington—Graham, M. P. (C.)
Pingree—Treat, A. M. (C.)

OHIO

Akron—Musser, H. H. (M.)
Postle, R. S. (C.)
Stewart, J. E. (C.)
Barnesville—Judkins, R. J. (C.)
Bryan—Snyder, A. E. (C.)
Bucyrus—Pelton, C. H. (C.)
Canton—O'Brien, J. D. (L. C.)
Carrollton—Shipley, R. T. (M.)
Cincinnati—Freyhof, W. L. (C.)
Jennie, J. J. (L.)
Osmond, A. E. (C.)
Rhodes, G. B. (C.)
Circleville—Jackson, H. D. (M.)
Cleveland—Fallas, R. E. (C.)
Jamison, W. F. (L.)
Jones, A. S. (M.)
Jones, N. M. (M.)
MacFarland, C. H. (Col.)
Meek, J. A. (L.)
Neary, E. P. (C.)
Oster, L. A. (L.)

Cleveland—Rice, F. A. (C.)
Rohland, W. F. (C.)
Ruh, H. O. (M.)
Stone, E. H. (C.)
Columbus—Burkett, D. V. (M.)
Millhon, W. F. (C.)
Noble, R. G. (C.)
Dayton—Firth, R. H. (L.)
Elyria—Lawrence, F. A. (L.)
Findlay—Firmin, J. M. (M.)
Fostoria—Hatfield, N. C. (C.)
Freeport—Black, W. K. (C.)
Johnstown—Mauger, R. C. (C.)
Lima—Parry, J. R. (L.)
Tallman, C. A. (C.)
Lorain—Mikolanda, O. (C.)
Maumee—Comstock, R. W. (C.)
Mingo Junction — McElroy, T. (L.)
Mount Vernon — Claypool, J. R. (M.)
New Philadelphia — Coleman, H. A. (M.)
Ottawa—Rappaport, B. (L.)
Piqua—Kunkle, R. L. (L.)
Prairie Depot—Carr, L. R. (L.)
Senecaville—Skeen, C. H. (L.)
St. Paris—Norman, J. W. (L.)
Trumbull—Ailes, M. D. (C.)
Wadsworth—Johnson, R. A. (C.)
Warren—Pontius, W. C. (L.)
Wauseon—Hartmann, C. F. (M.)
Youngstown — Thomas, A. W. (C.)

OKLAHOMA

Altus—Caviness, J. J. (C.)
Eufaula—Shaunty, J. N. (L.)
Guthrie—Hahn, L. A. (C.)
Haileyville — Browning, R. L. (L)
Lawton—Tolle, C. E. (C.)
Louis—Street, O. J. (L.)
Mangum—McGregor, F. H. (M.)
Muskogee—Ballantine, H. T. (L.)
Norman—Berry, C. N. (L.)
Oklahoma City—Sullivan, E. S. (L.)
Rosston—Walker, H. (C.)
Shawnee—Walker, J. A. (M.)
Snyder—Rea, G. L. (L.)
Stigler—Fannin, F. A. (C.)
Tonkawa — Waggoners, E. E. (C.)
Watonga—Leisure, J. B. (L.)
Wetunka—Hicks, C. A. (L.)

OREGON

Medford—Clancy, R. W. (M.)
Portland—Firey, F. P. (L.)
Miller, D. F. (C.)
Moore, H. B. (M.)
Swenson, K. J. (M.)
Wight, O. B. (M.)
Yenny, R. C. (L. C.)
Salem—Smith, W. C. (M.)
The Dalles—Coberth, T. (L.)

PENNSYLVANIA

Allentown—Lang, W. E. (M.)
Altoona—Kyper, D. C. (C.)
Annville—Marshall, J. E. (L.)
Ashland—Lewis, H. H. (L.)
Beech Creek — Tibbins, P. M. (L.)
Bellefonte—Morgan, T. R. (C.)
Brookville—Snyder, W. L. (C.)
Bryn Mawr—Miller, G. H. (L.)
Burnside—Browne, W. C. (C.)
Charleroi—Vieslet, V. P. (L.)
Chester—Dunn, L. S. (L.)
Nothnagle, F. R. (C.)
Coatesville—Pratt, C. I. (L.)
Connellsville — Douglas, E. W. (C.)
McKee, R. S. (M.)
Dempseytown — Ricketts, A. W. (C.)
Erie—Smith, J. R. (C.)
Stackhouse, J. A. (L.)
Germantown—Forst, J. R. (M.)
Greensburg — Barclay, H. B. (M.)
Cole, T. P. (M.)
Harleysville—Keeler, R. R. (C.)
Harrisburg—Coover, C. (C.)
Johnstown—Meyer, J. J. (L.)
Kingston—Summa, F. P. (C.)
Kittaning—Sedwick, A. J. (C.)
Lancaster—Fulton, H. C. (C.)
Miller, S. W. (C.)
Weaver, G. B. (C.)
Leetonia—Long, M. R. (C.)
Masontown—Wells, E. K. (C.)
Mayport—Shannon, A. C. (C.)
McDonald—Dickson, W. R. (C.)
Monessen—Conn, R. E. (L.)
Fount Joy—Workman, W. M. (C.)
Nanty Glo — Wilkinson, W. W. (C.)
New Castle—Harper, H. C. (C.)
New Kensington—Snyder, J. F. (M.)
Thomas, D. O. (M.)
New Salem — Davidson, C. H. (C.)
Lowe, D. E. (C.)
Peekville—Pentecost, M. I. (L.)
Philadelphia—Anders, A. (C.)
Butler, A. (M.)
Clinton, J. B. (C.)
Coates, G. M. (L. C.)
Conover, J. R. (L.)
Copeland, A. F. (C.)
DeLong, P. (C.)
Dorsett, R. S. (C.)
Engle, J. L. (M.)
Gerhart, W. F. (C.)
Hamlin, P. G. (C.)
Johnson, L. W. (C.)
Leonard, C. F. (L.)
Lott, H. H. (C.)
Lynch, J. J. (C.)
Marcucci, V. (C.)
Martin, W. M. (C.)
McKee, H. J. (M.)
Melnick, T. (C.)
Merscher, W. (C.)
Metheny, S. A. S. (C.)
Mitchell, A. G. (C.)
Murphy, E. C. (L.)
Nichols, W. (M.)
Parkinson, W. N. (C.)
Ramsey, F. M. (M.)
Regester, R. P. (C.)
Rodenheiser, E. W. (C.)
Seligman, L. (L.)
Stalberg, S. (C.)
Stamm, C. J. (C.
Stephan, G. L. (C.)
Stimson, C. M. (M.)
Strop, A. C. (C.)
Sylis, W. M. (C.)
Tunnell, S. W. (M.)
Udell, W. (L.)
Weber, J. M. (C.)
Weeder, S. D. (C.)
Witman, R. G. (M.)
Philipsburg—Marks, S. J. (C.)
Pittsburgh—Allen, C. W. (C.)
Bruce, P. C. (L.)
Eggers, A. M. (M.)
Gano, C. H. (C.)
Glynn, W. H. (C.)
Jahn, A. H. (L.)
Marcy, C. H. (C.)
McCain, G. M. (M.)
Newhouse, J. E. (C.)
Rectewald, W. E. (L.)
Scurry, C. J. (C.)
Reading—Cantough, C. S. (C.)
Scranton—Beach, G. B. (C.)
Davis, W. J. L. (C.)
Sunbury—Deitrick, G. A. (C.)
Uniontown — Coughanous, A. E. (L.)
Vandergrift—Lace, W. J. (C.)
Washington—Beveridge, D. (L.)
Patterson, G. E. (C.)
Waynesboro—Patterson, W. (L.)
West Leesport — Lenker, R. W. (L.)

RHODE ISLAND

Newport—Stevenson, A. W. (C.)
Providence — Gardner, G. W. (M.)

SOUTH CAROLINA

Belton—Weathersbee, A. B. (L.)
Carlisle—Long, R. H. (L.)
Claussen—Claussen, J. R. (C.)
Cross Hill—Mills, C. B. (L.)
Darlington — Alexander, O. A. (C.)
Scott, C. M. (L.)
Newry—Marett, W. C. (C.)
Spartanburg — Crook, M. (C.)
Sumter—Burgess, W. H. (L.)

SOUTH DAKOTA

Elkton—O'Connor, D. F. (M.)
Groton—Clark, C. W. (L.)
Mitchell—Delaney, W. A. (C.)
White Rock—Engh, S. (L.)
Winner—Kimball, A. P. (L.)
Woonsocket—Kidd, F. S. (M.)

TENNESSEE

Bristol—Vance, W. K., Jr. (L.)
Chattanooga—Ingalls, A. T. (C.)
Cleveland—Minor, D. (L.)
Columbia —Gilmore, L. H. (L.)
Etowah—Richards, W. D. (L.)
Hampton—Shoun, J. B. (C.)
Knoxville—Acuff, H. L. (C.)
Macon—Boswell, W. L. (L.)
Memphis—Venn, F. C. (C.)
Nashville—Orr, E. M. (C.)

TEXAS

Austin—Lincecum, A. L. (C.)
Bells—Miller, F. P. (C.)
Call—Blow, F. T. (C.)
Cameron—Van Zandt, G. T. (L.)
Canton—Hearin, W. C. (C.)
Childress—Snyder, J. W. (C.)
Granfills Gap—Pluenneke, P. C. (L.)
Dallas—Cooper, J. S. (C.)
Newton, F. H. (L.)
Franklin—Connor, C. J. (C.)
Fort Worth — Alexander, J. C. (M.)
Cook, W. G. (C.)
Garner—Howard, C. C. (L.)
Gorman—Blackwell, G. T. (L.)
Henrietta—Arnold, C. K. (L.)
Houston—Arnold, E. M. (M.)
Green, C. C. (C.)
Pritchett, I. E. (M.)
Jacksonville—Jones, E. B. (L.)
Martindale—Douglas, G. W. (L.)
Paducah—Harper, J. W. (L.)
Pampa—Purviance, W. (C.)
Runge—Pressly, T. A. (C.)
San Antonio—Goode, J. W. (L.)
Goodson, T. N. (C.)
Kitowski, C. B. (C.)
Stamford—Southard, D. (L.)
Temple—Bailiff, H. C. (L.)
Thrall—Hopkins, Y. F. (C.)
Waco—Hoke, H. E. (L.)
Stanislav, F. J. (L.)

UTAH

Salt Lake City—Ashley, R. W. (C.)
Preston, W. V. (C.)

VIRGINIA

Bridgewater—Bell, J. H. (L.)
Bristol—Wiley, W. S. (C.)
Cherrydale—Walton, J. H. (C.)
Hampton—Knewstep, W. E. (M.)
Independence — Phipps, W. M. (L.)
Iron Gate—Tyree, A. D. (C.)
Norfolk—Brown, I. (M.)
Paris—Moore, E. A. (L.)
Raven—Moore, M. B. (C.)
Richmond—Anderson, M. L. (M.)
Ezekiel, G. A. (M.)
Govan, T. P. (L.)
Lewis, C. H. (M.)
Warinner, J. E., Jr. (L.)
Roda—Rollings, J. A. (M.)

WASHINGTON

Aberdeen—Randolph, H. C. (C.)
Bellingham—Axtell, W. H. (C.)
Montesano—Marcy, G. E. (C.)
Mount Vernon — Cassell, R. J. (L.)
Northbend—Burke, R. T. (M.)
Seattle—Allen, H. E. (L. C.)
Black, F. A. (M.)
Fick, E. P. (M.)
Hunt, J. W. (M.)
Mattice, A. F. (C.)
Plummer, R. C. (M.)
Spokane—Charlton, M. R. (C.)
Hamblen, R. N. (M.)
Newell, R. I. (C.)
Tacoma—Schroeder, F. H. (C.)
Walla Walla—Montgomery, C. E. (L.)

WEST VIRGINIA

Amma—Harper, C. A. (C.)
Bentree—Woodall, R. E. (C.)
Colliers—Focer, R. L. (C.)
Elizabeth—McClung, P. W. (C.)
Hinton—Van Sant, W. L. (C.)
Moundsville — Compton, A. F. (C.)
Seth—Sutphin, M. (L.)
Sweet Springs — Traynham, B. L. (C.)
Wheeling—Goin, L. S. (C.)
Wolf Summit—Corbin, J. E. (C.)
Woodville—Jarrell, D. B. (C.)

WISCONSIN

Appleton—Moore, W. N. (C.)
Scott, J. R. (L. C.)
Bowler—Knox, E. S. (C.)
Burlington—Powers, J. W. (C.)
Chippewa—Smith, G. M. (C.)
Eau Claire — Ziegler, J. E. B. (L.)
Forest Junction—Harkins, J. P. (L.)
Green Bay—McCarey, A. J. (M.)
Highland—Hudek, D. F. (C.)
Janesville—Van Kirk, F. W. (M.)
Madison—Sisk, I. R. (L.)
Milwaukee — Blumenthal, R. W. (M.)
Kenney, R. L. (C.)
Saltzstein, H. C. (C.)
Norwalk—Cooper, C. A. (C.)
Rhinelander—Garner, H. L. (L.)
Richland Centre—Ainsworth, H. H. (C.)
Ripon—Barnes, E. C. (M.)
Sheboygan—Fiedler, O. A. (L. C.)
Stevens Point—Copps, L. A. (C.)
Superior—Kyllo, J. C. (L.)
Tomahawk — McCormick, W. C. (L.)
Two Rivers—Wiltrout, I. G. (L.)

WYOMING

Cheyenne—Desmond, L. P. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

San Francisco—Holzberg, H. L.

ILLINOIS

Bushnell—Ritchey, G. F.
Chicago—Anderson, A. A.

INDIANA

Indianapolis—Graham, N. P.

KANSAS

Rosedale—Whitney, E. L.

LOUISIANA

Eunice—Lewis, C. W.

MICHIGAN

Midland—Lewinstein, S. M.

MINNESOTA

Duluth—Patton, F. J.
Minneapolis—Lundquist, E. F.

MISSOURI

St. Louis—Will, L. A.

NEBRASKA

Homer—Larsen, A. A.
Omaha—Thompson, R. Y.

NEW YORK

New York—Murray, H. J.
Rubin, H. S.

OHIO

Cleveland—Heym, R., Jr.
Toledo—Orwig, E. A.

PENNSYLVANIA

Norristown—Yeakle, W. A.

SOUTH CAROLINA

Williston—Smith, J. G.

TEXAS

Winnsboro—Boyd, L. J.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Devens, Mass., from Camp Travis, Capt. W. G. THIGPEN, Montgomery.

To San Antonio, Texas, Kelly Field, from Hoboken, Lieut. E. O'CONNELL, Birmingham.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major M. P. NEAL, Heflin.

The following order has been revoked: *To Camp Lee, Va.,* from Camp Dix, Lieut. J. G. SANDERS, Troy.

Arkansas

To Camp Meade, Md., from Fort Logan H. Roots, Lieut.-Col. C. M. WALSON.

To report to the commanding general, Eastern Department from Camp Dix, Major J. E. PHILLIPS, Eureka Springs.

California

To Benicia, Calif., from Camp Dix, Lieut. F. H. CHASE, Los Angeles.

To San Diego, Calif., Rockwell Field, from Benicia, Calif., Capt. A. W. SMITH.

To Spartanburg, S. C., from Camp Dix, Capt. J. A. ORBISON, Whittier.

Colorado

To Fort Sam Houston, Texas, base hospital, from Fort Bliss, Lieut. S. S. GOLDHAMMER, Denver.

Connecticut

To Fort Logan, Colo., from Mineola, Major R. BLACKMORE, Hartford.

To Plattsburg Barracks, N. Y., from Camp Devens, Capt. H. L. BURR, Middletown.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut. H. E. STEWART, New Haven.

District of Columbia

To Camp Dodge, Iowa, from Camp Meade, Major W. O. WETMORE, Washington.

To Canal Zone, from Walter Reed General Hospital, Major E. A. BOCOCK.

To New York City, from Surgeon-General's Office, Col. P. W. HUNTINGTON.

To report to the commanding general, Southern Department, from Philippine Islands, Major J. C. LEHARTY, Washington.

To San Francisco, Calif., as department sanitary inspector, from Surgeon-General's Office, Col. E. G. BINGHAM.

Florida

To Pittsburgh, Pa., from Camp Gordon, Capt. M. E. HECK, St. Augustine.

Georgia

To Camp Pike, Ark., from Fort Riley, Lieut. H. W. BROOKS, Columbus.

Illinois

To Camp Grant, Ill., base hospital, from St. Louis, Lieut. E. L. DALLWIG, Chicago.

To Camp Lee, Va., from Chicago, Lieut. H. S. EDSON, Chicago.

To Camp Pike, Ark., from Fort Riley, Lieut. J. H. MITCHELL, Chicago.

To Carlisle, Pa., from Camp Dix, Major E. M. SMITH, Georgetown.

To Colonia, N. J., from Philadelphia, Lieut. E. H. SEIFERT, Chicago.

To Fort Bliss, Texas, base hospital, from Camp Lewis, Major R. M. RITCHEY, Elgin.

To Fort McDowell, Calif., from Camp Dix, Major J. T. EDWARD, Chicago.

To Fort Sheridan, Ill., from Philadelphia, Lieut. C. J. CHALLENGER, Chicago; from Walter Reed General Hospital, Lieut. J. STERN, Chicago.

To Fort Snelling, Minn., from Camp Devens, Capt. M. L. GALLAGHER, Chicago.

To Plattsburg Barracks, N. Y., from Chicago, Capt. H. G. LAMPE, Chicago.

To Spartanburg, S. C., from Fort Oglethorpe, Lieut. C. E. KELSO, Thomasboro.

To Washington, D. C., from Chicago, Lieut.-Col. T. E. DARBY.

Indiana

To Camp Custer, Mich., from Camp Dix, Capt. A. G. KINBERGER, Galena.

To Fort McHenry, Md., from Camp Dix, Capt. M. H. KUTCH, Terre Haute.

To Walter Reed General Hospital, D. C., from Camp Dix, Major H. M. HOSMER, Gary.

Iowa

To Camp Dodge, Iowa, from Fort Sheridan, Capt. W. D. McFAUL, Miles.

To Camp Pike, Ark., from Fort Riley, Major E. E. HOBBY, Iowa City.

Kansas

To Camp Jackson, S. C., from Fort Riley, Lieut. G. H. ALLEN, Topeka.

To Fort Riley, base hospital, from Spartanburg, Lieut. H. R. SCATES, Baxter Springs.

To Oteen, N. C., from Fort Oglethorpe, Lieut. C. O. DAVISON, Garden City.

To San Francisco, Calif., Letterman General Hospital, from Fort Riley, Capt. A. G. BOWER.

Kentucky

To Camp Dodge, Iowa, from Camp Dix, Capt. R. B. MORRIS, Bowling Green.

To Camp Zachary Taylor, Ky., from Fort Riley, Capt F. M. WALKER, Louisville.

To Fort Bayard, N. M., from Camp Dix, Capt. S. E. STRAUBE, Edgoten.

The following order has been revoked: *To Fort Leavenworth, Kan.*, from Fort Riley, Lieut. C. B. NEIDHAMER, Sturgis.

Louisiana

To Fort McPherson, Ga., from Camp Dix, Major W. M. PERKINS, New Orleans.

Maryland

To Fort McHenry, Md., from Hoboken, Capt. C. R. BROOKE, Baltimore.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Capt. A. C. SUTTON, Baltimore.

Massachusetts

To Camp Dix, N. J., Lieut.-Col. F. L. MORSE, Somerville.

To Camp Upton, N. Y., base hospital, from Williamsbridge, Capt. H. A. JOHNSON, Lynn.

To Fort Des Moines, Iowa, from Boston, Lieut. F. H. THORNE.

To Fort McPherson, Ga., from Camp Gordon, Major R. B. OBER, Springfield.

To Plattsburg Barracks, N. Y., from Boston, Capt. F. A. DAVIS, Boston.

To report to the commanding general, Northeastern Department, from Camp Dix, Capt. E. M. MORRIS, Fall River.

Michigan

To Camp Custer, Mich., from Camp Dix, Capt. H. J. DEFNET, Escanaba.

To Erie, Ohio, from Aberdeen, Md., Capt. M. J. SCHWANZ, Detroit.

To Walter Reed General Hospital, D. C., for instruction, from Camp Lee, Capt. C. L. BARBER, Lansing.

Minnesota

To Fort Snelling, Minn., from Camp Dodge, Lieut. P. A. WARD, Minneapolis.

To Plattsburg Barracks, N. Y., from Camp Dix, Capt. C. D. SQUIRES, Rochester.

Missouri

To Camp Dodge, Iowa, from Camp Dix, Capts. J. J. DEVEREAUX, Hawk Point; N. A. YOUNG, St. Louis.

To Fort Leavenworth, Kan., from Fort Riley, Lieut. J. E. GLENN, St. Louis.

To report to the commanding general, Eastern Department, from Camp Dix, Capt. W. Y. HOLLINGSWORTH, Bel Air.

Montana

To Camp Dodge, Iowa, from Camp Dix, Major C. L. ROY, Three Forks.

Nebraska

To Camp Jackson, S. C., from Fort Riley, Lieut. G. S. REEDER, Freemont.

To Houston, Texas, from Camp Bowie, Lieut. C. C. HICKMAN, Lincoln.

New Hampshire

To Carlisle, Pa., from Camp Devens, Capt. R. S. PERKINS, Exeter.

New Jersey

To Camp Benning, Ga., as camp surgeon, from Camp Dix, Col. C. E. KOEPER.

To Camp Dix, N. J., as commanding officer, base hospital, from Hoboken, Col. J. C. MAGEE.

To Denver, Colo., from Camp Dix, Capt. D. B. STREET, Jersey City.

To Fort Myer, Va., from Camp Dix, Col. J. D. FIFE.

To Fort Worth, Texas, as camp surgeon, from Hoboken, Col. K. NELSON.

To Oteen, N. C., from Camp Dix, Major R. SKELTON.

To report to the commanding general, Southern Department, from Camp Dix, Lieut.-Col. W. C. DAVIS.

To Walter Reed General Hospital, D. C., from Hoboken, Col. J. W. HANNER; from Williamsbridge, Lieut. W. L. NIXON, Raritan.

To Washington, D. C., from Hoboken, Col. H. PAGE; Surgeon-General's Office, from Camp Dix, Major H. S. MARTLAND, Newark.

New York

To Camp Devens, Mass., to examine the command for nervous and mental diseases, from Camp Meigs, Capt. K. A. ENLIND, South Nyack.

To Camp Dodge, Iowa, base hospital, from Chicago, Major H. L. VAN WINKLE, Albany.

To Camp Lee, Va., from Camp Dix, Capt. P. M. BOLTON, Buffalo.

To Columbus Barracks, Mo., from Hoboken, Lieut. C. H. HOCHMAN, New York.

To Fort Jay, N. Y., from Camp Lee, Lieut. J. H. TOOMEY, New York.

To Fox Hills, N. Y., from Camp Dix, Major G. A. KEONING, New York.

To report to the commanding general, Eastern Department, from Camp Devens, Lieut. G. M. GLENN, Fonda.

To the retired list, from New York, Major N. S. JARVIS, New York.

To Washington, D. C., from Hoboken, Lieut. R. MALCOLM, Yonkers.

Ohio

To Camp Sherman, Ohio, base hospital, from Camp Lewis, Capt. C. G. LAROCCO, Cleveland.

To Fort Benjamin Harrison, Ind., from Camp Sherman, Lieut. E. D. JACKSON, Georgetown.

To Fort Des Moines, Iowa, from Camp Grant, Capt. C. L. IRELAND, Columbus.

Oklahoma

To Biltmore, N. C., from Army Medical School, Lieut. J. E. HEATLEY, Carmen.

To Camp Bragg, N. C., from Camp Pike, Lieut.-Col. F. J. BOLEND, Oklahoma.

Oregon

To Camp Gordon, Ga., from Fort Riley, Lieut. C. S. MENZIES, Portland.

To report to the commanding general, Western Department, from Camp Custer, Capt. L. H. MOTT, Salem.

Pennsylvania

To Astoria, N. Y., from Camp Dix, Capt. J. J. BENDICK, Olyphant.

To Camp Jackson, S. C., base hospital, from Philadelphia, Capt. J. BEATTIE, Lebanon.

To Colonia, N. J., from Camp Dix, Lieut.-Col. D. M. HOYT, Philadelphia.

To Fort McPherson, Ga., from Camp Meade, Lieut. C. J. BOWNE, Philadelphia.

To Fort Myer, Va., from Camp Dix, Lieut. A. R. WOODS, Philadelphia.

To Plattsburg Barracks, N. Y., from Camp Meade, Capt. W. F. BEITSCH, New Brighton.

To report to the commanding general, Eastern Department, from Camp Dix, Major R. S. DAVIS, Philadelphia; Capt. R. W. COTTON, McKees Rocks; from New York, Lieut. J. C. HARDING, Philadelphia.

To Spartanburg, S. C., from Camp Dix, Major A. N. BAGGS, Abington.

The following order has been revoked: *To report to the commanding general*, American Expeditionary Forces, from Carlisle, Major D. N. W. GRANT.

Rhode Island

To Hampton, Va., from East Norfolk, Capt. W. H. DYER, Providence.

South Carolina

To Biltmore, N. C., from Camp Jackson, Major M. P. MOORER, Georgetown.

To Camp Meade, Md., from Charleston, Lieut.-Col. E. C. REGISTER.

Tennessee

To Camp Lee, Va., from Camp Bowie, Major H. M. FRANCISCO, Nashville.

Texas

To Denver, Colo., from Fort Sam Houuston, Col. R. C. LOVING.

To Mount Clemens, Mich., Selfridge Field, from Fort Sill, Lieut. W. L. CULPEPPER, Goose Creek.

To Walter Reed General Hospital, D. C., from Houston, Lieut. R. W. WALKER.

Utah

To Otisville, N. Y., from New Cumberland, Lieut. J. C. HARDIE, Garfield.

Virginia

To Hampton, Va., from Plattsburg barracks, Capt. C. D. KELLAM, Norfolk.

To Washington, D. C., from Camp Lee, Lieut.-Col. W. R. DEAR. Surgeon-General's Office, from Newport News, Col. E. M. WELLES, Jr.

Washington

To report to the commanding general, Western Department, from Camp Dix, Lieut. S. B. ROSS, Seattle.

Wisconsin

To Camp Dodge, Iowa, from Camp Bowie, Major P. G. LASCHE, Richland Center; from Camp Dix, Capt. A. A. AXLEY, Butternut.

To Walter Reed General Hospital, D. C., from Camp Lee, Lieut. J. D. GILLIS, Wauwatosa.

Wyoming

To Denver, Colo., from Letterman General Hospital, Capt. O. K. SNYDER, Cheyenne.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

New Roentgenologists for Garfield Hospital.—Drs. Thomas A. Groover and Arthur C. Christie have been appointed roentgenologists on the staff of Garfield Hospital to succeed Dr. Walter H Merrill, whose resignation takes effect July 1.

Renewal of an Ancient Charter Sought.—An item in The Journal for June 28 mentions a bill introduced in the House of Representatives by Mr. Lazaro of Louisian providing for the incorporation of the Medical Society of the District of Columbia and conferring the power to own and convey real estate. The caption of the item stated that the bill incorporates a new medical society; this is incorrect as the real purpose of the bill is to secure the historical continuity of a charter originally granted by the national Congress, Feb. 16, 1819, the bill of incorporation having been signed by President James Monroe. A new charter, with some emendations, was granted by Congress, July 7, 1838, the act being signed by President Van Buren. Both of these charters conferred on the society the right and duty of electing a medical licensing board, the sole guardian of the standards of medical practice in the District of Columbia until 1896 when a board of medical supervisors for the District of Columbia was provided by Act of Congress. Since the original charters imposed on the society the duty of examining and licensing physicians, they forbade the society to establish a tariff of charges or fees; when, therefore, the function of the society as a licensing body was abolished on the one hand, and on the other the society in 1913 took on the function of a component unit of the American Medical Association, these old charters lapsed. It is now sought to revive the corporate identity of the society by congressional action, and the incorporators named in the bill are the members of the executive committee for the current year, it being impracticable to name the 565 members of the society in a bill of incorporation. The power to own and convey property is sought by the society because of the intention to erect a home for the organization in the near future; an energetic and highly successful campaign is now going forward which should result in the erection of a $75,000 building this fall.

ILLINOIS

Illegal Practitioner Arrested.—Ernest M. Sparks of Casey was arrested by an inspector of the Department of Registration and Education of the State of Illinois and fined $284 for practicing "Suggestive Therapeutics" in violation of the medical practice act.

Personal.—Dr. C. St. Clair Drake, director of the State Department of Public Health, Springfield, was elected secretary-treasurer of the Conference of State Health Authorities at its annual meeting in Atlantic City, and was also made secretary of the executive committee of health authorities of the United States.——Dr. A. B. Taylor, Canton, has been elected county physician of Fulton County.

Chicago

Illegal Practice Charge.—A. G. Dillenbaugh is said to have been taken into custody June 20, by an inspector of the Department of Registration and Education charged with practicing medicine without a license.

Clinic for Discharged Soldiers.—The new clinic established at Mercy Hospital for discharged soldiers and sailors and their dependents, which has been equipped at an expense of $35,000 by the National Catholic War Council, was opened June 25.

Sanatorium Auditorium Opened.—The new auditorium building erected at the Municipal Tuberculosis Sanatorium, at a cost of $100,000, was formally opened June 28. The dedicatory exercises were held June 29. Dr. William M. Harsha, superintendent of the institution, presided and addresses were made by Drs. John Dill Robertson and William A. Pusey and others.

Home from Overseas.—Gustavus M. Blech, Lieut.-Col., M. C., U. S. Army, who went overseas as assistant division surgeon of the Thirty-Third Division, was then in command of a base hospital at Autun, France, and later was commanding officer of a large base hospital in France, returned to Chicago, June 29.——William H. G. Logan, Col., D. C., U. S. Army, has returned after more than two years of military service, and has resumed practice.——Ralph S. Porter, Lieut.-Col., M. C., U. S. Army, division surgeon of the Twenty-Sixth Division and also on duty with the First and Second Divisions overseas, reached New York on his return home, June 26.

Personal.—Dr. Frank Billings has been discharged from military service and has returned to Chicago.——Dr. H. Gideon Wells has reached Chicago from Roumania where he did administrative public health work. There is much typhus and smallpox in Roumania, largely accounted for because the army has been mobilized, taking most of the physicians from civil practice.——Dr. Charles M. Robertson has been discharged and has resumed practice.——Dr. Walter W. Armstrong of the health department has been made city health officer of La Crosse, Wis.——Joseph D. Purvis has been made chief director of the Hahnemann Medical College and Hospital, for a term of five years, succeeding Dr. Clarence V. Clemmer.

KENTUCKY

Premedical Work Required.—The Kentucky State Board of Health has adopted as a requirement for application for licensure, two years of premedical work. This rule becomes effective in 1922.

Tablet Unveiled.—Appropriate exercises at the unveiling of the memorial tablet to the late Dr. Charles O. Zahner, professor of physiology in the University of Louisville, took place in the college building, June 26.

Founders' Day Dinner.—Founders' day dinner exercises were celebrated under the auspices of the Louisville Alumni Association of Vanderbilt University, at the Pendennis Club, Louisville, May 24. Dr. John A. Witherspoon, Nashville, Tenn., delivered the principal address.

Personal.—Drs. John Walker Moore, McConnellsville, S. C., and Larren R. Ellars, National Military Home, Ohio, have been elected full-time teachers in medicine and surgery, respectively, in the University of Louisville. They will reside in the hospital and will direct the work of the resident intern staff, and the bedside teaching of the medical classes.——Dr. Granville S. Hanes, Louisville, will soon leave for England and France, where he will take up special research work on the cancer problem.——Dr. Thomas C. Holloway has been discharged from the Medical Corps, U. S. Army, after service overseas, and has returned to Lexington.

MARYLAND

Volunteers of America to Establish Hospital.—Arrangements have been completed for the establishment of an emergency hospital by the Volunteers of America in Baltimore. A four-story brick structure has been secured and the work of remodeling will start immediately, so that the hospital will be open by October 1.

For Quarantine Station.—Acceptance of the Baltimore Quarantine Station by the government at the price of $176,775 is provided for in the sundry civil bill, which has been reported to the Senate by Senator Warren, chairman of the Appropriations Committee. This bill authorizes the secretary of the treasury to acquire the station to be operated as one of the adjuncts of the public health service.

Site for Tuberculosis Sanatorium Selected.—The directors of the Maryland Tuberculous Sanatorium have closed their option on the property adjoining Eudowood Sanatorium at Towson, this property to be used as a site for a tuberculosis sanatorium for the colored people, as provided by the last legislature. The tract comprises 50 acres of undeveloped property. The directors of the institution expect to make the new sanatorium the first of a series to be erected throughout the state for the treatment of colored people suffering from the disease. Because of the prevalence of this disease among the negroes in Maryland, it is declared that the establishment of such an institution as is proposed will be a protection to Towson, rather than an inconvenience.

Personal.—Henry R. Carter, Major, M. C., U. S. Army, has obtained his discharge from the Army and will shortly return to his home at the U. S. Marine Hospital in Baltimore. ——Harry C. Schmeisser, Major, M. C., U. S. Army, professor in the department of pathology in the Johns Hopkins University, has arrived in the United States after fourteen months' service with the U. S. Army in France.——William J. Coleman, Major, M. C., U. S. Army, Baltimore, former superintendent of the University Hospital, who has been serving with the American Expeditionary Forces, has been promoted to the rank of lieutenant-colonel and is stationed at Coblenz, Germany.——Dr. Alma S. Rotholz, Baltimore, of the Johns Hopkins Hospital, who was engaged by the Red Cross to work among the children of the war-ridden territory under the direction of Dr. William F. Lucas, Sykesville, and while in France acted as resident physician at a hospital for children at Havre, France, has returned to her home in Baltimore.——N. Moreland Owensby, Major, M. C., U. S. Army, Baltimore, who has been stationed at the base hospital, Camp Gordan, Ga., for several months, has been discharged from the service and will locate in Atlanta.——At the recent commencement exercises of the University of Georgia, Augusta, the honorary degree of doctor of science was conferred on Dr. John M. T. Finney, Baltimore.

MASSACHUSETTS

Personal.—George F. Keenan, Major, M. C., U. S. Army, Brighton, has been promoted to lieutenant-colonel, and has been transferred to the staff of the chief surgeon at Le Mans, France.——Drs. Edward H. Bradford and Frederick C. Shattuck, both of Boston, have been elected members of the board of overseas of Harvard University.

Memorial Building for City Hospital.—A three-story building to be known as the Thorndyke Memorial and to be devoted to research work in pathology is to be erected at the Boston City Hospital during the summer, at a cost of more than $200,000, in memory of the late Dr. William H. Thorndyke, Boston. The new building will be erected in the rear of the medical laboratory in the hospital grounds.

MICHIGAN

Correction.—In the June 7 issue of The Journal it was erroneously noted that the annual meeting of the Michigan State Medical Society was held in Bay City. The meeting was held in Detroit.

Personal.—Dr. William R. Grant, Lyons, who has been ill for a long time, after examination in the probate court, June 7, was taken to the Traverse City State Hospital for treatment.——Dr. James A. King, postmaster of Manistee for more than five years, has resigned.

MISSOURI

Laboratories Discontinued.—The laboratories at the state board of health office have been discontinued and the work of these institutions has been assumed by the department of preventive medicine laboratories of the state university, Columbia.

Personal.—Dr. M. J. Armstrong, Springfield, has been elected assistant physician and bacteriologist at the Missouri Sanatorium, Mount Vernon.——Dr. Harry LaRue, Dexter, suffered a second cerebral hemorrhage and is reported to be in critical condition.

Division of Child Hygiene Established.—The recent legislature passed a bill creating a division of child hygiene in the state department of health and giving the state board of health general supervision and regulation of the physical inspection of public schools in the state.

Communicable Disease Law Passed.—At the last session of the legislature, a law was enacted giving the state board of health authority to promulgate and enforce adequate rules and regulations for the control and prevention of communicable diseases. This enables the board to comply with the requirements of the interdepartmental social hygiene board. Active cooperation will begin, July 1. The state receives $35,808 as its allotment.

Resolutions Against Venereal Diseases.—At the annual meeting of the Missouri State Medical Association, held at Excelsior Springs, May 26 to 28, resolutions were adopted setting forth that the Missouri State Board of Health on account of lack of funds is handicapped in its cooperation with the United States Public Health Service in the conduct of a vigorous campaign against venereal disease by its inability to arrange the provision of facilities for free laboratory examinations of specimens and the diagnosis of venereal disease, to furnish free arsphenamin for indigent cases, and to adopt a policy for clinics and free treatment. The association endorsed the campaign being waged by the United States Public Health Service, and especially that part of the campaign which provides facilities for the diagnosis and treatment of venereal disease, calling on physicians in the state to cooperate with the health authorities in their efforts to combat venereal disease, and urging that the local authorities in the larger cities of the state provide for the establishment of clinics in cooperation with the state board of health.

NEW YORK

Personal.—Dr. Edward S. Godfrey of Albany has returne from France, where he has been connected with the America Red Cross in the capacity of chief of health inspectio service.

Clinton County Increases Public Health Facilities.—Th board of supervisors has provided a public health nurse, school nurse and a tuberculosis and venereal clinic at Plattsburg; a school nurse at Chazy; a visiting nurse at Ausabl Forks and at Lyon Mountain a county tuberculosis nurse.

New York City

Mount Sinai Prepares to Build.—Plans have been filed wit the building department for an eight-story addition to Moun Sinai Hospital, on Fifth Avenue between Ninety-Ninth an One Hundredth streets. The estimated cost of the propose addition is $500,000.

NORTH CAROLINA

Hospital for High Point.—Several High Point physician are planning for the construction of a new hospital to cos with equipment, $75,000, and to be of fireproof constructio throughout.

Hospitals Made Permanent.—U. S. Army General Hospita No. 19, Oteen, near Asheville, is announced as a permanen hospital and a new lease has been negotiated with the owner for the continued use of the Kenilworth Hotel which wa taken over early in the war for the use of the hospital. Th U. S. Military Hospital at Azalea, it is also understood, wi be continued permanently for the care of tuberculous patient

Personal.—Davidson College at the recent commencemen conferred the degree of LL.D. on Dr. John Peter Monroe Charlotte, formerly president of the North Carolina Medi cal College and of the North Carolina State Medical Societ ——Dr. Claude L. Pridgen, Wilmington, delivered the pri cipal address at the annual North Carolina state mason picnic at the State Masonic Orphan Asylum, Oxford, June 2

OHIO

Summer School at Sanatorium.—Twenty-five physicians the state registered for a special two weeks' course in t treatment of tuberculosis at the State Sanatorium, Mou Vernon.

Clinic as Soldiers Memorial.—The memorial of Summit County to soldiers in the World War, will it is expected, be in the form of a health clinic building and fund. This building will be in memory not only of the men from Summit County who died in the World War, but also of those who died in the Spanish-American War and the Civil War.

Personal.—Dr. Ora O. Fordyce, superintendent of the Athens State Hospital will, it is announced, be transferred to the Toledo State Hospital, July 15, succeeding Dr. George R. Love, whose resignation takes effect on that date.——Dr. T. Addison McCann, Dayton, has been appointed a member of the state medical board.——Dr. Mary A. Wilson, Delaware, for six years chief medical officer of the Delaware Girls Industrial School, has resigned.——Dr. Lot H. Hughes, for twenty-five years local surgeon of the Pennsylvania system at Denison, has resigned and has been succeeded by Dr. Edmund A. Wolfe.

Decision Regarding Venereal Disease.—The Hamilton County Common Pleas Court in a case in which the constitutionality of the venereal disease regulations of the state were attacked has upheld the regulations. The case was a habeas corpus proceeding brought by an alleged prostitute who had been held by the Cincinnati Health Department as a person reasonably suspicious and who, being found infected, had been placed under quarantine as provided by the state regulation. The release of the petitioner was demanded on the grounds that she was deprived of liberty on suspicion and that she had not been granted trial by jury. In dismissing the case the court stated that the health authorities had as clear a right to quarantine persons afflicted with venereal disease as to quarantine a person exposed to smallpox or scarlet fever, and that the question of jury trial was not concerned in the case, as the petitioner was not held on a criminal charge.

PENNSYLVANIA

Doctors' Licenses Revoked.—The licenses of seven physicians who violated the drug act have been revoked according to an announcement made, June 27, by the State Bureau of Medical Education and Licensure. The board has also suspended five other medical men and revoked for three months the license of Dr. Elizabeth M. Baer, Philadelphia, now serving a sentence for sedition.

Personal.—Dr. George K. Strode, Harrisburg, has been appointed assistant chief health inspector of the department of health of Pennsylvania.——William H. Leffler, Capt., M. C., McKeesport, has been cited for bravery by Marshall Petain in the name of the French government. He received the Croix de Guerre, April 13, and was made regimental surgeon of the Twenty-Third Infantry.

Power for Health Board.—The senate passed finally the house bill broadening the powers of the commissioner of health and the advisory board under the quarantine act of 1915. Under the bill the commissioner of health, with the approval of the advisory board, may determine what are communicable diseases and provide for the quarantine of such diseases. This law was found necessary after the difficulty encountered in the influenza epidemic of last fall. The act also enables the department of health to carry out its venereal campaign in a conservative manner.

Philadelphia

Personal.—O. H. Perry Pepper, Major, M. C., U. S. Army, who is at a base hospital in France, has been promoted to lieutenant colonel.——Robert G. LeConte, Lieut-Col., M. C., U. S. Army, who went to France with the Methodist Hospital Unit, and was naval consultant for Pershing's forces, has been made a chevalier of the Legion of Honor.——George M. Coates, Col., M. C., U. S. Army, who was commanding officer of Base Hospital No. 50 up to the time the armistice was signed, following which he went to Dijon and St. Agilon as an ear, nose and throat specialist, has returned home.——Dr. Thomas C. Stellwagen is winning a plucky fight for his life which he has been making for a number of weeks in a private hospital in Media, where he has undergone five operations for an infection contracted while operating with a movable unit in France.——The senate confirmed the appointment of John D. McLean as deputy commissioner of health.

UTAH

State Medical Board Organizes.—At the meeting for organization of the Utah State Board of Medical Examiners, Dr. David C. Budge, Logan, was elected president; Dr. Frederick E. Straup, Bingham, vice president, and Dr. George F. Harding, Salt Lake, secretary-treasurer.

Personal.—John F. Sharp, Lieut.-Col., M. C., U. S. Army, Salt Lake City, division surgeon of the Fortieth Division, and later of the Sixth Division of the American Expeditionary Forces in France, returned home, June 16.

Community Clinic Opens.—The free community clinic and dispensary, Salt Lake City, financed by the business and professional men of Salt Lake City, was formally opened, June 2. Six physicians are on duty daily at the clinic, and any church, lodge, or charitable organization is privileged to send persons needing and unable to pay for medical attention.

CANADA

University News.—A tablet was recently unveiled in the New Medical Building, McGill University, to the memory of nine medical students who lost their lives in France. Dr. George E. Armstrong, acting dean of the medical faculty, delivered an address as the tablet was unveiled.——Prof. J. George Adami, McGill University, is to leave that institution to accept the vice chancellorship of Manchester University, England.

Personal.—Dr. William A. Harvie, returned from overseas with the Saskatchewan Hospital Unit, has recovered his health and resumed practice in Regina.——Dr. Harvey Clare, assistant superintendent of the Hospital for the Insane. Toronto, and superintendent of the Toronto Detention Hospital, has been appointed a general medical officer superintending all the hospitals for the insane and acting in an advisory capacity to the provincial secretary.

Free Medical Course to Overseas Men.—Speaking at the banquet in Quebec last week given by the Quebec physicians to the delegates to the Canadian Medical Association annual meeting, the president, Dr. Grondin, stated that arrangements had been made whereby Laval medical department offered a free course in study to young Canadian doctors who had been overseas. In return the English universities in Canada would be asked to extend similar privileges to French-Canadians in any part of Canada.

Hospital News.—The members of the medical staff of the Regina General Hospital have advised the governors that a new wing for the treatment of the sick is advisable rather than a new residence for the nurses of the institution.——The Sisters of the Grey Nuns Hospital, Regina, Sask., have decided on a new wing for their institution.——The hospital board of the Winnipeg General Hospital is planning a yearly clinic week to which physicians from all parts of western Canada will be invited. It is also proposed to establish an interns' alumni society to bring former members of the house staff together.——The Winnipeg General Hospital is opening a psychopathic ward which is to be in charge of Dr. Alvin T. Mathers, supervisor of the psychopathic department at Johns Hopkins.——Saskatchewan has selected Weyburn as the site of the proposed mental hospital erected by the government of that province. Dr. Robert M. Mitchell, speaker of the Saskatchewan assembly, has been appointed the superintendent of the hospital. The cost of the institution has been $1,000,000. It will have a capacity of 1,600 beds when completed.

GENERAL

Drop Germans from Membership.—The American Surgical Association, at its annual meeting in Atlantic City, June 17, voted unanimously to drop all German and Austrian honorary fellows from its roll of membership.

Psychanalysts Meet.—The ninth annual meeting of the Psychoanalytic Association was held in Atlantic City, June 20. In the absence of the president, Dr. G. Stanley Hall, Worcester, Mass., Dr. Smith Ely Jelliffe, New York City, presided. The following officers were elected: president, Dr. Abraham A. Brill; vice president, Dr. Horace W. Frink, and secretary-treasurer, Dr. William A. White, all of New York City.

Medical Librarians Hold Meeting.—The twentieth annual meeting of the Medical Library Association was held in Atlantic City, June 9, under the presidency of Dr. William Browning, Brooklyn. The object of the association is to foster the medical libraries and the maintenance of an exchange system. Any medical society, association, university or college having a fixed home and a library of not less than 500 volumes, with a librarian in charge, is eligible for membership. The annual dues for library membership are $10, and for individual membership, $5.

New Regulations Governing the Sale of Alcohol.—The Bureau of Internal Revenue on June 30, issued regulations governing the sale of alcohol for medical purposes. The regulations state that "Physicians may prescribe wines and liquors for internal use or alcohol for external use, but in every such case each prescription shall be in duplicate and both copies be in the physician's handwriting." The quantity prescribed for such a patient in a given time shall not exceed 1 quart. In no case shall a physician prescribe alcoholic liquors unless the patient is under his constant supervision. All prescriptions must indicate clearly, the patient's name, street address, and apartment number, if any, the date when written, the condition or illness for which prescribed and the name of the pharmacist to whom the prescription is to be presented. Similar detailed restrictions for the sale of alcohol by drug stores have also been promulgated.

Additional Research Appropriations.—At a meeting, June 20, the United States Interdepartmental Social Hygiene Board approved applications for appropriations from its scientific research fund "for the purpose of discovering . . . more effective medical measures in the prevention and treatment of venereal diseases," as follows:

YALE UNIVERSITY MEDICAL SCHOOL

1. (*a*) "Effect of anilin dyes, particularly gentian violet on the gonococcus with reference to the growth of the organism in media containing the dye, and with reference to the effect on organisms in tissue (therapeutic effect)." Under the direction of Joseph M. Flint, M. D., and John W. Churchman, M.D., Professors of Surgery.

(*b*) "An intensive study of methods for the isolation and identification of the gonococcus with a view to the determination of the homogeneity or heterogeneity of strains and their etiological relationships." Under the direction of George H. Smith, M.D., Assistant Professor, Department of Pathology and Bacteriology.

(*c*) "The demonstration of syphilitic nature of unusual lesions encountered at the postmortem table." Under the direction of Milton C. Winternitz, M.D., Professor of Pathology and Bacteriology.

UNION UNIVERSITY MEDICAL DEPARTMENT, ALBANY

2. "For studies on the nature of the Wassermann reaction." Under the direction of Thomas Ordway, M.D., Dean and Associate Professor of Medicine.

The United States Interdepartmental Social Hygiene Board is composed of: Carter Glass, Secretary of the Treasury; Newton D. Baker, Secretary of War; Josephus Daniels, Secretary of the Navy; Lieut.-Col. William F. Snow, Medical Corps, U. S. A.; Lieut.-Com. Joseph R. Phelps, Medical Corps, U. S. N.; Asst. Surg.-Gen. Claude C. Pierce, U. S. Public Health Service, and Thomas A. Storey, Executive Secretary.

Up to June 21, the Board had approved appropriations from its Scientific Fund for twenty researches distributed among twelve medical schools.

Rockefeller Foundation and Epidemics.—The review of the work of the Rockefeller Foundation for 1918 tells of the development of its efforts to eradicate malaria and yellow fever from certain districts. In four towns in Arkansas antimosquito work was carried out with marked success, and the result was a reduction in malaria cases of 97.4 per cent. as compared with 1916, and an antimalarial campaign was also carried out in Mississippi with the cooperation of the board of health of that state.——Major-Gen. William C. Gorgas, formerly Surgeon-General of the United States Army, and, after his retirement, director of the yellow fever work of the International Health Board, has just returned from a trip to South America in an endeavor to determine the seed beds of yellow fever, and institute systematic measures to destroy the disease at its source.——On account of a yellow fever epidemic in Guatemala, in June, 1918, the International Health Board tendered its services to the president of Guatemala, and sent Dr. Joseph H. White, U. S. P. H. S., recently released from the Army and granted leave by the Public Health Service, to Guatemala, where he established quarantine, drafted physicians into service, and so placed well-tested measures for the control of yellow fever in effect that the epidemic was brought promptly under control. ——In June of last year a commission was sent to Guayaquil, Ecuador, for the study of, and to record information regarding the sanitary condition of Ecuador, and the bacteriologic, chemical and clinical aspects of yellow fever. Measures for yellow fever control were actively inaugurated in Ecuador, Nov. 27, 1918, and by the end of December, twenty-five squads of five men each, were systematically engaged in the destruction of the stegomyia mosquito.

Mortality Statistics.—The annual compilation of mortality statistics by the U. S. Census Bureau for the death registration areas in the continental United States for 1917, shows that during the year, 1,068,932 deaths occurred, equivalent to a death rate of 14.2 per thousand. Of these deaths fully one third were due to heart disease, pneumonia and tuberculosis; another third to nephritis, cerebral hemorrhage, cancer, diarrhea and enteritis, arterial disease, influenza, diabetes, diphtheria and bronchitis. The death registration area at this time included twenty-seven states, the District of Columbia, and forty-three cities in nonregistration states, with a total population of about 75,000,000. The general causes of deaths were as folows: heart disease, 115,337, or 153.2 per hundred thousand; pneumonia, 112,821, or 149.8 per hundred thousand; tuberculosis, 110,285, or 146.4 per hundred thousand; nephritis, 80,912, or 107.4 per hundred thousand; cerebral hemorrhage, 62,431, or 82.9 per thousand; malignant disease, 61,452, or 81.6 per thousand; diarrhea and enteritis, 59,504, or 79 per hundred thousand; arterial disease, 19,055, or 23.3 per hundred thousand; influenza, 12,975, or 17.2 per hundred thousand; diabetes, 12,750, or 16.9 per hundred thousand; diphtheria, 12,453, or 16.5 per hundred thousand; bronchitis, 12,311, or 16.3 per hundred thousand; typhoid fever, 10,113, or 13.4 per hundred thousand; measles, whooping cough and scarlet fever, 31,723, or 28.8 per hundred thousand, and external causes, 81,953, or 108.8 per hundred thousand. The chief causes of accidental deaths were in order, falls, railroad accidents and injuries, burns, automobile accidents and injuries, accidental drowning, and accidental asphyxiation, vehicles, street cars, machinery and insolation. The suicides for the year were 10,056, or 13.4 per hundred thousand, and the deaths from other external causes, including homicide, 10,053, or 13.4 per hundred thousand. The death causes that show a decrease as compared with 1916, are: heart disease, pneumonia, diarrhea and enteritis, malignant disease, influenza, diabetes and typhoid fever. Death causes showing an increase are: tuberculosis, nephritis, cerebral hemorrhage, arterial diseases, diphtheria, bronchitis, measles, whooping cough and scarlet fever.

FOREIGN

Maternity and Infant Welfare Schemes.—The National Association for the Prevention of Infant Mortality and for the Welfare of Infancy (4 and 5, Tavistock Square, London, W.C.I.) held a national conference on infant welfare as part of the National Baby Week celebrations, at the Kingsway Hall, Kingsway, London, W.C.I., July 1 to 3, under the presidency of the Rt. Hon. Christopher Addison, M.P., M.D. The following subjects were discussed: (*a*) Antenatal and neonatal mortality and its prevention; (*b*) the work of the midwife in relation to antenatal and neonatal mortality; (*c*) the industrial employment of mothers in relation to infant mortality; (*d*) the illegitimate child.

RIO DE JANEIRO LETTER

Rio de Janeiro, June 7, 1919.

Sporadic Case of Yellow Fever in Rio de Janeiro

In the month of May a case of yellow fever occurring in a patient coming from the state of Bahia on a Brazilian steamer was reported. The patient was immediately isolated and died the next day. Strict measures were taken to prevent the spread of the disease. No new case has been reported.

Eradication of Yellow Fever in the Northern States of Brazil

The federal government, in agreement with the state authorities, has sent sanitary commissions to the states of Bahia, Alagoas, Sergipe and Ceará, with a view of exterminating yellow fever in these states. Since Emilio Ribas and Oswaldo Cruz succeeded in stamping out this disease in São Paulo and in Rio de Janeiro, respectively, similar work has been carried on with good results in Amazonas, Pará and Espirito Santo.

There remain still five other states in the north of Brazi in which yellow fever is endemic and to which the government will send experts of the federal staff in order definitely to eradicate the disease. When this work is done, Brazil can be considered free of yellow fever.

Session Held in Honor of Prof. Miguel Pereira

The National Academy of Medicine, the oldest medica association in Brazil, held a session, May 31, in honor o M. Pereira, lately deceased. The secretary of the interio presided. Three addresses were delivered lauding the lat member as physician, writer and professor. Miguel Pereir was one of the most brilliant speakers of his day. He was born fighter, and his slogan "Brazil is a vast hospital" still rings throughout the land.

As a rallying cry it accomplished much good, although it may be considered an exaggeration, for soon after its adoption the government took the first steps to combat various endemic diseases, such as malaria and hookworm disease. Miguel Pereira was comparatively a young man, being only 46 years of age when he died, Dec. 23, 1918.

Death of João Florencia Gomes

Influenza has claimed another victim among the physicians of Brazil. João Florencia Gomes, late assistant of the Instituto de Butantan, São Paulo, died of influenza the last week in May. He was a brilliant member of the institute and his works on serpents are well known in scientific circles. It was his purpose to go to the United States to study pathologic anatomy at the Rockefeller Institute for Medical Research.

Rural Sanitation in Minas and Acre

The government has divided the territory of Acre into four divisions. To each one a medical commission has been assigned in order to combat malaria and hookworm, all expenses being paid by the government. The same service was initiated in the state of Minas, the federal government paying one third of the expenses.

Scientific Works of Dr. Adolpho Lutz

Dr. Adolpho Lutz has published an interesting work on Brazilian fresh water snails of the genus *Planorbis*, intermediate hosts of trematode parasites of man and animals (*Schistosomum mansoni*). The author gives a list of other Brazilian and South American species as found in literature, giving descriptions and drawings. A key to aid in distinguishing Brazilian genera is included. Six new species are described.

In the company of Dr. Oswino Penna, Dr. Adolpho Lutz made an excursion to the north of Brazil collecting notes on *Schistosomum*. During the journey notes of 312 coprologic examinations were taken. Of the 312 specimens examined, seventy-one contained eggs of *Schistosomum*, giving an average of 22.75 per cent.

MADRID LETTER

Madrid, April 15, 1919.

Retirement of Medical Professors and Hospital Physicians

The government has adopted new regulations relative to the retirement of government employees. The many abuses and the favoritism shown in deciding the age at which any particular employe should be retired, caused the adoption of new regulations according to which professors will retire at 71 years of age. Among the prominent physicians to whom the new regulations will apply, are Dr. Florencio de Gastro, the well known surgeon; Dr. Ildefonso Rodríguez, professor of the history of medicine in the University of Madrid, and Dr. Antonio Chacón, the famous gynecologist. The same law has been extended to embrace the public assistance physicians and, as most of the hospitals in Madrid belong to this department, one of those who have to give up their positions is Dr. Huertas, a physician of great repute in Spain.

Compulsory Vaccination in Madrid

It is interesting that in our country law-making bodies seem to have foreseen every little detail neglected in countries having the most advanced legislation to such an extent that our codes seem model ones from many viewpoints, although on account of the national apathy many of the laws remain unenforced. This happened with the provisions enacted a long time ago for the prevention of smallpox. Vaccination was compulsory and was enforced in the large cities for young children but revaccination was only practiced by the higher classes. Most of the rural population neglected to vaccinate themselves in spite of all recommendations. The result has been that smallpox was so prevalent among the poorer classes as to constitute a disgrace for the capital and since vaccination was not enforced in the neighboring provinces and revaccination was neglected among most of the people at Madrid, smallpox was constantly ravaging the masses of the population, especially store employees, servants, workmen, etc., and during the last decade, in addition to the usual outbreaks, we have had three serious epidemics, the last one last winter. When smallpox was most prevalent recently, Don Leopoldo Romeo, a newspaper man and great admirer of the United States, was appointed governor of the province of Madrid. He formed the resolution of ending the constant menace of smallpox and ordered the enforcement of the laws that made vaccination and revaccination compulsory and which had been neglected so far. It was enough to threaten people with the imposition of fines to have everybody at Madrid either vaccinated or revaccinated. Two physicians of the so-called "naturopaths" went to the governor protesting against the vaccination regulations. The governor, after listening to them, fined them each 500 pesetas ($100) for opposing the enforcement of the law and inducing others to oppose it and, in addition, threatened them with another fine if they resisted vaccination. The two propagandists decided that it was better to be vaccinated than fined and followed the general example. In the San Juan de Dios hospital, where the smallpox patients are attended, these have numbered 300.

An Itch Outbreak

Madrid has been struggling with a small outbreak of itch which has been the result of another undertaking of the governor. One of the characteristics of which Madrid is not very proud, in spite of its picturesqueness, are the *pobres* (beggars) who, until not so long ago, filled in such great numbers practically every city and village of Spain. The mayors of some towns, Santander, Seville and others, determined to put an end to this type of professional beggar that shows his rags with a sort of pride, exhibits his sores and bothers passers-by with his entreaties. As a result, the beggars disappeared from those towns but in Madrid our authorities have, it seems, been so busy with other things that they could not attend to this matter. From time to time, some enterprising official has rounded up all the beggars, but this has been done under such unfortunate circumstances that everybody feared to read news to this effect since outbreaks of typhus fever have followed, on two occasions, the crowding of beggars in places lacking the necessary sanitary conditions. One of these outbreaks ended only when it exhausted itself after attacking more than 1,000 people. The last of these beggar roundings-up has been followed by results not so serious, since it has just caused the spread of itch, giving some more work to the physicians and nurses of the abovementioned San Juan de Dios hospital which was one of the first established in the world for skin and venereal diseases. The worst part of the whole happening was that there arose a question of jurisdiction between the governor who ordered the gathering of the beggars and the police authorities who had no place to keep their charges and were therefore compelled to release them. As a result the campaign came to an end and the beggars flourish now more than ever, practically everywhere, with more complaints than ever and prouder, if that can be, of their poverty and their sores. Cervantes, Mateo Alemán, Quevedo and other classical writers can find followers among modern authors for their models of beggars and hoboes are still a thing of the day in the life of Madrid.

A Sanitary Campaign

Four physicians of noble aims are carrying out a sanitary campaign with the greatest enthusiasm. Dr. Cortezo, the former minister and president of the Royal Academy of Medicine and editor of the *Siglo Médico*; Dr. Francos Rodrigues, former minister and journalist; Dr. Recasens, dean of the School of Medicine of Madrid, the most famous gynecologist of Spain and physician to the queen; and Dr. Juarros, the psychiatrist and writer, have united in this enterprise and are traveling from town to town where any hygienic question may arise or some danger may exist to the public health or some sanitary improvement may be made, giving conferences in practically every public place as part of a campaign of propaganda of hygienic ideals which may tend to the betterment of the race and to avoid epidemics and suffering. They have shown that the people may become interested in questions which are not political and the loftiness of their purposes has served to attract first the curiosity of the people and then their interest so that they have been now joined by persons belonging to all the political parties and many others who are not in politics and belonging to all social classes.

The Death of Dr. Francisco Cortejarena

Dr. Francisco Cortejarena, first president of the Royal Academy of Medicine, has died rather suddenly at the age of 84 years. For a few hours before his death he was still at the club as usual, talking with those present. One could say of him that he was the representative of the glorious past of medicine, as he always took part at the end of the most bitter medical debates to call attention to the history of our science and make people feel that even the most recent and destructive medical theories were nothing but new labels for forgotten doctrines, and his personal manner was so charming and engaging that it pleased the two sides and convinced even the most rabid partisans. His autobiography is a model of its kind, and all those interested in medicine in the last part of the 19th century will have to resort to it as he made a careful note day after day of everything he either did himself or witnessed. He was for a time director general of public health and was also a member of the senate, where he took part in the enactment of the modern sanitary legislation. For many years he was a professor in the School of Medicine of Madrid where all the present teachers take pride in calling themselves his pupils.

LONDON LETTER

London, June 11, 1919.

The Ministry of Health and the Control of Nostrums

In the House of Lords the lord chancellor, according to his promise, mentioned in my last letter, moved an amendment to the ministry of health bill that the ministry should be responsible for prosecutions for "patent medicine" frauds. The amendment provides that the ministry shall "take all such steps as may be desirable to secure the carrying out of measures for the avoidance of fraud in connection with alleged remedies of diseases." The lord chancellor said that "patent medicine" frauds could, under the existing law, be attacked only on the charge of obtaining money by false pretenses. These were very difficult prosecutions, and more often than not failed. The course which ought to be adopted was to strengthen our legislation, and in this connection he reminded the house of the recommendation of the select committee on "patent medicines" in 1914: "Your committee further recommends the following legislative enactments: 1. That every medicated wine, and every proprietary remedy containing more alcohol than that required for pharmacologic purposes, be required to state on the label the proportion of alcohol contained in it. 2. That the advertisement and sale (except the sale by a physician's order) of medicines purporting the cure of the following diseases be prohibited: cancer, consumption, lupus, deafness, diabetes, rupture (without operation or appliance). 3. That all advertisements of remedies for diseases arising from sexual intercourse or referring to sexual weakness be prohibited. 4. That all advertisements likely to suggest that a medicine is an abortifacient be prohibited." These recommendations had quite recently been discussed by the government, and the lord chancellor was authorized to say that the government concurred in them. A very early attempt would be made to carry out in a separate bill these specific recommendations.

The Vivisection of Dogs

The strong medical opposition organized against the bill for the prevention of vivisection of dogs has proved effective. It may be remembered that the bill prohibited any experiment of a nature calculated to give pain or disease to any dog for any purpose whatever, either with or without anesthetics. The government amendment excepts cases in which for reasons specified in the certificate the experiment would necessarily be frustrated unless it is performed on a dog, and no other animal is available for such an experiment. The undersecretary for the home department said that the object of the bill was the absolute prohibition of experiments on dogs, but the amendment would give an additional precaution and further supervision of all experiments on this animal and so make it impossible, as indeed it already was, to inflict on a dog during the course of any experiment anything but the most limited and short-lived pain. The government, while prepared to protect the few dogs experimented on, was not prepared to go against the overwhelming mass of experience and scientific opinion and prohibit absolutely experiments on dogs. Under the existing act, the great majority of the operations on dogs were simply inoculations or the cutting of small veins which did not in the majority of cases interfere with the comfort or health of the dog. When a severe operation was to be performed, the application for a license was referred to a comittee of seven of the most distinguished scientific men. A series of drastic conditions dealing with the antiseptic treatment of wounds was laid down. The amendment was carried by 147 to 69 votes, and the title of the bill was altered from "A Bill to Prevent the Vivisection of Dogs" to "A Bill to Impose Further Restrictions on the Vivisection of Dogs."

War Census of Medical Students

At the opening of the summer session of the General Council of Medical Education, the president, Sir Donald Macalister, gave returns showing the number of students taking courses of instruction. They were: October, 1917, 7,048; May, 1918, 7,630, and January, 1919, 9,490. Between May, 1918, and January, 1919, the first-year students had increased from 2,043 to 2,907, as compared with 1,480 registered in 1913. The junior students had thus practically doubled since the year preceding the war. But the students in the final year of their curriculum numbered only 936 men and 222 women, or barely enough to supply to the register the normal increment of newly qualified practitioners during the current year. First-year students who were on service have returned to the schools in almost overwhelming numbers for the summer session. The accumulated freshmen of a succession of years, whose first year's course was broken by the summons to military service, together with a number of educated men and officers entering for the first time on the medical curriculum with subsidies from the government, have flooded the schools and taxed severely their accommodation and their teaching staff. With the object of giving all practicable facilities to men who have fought for their country, equipment has been improvised and temporary instructors have been provided. At some centers it has even been necessary to refuse admission to normal students proceeding in the ordinary course from secondary schools to schools of medicine. Some of the difficulties felt this summer in dealing with numbers so far above the average will no doubt be lightened in the following years, as the professional schools are able to readjust their arrangements; but they cannot all be surmounted without heavy expediture, and it may be that the state will have to lend substantial assistance to enable these institutions to meet the needs of ex-service students. In any case it seems certain that within five years' time the depletion in the ranks of the profession caused by the war will be much more than made good.

American Graduates in London

The emergency graduate course instituted by the Fellowship of Medicine (described in previous letters) has proved very successful. A meeting of more than 100 American medical officers attending the course has been held to form an association in appreciation of the facilities afforded to them. Combined efforts to familiarize their countrymen with the exceptional clinical facilities offered by the London medical schools and hospitals were agreed on. An American medical graduates' society is to be founded in London for the benefit of American physicians visiting the British Isles, and also to foster the present cordial relations between the medical profession of the two countries. Mr. Philip Franklin, F.R.C.S., a London otologist and laryngologist who is an American citizen, has been elected honorary president, and Lieut.-Col. S. C. Gurney, U.S.M.C., president.

Vital Statistics for 1917

The report of the registrar-general for 1917 has just been issued. The figures are of course much influenced by the war. The total civilian population of England and Wales was estimated to be 14,085,300 males, and 19,625,700 females. The marriages number 258,855, giving the lowest rate yet recorded. The births numbered 668,346, being 117,174 fewer than in 1916. The birth rate again shows a fall for some years, and this is continued. In 1913 the rate was 24.1 per thousand; 1914, 23.8; 1915, 21.9; 1916, 20.9; 1917, 17.8. The 1917 rate is almost exactly 50 per cent. of the rate for the decennium 1871-1880, the rate prevailing before the downward trend. The death rate was 14.4 per thousand; corrected to the 1901 standard population, the standardized rate was 13.5. A lower rate has been recorded only twice; but if allowance is made for the deterioration of the civilian population, owing to military selection, it is probable that the rate for 1917 is not inferior to that of any other year. The child mortality was low. The number of deaths per thousand births of children under 1 year was 96. For the first time the number of deaths due to typhoid fever was less than 1,000 (977). The death rate from other infectious diseases was low. That from tuberculosis was 13 per cent. greater than in 1913. This is attributed to the dietetic restrictions of the war, particularly the deprivation of fats. Deaths attributed to cancer, 41,158, give the highest rate yet recorded. Taking the interval of nineteen years from 1897-1918 to 1916-1917, the mortality from accessible cancer has increased 56 per cent. among males, while inaccessible cancer has increased only 41 per cent. Hence the increase cannot be explained by improved diagnosis. The mortality from alcoholism has decreased, which is attributed to the restriction in the output and sale of alcoholic liquors during the war.

Marriages

Michael Francis Claffey, Lieut., M C., U. S. Army, Naugatuck, Conn., on duty at U. S. General Hospital No. 12, Biltmore, N. C., to Miss Helen Delpire of Chicago, at Asheville, June 30.

Carl Alexander West, Lieut., M. C., U. S. Army, Columbia, S. C., on duty with the American Expeditionary Forces in France, to Mlle. Odette Voirin of Bar-le-Duc, France, May 10.

John W. Whitehead, Lieut., U. S. N. R. F., Algiers, Ind., to Miss Bernice Hobbs of Hillsboro, Ind., at Jasper, Ind., June 16.

William James Basler, Jr., Mont Alto, Pa., to Miss Mathilda O. Tejge of Philadelphia, at Hummelstown, Pa., June 18.

Webster Whitall Belden, Capt., M. C., U. S. Army, to Miss Martha Hall Hennen, both of New York City, recently.

Samuel Arthur Van Osdel to Miss Clara Millow, both of Johnson, Neb., in New York City, recently.

J. H. Eugene Rosamond, Memphis, Tenn., to Miss Inez Fennell of Walnut Hills, Cincinnati, June 7.

Jay Herbert Wallahan to Miss Ruth Marsh, both of Corning, Iowa, at Des Moines, June 4.

George Wendell Dunlap, Toledo, Ohio, to Miss Mary A. Jacobson of Chicago, May 31.

Henry Morgan Winans to Miss Judith Terrell Hawley, both of Denver, recently.

James Stanley Williams to Miss Ruth Hess, both of Massillon, Ohio, June 7.

John Franklin Conner to Miss Emma Ehrhardt, both of Sidney, Ohio, June 2.

Keshava Deva Shastri to Miss Minnie Jensen, both of Omaha, June 4.

Deaths

William Hugh Carroll ⊕ Passaic, N. J.; New York University, New York City, 1884; aged 58; visiting surgeon to the Passaic General Hospital, and to the Passaic Home and Orphan Asylum; once president of the Passaic County Medical Society; for four years a member of the state board of health; one of the founders of the New Jersey Surgical Society and of the Passaic Genera, and St. Mary's hospitals; died in the Passaic General Hospital, June 20, from heart disease.

Rolla M. Chase, Bethel, Vt.; Baltimore Medical College, 1890; aged 62; a member of the Vermont State Medical Society; also a graduate in dentistry; once president of the state dental society and chairman of the state board of dental examiners; first president of the Bethel Electric Light and Power Company and vice president of the Bethel Shoe Company; for three years a member of the local school board; died at his home, June 10, from nephritis.

Arthur Brigham Norton, New York City; New York Homeopathic Medical College, New York City, 1881; aged 62; professor of ophthalmology in his alma mater from 1902 to 1907; oculist to the Hahnemann and Laura Franklin Free hospitals; for thirty-five years surgeon to the New York Ophthalmic Hospital; founder and for ten years editor of the *Homeopathic Eye, Ear and Throat Journal;* died at his home, June 18, from pneumonia.

John T. Nagle ⊕ New York City; New York Medical College, New York City, 1864; aged 77; a member of the American Public Health Association; for thirty years an official of the health department of the city of New York; registrar of records of the health department of the city of New York and later chief of the bureau of municipal statistics; assistant surgeon, U. S. Army, during the Civil War; died at his home, June 14.

Hugh Forbes McGaughey ⊕ Winona, Minn.; College of Physicians and Surgeons in the City of New York, 1896; aged 45; one of the best known surgeons of Southern Minnesota; local surgeon of the Northwestern and Burlington system; died in Tacoma, Wash., June 20, in an ambulance in which he was being taken from a Tacoma hospital to the Western Washington Hospital for the Insane, Stellacoom.

Frederick Wallace Abbott, Taunton, Mass.; Eclectic Medical College of Maine, Lewiston, 1886; aged 58; associate editor of the *Massachusetts Medical Journal* from 1894 to 1904, and of the *American Medical Journal* since 1906; professor of medical history and medical ethics in the Middlesex College of Medicine and Surgery, Boston; died at his home, June 19, from the effects of an accident five months before.

Richard Ewell Brown ⊕ New York City; New York University, New York City, 1894; aged 49; a fellow of the New York Academy of Medicine; attending surgeon to the Lying-In Hospital, New York City, from 1897 to 1905; assistant attending physician to the Manhattan Maternity Hospital; a specialist in obstetrics; died at his home, June 14, from cerebral hemorrhage.

William A. Cusick, Salem, Ore.; Willamette University, Salem, Ore., 1867; aged 81; a member of the state legislature in 1885 and 1886; a member of the first faculty of his alma mater; for two years surgeon in the army; for several years consulting physician at the State Hospital, and for five years physician to the state penitentiary; died at his home, June 16.

Thomas H. Tomlinson, Plainfield, N. J.; University of Pennsylvania, Philadelphia, 1859; aged 82; a member of the State Medical Society of New Jersey; who celebrated his golden wedding, Dec. 30, 1918; dean of the medical fraternity of Plainfield; a member of the original staff of Muhlenburg Hospital; died at his home, June 22, from pneumonia.

Clarke Storer Gould ⊕ Norwood, Mass.; Harvard Medical School, 1888; aged 55; who served during the war as captain, M. C., U. S. Army, at Camp Sherman, Chillicothe, Ohio, and was honorably discharged, Dec. 27, 1918, died in the Peter Bent Brigham Hospital, Boston, March 28, from general septicemia following a cellulitis of the neck.

James F. Jones, Sherman, Texas; University of Texas, Galveston, 1899; aged 46; a member of the State Medical Association of Texas; for two years assistant surgeon of the Mexican Central Railway; died in St. Vincent's Sanitarium, Sherman, June 12, as the result of injuries sustained in a grade crossing accident, June 9.

Walter Keene Wilkins, New York City; Bellevue Hospital Medical College, 1886; aged 66; assistant physician at the Ward's Island Insane Hospital from 1887 to 1890; who was convicted on June 27, of the murder of his wife; committed suicide by strangulation in the Nassau County Jail, Mineola, N. Y., June 29.

Ralph H. Watkins, Wolcott, N. Y.; University of Syracuse, N. Y., 1883; aged 58; a member of the Medical Society of the State of New York; at one time coroner and health officer of Wayne County; died in the General Hospital, Rochester, N. Y., June 18, after an operation for cerebral tumor.

N. Fred Essig ⊕ Spokane, Wash.; University of Pennsylvania, Philadelphia, 1868; aged 70; formerly president of the Washington State Board of Health; a member of the National Association of Railway Surgeons; died in the Mayo Brothers' Hospital, Rochester, Minn., June 8, from nephritis.

Joseph Mark Doyle, Brooklyn (license, New York, 1882); aged 55; for nineteen years connected with the Queens County Department of Health and for many years of the Kings County Inebriate Home; died at his home, June 17, three weeks after a surgical operation.

Jacob W. Coblentz, Fort Wayne, Ind. (license, Indiana, 1897); aged 80; whose license is said to have been revoked for fraud; died in a store in Fort Wayne, June 18, from the effects of cyanide of potassium, self-administered, it is believed, with suicidal intent.

T. E. McBrayer, Shelby, N. C.; College of Physicians and Surgeons, Baltimore, 1879; aged 70; a member of the Medical Society of the State of North Carolina, and a prominent physician of western North Carolina; died at his home, June 25, from carcinoma of the liver.

Leon J. Willien ⊕ Terre Haute, Ind.; Washington University, St. Louis, 1867; aged 78; one of the founders of St. Anthony's Hospital, Terre Haute, and for several years president of the staff; surgeon to St. Mary's Institute; died in St. Anthony's Hospital, June 17.

Alfred M. Adsit ⊕ Hastings, Minn.; Columbus (Ohio) Medical College, 1881; aged 62; physician to the Hastings State Hospital; died in St. Joseph's Hospital, St. Paul, June 17, after an operation for appendicitis and the removal of gallstones.

⊕ Indicates "Fellow" of the American Medical Association.

Milford Bard Shipp, Jr., Salt Lake City; Jefferson Medical College, 1891; aged 52; died in the Latter Day Saints Hospital, Salt Lake City, June 11, from the effects of a gunshot wound inflicted by a patient in an altercation over treatment.

Rosavelle Gardner Philip, Stamford, Conn.; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1875; aged 72; a member of the Connecticut State Medical Society; died at her home, June 11.

Meverell Knox Allen, Louisville, Ky.; University of Louisville, Ky., 1867; aged 72; once health officer of Louisville; medical director of the Intersouthern Life Insurance Company; died at his home, March 13, from arteriosclerosis.

David John Jones, Youngstown, Ohio; Rush Medical College, 1897; aged 52; formerly coroner of Columbia County, Ohio; died in Youngstown, June 16, from injuries sustained in a collision between his automobile and a street car.

Daniel Tucker McCall, Rome, Ga.; Medical College of Georgia, Augusta, 1872; aged 72; a Confederate Veteran; once physician of Floyd County, Ga., and a member of the Rome school board; died at his home, June 11.

Thomas W. Walker ⊕ Steubenville, Ohio; Western Reserve University, Cleveland, 1889; aged 53; local surgeon to the Panhandle system, and surgeon to the Gill Hospital; died at his home, June 11, from cerebral hemorrhage.

Edward Hottle, Philadelphia; Jefferson Medical College, 1874; aged 71; for more than forty years employed by a firm of manufacturing chemists in Philadelphia; died at the home of his daughter in Wayne, Pa., June 8.

Henry Fowler Stowell, Rochester, N. Y.; College of Physicians and Surgeons in the City of New York, 1877; aged 71; a specialist in diseases of the eye and ear; died at his home, June 8, from senile debility.

Daniel Ross, Denison, Texas; Missouri Medical College, St. Louis, 1891; aged 54; a member of the State Medical Association of Texas; died in Harris, Mo., April 1, from cerebral hemorrhage.

Cornelius Augustus Ahearne, Lynn, Mass.; Harvard Medical School, 1866; aged 78; a member of the Massachusetts Medical Society; died at his home, April 16, from lobar pneumonia.

John Albert Crum, Marion, Mo.; Beaumont-Marion Sims Hospital Medical College, St. Louis, 1896; aged 51; died in St. Mary's Hospital, Jefferson City, Mo., April 4, from diabetes.

Edward Monroe McCoy, Huntersville, N. C.; North Carolina Medical College, Charlotte, 1894; aged 47; formerly city physician of Charlotte; died at his home, June 4, from heart disease.

William Clark Black, Tulsa, Okla.; Starling Medical College, 1890; aged 50; died in Tulsa in March, death being due to suicide while despondent on account of ill health.

Emil E. Nussle, Chippewa Falls, Wis. (license, Wisconsin, 1899); aged 66; a practitioner since 1874; died in St. Joseph's Hospital, Chippewa Falls, June 7, from heart disease.

Vandalier N. Swan, Maywood, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 71; died in the Oak Park (Ill.) Hospital, June 24, from septicemia.

Joseph J. Noeker, Detroit; Georgetown University, Washington, D. C., 1902; aged 42; who never practiced on account of ill health; died at his home, June 11.

Stephen L. Williams, Spring Garden, Ill.; American Medical College, St. Louis, 1879; aged 80; died at his home, June 4, from cerebral hemorrhage.

James D. McDonald, Clayton, Mich.; Cincinnati College of Medicine and Surgery, 1869; aged 78; died at his home in March from organic heart disease.

George Edwin Day, D.D., New York City; a graduate in medicine; aged 85; died at the home of his son in New York City, April 7, from heart disease.

Andrew J. Stovall, Jr., Sour Lake, Texas; University of Louisville, Ky., 1882; aged 62; died at his home, May 29, from cerebral hemorrhage.

Lloyd Arnold Jones, Hamilton, Ont.; University of Toronto, Ont., 1911; aged 31; died at his home, March 1, from pneumonia following influenza.

Charles Dodd Brewer, Springfield, Mass.; College of Physicians and Surgeons in the City of New York, 1882; aged 71; died at his home, June 3.

Chester Jackson McBride, Welland, Ont.; University of Toronto, Ont., 1909; aged 33; died at his home in March from pulmonary tuberculosis.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE ALLIED MEDICAL ASSOCIATIONS OF AMERICA

Another Rocket in the Pyrotechnics of Quasi-Medical Organizations

It was once said, in the days when diploma mills flourished, that it seemed easier to start a "university" than it was to open a grog shop. A study of quasi-medical organizations convinces one that it is easier to found a "medical society" than it is to establish a peanut stand. Most reputable practitioners of medicine who care to affiliate themselves with medical organizations are members of the American Medical Association, its component societies, or similar scientific bodies. It is not surprising, then, that those who live and move in the twilight zone of professionalism, from visionaries riding bizarre medical hobbies to those who have special interests to exploit, should create and make use of hybrid medical organizations. Such organizations multiply with the fecundity of rabbits. They flourish for a while, obtain more or less newspaper and other publicity—usually more, because of the sensational methods of those controlling them—then, having served the purpose of those who brought them into being, they lapse into innocuous desuetude.

The official accouchement of the Allied Medical Associations of America occurred, according to that organization's report, May 18, 1918. On the official stationery of the Allied Medical Associations of America in use in May, 1919, we find the names of the "Officers," "Censors," etc. These constitute, presumably, the more prominent members of this organization. We give briefly, some data regarding some of these so that a rational perspective may be obtained:

L. M. Ottofy, M.D., St. Louis, Mo.—Dr. Ottofy seems to have been the chief organizer, if not, indeed, the founder. He has been its "Secretary-Treasurer" since its inception; he is also "editor" of its journal. Ottofy, according to our records, was born in 1865 at Budapest, Hungary, and was graduated in 1888 by the Homeopathic Medical College of Missouri. In Polk's Medical Directories for 1914 and 1917, Ottofy has those extended notices which any physician can obtain who cares to pay for it. According to these notices, Ottofy is, or has been, affiliated with the following "societies":

President of the International Cancer Research Society.
Ex-President of the St. Louis Society of Medical Research.
Second Vice-President of the Missouri Institute of Homeopathy.
General Secretary of the American Association of Progressive Medicine.
Chairman of the Board of Censors of the Missouri Institute of Homeopathy.
Member of the American Institute of Homeopathy.
Member of the Southern Homeopathic Association.
Member of the American Association of Orificial Surgeons.
Member of the Southern Homeopathic Medical Society.
Member of the Kansas City Society of Medical Research.
Honorary member of the Chicago Society of Medical Research.

In December, 1911, numerous newspaper clippings show that Dr. Ottofy was obtaining much publicity relative to his antivaccination activities. At that time the papers reported that Ottofy was suing the St. Louis Board of Education for $25,000 damages, because the Board would not admit to the schools of the city a child he had "internally" vaccinated. In November, 1913, the St. Louis *Republic* reported that Ottofy had claimed to have discovered a serum for the cure of cancer, and quoted Ottofy as claiming "a record of 72 per cent. of cures" in "selected cases." In February, 1914, the newspapers reported that Ottofy was making a trip east "on the trail of radium for use in his practice in the cure of cancer" and quoted him as stating: "I have learned on good authority that there is radium in Missouri, and just where I refuse to divulge at this time." In January, 1915, the St. Louis *Republic* reported that Ottofy, at a meeting of the "St. Louis Society of Medical Research," had announced that he had perfected a serum treatment for cancer, which "is curing patients who have been pronounced incurable by so-called 'cancer experts'." In January, 1916, the St. Louis *Star* reported that Ottofy had sought an injunction against the Board of Education of St. Louis to restrain it from using its funds for "the maintenance of a Board of Hygiene." In July, 1916, St. Louis papers recorded that Ottofy, who was then running for coroner, had been cited to appear before the Prosecuting Attorney to explain a charge of passing out, at a political meeting, a card alleged to have borne an indecent drawing of President Wilson. The Prosecuting Attorney was said to have instructed Ottofy to bring the plates from which the cards were printed to his office. Two days later the papers stated that Ottofy had sent the cards and plates by messenger to the prosecuting attorney's office.

Ignatz Mayer, M.D., Detroit, Mich.—Mayer, "President" of the organization, according to our records, was born in Austria in 1860, and was graduated by the Medico-Chirurgical College of Philadelphia in 1894. Mayer, according to advertisements that have appeared in Detroit papers, is a "registered physician and surgeon specializing exclusively in the cure of rupture without detention from occupation." The Mayer advertisements have notified the ruptured of Detroit and vicinity (*via* Detroit newspapers) that hernia keeps one down in health and earning capacity and "there is no need for this. I have cured over 4,000 patients in twenty years continuous practice in the cure of rupture."

N. La Doit Johnson, M.D., Chicago.—Dr. Johnson's name appears as the "First Vice-President" of the Allied Medical Associations of America. A few years ago, Dr. Johnson's name also appeared as the "Dean of the Faculty" of the "American Post Graduate School." This "school" was a mail-order concern which, according to the "Annual Announcement," would grant diplomas and confer degrees as follows: "Master of Surgery," "Bachelor of Medicine," "Bachelor of Science," "Master of Electro-Therapy," "Doctor of Osteopathy," "Doctor of Psychology," "Master of Massage," etc.

H. M. Goehring, D.O., M.D., Pittsburgh, Pa.—The "Second Vice-President," according to the letterheads of the "Association" carries the letters D.O., M.D., after his name. So far as our records show, and they are most complete and based on official data, H. M. Goehring is an osteopath, but not a doctor of medicine.

A. E. Erling, M.D., Milwaukee, Wis.—A. E. Erling, according to the stationery, is "Chairman" of "Censors." Our records fail to show that Erling ever graduated in medicine. The Health Department of Milwaukee, however, says that Erling, when interviewed, claimed to have "a diploma from the German Medical College of Chicago, but refused to show or present the same." The American Medical Directory has this item:

> *German Medical College*, Chicago. Chartered Dec. 28, 1891, by Johann Malok. Fraudulent. Extinct.

A few years ago Erling was in La Crosse, Wis., and in 1908 a circular letter bearing his name and picture was sent out from which the following extracts are taken. Capitalization as in the original:

> "Dear Friend:—Permit me to call your attention to the fact that Dr. A. E. Erling, the eminent specialist, after many years of travel, practice and medical research, has given up his extensive road practice and severed his connection with the several medical institutes which have heretofore occupied considerable of his attention . . . Dr. Erling's success in the treatment of all CHRONIC DISEASES is truly remarkable. NERVOUSNESS, all BLOOD DISEASES, RHEUMATISM, DISEASES PECULIAR TO WOMEN, CATARRH, DEAFNESS, CHRONIC CONSTIPATION . . . APPENDICITIS . . . PILES, STOMACH TROUBLES, PARTIAL PARALYSIS, etc., give way as if by magic under his skillful method of treatment . . . Understand please, that Dr. Erling DOES NOT ACCEPT A CASE FOR TREATMENT unless he can PROMISE A SPEEDY AND POSITIVELY PERMANENT CURE."

The Journal also has in its files advertisements (vintage of 1915), from some Wisconsin country newspapers, which notify the afflicted that "Drs. Erling and Karass, the expert German Specialists" could be seen in their offices in the "Schlegel Hotel," the "Schlitz Hotel," etc., as the case might be. Whether one of these "German Specialists" was Dr. Arnold E. Erling, The Journal does not know. Official medical records fail to show, at least, that there is any other Erling in the state of Wisconsin.

W. W. Fritz, M.D., Philadelphia.—Another of the "Censors." This presumably is W. Wallace Fritz, M.D., D.D.S., N.D., D.O., D.C., who was the "Dean" of the "American College of Neuropathy," and "Professor of Neuropathy" at the same institution. According to newspaper reports published when the "dean" of the American College of Neuropathy was called into court to testify regarding the "school," Fritz admitted that when he became dean of this "college," the "college" had three students and thirty "Faculty Members"! Fritz, it should be mentioned in passing, is a member of the Philadelphia County Medical Society and by virtue of this membership he is a Fellow of the American Medical Association! Recently Fritz's name appeared in connection with the formation of a new organization, founded, it appears, for the laudable purpose of fighting the "Medical Trust." Fritz, according to the newspaper reports, is treasurer of this new organization, which has adopted the inspiring title, "Constitutional Liberty League of America" and seems to be a later edition of the mushroom "National League for Medical Freedom." Quoting from the newspaper report:

> "Dr. W. Wallace Fritz, a member of the American Medical Association, created a profound impression when he said that all health laws were written by agents of, or members of, the American Medical Association, and that this organization was at once the most powerful and the most baneful of all the American Trusts. Dr. Fritz then went on to say: 'Most of the drugs administered are worthless. Most of the doctors who prescribe them are incompetent, but both the injurious drug and the ignorant prescriber are protected, in and out of court, by the American Medical Association, which trust is now raising a vast fund with which to drive all drugless healers out of the profession. Medicine is the camouflage used to conceal the most alert, the most rapacious and the least patriotic of all the trusts milking the American people. The tyranny of the Medical Trust is unbelievable. It is also un-American.' "

The Philadelphia *Sunday Transcript* of May 4, 1919, had a five column article under the name of W. Wallace Fritz. It is a most vituperative affair, and reeks with fire and brimstone. It is directed chiefly against the American Medical Association, and physicians are dubbed "Prescription Writing Drug Peddlers Who Prosper Through Monopolistic Laws Rather Than by the Practice of an Exact Science." In the course of this diatribe we read:

> "The members of the American Medical Association are manifesting an unwarranted interest in the dear people, who, in their assumption, need quinin and mercurial guardian; who under this class legislation confines us to this monopoly of the big and little pill, is trying by hook and crook to shut out the natural and rational methods of cure which are driving the drug monopoly from the face of the earth. Diagnosis and consultation consist in four or five medical doctors, whose faces denote death, sitting around a sick man and guessing what ails him. After that has been performed they guess at what will cure him, and that is generally a sure sign the undertaker will follow."

C. O. Linder, M.D., Spokane, Wash.—This gentleman (another "Censor"), seems to be an osteopath, who some years ago was "Assistant Secretary" of the "Washington's Physicians' Association," founded apparently by rebels within the osteopathic ranks who denounced the Washington Osteopathic Association as a "professional trust!" Linder apparently claims graduation in 1905 from the "Thompsonian Medical College" of Allentown, Pa. The following item from the American Medical Directory regarding this school is of interest:

> "*Thompsonian Medical College*, Allentown. Organized in 1904. Fraudulent. No evidence to show classes were ever held."

A. H. Flower, M.D., Boston.—Still another "Censor." Flower, according to the notice that appears in Polk's Directory for 1917, claims graduation in 1888 from the "American Health College" of Cincinnati, and in 1894 from the "American Health University" of Chicago. Quoting again from the American Medical Directory, here is what we find regarding the former "college":

> "*American Health College*, Cincinnati. Organized in 1874 and re-organized in 1876. Conducted by a Dr. Campbell who originated and copyrighted the so-called 'Vitapathic System.' Fraudulent. Extinct about 1888."

We have no record of an "American Health University" of Chicago, although there was an "Illinois Health University" of Chicago, one of the numerous diploma-mill swindles operated by Armstrong. It was declared fraudulent by the federal authorities and its charter was revoked in 1897. Flower, according to the notice in Polk's Directory, is:

Ex-President Maine Eclectic Society.
Ex-President New England Eclectic Medical Association.
Member National Eclectic Medical Association.
Member American Progressive Medical Society.
Member Massachusetts Eclectic Medical Society.

Z. L. Baldwin, M.D., Kalamazoo, Mich.—Possibly the data just given concerning some of those whose names appeared on the organization's stationery are more than sufficient for the average physician to get a perspective of the Allied Medical Associations of America. Still, it is worth mentioning that in a letter recently sent out by Ignatz Mayer, extending an invitation to the annual convention of the Allied Medical Associations of America, Mayer took the opportunity of incorporating in his letter a letter which one of the members of the "association" had been sending out, urging individuals to join. The member in question was Dr. Z. L. Baldwin of Kalamazoo, Mich. Dr. Baldwin, as some of our readers may remember, is the gentleman who, a few years ago, was exploiting an "Intravenous Treatment" for the cure of tuberculosis. According to the claims made at that time:

> ". . . for the first time in the history of medicine, we have a successful treatment for tuberculosis.
>
> ". . . we are able to kill the germs of the disease in the body, thoroughly ridding it of all tubercular infection, destroying the germ and its poisons likewise."

This was a few years ago. Whether Dr. Baldwin is still specializing in consumption we do not know; apparently not, as we notice that at the first meeting of the Allied Medical Associations, Baldwin's name was on the program for the "Cure of Goiter by Adjustment of Lenses."

George Starr White, M.D., F.S.Sc., Lond., Los Angeles, Calif.—A letter received by a physician a few days before the recent convention of the Allied Medical Associations, held out as an inducement to be present the fact that "Geo. S. White will show you how to diagnose disease by means of dif. colored lights and the reaction of the body to the magnetic meridian." Dr. George Starr White was the "Second Vice-President" of the Allied Medical Associations in 1918. White, according to our records, was graduated in 1908 when he was forty-two years old, by the New York Homeopathic Medical College and Hospital. He was licensed in New York in 1908, in California, Connecticut and Nevada in 1913, and in Michigan in 1916. He seems to have been one of the proponents of "spondylotherapy," "zonetherapy," etc., and in 1915 it was announced that he would give one week courses in "Spondylotherapy" in Chicago, Kansas City and Denver, respectively. In his advertisement he emphasized that he was a Fellow of the American Medical Association, which, while true at the time, is no longer true, as on Feb. 4, 1916, he was expelled from membership in the Los Angeles County Medical Association. In May, 1915, White was arrested in Chicago and fined $100 and costs for practicing medicine without a license. Dr. White's specialty seems to be what is ponderously known as "Bio-Dynamo-Chromatic Diagnosis." This has been described by one of its enthusiastic adherents as "Diagnosis by Sympathetic Vagal-Reflex." To obtain the "Sympathetic Vagal-Reflex" it seems the patient must face east or west and have his bare abdomen percusssed until a dull area is located. The patient is then faced north or south and again percussed. Then, it seems, different colored lights are thrown on the patient, the location of the areas of dulness being determined meanwhile. A combination of ruby and blue light "will cause a reflex in cases of gonorrhea," a "green light will cause a reflex in cases of liver or gallbladder trouble," while the color for carcinoma is orange red! During the height of the influenza epidemic last winter, White seems to have put on the market "Valens Essential Oil Tablets" which were for "Gripping the Flu out of Influenza," and were also said greatly to benefit or cure incipient tuberculosis, hay fever, asthma, and "catar." The letters "F.S.Sc., Lond." after Dr. White's name look well, sound well, and have an air of erudition and mystery that is well worth what they cost. They mean "Fellow of the Incorporated Society of Science, Letters and Arts of London, Ltd." The "Fellowship" costs one guinea. Not a few "patent medicine" exploiters in the United States carry these mystic letters after their names. The society in question was a seriocomic concern that was exposed by London *Truth* some years ago and was also dealt with in The Journal of May 29, 1909, in connection with the "Aicsol Consumption Cure" exposé.

So much for the Allied Medical Associations of America. At their recent meeting in New York City they got much newspaper publicity because of their action on the prohibition question. According to the newspaper reports, the organization adopted a resolution declaring that "properly brewed lager beer is absolutely essential in the treatment of certain cases." They were further reported as endorsing the manufacture of light wines and of beer containing not to exceed 2¾ per cent. alcohol. As a piece of publicity work this resolution was all that its sponsors could expect. The Journal office was flooded with telegrams and letters from physicians, temperance workers, congressmen, church organizations, and others, asking, in effect, What *is* the Allied Medical Associations of America? This is our apology for giving the amount of space necessary to a proper understanding of this organization. Today the rocket of the Allied Medical Associations of America is blazing a more or less erratic course across the sky of publicity. The stick will be down anon! Any resolution or expression of opinion by this organization, or others of its type, when dealing with the broader problems of public health, is wholly without scientific significance, whether such resolutions are good, bad or indifferent.

Correspondence

THE NYSTAGMUS TEST AND PRACTICE

To the Editor:—My attention has been called to an article by Fisher and Babcock on "The Reliability of the Nystagmus Test" (The Journal, March 15, 1919, p. 779) in which very definite misinformation is included. Since statements therein made seem to be borne out by the "official" account of the psychologic work published in the Manual of the Medical Research Laboratory, it is necessary to refer to that also in correcting the errors disseminated.

The account of the psychologic department included in the Manual was written by me, but was so "edited" after leaving my hands that misrepresentations may easily be based on it. The "editing" included not only the addition of an "editorial insert," and footnotes not labeled as inserts, but also the omission of important details concerning the experiments on nystagmus: and these omissions make possible inimical criticisms which would be contradicted by the omitted material. Since the Manual as separately printed contains a preface by Colonel Wilmer (this preface omitted from the Manual as printed in the larger book entitled Air Service Medical), it is only fair to state that the "editing" was not done by him, nor with his knowledge, but apparently after he had embarked for France. To those who know Colonel Wilmer this explanation is of course superfluous.

The work on nystagmus done by the Psychological Section of the Medical Research Laboratory was planned by me and authorized by the Medical Research Board and by the officer in charge of the Medical Research Laboratory. For suggestions on the work reported in the Manual I am indebted to Mr. Arboz, a New York dancing teacher of much experience. The work was brilliantly carried out by Captain Bentley, professor of psychology in the University of Illinois, in conjunction with Captain (later Major) Wales, an otologist of enviable reputation. Since Professor Bentley had years of experience in psychophysic observations, and Dr. Wales had served for a considerable time on examining units, administering the official nystagmus test, the omission of the fact that they conducted the experiments, with the substitution of the statement that "these experiments were conducted by assistants in the laboratory" (Air Service Medical, p. 320), is significant in connection with the statement of Fisher and Babcock that "these experiments were conducted by observers not experienced in this type of examination" (The Journal, pp. 781-782).

Since the experiments were based on the "official" test as given under the examining boards, and not on tests which might have been substituted for this, the routine actually adopted by the physical examining units was followed (Air Service Medical, pp. 63, 64 and 75, 76, also plate facing p. 76) in observing nystagmus. This method does not involve *convex lenses* or the douching of subjects distinctly "normal" on the rotation test. The only additions were (1) an improved method of controlling the *rate* of rotation by using a metronome instead of a wrist watch, and (2) an improved method of recording the nystagmus duration, avoiding the common errors in stop-watch measurements. The importance of the first improvement was shown by our timing supposed "experts" in turning the chair: their times for ten rotations, officially twenty seconds, varying from as low as thirteen to as high as twenty-seven seconds, in tests from which published inferences were made.

The statement of Fisher and Babcock that "no medical examination had been made to determine whether or not the subjects of these experiments were normal" agrees with the footnote editorially added to the Manual that "of the six individuals used by the psychologic [sic] department for these experiments not one was examined physically beforehand; two of these six were discovered subsequently to be pathologic, the other four had meantime been lost sight of. This failure to establish positively the normality of the individual subjects before proceeding with the series of tests is most unfortunate as it makes it impossible to draw any scientific conclusions from the data obtained" (Air Service Medical, p. 322).

Since the subjects passed successfully the official nystagmus test, administered by Dr. Wales, with nystagmus close to the otologically optimal 26 seconds, the assumption that they were "pathologic" is a reflection on the official test as serious as any we might have made. Furthermore, aside from the question as to what might be the respects in which the two subjects were "subsequently" found to be "pathologic," in addition to the shortened nystagmus duration; it should be said that of the four who were "lost sight of," three at least were for months thereafter in the service in the Mineola laboratory or at branch laboratories at which there were competent medical men who could have made physical examinations at any time the otologists of the Air Service Medical might have requested it.

Even as edited in the official report, the results of the experiments are perfectly plain. Men who had passed the official nystagmus test with unexceptionable records *before* the practice series were unable to pass the test *after* the practice series, because of shortened nystagmus duration. Three interpretations are possible: (1) Pathologic men can easily pass the test. (2) Normal men may be turned down by the test. (3) Continued practice in rotation makes men less susceptible to the harmful effects of rotation. The Air Medical otologists seem, curiously enough, to have adopted the first interpretation. The third interpretation is, however, borne out by subsequent work, and by data now available from the flying fields, and from the study of dancers.

The Air Medical Service, I am informed, has been reorganized under the control of a new group of men. It is to be hoped that they will openly correct the errors that have vitiated past publications and thus entitle future publications to credence, without waiting for the full freedom of presentation which will come at the termination of the war.

Knight Dunlap,
Professor of Experimental Psychology,
Johns Hopkins University.

"COMFORT AND COLD"

To the Editor:—The discussion of outdoor treatment in The Journal (June 21, 1919, p. 1859) seems to be confined to adapting the treatment to the comfort of the patient. My experience has been that the adaptation of the patient to the treatment is the essential thing, and unless this can be done, piling on more clothes is simply a limitation or defeat of the benefits of outdoor life. The mere breathing of fresh air constitutes only an infinitesimal part of the treatment. The patient needs the ventilation and stimulation of the air—of the cold air—and the adaptation of his body to the influence of cold air can never be accomplished by clothes. The latter may protect him, but it defeats the very purpose of outdoor life. It was not particularly the spruce boughs or the logs or even the blanket, although a certain amount of clothes is necessary, that kept the Canadian guide warm and ruddy but the reaction of his capillaries, from years of adaptation to the outdoors. I have slept snug and warm under a tarpaulin at minus 30 degrees and have had patients comfortable all winter in tents without heat when the thermometer went below minus 30, because accustomed to the cold. By moving patients into tents in autumn, or in emergencies by gradually graded cold baths, friction and brief exposure, a patient soon becomes accustomed to the change and resists extreme cold. People who live outdoors require less clothing than those who are housed. The problem of the invalid is to be able to get rid of the enervating influence of clothes; and instead of adapting the outdoors to the patient we should follow the axiom of adaptation to environment as the means toward survival.

J. Hector MacKay, M.D., Houston, Texas.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PARTOLA

To the Editor:—Will you kindly inform me what Partola is? It was brought to my attention by patients who buy it as a blood purifier, and when taken daily for some time, delcterious effects develop. One such patient is now in a "run down" condition with discoloration of the skin and a craving for the drug. Another patient took three tablets before going to bed, developed cramps and aborted the next day in her third month of pregnancy.

Myer M. Marbel, M.D., Chicago.

Answer.—"Partola" was analyzed by the chemists of the Connecticut Agricultural Experiment Station and their report for 1915, Part 5, says of this product: "The tablets contain 2.64 grains phenolphthalein per tablet, 10.39 grains sugars and 1.86 grains. starch, talc, color and oil of peppermint."

Education Versus Force.—In the enforcement of health regulations or sanitary laws, two methods present themselves: one that of education and persuasion; the other that of force, or the resort to prosecution under the terms of the law. The choice of which of the two will be most effective, and at the same time accomplish the most permanent results will, as a rule, depend on whether or not special or personal interests are involved. If there are no special financial interests involved and only the welfare of the community or public as a whole is to be taken into consideration, then the educational method is at once the most effective and most permanent in results.—Kansas State Board of Health.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 8. Chairman, Dr. S. W. Welch, State Capitol, Montgomery.

Connecticut: New Haven, July 8-9. Sec., Regular Bd., Dr. Charles A. Tuttle, 196 York St., New Haven; Sec., Homeopathic Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

District of Columbia: Washington, July 8-10. Sec., Dr. E. P. Copeland, The Rockingham, Washington.

Massachusetts: Boston, July 8-10. Sec., Dr. Walter P. Bowers, State House, Boston.

New Mexico: Santa Fe, July 14. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, July 8-9. Sec., Dr. J. J. Williams, Weatherford.

Pennsylvania: Philadelphia and Pittsburgh, July 8-10. Sec., Nathan C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, July 10-11. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Deadwood, July 8. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, July 7-8. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

West Virginia: Huntington, July 8-10. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Massachusetts February Examination

Dr. Walter P. Bowers, Secretary of Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, Feb. 18-19, 1919. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 70 candidates examined, 69 passed, including one osteopath, and one failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Boston University	(1919)	76.2, 76.4, 78.3, 79.2, 79.5, 81.7.
Harvard University	(1917) (1918) (1919)	81.6; 82.3; 75, 75, 76.8, 77.2, 77.7, 77.7, 78, 78.2, 78.2, 78.2, 78.9, 79, 79, 79.2, 79.2, 79.4, 79.5, 79.7, 79.9, 80, 80, 80.5, 80.6, 80.7, 81, 81, 81.3, 81.6, 82, 82, 82, 82.2, 82.2, 82.3, 82.3, 82.4, 82.5, 82.5, 82.5, 82.6, 82.7, 82.7, 82.8, 82.8, 83, 83, 83, 83, 83.2, 83.5, 83.7, 84, 84.2, 84.2, 85.4, 85.5, 85.5, 86.5.
New York Homeo. Med. Coll. and Hospital	(1896)	75
University of Vermont	(1910)	75.8
FAILED		
Boston University	(1919)	69.3

Maine March Examination

Dr. Frank W. Searle, Secretary of the Maine Board of Registration in Medicine, reports the written examination held at Portland, March 11-12, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Boston University School of Medicine		(1918)	83
Harvard University		(1918)	85
Tufts College Medical School		(1898), 79; (1919)	86

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Medical School of Maine		(1892)	New Hamp.
University of Minnesota		(1899)	Minnesota

Rice in the Chinese Dietary.—Consul Julean Arnold at Pekin says (*Commerce Reports*, Jan. 13, 1919) there is a mistaken idea abroad that every Chinese man, woman and child in China eats rice every day. As a matter of fact, there are millions of Chinese living in Shensi, Shansi, and Northwestern China, where rice is not grown, who never have seen or tasted rice. There are millions in the rice producing sections who cannot afford to eat rice regularly. With these qualifications it may perhaps be said that rice is the staple article of diet of the Chinese people, or, more correctly, of the people of Central and South China; though, strictly speaking, there is reason to believe that the sweet potato occupies an even more general place in the dietary of the people throughout all sections of China than does rice.

Book Notices

Advanced Suggestion (Neuroinduction). By Haydn Brown, L.R.C.P. Cloth. Price, $2.50. Pp. 342. New York: William Wood & Co., 1919.

In the preface the author naively states, concerning his book, "Nor can it be considered perfect." On page 11 he says: "Strange to say, . . . I never went through an elementary schooling." The reader will at once concede that both statements are unimpeachable. But it should be added that by the second bit of information apparently he means that he went through no developmental period of training in psychotherapeutics. No budding process for him. Lo! the perfect bloom instantly was there.

As nearly as can be gathered from widely scattered and obscure statements in the book, what the author means by "advanced suggestion" is a combination of persuasion, simple suggestion, and the laying on of hands. He calls it neuroinduction—whatever that may mean. Mayhap the following will clarify it for the reader:

> "Neuroinduction involves limitation of both the physical and the mental energy of the patient down to a plain static receptivity on the part of the patient, and to an easy capability of comprehension of the remarks or sensations that are conveyed by the physician. It should, therefore, elicit no reply if consistently carried out, for this would entail effort at a time when absolute mental and physical relaxation was [sic] of prime necessity."

Or this:

> "Suggestion should be considered as applicable, not only to brain conception, but to body perception. Under the methods which I employ a patient is not only instructed by words spoken, but his general system is at the same time inducted by manipulations which are designed to impress, both wholly and locally."

The principal interest of the book lies in the opportunity it gives the reader to follow the mental wanderings of the author; for the mind of a practicing, licensed physician who makes a diagnosis of "general nervous chaos," cures prolapse of the rectum in a child of 2½ years by three sittings of neuroinduction, and advises the same esoteric procedure in hemorrhoids, varicose veins, valvular heart disease and warts, cannot be devoid of interest for even the casual thinker. The sole value of the book lies in its repetition of the lesson that medical men are so slow to learn. Times without number it has been shown that the ignorant enthusiast, the narrow minded faddist, the confident charlatan and the purblind mystic may get results where apparently a physician has failed. The latter's attention was riveted on organs and diseases to the exclusion of the man himself.

Surgical Aspects of Typhoid and Paratyphoid Fevers. Founded on the Hunterian Lecture for 1917, Amplified and Revised. By A. E. Webb-Johnson, D.S.O., M.B., Ch.B., Temporary Colonel, Army Medical Service, British Expeditionary Force, France. With Foreword by Lieut.-General T. H. Goodwin, C.B., C.M.G., D.S.O., Director-General, Army Medical Service. Price, $4.50. Pp. 190, with 26 illustrations. New York: Oxford University Press, 1919.

This book is a well planned review of the surgical complications that developed under war conditions in 2,500 cases of typhoid and paratyphoid A and B. For many readers the chief point of interest of the book will lie in the emphasis which the author puts on the fact that there were so few surgical complications in the vaccinated as compared with the unvaccinated. In comparison with typhoid, paratyphoid A and B are found to be relatively mild diseases, although at times they, too, exhibit all of the complications of typhoid. Paratyphoid A is also a much milder disease than paratyphoid B.

A brief historical sketch of typhoid and paratyphoid is given, from which it appears that the evidence of the disease in war dates from 1643. Since its first appearance it has continued to be a menace to the armies of all countries. In 1896 the paratyphoid bacillus was first isolated and designated as distinct from the typhoid bacillus. It was not, however, classified until 1912.

In the large British isolation hospital in France, where these 2,500 cases were recorded, a careful segregation of all cases into typhoid and paratyphoid A and B was made and the bacteriologic findings were kept separate, which thus permitted an interesting and instructive comparison of these three so closely allied diseases. The value of vaccination was demonstrated by the lower incidence of typhoid and the lower mortality among the vaccinated. The bacteria found in the complications depend on the time of onset. If complications occur late in the disease or in convalescence, the specific organisms are usually found in pure culture; but in early complications, pyogenic organisms are usually found. Perforation is of primary surgical importance, as an early diagnosis must be made. Paratyphoid was found to involve the large intestine more than typhoid. The author recommends a midline incision in order thoroughly to explore the abdomen. He uses local anesthesia or a combination of it with gas and oxygen or small doses of ether inhalation. Other abdominal conditions, such as abscess of the liver or spleen, or primary peritonitis, occasionally occur. When the biliary passages become involved, the author advises conservative measures if possible. The genito-urinary system was most often involved in the paratyphoid B infection. Tracheotomy was at times necessary for laryngitis. Chest complications were also most common in paratyphoid B infection. The author found that in cases with symptoms of spondylitis there frequently were organic lesions. Ear complications were common, and brain abscesses are said to develop at times without ear involvement.

The carrier problem is unsettled and the author thinks that, while the gallbladder may be the source of the infection, it may be the spleen, the bone marrow or other foci.

Social Medicine, Medical Economics and Miscellany

The New Science of Industrial Physiology

By the term "Industrial Physiology" Frederick S. Lee (*Public Health Reports* **34**:723 [April 11] 1919), professor of physiology in Columbia University, means the sum of knowledge pertaining to the working of the human mechanism in industrial activity. It thus includes psychologic phenomena as well as those more technically recognized as physiologic.

It has come to be recognized that industrial success is dependent in large measure on the efficiency of the labor element. In the body of the worker, with its combination of living organs and tissues, undergoing chemical reactions and transforming energy under the direction of a nervous system, we have a very intricate mechanism, on the proper working of which depend in large degree industrial efficiency and, through it, industrial success. The war, with its extraordinary call on human energies in the field of industry, has emphasized as never before the hygienic, or more properly speaking, the physiologic, aspects of industrial activity, and during the past four years the beginnings of a new science, an industrial physiology, have appeared and attracted the attention of scientific men and the more sagacious of industrial leaders. Some of the results of investigations already made are:

Certain physiologic and psychologic tests have been employed with workers, and it appears practicable to employ some of these tests in selecting workers and assigning them to their jobs.

The output of the successive hours of the working day in different types of operations has been measured, and the daily curves of the output have been plotted. These vary with the kind of operation, but are alike in showing a reduced efficiency, indicating a growing fatigue, as the day proceeds.

Reduction in the length of the working day is characterized by an increase in the output of the successive hours and usually by a total increase in that of the day. The optimum duration of work probably varies with the character of the work itself.

The introduction of resting periods in the working spell is accompanied, especially where the working day is long, by a total increase in the day's production. A five-hour working spell, unbroken by resting periods, is probably always too long.

Overtime following a day of labor is inadvisable, as is also Sunday work following a week's labor. These tend to impair the working power of the worker.

A hot day tends to impair strength and reduce output. Every effort should be made to keep the body of the worker cool.

Night work is, in general, less efficient than day work. Its total output is less, and this, with a long working night, falls off enormously in the early morning hours. Alternation of periods of night work with periods of day work is more profitable than continuous night work.

Women are capable of performing a much greater variety of industrial operations than has heretofore been recognized. They should not be employed for night work. Statistics show that they are absent from their work more frequently than men. The problem of women as compared with men in industry is not that of their greater or less general efficiency, but rather a problem of what types of work each sex is best fitted for.

Accidents to workers are a grave source of inefficiency. They are caused by fatigue, inexperience, speed of working, insufficient lighting, high temperature and other factors. Many industrial accidents are preventable, and adequate provisions for first-aid measures tend to diminish the seriousness of accidents.

Food and efficiency are directly connected with one another, and suitable and adequate food can probably be best provided through the establishment of industrial canteens.

A high labor turnover is incompatible with the highest degree of efficiency. It is expensive, in that it imposes on the employer the necessity of training new workers, and it is a serious factor in the causation of accidents.

Physiologic analysis of certain operations have been made, by means of the cinematograph and other methods, and it has been found possible to eliminate unnecessary motions and to train workers so as to secure a more regular rhythm, such measures increasing efficiency.

The self-limitation of work on the part of workers has been studied and found to be very common. Every legitimate effort should be employed by foremen and managers to eliminate this and to induce workers to work up to their physiologic capacity. Driving workers beyond their physiologic capacity defeats its own ends.

These and similar topics have been the subject of investigation, in England by the Health of Munition Workers Committee, and later by the Industrial Fatigue Research Board, which has been appointed jointly by the Department of Scientific and Industrial Research and the Medical Research Committee. The chairman of this board is Professor Sherrington, F.R.S., Oxford, and its membership comprises many well-known men.

In America during the past eighteen months the Public Health Service, with the cooperation of the committees on fatigue in industrial pursuits and on industrial fatigue, of the National Research Council and the Council of National Defense, respectively, has been conducting a fruitful investigation of a variety of topics within the scope of industrial physiology, and its report will soon be ready for publication.

Work in this line is also engaging the attention of the universities in the three countries that are of leading industrial importance, notably in the case of Prof. Stanley Kent, the newly appointed director of the Department of Industrial Administration in the Municipal Technical College of Victoria University, Manchester. In our own country the work has been undertaken by Harvard University, and similar activities are expected from the School of Hygiene and Public Health recently established in Johns Hopkins University.

"With the ending of the war," says Dr. Lee, "the problems of industry press for solution more earnestly than ever, and one of the most timely of these problems concerns the physiologic aspects of the work of the human machine. On us in America, where industry is destined to lead the world, there is imposed a grave duty—that of directing investigation along such lines that empiricism and tradition, those two obstacles to progress which have long been potent in industrial evolution, shall be cast out and industry shall be placed permanently on a scientific basis."

Mortality After Operation for Gastric and Duodenal Ulcers

At the request of the Association of Life Insurance Medical Directors, Dr. Angin B. Hobbs made an investigation as to the mortality following operations for gastric and duodenal ulcers. Patients, operated on at the Mayo Clinic from Jan. 1, 1916, to December, 1915, were made the subjects of this investigation. When a record of the subsequent outcome of the case was not obtainable from the clinic, the insurance companies came to the rescue, so that in 96 per cent. of the cases the history after operation was known. Of

545 persons operated on for gastric ulcer, twenty-four died as the result of the operation, an operative mortality of 4.5 per cent. Among the 1,684 operations for duodenal ulcer, there were thirty-three operative mortalities, or 2 per cent. The operative death rate from gastric ulcer, including deaths in the hospital soon after operation, was therefore fully twice that from duodenal ulcer. The 521 persons operated on for gastric ulcer were under observation for an average of 3.6 years, and during that time, eighty-eight, or 17 per cent., died. The 1,651 duodenal ulcer patients were under observation on an average of 3.4 years, and during that time, eighty-five, or about 5 per cent., died. Ninety-one persons who had both gastric and duodenal ulcer were under observation on an average of 3.8 years. Nine of this number, or 10 per cent., died. Therefore, the mortality among persons operated on for gastric ulcers is three times as high as among those operated on for duodenal ulcer during the three years following the operation. The mortality among the former decreases relatively after operation. This investigation is said to be the first of the kind made.

Medicolegal

Release to Company No Defense to Surgeon Forgetting Identity of Patient

(Purchase v. Seelye (Mass.), 121 N. E. R. 413)

The Supreme Judicial Court of Massachusetts, in this action brought to recover for an unauthorized surgical operation performed by the defendant on the plaintiff, wherein there was a verdict for the defendant, sustains exceptions to the admission in evidence of a release to a railroad company, and to a ruling that the release was a bar to this action. The court says that the plaintiff, while in the employ of the railroad company, suffered a rupture in his right groin. He consulted the defendant, who operated on him the next day. The day following he discovered that the operation had been performed on his left side, and spoke about it to the defendant, who, he testified, said that he mistook him for another patient that had a hernia on the left side. Afterward an operation was performed by the defendant on the plaintiff's right side. Later the plaintiff made a settlement of his claim against the railroad company, and executed and delivered to it a release of all claims and demands "arising or which may arise out of said injury." This action against the surgeon was brought after that settlement, and an important question was whether it was barred by the release.

If the plaintiff's employer, in an action brought against it to recover for original injury, would have been liable for the negligence of the defendant in improperly treating the plaintiff, then the release included such damages, and was a bar to the present action for the reason that in such a case the plaintiff had a claim against both the railroad company and the surgeon for the same cause of action, and a release of one of the alleged wrongdoers would operate as a release of both. It is well settled in Massachusetts, and in many other jurisdictions, that in an action for personal injuries arising out of the alleged negligence of the defendant, the plaintiff is entitled to recover for the injuries resulting from the defendant's negligence although such injuries are aggravated by the negligence of an attending physician if, in his selection and employment, the plaintiff was in the exercise of reasonable care. The question was whether the act of the defendant in operating by mistake on the plaintiff's left side was a natural and probable result of the negligence of the railroad company. The court is of the opinion that the general rule as stated above was not applicable to the case at bar. There was sufficient evidence to show that the defendant made a mistake in the identity of the plaintiff at the time the operation was performed: that he then believed he was operating on another patient who had a hernia on his left side. The railroad company could not be held liable because of his mistaken belief that he was operating on some person other than the plaintiff: such a mistake was not an act of negligence which could be found to flow legitimately as a natural consequence of the original injury. The fact that the mistake might possibly occur was not enough to charge the railroad company with liability; the unskilful or improper treatment must have been legally and constructively anticipated by the original wrongdoer as a rational and probable result of the first injury. The court is of the opinion that the act of the defendant in operating on the wrong side was a wholly wrongful, independent and intervening cause for which the original wrongdoer was in no way responsible.

If it be assumed that the release was valid and a bar to any claim which the plaintiff had against the railroad company, still a majority of the court is of the opinion, for reasons stated, that it was not a defense to the present action, and was not admissible in evidence. It was unnecessary to decide whether the railroad company would have been liable for the aggravation of the plaintiff's injury by the mistake of the defendant in operating on the wrong side, had there been no mistake with reference to the identity of the patient.

Right to Select Physician or Hospital Under Workmen's Compensation Act

(Leadbettor et al. v. Industrial Accident Commission (Calif.), 177 Pac. R. 449; Cella v. Industrial Accident Commission et al. (Calif.), 177 Pac. R. 490)

The Supreme Court of California says, in the Leadbettor case, that the workmen's compensation act of that state (Section 15 a) imposes on the employer the duty to provide medical, surgical and hospital treatment, and, "in case of his neglect or refusal seasonably to do so," makes him liable for the reasonable expense incurred by the employee in providing the treatment. The intent of the act obviously is that the employer shall, in the first instance, have the right to designate and select the physicians who are to give treatment to the employee. The latter is authorized to make his own selection at the expense of the employer only when the employer has neglected or refused to provide the necessary service.

The District Court of Appeal of California, First District, Division 1, in affirming, in the Cella case, an order of the commission refusing to make an award in his behalf covering hospital charges, says that he was injured while in the employ of a company, and was told by the company's physician to go to the St. Francis Hospital. He did not do so, but went to St. Joseph's Hospital. He claimed that he did this through ignorance, being an Italian who could neither read, write nor speak English. However, the fact was clearly established that he was directed to go to the St. Francis Hospital and the address was given in writing. These facts did not show any neglect or refusal on the part of the company to furnish him hospital service. Yet it is clear that the commission could not make an award to him for such services except it be first shown that the company had neglected or refused to furnish such service. The commission did not exceed its jurisdiction in refusing him an award.

Responsibility for Erroneous Diagnosis

(McCollum v. Barr (Calif.), 176 Pac. R. 463)

The District Court of Appeals of California, Third District, affirms a judgment for $1,000 damages in favor of the plaintiff for alleged unskilful treatment of his right forearm, which was fractured in cranking an automobile. The court says that the defendant not only diagnosed the case as one of dislocation and treated it as such for seven weeks, but, in his verified answer to the complaint, he denied that the plaintiff's forearm suffered a fracture, although the testimony of two other physicians left no doubt that both bones of the forearm were broken. It was very clear that the defendant made a faulty and erroneous diagnosis of the plaintiff's injury and adhered to it during the period of his treatment. Did the evidence sufficiently support the implied finding of the jury that this erroneous diagnosis was illy considered and carelessly or negligently made and not warranted by the facts as they presented themselves to the defendant? In solving the question the court must give to the evidence such interpretation as the jury gave it, and deduce from it such inferences as the jury deduced, if such interpretation and deduction were such as reasonable men might make in the discharge of their duties as jurymen.

The expert witnesses seemed to agree that in case of doubt the roentgen ray, if accessible, should be used. There was testimony of the experts that where discoloration existed to the extent shown in this case, though not conclusive, it was indicative of fracture. The defendant testified that he had no doubt of the correctness of his diagnosis. But was he justified, in view of the facts, in closing his mind against any doubt, and neglecting an available and accepted means of testing the correctness of his judgment? The defendant's ability and skill as a physician and surgeon seemed not to be questioned. The point urged was that in this particular instance he did not exercise the care and skill of which he was capable, and did not "use ordinary care, diligence, and skill, according to the circumstances of the case," as the jury were instructed was his duty. It might be conceded that the defendant's expert witnesses were correct in their opinion that ordinary skill did not require of the defendant that he should have used the roentgen ray in making his diagnosis. But there still remained the question whether the defendant did in fact exercise ordinary care and skill in making his diagnosis, and the still further question whether, had he exercised ordinary care and skill in his treatment, he would not have discovered the error in his diagnosis.

It may be doubted that the degree of skill and care of a physician in diagnosing and treating disease is the same as that of a surgeon in all cases of surgery. A broken or dislocated member of the body, usually discernible to the eye or the touch of the surgeon, presents an entirely different problem from internal disorders whose manifestations are obscure and often misleading. However this may be, the question is always open to inquiry whether or not the physician or surgeon in a given case did in fact exercise ordinary skill and care.

Loss of One Member Before Employment and One After

(*Wabash Railway Company v. Industrial Commission et al. (Ill.), 121 N. E. R. 569*)

The Supreme Court of Ilinois affirms a judgment for compensation under the workmen's compensation act for a total and permanent disability in a case in which a man whose left arm had been amputated near the shoulder was employed by the railway company as a night watchman and while so employed fell over a pile of scrap iron and injured his left knee, as a result of which injury tuberculosis of the bone set in and his left leg was amputated about 6 inches below the hip joint. The company contended that the loss of one leg does not constitute total permanent disability; but the man contended that the loss of his left leg, combined with the previous loss of his left arm, constituted permanent disability. The court says that this precise question has not arisen before in Illinois. It has arisen in some other jurisdictions under compensation acts similar to that of Illinois. In Massachusetts and New York it has been held that under such circumstances the disability occasioned is total and permanent. This court is disposed to follow the reasoning of the Massachusetts court construing a statute quite similar to that of Illinois, and to hold that the latter applies when the loss of one of the members mentioned occurred previous to the employment, and the loss of the other occurred as the result of an injury arising out and in the course of the employment. This, in this court's opinion, is the fair intent and meaning of the act. When this man was employed by the railway company, he had lost his left arm, and his capacity for work was to that extent impaired. He was employed to do work which could be performed by a man having but one arm, and he was paid on that basis. By the loss of his leg such capacity as he had for work was entirely destroyed, and under the provisions of the statute he was entitled to compensation for total permanent disability. Nor does such construction work any hardship on the company, as the man was employed and paid as a man of limited capacity, and the compensation which the company is required to pay is based on the wages it was paying him as a man of limited capacity. The fact that he may have been predisposed to tuberculosis of the bones did not affect the result, as the evidence showed that the tuberculosis of the left knee developed as a result of the injury.

When Employer Is Not Liable for Medical Services

(*Radil v. Morris & Co. (Neb.), 170 N. W. R. 363*)

The Supreme Court of Nebraska holds that, under Section 3661 of the Revised Statutes of Nebraska of 1913, as amended by the Laws of 1917, Chapter 85, Section 6, an employer, who offers to furnish without charge to an injured employee the reasonable services of a competent physician and medicines as and when needed, and within the value and for the time contemplated by the statute, cannot be held liable for such services by such employee, who has refused such offer by the employer and has obtained such services and medicines elsewhere. The court says that the plaintiff in this case sustained an accidental injury while in the employ of the defendant, and as a result of the accident a part of the second finger of his left hand was bruised and fractured, and afterward amputated at the joint. He recovered an award from the compensation commissioner on account of the injury, and for $129 expenses incurred for medical and surgical treatment by a physician other than the one regularly furnished by the defendant. The plaintiff argued that, because an operation became necessary, he was therefore at liberty to make his own selection of a physician, and that the defendant became liable under the statute for the reasonable expenses so incurred. But the court is of the opinion that, the employer having been made liable for the services contemplated by the statute, it would seem from the language used that it must have been the legislative intent that he should be permitted to furnish a physician of his own choice, and if his selection is such as would satisfy a reasonable man under like circumstances, the employee would not then be heard to complain. That is the general rule in manufacturing centers, where employers' liability acts with provisions similar to those of the Nebraska act were in effect before the latter was adopted. It seems to the court that the plaintiff's conduct was in effect and within the meaning of the statute an unjustifiable refusal to allow the defendant to furnish the reasonable services and medicines that the act contemplates, and that the defendant was not therefore liable for the medical expenses that he incurred. Wherefore a judgment of the district court, which disallowed the bill for $129 for medical services, is affirmed.

Bars Testimony as to What Roentgenograms Show

(*Lang v. Marshalltown Light, Power & Railway Co. (Iowa), 170 N. W. R. 463*)

The Supreme Court of Iowa holds that there was no error in a ruling in this personal injury case sustaining objection to questions such as one asking a physician to state whether or not a certain roentgenogram did, or did not, show a curvature of the spine, as appeared in the negative. The court says that the defendant cited a number of cases to the proposition that roentgen-ray negatives and photographs, properly verified, are admissible in evidence, and this proposition was not disputed by the plaintiff. Cases were also cited by the defendant, holding that it is proper for experts to interpret and explain roentgen-ray plates to the jury. Among these was the case of *State* v. *Matheson,* 142 Iowa, 414, 120 N. W. 1036. It was claimed, too, that some of the cases hold that a witness may testify as to what the photograph shows. But the court thinks that the questions asked in this case, and the rulling thereon, were within the ruling of *Elzig* v. *Bales,* 135 Iowa, 208, 112 N. W. 540, wherein it was said, in effect, that, as demonstrative evidence, roentgenograms serve to explain or illustrate and apply the testimony, and are aids to the jury in comprehending the questions in dispute. When taken for either purpose they are the best evidence of what appears on them. The rule exacting the best evidence applies to the testimony of experts, as well as to that of other witnesses, and it was error to permit a physician to testify to what appeared in a roentgenogram.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia and New York

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Pathologic Possibilities of Neglected Gallstone Disease. J. B. Deaver, Philadelphia.—p. 733.

Speculations Regarding Nature of Cancer. A. L. Benedict, Buffalo.—p. 742.

*Heart Muscle Equations. H. W. Dana, Boston.—p. 750.

Advancement in Treatment of Wounds and Infections Resulting from War. J. H. Gibbon, Philadelphia.—p. 764.

*Clinical Manifestations of Influenza in Children. L. E. LaFetra, New York.—p. 770.

Primary Carcinoma of Vermiform Appendix: Review of Literature, with Report of Two New Cases. E. E. H. Boyer, Columbus, Ohio.—p. 775.

*Case of Human Anthrax. J. C. Regan and C. Regan, New York.—p. 782.

Method of Obtaining Cerebrospinal Fluid By Puncture of Cisterna Magna (Cistern Puncture). P. Wegeforth et al., Baltimore.—p. 789.

*Acute Hematogenous Streptococcic Peritonitis. M. A. Rabinowitz, Brooklyn.—p. 797.

Pathology of (Mustard?) Gas Inhalation. G. W. Covey, Lincoln, Nebr. and M. Barron, St. Paul.—p. 808.

Climacteric Hypertension: Study of High Blood Pressure During and Following Menopause. A. H. Hopkins, Philadelphia.—p. 826.

Heart Muscle Equations.—No single procedure or formula gives universally applicable information regarding the integrity of the heart muscle in a given case. In the order of their value as indications of a damaged myocardium, Dana places the following criteria: The general appearance of the subject, with special reference to his color, to the occurrence of actual dyspnea, or distress, or cough or exhaustion resulting from exercise; the presence of a true gallop rhythm at rest or following exercise; the production, as the result of exercise, of a relative mitral insufficiency, as evidenced by a murmur; the presence, in the absence of valvular disease, of signs of decompensation, such as edema of the lungs or of the extremities, whether at rest or after exercise; weakening of the first sound at the apex, resulting from the effort test; increased strength of the first sound over the right ventricle as compared with the first sound at the apex, occuring after exertion; weakened first sound at the apex, at rest, in the absence of emphysema; the production, following the effort test, of irregular heart action or the increase in irregularity, already present, brought on by exertion; loss or weakening of the second sound at the apex, due to exercise; variations in the systolic, in the diastolic or in the pulse-pressures are believed to give relatively little information regarding the cardiac function.

Influenza in Children.—Only about 10 per cent. of the children whose cases were reviewed by La Fetra had pneumonia. About four-fifths of the cases with lung involvement took the form of bronchopneumonia. The most peculiar feature of bronchopneumonia cases was the occurrence in six instances of interstitial emphysema. Appearing first above or below the clavicles it extended to the thorax, the arm and the back, in two cases down as far as the nipple and in one instance down the trunk and as far as the middle of the thigh, the crepitations being felt throughout the entire area. Apparently the symptom occurs in only the severest cases, for five of the six patients died.

Case of Human Anthrax.—In the case cited by the Regans, the disease involved the neck. The anthrax bacillus was not only recovered locally from the lesion, but was also found in the patient's shaving brush. Anti-anthrax serum was employed exclusively in the treatment, given both by intramuscular injection and locally by injection into the tissues immediately surrounding the malignant pustule. The latter method of treatment proved exceedingly effective. Excision of the lesion proved entirely unnecessary after the local application of the serum.

Hematogenous Streptococcic Peritonitis.—Seven of Rabinowitz's eight cases occurred in females; their ages ranged from 10 months to 21 years. All occurred during the winter and spring months. This corresponds exactly to the seasonal incidence of the streptococcic throat epidemics. In but few instances was there a history of pain in the throat or tonsillitis. The history, as a rule, was that the patient had suddenly, while in the best of health, been taken sick with high fever, reaching 104 F., or over, severe generalized abdominal pain, repeated vomiting and marked prostration. These phenomena persisted until admission. When the peritonitis followed a distinct anginal attack a period of well-being, lasting three or four days, frequently intervened before the sudden development of the peritonitic symptoms. The temperature remained high without marked oscillations. The pulse was invariably very rapid and out of proportion to the temperature. It was at first of a bounding character. Herpes labialis was invariably absent in this series. Diarrhea occurred in but few of the cases. The leukocyte count was very high, ranging between 25,000 and 64,000, on the average of 40,000. The polymorphonuclear count varied from 85 to 97 per cent., on the average 92 per cent. The abdomen was tender and moderately rigid all over. There was no marked distention, and careful examination only infrequently revealed evidences of fluid in the flanks. The patient rapidly passed into the terminal phase of peritonitis, with the usual attendant phenomena of Hippocratic facies, livid, clammy extremities and running, thready pulse. Death occurred in from three to eight days of the onset of the peritonitic stage, and was the result of cardiac and vasomotor collapse, induced by a virulent toxemia.

American Journal of Public Health, Boston

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Preliminary Results of Nutritional Surveys in U. S. Army Camps. J. R. Murlin and C. W. Miller, Washington.—p. 401.

Review of Indirect Contact Transmission and Preliminary Report of Corroborative Laboratory Research. J. G. Cumming, Newport News.—p. 414.

Food Inspection and Food in Relation to Public Health. G. Koehler, Chicago.—p. 418.

Relative Value of Cultural and Inoculation Tests for Detection of B. Tetani. I. A. Bengtson and G. W. McCoy, Washington.—p. 427.

Hospital Food Needs. R. G. Hoskins, Washington.—p. 431.

Scoring of Health Activities in Cities of New York State. P. B. Brooks, Albany.—p. 436.

Why County Health Officers should be Appointed. P. H. Bryce, Canada.—p. 440.

School Hygiene a National Problem. J. A. Nydegger, Baltimore.—p. 442.

American Journal of Roentgenology, New York City

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Osteomyelitis. F. H. Baetjer, Baltimore.—p. 259.

Coexisting Multiple Lesions as Causes of Diagnostic Errors of Omission. A. W. Crane, Kalamazoo.—p. 264.

Roentgen Ray Work of Overseas Hospital. C. Eastmond, Brooklyn.—p. 269.

Familial Deforming Chondrodysplasia Multiple Exostoses. C. S. Gorsline, Battle Creek.—p. 271.

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Pedunculated Malignant Growths of Stomach. G. W. Holmes, Boston.—p. 279.

Chest Roentgenology in Selective Service Examinations. W. W. Watkins, Phoenix, Ariz.—p. 283.

Prostatic Calculi from Roentgen Ray Diagnostic Standpoint. M. J. Hubeny, Chicago.—p. 286.

Protected Chair for Roentgenoscopy. H. Zimmerman, San Francisco.—p. 289.

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Orthopedic Problems in War. J. E. Goldthwait, Boston.—p. 681.

Applied Anthropology. C. L. Lowman, San Francisco.—p. 693.

Bulletin of Johns Hopkins Hospital, Baltimore

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*Occurrence of Gastric Mucosa in Case of Meckel's Diverticulum Producing Intestinal Obstruction. E. Goetsch, Baltimore.—p. 143.

Graphic Application of Principle of Equilateral Triangle for Determining Direction of Electrical Axis of Heart in Human Electrocardiogram. E. P. Carter, C. P. Richter and C. H. Greene, Baltimore.—p. 162.

*Phagocytosis and Agglutination in Serum in Acute Lobar Pneumonia; Specificity of these Reactions and Regularity of their Occurrence. P. W. Clough, Baltimore.—p. 167.
Development of Cross Striations in Heart Muscle of Chick Embryo. M. R. Lewis.—p. 176.
Spina Bifida with Associated Disturbances in Human Embryo Seventeen Milimeter Long. S. T. W. Cull, Baltimore.—p. 181.
Manus Meditationis. C. Singer, Oxford.—p. 184.

Gastric Mucosa in Meckel's Diverticulum Producing Intestinal Obstruction.—In a case of partial obstruction caused by Meckel's diverticulum a striking variation was discovered at operation in the mucous membrane of the distal half of the diverticulum. This area of mucous membrane at the tip of Meckel's diverticulum was differentiated from the proximal mucosa by a sharp line of demarcation and by a difference in color, surface character and in thickness. On subsequent sectioning, this area of mucosa proved to be of the precise character of gastric (fundus) mucosa, containing the typical gastric glands (foveolae gastricae) composed of the two distinctive types of cells, the parietal and chief, each of which presented their characteristics of morphology and of staining reaction. The best explanation for the occurrence of these structures, in Goetsch's opinion, is that the original endodermal lining of the intestinal tube and ophalomestenteric duct posses potentialities of development into any of the glandular structures of the adult intestinal tract or of its accessory glands, and under the influence of certain circumstances, which are not understood, groups of cells may retain one or the other potentiality and develop into a glandular tissue very different from the surrounding glandular tissues and resembling the adult organ, such as stomach or pancreas, which may be far removed.

Phagocytosis and Agglutination of Serum in Acute Lobar Pneumonia.—Of thirty-three cases of acute lobar pneumonia in which the phagocytic activity of the serum after crisis or lysis was tested by Clough, with the homologous strain of pneumococcus, twenty-eight, or 85 per cent., gave definitely positive results. These results confirm and extend those previously reported by the author. In twenty-six, or 79 per cent., of these cases agglutinative activity was also demonstrable. In eighteen cases in which definite phagocytic activity was demonstrable in the serum after recovery either for the homologous strain or for a stock strain of known type, tests were also made with serum obtained during the acute stage of the disease, and negative results were obtained in fifteen. The three serums which showed phagocytic activity were obtained twenty-four hours or less before crisis. Serum was also examined from seven patients who subsequently died of the disease, and negative reactions were obtained in six instances. A positive reaction was obtained in one patient, who, after a short remission, died apparently of sepsis and endocarditis. This phagocytic and agglutinative activity of the serum developed after the recovery from infection with pneumococci of all the recognized types. It was strictly limited to organisms of the same type as that with which the patient was infected, but, as a rule, was exerted equally well on the homologous strain and on heterologous strains of the same type. It is, therefore, specific as to type, but not specific as to strain, as the author originally believed. The agglutinative activity of the serum as observed in these tests paralleled closely the phagocytic activity. In the case of atypical Type II and Type III strains it was not so sharply specific as was the phagocytic activity. This phagocytic activity is entirely different from a possible rise in opsonic index, in that it brings about active phagocytosis of a virulent pneumococcus, not at all phagocytable in normal human serum. The active substances in the serum also differ from the opsonins of normal serum in that they are usually thermostabile; they usually remain active for several weeks in serum preserved in vitro; and when their activity is lost, they cannot be reactivated by fresh normal serum (complement). They are, therefore, qualitatively comparable with the bacteriotropins of potent immune serum. In view of these facts, Clough concludes that this factor plays an important part in bringing about recovery in man.

California State Journal of Medicine, San Francisco

June, 1919, **17**, No. 6

*Smallpox Increasing in California. A. F. Gillihan, Sacramento.—p. 166.
Observations in Work of Medical Advisory Board of Health Commission. G. L. Cole, Los Angeles.—p. 169.
Absorption Without Needling of Cataractous Lens, Due to Punctured Wound. J. H. McKeller, Los Angeles.—p. 172.
Localization of Foreign Bodies in Eye. W. W. Boardman, San Francisco.—p. 179.
Navy Base Hospital No. 3. G. Cochran, Los Angeles.—p. 180.
*Spinal Anesthesia in Upper Abdominal Surgery. L. L. Stanley, San Quentin.—p. 183.

Smallpox Increasing in California.—Gillihan attempts to show that smallpox is increasing throughout the world, not only in number of cases, but also in death rates, and that California shares in this increase. He says that the mild form of smallpox and the severe reactions following poor methods of vaccination has become almost universal. Vaccination is the only protection against smallpox, but this protection lasts for only a few years, and must be repeated at intervals if an individual desires to avoid the smallpox. Methods of vaccination are recommended which do not produce harmful results. In Gillihan's opinion vaccination should be done by special officers delegated to that duty, it should be done by prescribed methods, and it should be free to all people.

Spinal Anesthesia in Upper Abdominal Surgery.—Stanley analyzes briefly 603 operations done under spinal anesthesia on inmates of the California State Prison. There have not been any bad results.

Illinois Medical Journal, Chicago

June, 1919, **35**, No. 6

Chronic Pancreatitis. H. N. MacKechnie, Chicago.—p. 281.
Tincture of Iodin in Intensive Dosage in Treatment of Tuberculosis and Other Infectious Diseases. J. Ritter, Chicago.—p. 285.
Importance of Anaerobic Bacteria to Man. W. L. Holman, Pittsburgh.—p. 289.
Twilight Sleep (Present Status). B. L. Ramsay, Chicago.—p. 297.
Modern Conception of Immunity. A. Rovin, Detroit.—p. 299.
Ideal Organization of Physicians: Physicians' Fellowship Club. W. Johnson, Chicago.—p. 301.
Military Tract Medical Association. R. C. Matheny, Galesburg.—p. 304.
Building and Rebuilding. J. Kercher, Chicago.—p. 307.

Journal of Abnormal Psychology, Boston

December, 1918, **13**, No. 5

Case of Altered Emotions Bearing on Lange James Theory. A. Myerson, Boston.—p. 239.
Concerning Hamlet and Orestes. J. T. MacCurdy, New York.—p. 250.
Anal Erotic Character Traits. E. Jones, London.—p. 261.
Irregularity in Psychologic Examination as Measure of Mental Deterioration. S. L. Pressey and L. W. Cole, Boston.—p. 285.

Journal of Experimental Medicine, Baltimore

June 1, 1919, **29**, No. 6

Agglutination Reactions of Morgan Bacillus No. 1. I. J. Kigler, New York.—p. 531.
*Edema of Lungs as Cause of Death. M. C. Winternitz and R. A. Lambert, New Haven.—p. 537.
*Etiology of Yellow Fever. I. Symptomatology and Pathologic Findings of Yellow Fever Prevalent in Guayaquil. H. Noguchi, New York.—p. 547.
*Id. II. Transmission Experiments on Yellow Fever. H. Noguchi, New York.—p. 565.
*Id. III. Symptomatology and Pathologic Findings in Animals Infected Experimentally. H. Noguchi, New York.—p. 585.
Passage of Meningococcis Agglutinins from Blood to Spinal Fluid of Monkey. H. L. Amoss and F. Eberson, New York.—p. 597.
*Experiments on Mode of Infection in Epidemic Meningitis. H. L. Amoss and F. Eberson, New York.—p. 605.

Edema of Lungs as Cause of Death.—The importance of pulmonary edema per se as a cause of death is questioned by Winternitz and Lambert. They conclude that edema of the lungs in general is merely an indicator of some underlying disorder and is rarely, if ever, directly responsible for the death of the patient or animal.

Yellow Fever in Guayaquil.—The clinical and pathologic features of the yellow fever prevalent in Guayaquil conform with those described by other investigators of this disease as it has occurred elsewhere, both epidemically and endemically.

Transmission Experiments on Yellow Fever.—By injecting into guinea-pigs the blood of yellow fever cases occurring in Guayaquil a group of symptoms and lesions closely resembling those observed in human yellow fever where induced by Noguchi in a limited number of instances. Of seventy-four guinea-pigs inoculated with specimens of blood from twenty-seven cases of yellow fever, eight, representing six cases, came down with the symptoms. In the blood, liver, and kidneys of the guinea-pigs experimentally infected with the blood of yellow fever patients a minute organism was demonstrated which closely resembles in morphology the causative agent of infectious jaundice (*Leptospira icterohaemorrhagiae*). The leptospira transmitted from yellow fever cases to guinea-pigs was found to induce similar symptoms and lesions on further passage into normal guinea-pigs. The leptospira obtained from cases of yellow fever has been given the provisional name of *Leptospira icteroides.*

Findings in Animals Infected Experimentally with Yellow Fever.—Studies are reported by Noguchi on the type of disease induced in guinea-pigs, dogs and monkeys by inoculating them (1) with the blood or organ emulsions of guinea-pigs or other susceptible animals experimentally infected with *Leptospira icteroides* and (2) with a pure culture of the organism. The symptoms and lesions observed closely parallel those of human yellow fever. The pathologic changes occurring in human cases of yellow fever are similar to those induced by inoculation in guinea-pigs and marmosets and in respect to their intensity stand intermediate between those arising in the two animals mentioned.

Mode of Infection in Epidemic Meningitis.—The experiments reported on by Amoss and Eberson do not lend any support to the notion that an intraspinal injection of the antimeningococcus serum, early in the course of invasion of meningococcus in man, and possibly at a period at which the meninges do not yet show evidences of inflammation, favors its diversion from the blood stream into the subarachnoid space.

Journal of Immunology, Baltimore

January, 1919, **4**, No. 1

*Study of Problems of Immunity by Tissue Culture Method. III. Method for Determining Resistance of Individuals to Diphtheria Infection. M. T. Burrows and Y. Suzuki, St. Louis.—p. 1.
*Antibody Production in Rabbits Following Injection with Pancreatic Ferments. H. Wago, Chicago.—p. 19.
*Red Cell Globulin. C. B. Bennett and C. L. A. Schmidt, Berkeley, Calif.—p. 29.

Immunity by Tissue Culture Method.—Many attempts have been made to devise a simple and accurate laboratory method for determining the presence of toxic and antitoxic substances in the blood of persons suffering from acute infections of various kinds and in the blood of normal individuals. Chicken tissue can be readily cultivated in drops of human plasma. It seemed to Burrows and Suzuki, therefore, that one might use this tissue to develop a method for the detection of small quantities of diphtheria toxin and antitoxic substances in the blood of patients or normal individuals. As an introduction to this particular use of the method they have studied the neutralizing value of the blood of a number of normal adults and children. The blood of twenty-seven adults and eleven children has been studied by this method. In most instances the Schick reaction was also performed. It is evident that this method finds application, with slight variation in the choice of the tissue, not only for the study of diphtheria but for the study of other toxins and antitoxic substances.

Antibody Production by Injecting Pancreatic Ferments.—Wago claims that the precipitins and complement deviating antibodies produced in this manner are distinct from such antibodies as may inhabit the proteolytic ferments of pancreatin. The former, as in the present experiments, may be produced in large amounts in the absence of the production of the latter in any degree whatsoever. Following intravenous injection of pancreatin, the proteolytic ferments and proteins of pancreatin are extensively excreted by the urine. The antigenic value of pancreatin for stimulating the production of antibodies to the contained proteins is enhanced by an alcohol modification of the pancreatin. The production of precipitins to pancreatin as a soluble antigen is favorably influenced by the intravenous injection of sodium iodoxybenzoate. The production of precipitins to pancreatin may be enhanced to the greatest degree by employing alcohol modified pancreatin as antigen and by accompanying its injection with that of sodium iodoxybenzoate.

Red Cell Globulin.—It was found by Bennett and Schmidt that the serums of animals immunized with CO_2 globulin from washed red cells contained immune bodies specific for this globulin and not for the CO_2 globulin from the homologous serums and substances which in the presence of alexin will cause lysis of the homologous red cells and in the absence of alexin cause agglutination of these cells. It is not definitely stated whether the CO_2 globulin from red cells is the antigen concerned in the production of a lysin for the homologous red cell or a substance intimately associated with it. The possibilities are discussed.

Journal of Industrial Hygiene, New York

June, 1919, **1**, No. 2

Use of Army Gas Masks in Industries. A. C. Fieldner and B. B. Fogler, Washington.—p. 69.
Human Health and the American Engineer. G. C. Whipple, Boston.—p. 75.
*Chip Fractures of Terminal Phalanges. W. R. Hurley, Boston.—p. 85.
Inorganic Poisons, Other than Lead, in American Industries. A. Hamilton, Boston.—p. 89.
Medical Inspection of Factory Employees. M. A. Austin, Anderson, Ind.—p. 103.

Chip Fractures of Phalanges.—Hurley reports seven cases in which a small fragment of bone was broken off from the terminal phalanx of a finger by an industrial accident. He urges that all contusions of fingers and toes, especially those accompanied by any degree of swelling, should be examined with the roentgen ray. The general plan of treatment should be expectant at first. In the face of increasing swelling or tenderness after the first few days, or persistent tenderness after the fourth week, the removal of the chip should be accomplished. The sooner the chip is removed after the fourth week, the better the chance of having the wound heal by first intention.

Medical Record, New York

May 31, 1919, **95**, No. 22

*Lobar Pneumonia: Special Use of Antipneumococcus Serum. T. S. Hart, New York.—p. 895.
Idealism in Rhinoplastic Surgery. W. W. Carter, New York.—p. 900.
*Etiology of Thrombo-Angeitis Obliterans. W. Meyer, New York.—p. 901.
Case of Atypical Male Sex Ensemble. A. Stein, New York.—p. 902.
War Lesions of Peripheral Nerves. J. L. Burrow, Leeds, England.—p. 904.

Serotherapy in Lobar Pneumonia.—One hundred and twenty-one cases of primary lobar pneumonia were analyzed by Hart. In every case at least one blood culture was taken; in a number of cases as many as eight or nine cultures were studied. A positive blood culture was obtained in forty cases. The sputum was studied in every case in which a suitable specimen could be secured. Pneumococcus type I was found in thirty-three cases; type II in thirty cases; type III in ten cases and type IV in twenty-three cases. In twenty-five cases miscellaneous organisms were found. Forty-one patients died. Serum was administered in thirty-one cases of type I according to the rules laid down by the Rockefeller investigators. While the evidence presented is fragmentary it seems to indicate that the administration of serum affords a definite aid to nature's effort to sterilize the blood stream. The failures which are recorded are very instructive. In each case there was a localized focus of infection which continued to furnish pneumococci to the blood stream. In one instance this was an empyema; in three others an acute endocarditis was present, and in two of these, which were examined postmortem, there were found on the heart valves fresh vegetations containing pneumococci. Hart emphasizes that a positive blood culture in lobar pneumonia is usually an indication that one may expect a severe course. It is rare for a patient who has received serum to escape a subsequent "serum illness." This may be mild or severe, but bears no relationship to the amount of serum given. Serum illness in these cases does not endanger life.

Etiology of Thrombo-Angeitis Obliterans.—Further study and observation of patients suffering from so-called thromboangeitis obliterans have led Meyer to the conviction that this trouble is a systemic disease and not, as Buerger believes, a primary affection of the blood vessels. In his opinion there seems to be just one etiologic factor responsible for the characteristic syndrome, and that is tobacco smoke poisoning.

June 7, 1919, **95**, No. 23

Occupation Therapy and Tuberculosis. W. R. Dunton, Towson, Md. —p. 941.
Some Experiences with U. S. Army Base Hospital No. 37. H. M. Moses, Brooklyn.—p. 945.
*Gonococcus Pneumonia: Report of Probable Case. M. Ross, New York.—p. 950.
Need of Cooperation Between Medical and Dental Professions. S. Herder, Mount Vernon, N. Y.—p. 952.
Immediate Active Mobilization in Treatment of Gunshot Wounds of Joints. C. Willems, Bruges, Belgium.—p. 953.

June 21, 1919, **95**, No. 25

Outlook and Problems of Public Health. A. H. Doty, New York.—p. 1037.
Jaundice. M. Einhorn, New York.—p. 1043.
Etiology and Prophylaxis of Relapse in Morphinism. C. B. Pearson, Catonsville, Md.—p. 1047.
Course in Medical Dietetics. L. Baumann, Iowa City.—p. 1051.
Case of True Mediastinal Emphysema. G. F. Boehme, Jr., New York. —p. 1052.
War Industrial Diseases. A. Hamilton, Chicago.—p. 1053.

Gonococcus Pneumonia.—The organism obtained by Ross from the blood, the sputum and direct stab of the lung in his case was a gram-negative diplococcus in pure culture, while the patient was known to have an acute exacerbation of a chronic gonorrhea. The lobar pneumonia followed an atypical course. The sputum was scanty, very tenacious, milky white, with no trace of blood at any time. The lung process terminated in pulmonary abscesses.

Michigan State Medical Society Journal, Grand Rapids

June, 1919, **18**, No. 6

Ureter Stone; Diagnosis and Treatment. P. L. Thompson, Grand Rapids.—p. 315.
Circulatory Diseases of Brain with Report of 351 Cases of Arterio-Sclerosis. S. Gregg, Kalamazoo.—p. 323.
*Treatment of Influenzal Pneumonia by Intravenous Injection of Nonspecific Protein. T. L. Squier, Ann Arbor.—p. 328.
Tonsillectomy Technic. J. M. Robb, Detroit.—p. 333.

Nonspecific Proteins in Influenzal Pneumonia.—Two cases are reported by Squier in which homologous citrated blood was transfused. Transfusion produced a severe reaction followed by a drop in temperature by crisis and by prompt recovery. Two transfusions with immune blood which caused no reaction were followed by no change in the temperature, pulse, respiration or general physical condition. When typhoid substance was used (in two cases) and a typical protein reaction obtained there was in each instance a sharp fall in temperature and a dramatic improvement in the patient. These results have led Squier to believe that nonspecific protein therapy has a very definite and important place in the treatment of influenzal pneumonia.

Missouri State Medical Association Journal, St. Louis

June, 1919, **16**, No. 6

Plea for Early Recognition of Stomach Malignancies. E. H. Kessler, St. Louis.—p. 181.
Impressions from Five and a Half Months' Service in a British Venereal Hospital in France. H. M. Young, St. Louis.—p. 183.
Chronic Influenza. D. G. Stine, Columbia.—p. 187.

Modern Hospital, Chicago

June, 1919, **12**, No. 6

Mural Decorations of Indianapolis City Hospital. E. Cleland, Indianapolis.—p. 395.
Nurses' Home at Bennington, Vt. H. L. Walker.—p. 400.
Two Factors in Hospital Standardization. A. R. Warner, Cleveland. —p. 402.
Music Takes First Place in Reconstruction Work. J. W. Harting, New York.—p. 404.
Children's Heart Hospital at Brookline, Mass. J. L. Morse, Brookline.—p. 406.
Development of Hospital Ward Unit of U. S. Army. E. F. Stevens, Boston.—p. 408.
Hinged Window for Use of Hospital. C. Butler, New York.—p. 416.
Consolidation of Hospital Services. L. J. Frank, New York.—p. 418.
Plan for Laboratory Training of Nurses. H. J. Goeckel, Plainfield, N. J.—p. 422.
Little Journeys to Places "Over There." M. J. Robinson, American Red Cross.—p. 423.

New York Medical Journal

June 14, 1919, **109**, No. 24

Medicine, A Determining Factor in War. A. Lambert, New York.—p. 1013.
Cesarean Section Following Previous Extraperitoneal Cesarean Section. J. W. Markoe, New York.—p. 1022.
Willems Treatment (Mobilization) of Knee Joint War Injuries. C. A. McWilliams, New York.—p. 1024.
Medical Modernization of Back Country. W. B. Konkle, Montoursville, Pa.—p. 1026.
Remote Danger of Chickenpox and Measles in Children. L. Kerr, Brooklyn.—p. 1027.
Fracture and Dislocation of Dorsal Spine with Complete Rupture of Cord. R. Hertzberg, Stamford, Conn.—p. 1028.
Problem of Syphilis as Affecting Our Soldiers. C. Wolf, New York. —p. 1032.
Report of Bone Graft Cases. J. A. Miller, New York.—p. 1033.

New Jersey Medical Society Journal, Orange

June, 1919, **16**, No. 6

Tuberculosis Situation and Tuberculosis Clinic in Burlington County, N. J. M. W. Newcomb, Brown's Mills.—p. 185.
War Surgery and Its Application to Civil Practice. H. B. Epstein, Newark.—p. 188.
Treatment of Gonorrhea in Male. C. H. D. T. Shivers, Atlantic City.—p. 192.
Americanism; Appeal to Medical Profession to Enter Public Life. W. P. Eagleton, Newark.—p. 195.

Ohio State Medical Journal, Columbus

June 1, 1919, **15**, No. 6

Herpes Zoster Oticus. Review of Literature and Report of Case. J. E. Brown, Columbus.—p. 332.
Prenatal Care. S. J. Goodman, Columbus.—p. 337.
Simplified Technic for Removal of Faucial Tonsils; Especially Nonfibrous, Soft and Submerged Tonsils; New Tonsil Hook. L. F. Long, Zanesville.—p. 343.

Surgery, Gynecology and Obstetrics, Chicago

June, 1919, **28**, No. 6

*Experimental Production of Pancreatitis in Animals as Result of Resistance of Common Duct Sphincter. E. Archibald.—p. 529.
*Treatment of Purulent Arthritis by Wide Arthrotomy Followed by Immediate Active Mobilization. C. Willems.—p. 546.
*Roentgenographic Diagnosis in Renal Tuberculosis. W. F. Braasch and F. A. Olson, Rochester.—p. 555.
Acute Intestinal Obstruction Following Appendectomy: Report of Cases. A. H. Harrigan, New York.—p. 561.
*Status of Vesical Sphincter After Prostatectomy. E. M. Watson, Buffalo.—p. 569.
The Acute Abdomen. F. G. Connell, Oshkosh.—p. 583.
*Laparoplasty by a New Method. W. Van Hook, Chicago.—p. 598.
*Acute Appendicitis Complicating Epidemic Influenza; Report of Eight Cases. M. Behrend, Philadelphia.—p. 601.
Primary Suture of War Wounds. G. Gross.—p. 603.
*Method of Exposing Musculospiral and Posterior Interosseous Nerves. B. Stookey and S. Guild.—p. 612.
Necessity for Special Positions in Roentgenographic Study of Shoulder Cases. W. W. Boardman and M. Donovan, San Francisco.—p. 615.

Experimental Production of Pancreatitis.—Archibald, records experiments performed with the view to induce pancreatitis with bile, by forcing this bile into the pancreas. The experiments were successful. An acute hemorrhagic pancreatitis was produced, with death in half an hour. Archibald used ox bile infected with various organisms, human bile from a cholecystostomy case, passed through a Berkefeld filter and autoclaved and solutions of bile salts. The lesions produced in the pancreas by these methods of experimentation were brought about entirely through the action of the common duct sphincter, combined usually, but not always, with some increase of pressure. This increase in pressure need be very slight, indeed but little over normal bile pressure in the common duct, or may be even quite absent. This is the ordinary mechanism at work in human cases, even when gallstones are present. In these animals there was no question of any mechanical obstruction to the outflow of bile into the duodenum. The obstruction was purely a physiologic one. Most of the main types of lesion in the pancreas found in clinical practice were produced in this way. The experiments also seem to show very clearly that the necrosis of the pancreas is the direct result of the action of substances entering the duct of Wirsung, such as the bile salts, unmixed with bile colloids, or such as artificial gastric juice, or a whole series of acids and strong alkalies. Archibald belives that the extent of necrosis is determined at the very outset of the disease by the grade of virulence and extent of permeation of the noxious agent. Succeeding invasions of bile may increase the extent of necrosis. Liver necroses, of the type now well known as focal necroses occurring in the course of pancreatitis, were found with great regularity, both in fatal and in light cases; and were present within twenty minutes of operation. The severe cases with early death were all in the series in which infected bile was used. Sterilized mucin-free bile, and the bile salts in solution caused, it is true, necrosis of the gland, but a degree easily consistent with recovery; while the infected ox bile almost regularly caused early death, usually with, occasionally without, severe lesions in the pancreas. The surgical treatment of pancreatitis, Archibald says, must chiefly lie in a prevention of any further retrojection of bile into the pancreas. The damage already done to the organ will often be cured by the processes of nature, absorption, replacement, or even sequestration. On the other hand, if gangrene, abscess, or total slough has occurred, it may require a direct attack on the pancreas itself. But to prevent recurrence or extension the cardinal point would seem to lie in the prevention of any heightened pressure in the biliary system, and secondly in the restoration of an altered bile to its normal chemical condition, or of an infected bile to sterile bile. This can only be done by a drain in the gallbladder or in the common duct. The essential thing lies in prolonged drainage.

Treatment of Purulent Arthritis.—The history of cases of purulent arthritis of the elbow, knee and instep, due either to the diplococcus, staphylococcus or the streptococcus, with or without intra-articular fracture is given by Willems. These have been treated by simple arthrotomy followed by immediate active mobilization without any other means of drainage and without lavage. In all these cases drainage has been perfect, the temperature has not been high, the general state has remained excellent, infection has been confined to the synovia, there has been little or no atrophy, and articular mobility has been integrally preserved.

Roentgenographic Diagnosis in Renal Tuberculosis.—In Braasch and Olson's opinion the value of roentgenographic diagnosis of renal tuberculosis does not appear to be fully appreciated. They claim that shadows may be found in approximately 20 per cent. of patients with renal tuberculosis. Positive evidence of tuberculosis may be obtained by this method when all other clinical data fail, and when cystoscopic examination is impossible. Pyelography is occasionally valuable (1) in the identification of renal infections of doubtful nature and (2) in the identification of doubtful shadows in the renal area.

Vesical Sphincter After Prostatectomy.—A study of twenty-five cases convinces Watson that following perineal prostatectomy the internal or vesical sphincter returns to its normal tone and function in every instance within a few weeks.

Laparoplasty by a New Method.—The laparoplasty devised by Van Hook for relaxed, pouching, or pendulous abdomens consists in raising two triangular flaps, points down of anterior rectus fascia and part of the external oblique muscle and fascia. The tip of the left flap is sutured over to the right Poupart's ligament and pubis spine and vice versa in the case of the right flap. From a point in the median line about 1 or 2 inches above the symphysis pubic incisions to the right and left are made starting at right angles to the median line but, at the outer edge of the recti, turning upward and outward in the direction of the fibers of the external oblique muscle and extending to a distance of 6 or more inches on each side, splitting that muscle. Next, each of the triangular flaps thus produced, of which the apices point downward, is lifted carefully by separating the external oblique muscles (bearing their aponeuroses) up to the recti from the underlying internal oblique muscles. Then the anterior plates of the rectus sheaths are dissected up from the muscle bodies. These connective tissue membranes lifted off from the bodies of the muscles, leave the recti bodies in their normal beds. The raised rectus sheath flaps are now in continuity with the bodies and aponeuroses of the external oblique muscles. The next step is the crossing and reattachment of these flaps at points much lower than those to which they extended previously. The patient is placed in the Trendelenburg posture, then flex the knees and moderately flex the thighs on the abdomen, providing under the legs a suitable support. This diminishes the pressure within the lower abdomen, thereby relaxing the muscles of the abdominal wall and also, by anteriorly flexing the spine, lessens the distance between the ensiform cartilage and the pubic bone. The left flap is drawn downward to the right of the pubic bone, across the median line, until it is almost taut. It is carefully sutured to the aponeurosis of the right external oblique, to Poupart's ligament and the anterior sheath of the right rectus muscle at a level much nearer the pubes than that from which it was raised. The flap of the right side is similarly carried downward and to the left over the left rectus muscle and over the first flap and sutured in position. The skin and subcutaneous fat are extensively retranched and the T-shaped skin incision closed.

Acute Appendicitis Complicating Epidemic Influenza.—None of Behrend's patients gave a previous history of appendictis. In one the appendix ruptured while in two pus was contained in the appendix. All the patients recovered. Five were not operated on because it was feared that the prevalence of râles in the lungs would eventually result in pneumonia. On account of "wet" lung the administration of an anesthetic was feared.

Exposure of Musculospiral and Posterior Interosseous Nerves.—The authors describe three incisions for the exposure of the musculospiral nerve from the lower border of the teres major muscle down to the antecubital fossa. The first incision lies in a line from the tip of the olecranon to the posterior angle of the acromion. It begins three fingers breadth below the acromion and continues directly downward along the above line to 5 centimeters below the level of the insertion of the deltoid. The second incision runs parallel to the first except in its lower part, where it is slightly curved toward the anterior side. It begins about 12 centimeters above the antecubital fossa external to the brachialis anticus and between it and the almost longitudinal fibers of the supinator longus. The third incision is made midway between the other two and parallel to the first. It should extend from 3 centimeters above the level of the insertion of the deltoid directly downward for about 12 centimeters.

West Virginia Medical Journal, Huntington

June, 1919, **13**, No. 12

Abdominal Drainage. F. L. M. Hupp, Wheeling.—p. 441.
Medical Progress. C. H. Henry, Fairmont.—p. 448.
Gallstone Disease Complicating Pregnancy. A. P. Heineck, Chicago. —p. 451.
Lethargic Encephalitis. W. E. Vest, Huntington.—p. 454.

War Medicine, Paris

February-March, 1919, **2**, No. 7

Nerve Injuries: Operative Indications Based on Functional State and Anatomic Examination of Nerve. A. Thomas.—p. 1351.
Traumatic Shock. W. B. Cannon.—p. 1367.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

China Medical Journal, Shanghai

January, 1919, 33, No. 1

*Blood Changes in Kala-Azar after Splenectomy: Therapeutic Value of Operation. E. M. Johnstone.—p. 1.
*Case of Kala-Azar, Treated with Tartar Emetic. H. W. Bell.—p. 13.
Chronic Subtertian Malaria. J. H. Korns.—p. 14.
Foreign Body in Parotid Region: Extraction; Cervico-Thoracic Gaseous Phlegmon and Hemorrhage; Ligation of Common Carotid. L. Casabianca.—p. 18.
Importance of some Minor Eye Operations. J. N. MacPhail.—p. 23.
*Case of Cesarean Section Presenting Unusual Difficulties. E. C. Peake.—p. 30.
*Case of Suprapubic Lithotomy: New Method of Drainage. C. H. Barlow.—p. 32.
*Comparative Value of Thymol and Chenopodium in Treatment of Uncinariasis. N. Bercovitz.—p. 34.
*Medical Notes from Kansu. G. E. King.—p. 38.

Blood Changes in Kala-Azar After Splenectomy.—Johnstone's paper is based on a study of two cases. The findings were as follows: Immediately after splenectomy there may be an enormous increase of leukocytes. In one case the leukocytes rose from 2,000 to 32,000. These leukocytes, during the first few days after operation, were a new type of cell which Johnstone calls the "horseshoe nucleus" polymorphonuclear neutrophilic leukocyte. He believes these cells to be an intermediate form between a myelocyte and a mature neutrophilic polymorphonuclear leukocyte. At the end of about seven days after operation they gradually disappear and a leukocytosis of the usual type of irregular lobed polymorphonuclear leukocyte persists. Johnstone observed cells which he believes furnish presumptive evidence of transformation of the embryonic "horseshoe nucleus" cell into the mature form while in the circulating blood. These cells are probably "stored cells," i. e., embryonic granular cells in bone marrow and other blood forming tissues which are prematurely thrown into the blood stream because of a profound stimulus associated with splenectomy. One of the patients died suddenly after three months probably from thrombosis of the large veins of the portal system. Johnstone is convinced that in a case of mild infection where the liver is not enlarged and the patient is in fair condition the effect of splenectomy is undoubtedly good. One patient, illustrating this condition, appears to be free of Leishmania-donovani and almost free of all symptoms a year and a half after operation. But in a case of severe infection where the liver, as well as the spleen, is enlarged, if also the patient is in poor condition, and if the reaction to transfusion of whole blood is slight, the prognosis for splenectomy is poor. The second case cited by Johnstone strongly suggests this conclusion. The blood changes after operation corresponded exactly to the progressive recurrence of his kala-azar symptoms. Johnstone urges as a logical method of treating kala-azar: First, use injections of tartar emetic, give transfusions of blood, use general hygienic and supportive measures until the patient is improved. If he fails to respond to these he will probably also fail to respond to and benefit by splenectomy. Later, splenectomy may be done if the above measures indicate a good prognosis, and if it is apparent that parasites in the spleen are not reached by the drug. If the liver is enlarged, if the patient is in poor condition, and if response to blood transfusions is slight or absent, splenectomy is contraindicated. Follow splenectomy by continued injections of tartar emetic or antimony ointment inunctions to destroy the parasites still present in the blood stream and lymph glands and other tissues. Also continue transfusions of blood, if necessary, and give continued attention to good nourishment, fresh air, and general supportive and hygienic measures.

Kala-Azar Treated with Tartar Emetic. — The tartar emetic treatment in Bell's case was carried out by means of injections of a 2 per cent. solution into the veins of the arm. Very often the injections caused an immediate attack of coughing with watery expectoration, which passed off in a few minutes. No other unpleasant effects were produced, except on one occasion when the patient became collapsed just after the injection had been given. He quickly recovered, and felt no after effects.

Cesarean Section Presenting Unusual Difficulties.—The difficulties encountered by Peake in his case may be summed up as follows: (1) Extremely critical general condition of the patient; (2) intestines under pressure immediately below peritoneal incision and protruding in an unruly and aggressive manner; (3) placenta directly under uterine incision; (4) fetal head wedged tightly into maternal pelvis, the result of forceps traction; (5); free hemorrhage from wound in lax and inert uterine walls; (6) critical condition of the infant, due to prolonged and very severe compression of the brain, and the fact that the placenta was detached several minutes before the child could be extricated. Both mother and child made a rapid and complete recovery.

Case of Suprapubic Lithotomy.—The method of drainage resorted to by Barlow was first described by his associate Chang in the China Medical Journal, July, 1918. It consists of a large rubber drainage tube being inserted into the bladder, containing a rubber catheter. To the end of this catheter is attached a syringe used to pump the urine out of the bladder.

Treatment of Uncinariasis.—In a series of 126 cases thymol was given by Bercovitz in hard gelatin capsules, 30 grains each of thymol and sodium bicarbonate being administered in two doses, one hour apart, followed by an ounce of magnesium sulphate one hour after the last dose. Chenopodium was given in hot coffee, or simple syrup; from 20 to 36 drops, according to the weight of the patient, administered in two doses, one hour apart, followed by an ounce of magnesium sulphate one hour after the last dose. There is over 40 per cent. difference between the two drugs in favor of chenopodium in the case of the girls; and about 20 per cent. difference in favor of chenopodium in the case of the boys, with a difference of over 25 per cent. in favor of chenopodium if all cases are grouped together. It is also a safer drug than thymol, and it is easy of administration, being economical in time, as well as more pleasant to the patient. In addition, oil of chenopodium is effective as a vermifuge for *Ascaris lumbricoides*, and thus two infections are cured by one remedy. One point must be noted against chenopodium. At least ten days or two weeks should elapse before a reexamination of the feces is made.

Causal Relationship Between Heat and Cancer.—King refers to cases of epithelioma over the great trochanter induced by irritation from sleeping on the hot *k'ang*, or bed over an oven. He says that it is almost possible to tell Kansu people from the pigmented patch over each trochanter which so often develops into an epitheliomatous ulcer. This confirms the existence of a causal relationship between heat and cancer.

March, 1919, 33, No. 2

Treatment of Tonsil Infections. A. H. Norton.—p. 101.
*Blood Picture in Amebic Dysentery. W. Fischer.—p. 108.
*Unusual Case of Multiple Carcinomas. R. G. Mills.—p. 112.
Measures to Prevent Dissemination of Disease. J. S. McLester.—p. 123.
*Magnesium Chlorid as Antiseptic in Surgery. D. Spourgitis.—p. 127.
Eczematoid Epidermophyton Infection in China. H. Dold.—p. 133.
Studies in Sanitation in China. III. Relation of Sewage to Agriculture and Public Health. N. Bercovitz.—p. 138.

Blood Picture in Amebic Dysentery.—An examination of the blood of thirty patients was made by Fischer. In cases of uncomplicated amebic dysentery, he found a moderate neutrophil leukocytosis. The eosinophil cells of the blood were not increased but rather diminished. The number of the large mononuclear and transitional cells was not altered. Therefore, there is no typical change of the blood picture in cases of amebic dysentery, and no typical change of the blood picture during the course of the dysentery. Consequently, the blood picture in these cases does not, as a rule, give much valuable information for diagnostic or therapeutic purposes.

Unusual Case of Multiple Carcinomas. — Mills' patient was a woman, 51 years of age, who had a recurrent carcinoma of the breast and a pleuritic effusion. Her maternal grandmother died of carcinoma of the breast and her mother was operated on successfully for the same condition. An older sister died of carcinoma of the stomach described as being of the "leather stomach" variety. The paternal grandfather died of carcinoma of the face, and a granddaughter of this man by a second wife died of cancer. Two uncles in the same family also were afflicted with cancer and one or two cousins were similarly affected.

Magnesium Chlorid as Antiseptic in Surgery.—Cases are cited by Spourgitis to show the superiority of magnesium chlorid as an antiseptic in surgery over phenol and bichlorid of mercury.

Indian Medical Gazette, Calcutta

May, 1919, **54**, No. 5

*Tendon Transplantation and Fixation for Nerve Injuries. R. F. Standage.—p. 161.

*Sodium Hydnocarpate (Sodium Gynocardate A) and Trial of Sodium Morrhuate in Leprosy. L. Rogers.—p. 165.

*Chemical Nature of Margosic Acids (Fatty Acids of Nim or Margosa Oil). K. K. Chatterjee.—p. 171.

Radical Cure of Hydrocele by Plication. K. K. Chatterjee.—p. 174.

Radical Cure of Inguinal Hernia: Plea for Greater Simplicity. E. F. Neve.—p. 175.

Tendon Transplantation.—In the operative treatment of nerves and paralyzed muscles Standage and his associates have been guided by the work of Robert Jones on poliomyelitis, and they have successfully applied his methods of tendon transplantation and fixation in cases unsuitable for nerve suture, or in cases in which nerve suture had failed. This operation has been carried out for three types of nerve injury: (*a*) Irreparable injury to the musculospinal nerve with wrist drop; (*b*) similar injury to the median nerve; (*c*) injury to the musculocutaneous nerve in the leg with paralysis of the peronei muscles and resulting pes equino varus.

Hydnocarpic Acid in Leprosy.—As Roger's experiments have indicated that the sodium salt of hydnocarpic acid is probably most active in leprosy, he has treated a further series of cases with a preparation made of Hydnocarpus wightiana oil consisting mainly of sodium hydnocarpate with sufficient of the lower melting point acids to make it soluble, but also containing a little sodium chaulmoograte, as these acids are so closely related that they can only be separated in pure form by very prolonged fractionation. This preparation, as well as that which in former papers was called "sodium gynocardate A," is now referred to by the more correct term hydnocarpate of soda. The great reduction in the numbers of the lepra bacilli before and after treatment and their frequent total disappeaance is a very satisfactory feature of the series, while the number of cases in which lesions disappeared in less than a year is also noteworthy. In only one of fourteen cases was but slight improvement obtained.

Margosates in Skin Lesions.—Chatterjee details the results obtained in the treatment of cases of syphilis, leprosy, skin disease, filariasis, septic infections and ulcers with ethyl ester margosic and hydrargyri margosatis. The experience has been very satisfactory.

Japan Medical World, Tokyo

May 11, 1919

*Prophylactic Vaccination of Tuberculosis. K. Shiga.

May 18, 1919

Treatment of Hemorrhoids. T. Sato.

Prophylactic Vaccination of Tuberculosis.—The vaccine used by Shiga is the sensitized bacillary emulsion prepared with the avirulent strain obtained by cultivating the common virulent tubercle bacilli in a medium containing trypoflavin. The emulsion contains, besides the sensitized bacilli, a certain amount of the filtrated fluid of erythrodin broth medium. It, therefore, consists of the whole antigen of tubercle bacillus. Good results are claimed for this procedure.

Lancet, London

June 7, 1919, **2**, No. 4997

Rôle of Sympathetic Nervous System in Diabetes Insipidus and Circulatory Diseases. W. L. Brown.—p. 965.

*Infecting Agent in Influenza: Experimental Research. T. Yamanouchi, K. Sakakami and S. Iwashima.—p. 971.

*Treatment of Bone Sinuses by Solid Metal Drains. C. J. Symonds.—p. 971.

Fistula of Parotid in War Wounds of Face and Jaws. P. P. Cole.—p. 971.

*Blood Transfusion by Citrate Method. A. Fleming and A. B. Porteous.—p. 973.

Case of Peptic Ulcer with Grave Anemia Treated by Intravenous Injection of Whole Blood. E. L. Hunt and H. Ingleby.—p. 975.

*New Method of Incision of Tympanic Membrane for Acute Otitis. R. Lake.—p. 977.

Secondary Suture of Wounds. R. A. Stoney.—p. 978.

Hereditary Malformation of Extremities. W. J. Rutherfurd and B. G. R. Crawford.—p. 979.

Case of Recurring Effusion into Pericardial Sac. H. B. Roderick and S. W. Curl.—p. 980.

Comminuted Fracture of Humerus. W. F. Buckley.—p. 981.

Infecting Agent in Influenza.—Yamanouchi and his associates report on their experiments made to find the exciting cause of influenza. An emulsion of the sputum from forty-three influenza patients was made in Ringer's solution. This emulsion was injected into the nose and throat of twelve healthy persons. A filtrate (by Berkefeld filter) of the same emulsion was injected into the nose and throat of twelve other healthy persons. Among the subjects treated were six persons who had already had influenza, and all six were free from symptoms of illness. But all of the other eighteen subjects, both those who had received the emulsion and those who had received only the filtrate were attacked by the disease, after an incubation of two or three days. Their fever was sometimes slight, sometimes very severe. The subsequent symptoms were headache, sore throat, lumbago, cough and the like. A filtrate of blood of influenza patients was injected into the nose and throat of six more healthy persons. The results were precisely the same as in the previous experiments. The authors inoculated subcutaneously four healthy persons with the filtrate of the sputum emulsion and four others with a filtrate of the blood of influenza patients. They all, with the exception of one who had previously had influenza, developed the disease after two or three days' incubation. A pure culture of Pfeiffer's bacillus and a mixed preparation of the pure Pfeiffer bacillus, along with pneumoncocci, streptococci, staphylococci, diplococci and many other like microbes common in the sputum of influenza patients, were injected into the throat and nose of fourteen healthy people who had not had influenza. There were no symptoms of illness following these injections.

Treatment of Bone Sinuses by Solid Metal Drains.—Symonds uses both hollow and solid metal drains in the troublesome sequelae of fractures and gutshot injuries. The metal prevents closure of the orifice. It also rapidly reduces the septic changes, and by preventing retention of pus, with consequent decomposition and infective osteitis permits the formation of new material and closure of the cavity. The rod is smooth, has a rounded end, and can be removed and inserted without any injury. When substituted for gauze the beneficial effects are at once evident in the disappearance of the surrounding dermatitis and marginal granulations and the decrease in the discharge. Pain, where existing, rapidly subsides and very soon a retraction of the orifice is seen. Symonds uses a glass rod, bent to any desired angle.

Blood Transfusion by Citrate Method.—After having used this method in 100 cases Fleming and Porteous are convinced that it is as good as those of any of the more complicated and difficult methods.

New Method of Incision of Tympanic Membrane.—Lake makes a crescentic or curved incision following the contour of the edge and of about the same extent of the posterior superior quadrant—i. e., a curved incision with the convexity upward. He claims that better drainage is obtained.

Quarterly Journal of Medicine, Oxford, England

April, 1919, **12**, No. 47

*Intrathoracic Pressure in Hemothorax, Pneumothorax, and Pleural Effusion, and Effects of Aspiration and of Oxygen Replacement. G. C. Shattuck and E. S. Welles.—p. 151.

*Study of Contralateral Signs in Gunshot Wounds and Injuries of Chest. S. W. Curl.—p. 161.

*Two Cases of Endocarditis Due to Bacillus Influenzae. A. Malloch and L. J. Rhea.—p. 174.

*Therapeutic Action of Digitalis on Rapid, Regular, Rheumatic Heart. G. A. Sutherland.—p. 183.

*Acute Leukemia and So-Called Mediastinal "Leukosarcomatosis" (Sternberg): Case Accompanied by Myeloid Substitution of Hilus Fat of Kidneys. F. P. Weber.—p. 212.

*Two Cases of Diabetes Insipidus: Literature Relating to Association Between Pituitary Gland and This Disease. E. L. Kennaway and J. C. Mottram.—p. 225.

*Filter Passing Virus of Influenza. J. R. Bradford, E. F. Bashford and J. A. Wilson.—p. 259.

Intrathoracic Pressure in Hemothorax, Etc.—According to Shattuck and Welles fluid or air in the pleural cavity reduces the normal negative pressure and may convert it into a positive pressure. The degree of reduction of intrathoracic pressure depends on the volume of fluid or of air or of both in the cavity. Small hemothoraces do not give positive mean pressures. Large hemothoraces of hemopneumothoraces may do so. The pressure in a sterile hemothorax changes little during the first sixteen days after wounding. The respiratory excursion of pressure in small hemothoraces increases gradually during the first sixteen days after wounding. The respiratory excursion in large hemothoraces is less than in small ones. The excursion seems to be greater when there is air in the pleural cavity than when there is fluid only. Pressures observed in pleural effusions were similar to those in hemothorax. By simultaneous replacement of fluid withdrawn by oxygen volume for volume, existing pressure in the pleural cavity can be maintained.

Contralateral Signs in Gunshot Wounds.—When first taking up the study of gunshot wounds of the chest Curl says he was forcibly impressed by the apparent great frequency with which, in the case of injury to one side, abnormal signs were to be found on the uninjured side. He groups the cases presenting centralateral signs as follows: 1. Those with contralateral pleurisy. 2. Those with contralateral pneumonia. 3. Those in which no clear evidence of pneumonia exists and in which the presence of râles forms the chief, if not the sole, contralateral sign. 4. Those in which the physical signs suggest a condition of consolidation or condensation of lung tissue and do not conform to any of the preceding conditions. Up to the early part of this year Curl's series of sixty cases presented twenty-nine contralateral signs of one kind or another, as follows: Pleurisy in four cases; pneumonia in four cases; râles in seven cases; signs suggesting pulmonary consolidation or condensation, with or without the presence of râles in fourteen cases.

Two Cases of Endocarditis Due to Influenza Bacillus.—A man, aged 39, was admitted to the hospital on the third day of the disease with a diagnosis of bronchitis. He had dyspnea and pain in the right side of the chest with signs of consolidation of the right lung and of left base. His case was diagnosed on the sixth day as lobar pneumonia, but the diagnosis was changed on the twelfth day to confluent influenzal bronchopneumonia because of the finding of *B. influenzae* as the predominating organism in the sputum. Examination of the heart was negative. The temperature was subnormal with rapid respiration and pulse. Heavy sweats. Death on thirteenth day. Postmortem examination showed bilateral confluent bronchopneumonia; dilated right heart, syphilitic aortitis also involving aortic ring; acute vegetative endocarditis of aortic cusps; mild chronic interstitial nephritis. *B. influenzae* was grown in pure culture from the terminal bronchioles, from the heart's blood, and from vegetations on the aortic cusps. Another man, aged 44, was admitted on the fourth day of the disease, with a diagnosis of bronchopneumonia. Onset with chill after getting wet. The man had cough, pain in the chest, dyspnea, cyanosis, signs of capillary bronchitis. The case was diagnosed as influenzal bronchopneumonia on account of the nummular character of the sputum and the presence of *B. Influenzae* as the predominant organism in it. The heart was enlarged but no murmurs were heard. Dyspnea and cyanosis increased; sweats, "septic" temperature; death on sixth day. Postmortem examination showed a bilateral capillary bronchitis and bronchopneumonia; dilatation of the right heart, hypertrophy of both sides; an old endocarditis of the aortic cusps (slight); acute vegetative endocarditis of the aortic cusps and on otherwise healthy mitral cusps; large "septic" spleen; slight chronic interstitial nephritis. Cultures from the terminal bronchi and from the center of the aortic vegetations yielded *B. influenzae* in pure culture. The culture from the heart's blood was negative.

Therapeutic Action of Digitalis.—A study of the effect of digitalis in these cases has convinced Sutherland that this drug can be used with as much confidence in its efficient and beneficial action as in cases of auricular fibrillation. In the former digitalis is given with a view to its acting on the sinoauricular node, while in the latter its action is directed to the auriculoventricular node and bundle. In both cases a slowing of the ventricular rate is aimed at and provided that there is a sufficiency of sound contractile tissue in the ventricles, the natural powers of the heart are capable of restoring a weakened or failing circulation.

Acute Leukemia and Mediastinal "Leukosarcomatosis."—In only one of six cases of this disease was Weber able, by the help of roentgen-ray examination and by the microscopic blood picture, to make the diagnosis during life. The boy was admitted to the hospital with fever, respiratory distress, and ascites, and was at first supposed to be suffering from tuberculosis. However, his extreme pallor and the presence of cutaneous petechiae suggested an examination of the blood, which revealed the leukemic blood picture. Owing partly to his peculiar dyspnea a roentgenogram of the thorax was taken, and this showed great shadowing at the base of the heart, suggesting the presence of a tumorlike mass in the mediastinum.

Two Cases of Diabetes Insipidus.—Data are given by Kennaway and Mottram as to the composition of the urine, and its molecular concentration in comparison with that of the serum, in two cases of diabetes insipidus. When large amounts of sodium chlorid are given, the diuresis is so adjusted that the percentage of nitrogen plus chlorid in the urine remains unaltered; the kidney, therefore, lacks the power of concentration which is exhibited normally after the ingestion of salt. The antidiuretic effect of pituitary extract given by subcutaneous injection was demonstrated both in a normal subject and in a case of diabetes insipidus; administration of such preparations by the mouth is ineffectual. No record has been found by the authors in the literature of any case of diabetes insipidus in which abnormality of the pituitary was excluded with certainty by postmortem examination, whereas in a considerable number of cases the disease has been associated with a lesion of the posterior lobe of the gland. However, such lesions are not invariably accompanied by diabetes insipidus. The evidence of morbid anatomy as to a connection between the pituitary gland and diabetes insipidus is therefore inconclusive, but the immediate restoration of a normal state of the urine when pituitary extract is given in diabetes insipidus provides the strongest evidence for the normal activity of the gland in regulating the secretion of urine.

Filter Passing Virus of Influenza.—The result of the experiments described by the authors, it is claimed, establish that all the lesions of influenza have been reproduced in animals by the injection of pure cultures of an organism isolated from man, and they fulfill all the requirements necessary to establish that organism as the cause of the disease. In the first place, the disease was reproduced in attenuated form as in polyneuritis. The increase in virulence by passage so that, e. g., the mortality in subdural inoculations rose from a probable four in six to a real mortality of three in three, and perhaps the fatal effects produced in all pigs reinoculated for the third time, may have a bearing on the greater severity of late phases of the present epidemic. The success of subdural inoculation and the rapidity of onset thereafter may give support to the opinion that the organism finds entrance to the body via the nasopharynx, but does not exclude other means of entrance. The numerous sites in which the organism is found in the body, and its presence in the bile and kidney and also the urine of monkeys, show that the nasopharyngeal mucus is not the only channel of its excretion. The prolonged residence of the organism in the tissues may likewise be of epidemiologic significance in the production of strains of heightened virulence. The authors point out that influenza should no longer be regarded as primarily a disease of the lung. The process is exactly the reverse. The lung is not attacked through the air passages by a gradual extension downward from the higher respiratory passages to the alveoli. The lungs are attacked from within the body throughout their entire vascular mechanism from the blood stream, in company with other organs in varying degree. Masses of dead or disorganized tissue and blood clot and the disorganization of respiration soon provide not only foci for local secondary infective processes, but also means by which the secondary infections, in their turn, come to produce septicemia on their own account by a reversal of the process in an individual weakened by the primary disease. An organism, of definite morphologic and cultural characters, has been isolated by the authors from cases of influenza. It can be demonstrated in the blood, sputum and other exudates, and in the tissues, postmortem, by appropriate methods of staining. It belongs to the group of "filter passers," a group of organisms which pass through bacteriologic filters. It has been seen microscopically in the filtrate and has been cultivated therefrom. It has not been found in a large series of controls.

Bulletin de l'Académie de Médecine, Paris

May 13, 1919, **81**, No. 19

*Cesarean Section. Guéniot.—p. 632.
*Radium Treatment of Ear, Nose and Throat Tumors. Lannois, A. Sargnon and Moutet.—p. 638.
Normal and Pathologic Cytology of Submaxillary and Parotid Glands. De la Prade and Loiret.—p. 646.
*Gasserectomy for Neuralgia. J. Bourguet.—p. 648.
Hemostatic Apparatus of Uterus. H. Keiffer.—p. 650.

Cesarean Section.—Guéniot recalls his compilation in 1870 of the cases of cesarean section to date. He was able to find records of only 6 authentic successful cases during the eighteenth century, and not one successful case to that date in the nineteenth century among the 40 cases that had been published. Only one of the patients survived to the eighteenth day and then succumbed to tetanus. Bar has recently reported a series of 97 cases without a single mishap. Guéniot has not been so fortunate, as 4 of the 11 women died in his cases, but some of them were emergency operations. He lauds the advantages of planned cesarean section just before term, preparing the patient as for any laparotomy. He warns that we must not let labor surprise us, and advises to incise the fundus rather high, and drain into the vagina with a large stiff tube for five or six days, rinsing out the uterus at need. He warns further that with extraperitoneal methods of cesarean section if there is preexisting infection, or infection develops later, it is just as redoubtable here as if the peritoneum were infected, while the technic is more complicated. Hence he advises against any modification of the old and tried high technic.

Radium Treatment of Tumors in Ear, Nose and Throat.—Lannois and his co-workers compare the outcome in their 43 cases with others' experiences. They realized with the radium a clinical cure in 6 of 16 cases of malignant tumor of the tonsil; in nearly all of 6 cases of cancer of the nose; in 4 of the nasopharynx, and in 2 of 3 cases of ear cancer. The sarcoma cases were the ones most favorably influenced. Epitheliomas proved more persistent, and as cancer of the larynx is usually of this type, they have only 3 successful cases to report in their 14 cases in this group. The soft, ulcerating epitheliomas are the most refractory. Epitheliomas of the ectodermic type with *globe corné* are scarcely amenable to radium treatment; the results are often bad. Their method is to use as large a dose as possible, from 30 to 120 mg. of the radium bromid, and they left the tube in place at least twenty-four hours, sometimes thirty-six or even forty-eight hours. They aim to strike as hard as possible. If a second application is necessary, they postpone it as long as possible on account of danger of burns. One boy of 12 with a fibrosarcoma of the nasopharynx was given three exposures in two and a half months. Two months after the last application, after all traces of the tumor had disappeared, perforation of the hard palate occurred. This was the only grave complication in their experience, but in three cases of epithelioma of the tonsil the uvula dropped off. The radium burns are generally insignificant although they may sometimes entail gangrene, especially in the larynx, so that they found it best to reduce the dose for the larynx. They comment on the great advantage of using emanations, needles or intubation tubes coated with the emanations.

Gasserectomy for Trigeminal Neuralgia.—Bourguet has had patients whose trigeminal neuralgia returned after local injection of alcohol and the intense pain persisted in spite of systematic alcohol treatment. Gasserectomy was the last resource and cured them once for all. He advises access through a curved incision in the temporal bone. This exposes the maxillary nerves and these, like Ariadne's thread, lead directly to the gasserian ganglion. It is not necessary to resect the zygoma, etc.; he merely detaches the dura mater and severs the middle meningeal. When the gasserian ganglion is reached, he cuts the fibrous connections between the gasserian ganglion and the dura mater. Unless this is done, some of the ganglion is liable to be left. Neuroparalytic keratitis developed afterwards, but this is liable after any operation of the kind, even after Frazier's more complicated technic, and the keratitis yields promptly to treatment.

Bulletins de la Société Médicale des Hôpitaux, Paris

April 4, 1919, **43**. No. 13

*Lethargic Encephalitis. V. Audibert.—p. 296. A. Netter.—p. 300. P. Lereboullet and J. Hutinel.—p. 302.
*Hypothermic Influenzal Pneumonia. J. du Castel and M. Dufour. —p. 304.
*Endocarditis in Influenza. J. du Castel and M. Dufour.—p. 308.
*Valvular Disease and Dragging Apex Beat. J. Jomier.—p. 311.
*Case of Rabies. Lesieur, Lhermitte and P. Jacquet.—p. 313.
Serotherapy of Plague in Small Epidemic. Monziols and Broca.—p. 320.
Cinnamic Acid Derivative in Experimental Tuberculosis. J. Jacobson. p. 322.
Syphilis as a Factor in Buccal Leukoplakia. G. Railliet.—p. 325.
Pulmonary Tuberculosis in Native Workmen from Asia and Africa. G. Delamare.—p. 329.
*Anthrax Bacillus Meningitis. Delater and Calmels.—p. 332.
Types of Prevalent Meningococci. Netter, Mozer and Salanier.—p. 334.

Lethargic Encephalitis.—Audibert's patient developed typical lethargic encephalitis at Marseilles, and the disease has been encountered in Algiers, Belgium and at Athens. Netter refers also to Morquio's three cases in children at Montevideo. One youth at Athens who finally recovered was left totally blind.

Hypothermic Influenzal Pneumonia.—The temperature kept between 35.6 and 36 C. (96.1 and 96.8 F.) and one of the men died.

Endocarditis During Influenza.—Du Castel and Dufour relate that after a few days of typical influenza, pneumonia developed, with latent endocarditis and a final phase of embolism, with death in about two weeks from the first symptoms.

Dragging Apex Beat.—Jomier noticed that the apex beat seemed to be protracted in 43 of the men examined, and in 30 in this group there were signs of valvular disease. In only 4 of the total 43 was the heart apparently normal. A dragging apex beat should always suggest valvular disease, especially when pronounced. The mitral valve was pathologic in 24 of the 30 valvular cases, the aortic valve in 6.

Rabies.—The girl of 14 whose case is described in detail by Lesieur, Lhermitte and Jacquet had the bulbar form of rabies, with especially pronounced distress, actual anguish. The latter preceded by several days the organic manifestations. They regard this sensation of anguish as a characteristic bulbar phenomenon. In some of the paroxysms of anguish it seemed to comprise the whole disease, as if it were to rabies what the muscular spasm is to tetanus. In this case the rabies developed nearly three months after the child had been bitten. She had been given systematic antirabies treatment, commencing fifty-three hours after the bite of the rabid dog. Netter reported a similar case in which the agitation, distress and periods of delirium had preceded by eleven days all the other symptoms of rabies. The boy of 11 had been bitten in the cheek two months before by a small dog with which he was playing and which later disappeared.

Anthrax Meningitis.—The anthrax had not been diagnosed during life as the pustule had not had time to develop its characteristic form. It was on the left cheek and the edema around was ascribed to phlebitis of the jugular vein. The young man, an American soldier, died the second day with symptoms of fulminating meningitis, and anthrax bacilli were found in the cerebrospinal fluid.

Paris Médical

May 10, 1919, **9**, No. 19

*Radium Treatment. C. Regaud.—p. 373.
*Chronic Pseudo-Appendicitis. R. Grégoire.—p. 379.
*Skin Complications of Exophthalmic Goiter. J. du Castel.—p. 382.
Case of Superficial Leishmaniosis in Albania. G. Heuyer and L. Cornet.—p. 385.

Treatment with Condensed Radium Emanations.—Regaud is director of the biology laboratory in the Radium Institute, and he here outlines what is known in regard to radium treatment and expatiates on the great clinical importance of tubes of condensed emanations and their numerous advantages.

Chronic Pseudo-Appendicitis.—Grégoire analyzes the lesions in or around the ileum, cecum and colon which may simulate chronic appendicitis. In some of the cases he describes the appendix had been removed and nephropexy done but the symptoms still persisted. Radioscopy usually shows the right colon much dilated, and that it is bound down and more or less kinked and obstructed. The fibrous bands responsible for this may be of inflammatory origin or congenital, and after freeing the bowel from its hampered condition the pains and constipation subside as a rule, but not invariably. Certain points are still obscure in these pseudo-appendicitis cases, as not every subject is absolutely cured by this surgery of the colon.

Skin Complications of Exophthalmic Goiter.—Du Castel passes in review the vasomotor, trophic, toxic and microbian complications which may develop with latent or manifest exophthalmic goiter. Certain eruptions, pyodermatitis or eczema may display a chronic or recurring tendency which finally is explained by development later of symptoms of exophthalmic goiter. The part played by the soil in these cases should be better appreciated.

May 17, 1919, **9**, No. 20

*Diagnosis of Amebiasis. C. Mathis.—p. 389.
*Peritoneal Reaction in Secondary Malaria. F. Trémolières and G. Leclerc.—p. 398.
Oscillations in the Blood Pressure. F. Lévy.—p. 399.

The Ameba in the Stools.—Mathis discusses the technic for the search for entamoebae and their differentiation from other parasites. Five illustrations show the parasites with which it is most liable to be confused.

Peritoneal Reaction in Malaria.—Trémolières and Leclerc describe the acute peritoneal reaction in the course of secondary malaria. In one case described the man of 36 developed symptoms simulating peritonitis from perforation of a viscus. The reaction was most pronounced in the liver region, and the liver was large and painful. There was nothing except the secondary malaria to explain this perihepatic reaction and warn against operative measures.

Presse Médicale, Paris

May 8, 1919, **27**, No. 26

*Gastric Cancer. H. Hartmann.—p. 245.
*Sign of Organic Radial Paralysis. J. Boisseau.—p. 247.
*Pathogenesis of Influenza. A. Orticoni, Barbié and Augé.—p. 247.
*Early Treatment of Syphilis. M. Pinard.—p. 249.
*Cure of Leg Ulcers and Edema. V. Audibert and Fouquet.—p. 250.

Cancer of the Stomach.—In his general review of this subject, Hartmann cites statistics showing the constantly increasing proportion of permanent cures after operations for gastric cancer. He has been able to trace 3 of his own patients cured for five years, 3 for six, 2 for seven and 1 for thirteen years, although he has lost track of the majority of his cases.

Differentiation of Organic Radial Paralysis.—Boisseau's illustrations show a characteristic inability to spread the fingers apart on a plane surface when there is organic radial paralysis. The first phalanx of the fingers curves and the thumb twists in abduction. With hysteric radial paralysis, either the patient is unable to make any spreading movement or it duplicates the action of the sound side.

Pathogenesis of Influenza.—Orticoni and his co-workers regard it as significant that there was an extensive epizootic among horses at the time of the epidemic of influenza last year. They isolated from the blood of some of the horses a bacillus which seemed to be identical with the bacillus they had isolated from the blood of some of their influenza patients, namely, an aerobic nonmotile coccobacillus, with long and short forms, and not growing on bouillon and gelose. They recall the severe epizootic in horses in 1889, and say that the present epidemic resembles it, only that the pulmonary complications were more severe in the epidemic of last year. In some of the neighboring villages all of the horses were coughing at the time the influenza was affecting the populace.

Abortive Treatment of Syphilis.—Pinard reports that in his experience as chief of the Centre dermato-syphiligraphique at Versailles, early treatment with mercury or neoarsphenamin did not always ward off the development of lesions in the skin and mucosa. They are infinitely rare, however, after arsphenamin treatment. Meningeal lesions are liable to develop after any treatment when it is not thorough enough. He warns against danger when mercury and an active arsenical treatment are given together. There does not seem to be any danger with the technic he advises, namely, six injections of a total of 2.30 gm. arsphenamin in not quite a month, beginning with 0.10 gm.; after three days, 0.20; after four days, 0.30, and then every seventh day, 0.50 or 0.60 gm. Absolute eradication of the disease seems to be possible, judging from some of his cases of ten years' standing, but this is based on empiric findings alone.

Treatment of Leg Ulcers.—Audibert and Fouquet comment on the ease and rapidity with which edema and chronic ulceration on the legs can be cured by a gently compressing medicated bandage. They wind the leg from the root of the toes upward with a stout roller bandage dipped in the creamy mass formed by mixing 10 gm. each of gelatin, zinc oxid and starch with 40 gm. each of glycerin and water and adding 100 gm. potassium silicate. The strips of stout gauze impregnated with this are softened in hot water when ready to use. The dressing is renewed every four days, and the patient is encouraged to walk and use the leg freely, as this breaks up the vicious circle from the stasis and defective nutrition of the parts from disuse of the limb. An illustration shows a ten year ulcer on the leg. It is shown again, completely healed, after six applications of the stiff dressing, in the course of thirty-one days. Healing is usually complete in from two to eight weeks, and the method has never failed yet. The use of the leg keeps up a continual massage of the veins and tissues, and expels the toxic serous fluids collected in them. Walking is therefore an indispensable element in the treatment. The ulcer heals in its own pus, the patient's attention is diverted from his ulcer by the return to his occupation or other work rendered possible by the free use of his legs, and his spirits go up when an early cure is promised him, which can be safely done. Immobilization is directly contraindicated.

May 12, 1919, **27**, No. 27

*The Masters of Physiology. C. Richet.—p. 257.
*Surgery to Remove Wrinkles. R. Passot.—p. 258.

The Masters of Physiology.—Richet's address on the pioneer research of Descartes and Lavoisier was delivered by request to the American medical students now studying at the Paris Faculté de Médecine.

Surgery to Correct Wrinkles.—Passot's illustrations show how it is possible to smooth out wrinkles by cutting out an ellipse of skin close to the edge of the hair. As the lips of the ellipse are sutured together, the slack in the skin causing the wrinkles is taken up, and the skin lies smooth. The wrinkles at the corner of the eye require two small ellipses, one close to the hair above, the other just below and in front of the lobule of the ear. Double chin can be corrected in the same way with a long "cravat" resection of skin in the neck below. The adipose tissue is removed, down to the aponeurosis, in resecting the ellipses. The ultimate outcome in some cases operated on by Pozzi, Martel and Morestin some years ago has been gratifying, and Passot has now a record of fourteen operations for this esthetic purpose. The effect is often rejuvenating to the spirit as well as to the outward appearance. Each case has to be studied by itself, taking up folds in the skin to see where traction is most effectual. When the best fold for the purpose is located, he holds it by gentle pressure from several forceps or clothespins, and marks around the base with a skin pencil, marking also with a compass the exact points for coaptation in suturing. The geometrical figure thus drawn on the skin is usually an ellipse 3 or 4 cm. long by 1.5 or 3 cm. wide, but it may be ovoid, the small end the upper one. The sutures are subjected to strain from laughing, yawning or even chewing, and to protect them he fastens a transparent shield with collodion in such a way that the traction comes on the shield more than on the suture. The subjacent skin is pushed up and the collodion applied low down so that the edge of the shield is fastened to the skin some little distance below the actual suture. The resection of an ellipse, in front of the lobule of the ear tends to smooth out wrinkles all over that side of the face, and is usually necessary whatever other ellipses may be resected. When the ellipse is cut too high, the outer angle of the eye is liable to be drawn out of place. The desire to conceal the scar in the hair has led to this disfigurement in cases he has seen operated on by others. The whole success depends on the care used in taking up the most effectual fold. If in time the skin sags into wrinkles anew, the correction can be repeated. He adds that the war has brought to the fore surgery of the face, and esthetic surgery should take the place it deserves.

May 15, 1919, **27**, No. 28

*Surgery of the Knee. J. L. Roux-Berger.—p. 265.
*The Cupping Glass Test in Eruptive Disease. D'Oelsnitz.—p. 268.
Reeducation of Vision in Treatment of Strabismus. A. Cantonnet.—p. 269.

Surgery of the Knee.—Roux-Berger refers to traumatic lesions of the knee, giving illustrations of the principal types and the special treatment each requires. In one of the cases described only opening up the joint wide disclosed the partial fracture of the cartilage and a loose scrap of cartilage. In less than four months after the arthrotomy, the young man was able to play football.

The Cupping Glass Test in Eruptive Diseases.—D'Oelsnitz uses a vacuum glass with rubber bulb as a form of revulsion which aids in the differential diagnosis of eruptive diseases. It is particularly instructive in measles, especially where troops are congregated. The measles or scarlatinal eruption is brought out plain by it in suspicious incipient cases. Even premature desquamation may be brought on. This test always gave negative findings with eruptions of alimentary origin, and, in his experience, always in rubeola. This test also reveals a hemorrhagic tendency before it has become apparent in other ways.

Progrès Médical, Paris

April 5, 1919, **34**, No. 14

*Arrhythmia of the Intestine: Enteroneuritis. M. Loeper.—p. 129.
*Chronic Ileus. M. Barbier.—p. 131.
Rudiments of Practical Dermatology. L. Bory.—p. 132.

April 12, 1919, **34**, No. 15

Cancerous Enteroneuritis. M. Loeper.—p. 139.
Rupture of Cavity in Lung: Emphysema. Chifoliau.—p. 140.
Influenza and its Treatment. J. Chalier.—p. 142.

Enteroneuritis.—A practically identical article by Loeper was summarized on page 1795.

Occlusion of the Intestine for Eleven Years.—Barbier's patient was a woman of 38 and for eleven years the feces had merely piled up in the colon, the mass of the "Fecaloma" filling almost the entire abdomen. And yet during the last year she had passed through an apparently normal pregnancy. The only mishap during the pregnancy was a menace of peritonitis three weeks before delivery. It was averted, however, by application of ice. Colic, vomiting and diarrhea ushered in the disturbances at the age of 23 and paroxysms of pain occurred regularly every ten or fifteen days, but the proposed operation was constantly refused, until the attacks became unbearable. The colon was sutured to the laparotomy incision and every morning for several weeks some of its contents were scooped out. By the end of the third week the colon could be drawn out and the segment with the stenosis was resected. There was no ulceration above but the wall of the intestine had grown very thick.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 3, 1919, **49**, No. 18

Principles of Disinfection. W. Silberschmidt.—p. 593.
*Medical Experiences in Asiatic Turkey. A. Vischer.—p. 601.
*Film Treatment of Wounds. J. de S. Palma.—p. 619.

Medical Impressions in Asiatic Turkey.—Vischer served for nine years as chief of the German Oriental Mission Hospital at Urfa in northern Mesopotamia. From 3,811 to 5,991 patients were cared for each year. Tuberculosis was prevalent and the pulmonary form seemed to run an exceptionally rapid course. Goiter was unknown at Urfa but he saw several cases at Diarbekir, about 150 km. to the northeast, on the Tigris. Appendicitis was also extremely rare, but hernia and bladder stone operations were comparatively numerous. The infant mortality was 46.6 per cent. among the children of 317 women investigated (1,863 infants). Typhus and scarlet fever were never seen, and only one case of diphtheria. Every one without exception seems to have typhoid, sooner or later. Venereal diseases are common but the nervous system seems to escape. No instance of tabes was encountered. In 1913 there was a severe epidemic of acute poliomyelitis.

Film Treatment of Wounds.—Palmas does not refer to paraffin films but to a tannin-gelatin-borax preparation which has been styled a "wound cement." He has been experimenting with various chemicals striving to promote local leukocytosis and phagocytosis while preserving the cement film action. Turpentine and calcium chlorid are among the chemicals which display this action even in minute amounts.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 17, 1919, **40**, No. 31

Pneumothorax Complicating Influenza. G. Massaro.—p. 282.
*Treatment of Chronic Empyema. G. Onano.—p. 284.

Chronic Empyema.—Onano makes an incision, close to the sternum, over the rib and only as long as the rib is wide. The rib is then sawed with a Gigli saw. This is repeated with several of the ribs, leaving a space of intact skin between them. At the back, a paravertebral incision permits partial resection of the scapula. Then a compressing bandage is applied, after providing for drainage above and below, and the whole side of the chest sinks in enough to break up the vicious circle and start the healing process. The results have been most encouraging.

April 20, 1919, **40**, No. 32

*Wide Variability of the Same Infections in Different Individuals. U. Baccarani.—p. 289.

Variability of Same Infection in Different Persons.—Baccarani warns that in the prevailing zeal for bacteriology we overlook the importance of the biochemical condition of the subject and the importance of the ambient as decisive factors in the disease. These latter determine the orientation and the clinical form of the disease and impress it with the individual stamp.

Policlinico, Rome

May 11, 1919, **26**, No. 19

*The Clinical Value of Occult Blood in the Stools. D. Maselli.—p. 577.
Silver Nitrate in Treatment of Mustard Gas Lesions. G. Amantea.—p. 590.
The Hemorrhagic Diathesis. Lino Urizio.—p. 592.

Occult Blood in the Stools.—Maselli remarks that to date we have no absolutely specific chemical test for blood in the urine. All the technics in vogue give a positive response with certain other substances besides blood. Microscopic examination of the stools will sometimes reveal substances to which the positive response might be credited. It is not safe to draw conclusions from positive findings unless different technics and repetitions of the tests give concordant responses. A negative response with the benzidin test, when strictly applied and to different parts of the stool, may be regarded as decisive as to the absence of blood from that particular stool.

Riforma Medica, Naples

April 26, 1919, **35**, No. 17

*Meningeal Reaction in Paratyphoid. E. Maragliano.—p. 334.
*Desiccated Antigens for Serodiagnosis. Micheli and Satta.—p. 337.
*Fourth Centenary of Leonardo da Vinci. A. Anile.—p. 339.
Normal and Deformed Feet. E. Aievoli.—p. 343.

Meningeal Reaction in Typhoid and Paratyphoid.—Maragliano warns to be very cautious in pronouncing the word meningitis in the course of typhoid and paratyphoid. A simple and comparatively harmless meningism may be responsible for symptoms which deceptively simulate true meningitis.

Desiccated Antigens for Serodiagnosis.—Micheli states that three years of experience with desiccated antigens has confirmed their reliability for diagnostic purposes. The bacteria are dried in a vacuum at room temperature, and a suspension of the dry cake thus obtained is made when ready for use. The biologic and biochemical properties of the antigens do not seem to be modified by this procedure. He has thus prepared antigens for the meningococcus, streptococcus and a long list of other infections, including dysentery and typhoid. These desiccated antigens keep indefinitely. The bacteria seem to maintain a latent vitality; it can be aroused by making an emulsion with bouillon and incubating for thirty-six or forty-eight hours. Typhoid and paratyphoid bacilli were thus roused to life anew after an interval of two years, and dysentery bacilli after five or six months.

The da Vinci Quadricentenary.—Leonardo da Vinci died May 2, 1519, and this quadricentenary has brought a new revision and appreciation of his scientific work. He is said to have written 120 books on anatomy alone, commencing at the age of 37. Most of these have been lost, but enough remains to show his indefatigable zeal in reproducing in drawings what he saw in the thirty cadavers he was able to secure at different times until the authorities definitely excluded him from the hospitals at the age of 61. Anile declares that the drawings are so perfect that even after four centuries of research on anatomy and physiology there is nothing to add to them, and in certain points they actually suggest whether our present conceptions may not be erroneous. His drawings are the more remarkable when we realize that they were done practically clandestinely, with poor illumination and no means of preserving the cadavers from rapid decomposition. In preparation for celebration of this anniversary in Italy an effort has been made to collect his scattered works, with photographic reproductions of others in the various libraries of Europe.

May 3, 1919, **35**, No. 18

Roentgen Localization of Foreign Bodies. G. Piccinino.—p. 354.
*Sterilization during Cesarean Section. S. Delle Chiaie.—p. 355.
Function of the Deciduous Teeth. C. D'Alise.—p. 360.

Sterilization During Cesarean Section.—Delle Chiaie decided that it was necessary to prevent further pregnancies in five of the fifteen cases in which he delivered the women by cesarean section. He accomplished the sterilization at the time of the cesarean section by cutting the tube at the cornu of the uterus and transplanting this end of the tube into a buttonhole made for it in the uterus wall, with care not to injure the round ligament or perforate the wall. The stump of the tube was held in place in this buttonhole with a few silk stitches, and the same procedure was repeated on the other side. The operation is thus an actual salpingo-uterus anastomosis, like Watkins' technic, only Delle Chiaie does not resect the tube as Watkins does. Mere ligation of the tube does not guarantee against conception later, as he found in one of his cases, and as others have reported. At a later cesarean section he saw that the catgut used for the two ligatures had evidently been absorbed too soon. The women treated with the salpingo-utero-anastomosis have shown no signs of conception during the two and three years since to date.

Brazil-Medico, Rio de Janeiro

April 19, 1919, **33**, No. 16

Anthrax Pustule on Wrist. F. Terra and E. Gomes.—p. 121.
Strongylus in the Zebú. Pereira Filho and C. F. Pinto.—p. 124.

April 26, 1919, **33**, No. 17

*Unilateral Parotitis and Panadenitis. D. Bastos.—p. 129.

Unilateral Parotitis and Panadenitis.—Bastos' patient was a man of 43 and the extensive phlegmonous affection of the right side required several incisions and treatment both for malaria and for syphilis before it yielded. The inability to swallow compelled surgical intervention after three days of the high fever and tumefaction.

Crónica Médica, Lima

April, 1919, **36**, No. 670

Spontaneous Tuberculous Pneumothorax. E. Odriozola.—p. 115.
*Characteristics of Pelvis in Peruvian Women. J. Romero.—p. 118.
*Tests for Blood in Urine. M. A. Velasquez.—p. 123.
History of Typhus in Peru. J. M. Chiriboga.—p. 127.
Pathologic Anatomy of Lymph Glands. O. Hercelles.—p. 133. Cont'n.
*Amebiasis of the Lung. L. B. Sánchez.—p. 138.

The Pelvis in Peruvian Women.—Romero states that the measurements of 1,145 women showed an average of 12.66 per cent. with abnormal pelvis although some in this group had apparently normal pregnancies and deliveries. The conjugata vera never measured less than 7.5 cm. He lists the various types of abnormal pelvis as encountered in the last four years.

Tests for Blood in the Urine.—Velasquez describes and compares different technics, expatiating on the simplicity and reliability of the Thevenon and Rolland method. He has applied it on an extensive scale, and found it extremely instructive for determination of blood in all the body fluids. Three reagents are required: (1) 2.50 gm. dimethylaminoantipyrina (pyramidon) in 50 c.c. of 90 per cent. alcohol; (2) 2 c.c. of glacial acetic acid in 2 c.c. distilled water, and (3) hydrogen dioxid (12 volumes). To 3 c.c. of the unfiltered urine are added 3 c.c. of solution 1 and 6 drops of the acetic acid solution, and the tube is agitated. Then, on addition of 3 drops of the hydrogen dioxid, in less than fifteen minutes the tint veers to a bright violet which only slowly disappears.

Pulmonary Amebiasis.—Sánchez diagnosed congestion of the base of the left lung from the hemoptysis and other symptoms presented by the wood-cutter, 48 years old. Under repose the fever subsided, but the blood streaked expectoration and the stethoscopic findings persisted unmodified or more pronounced. Cysts of the *Entameba histolytica* were found in the sputum repeatedly, even after a course of emetin by the vein, but the general condition improved notably under this treatment. Sánchez thinks there can be no doubt that the amebas were directly responsible for the hemoptysis.

Medicina Ibera, Madrid

April 12, 1919, **7**, No. 75

Psychoneurosis from Trauma in Father. E. F. Sanz.—p. 17.
Radium Treatment of Tumors in Larynx. A. Ramos.—p. 20.
Pastes in Dermatology. Sicilia.—p. 21.

April 19, 1919, **7**, No. 76

*Artificial Joint for Ankylosis. E. F. Lozano.—p. 37.
Prophylaxis of Influenzal Pneumonia. S. L. Burton (Albuquerque).—p. 40.
Malarial Splenomegaly. F. Alberico.—p. 41.
Methylene Blue in Influenza. J. M. Bausá.—p. 45.

Artificial Joint to Correct Ankylosis.—Lozano has experimented on dogs with complete success interposing an artificial joint after resection of the natural joint. He makes it on the principle of a bone and socket joint. A solid sphere like the head of the femur, 10 mm. in diameter, with a stout pedicle, is mounted on a small plate with four branching arms. On a second similar plate is mounted a corresponding hollow sphere in which the first sphere fits smoothly but can be moved freely in every direction. The bones were resected in the ankle region and this artificial joint was implanted, the four arms on each half being bent back over the stump, and held in place with wire passing through tunnels hollowed out for the wire in each of the arms of the plates. The dog still limps a little, but in running and jumping the limp is scarcely perceptible, and the region of the new joint is not tender on pressure. The artificial joint is made of gold and platinum. The soft parts are scrupulously respected, and the interposed artificial joint answers its purpose perfectly. It fits on the horizontal bone stumps without the necessity for boring into the bone. The nature of the ankylosis generally requires resection such as fits the bones perfectly for this artificial joint. Several illustrations show the mechanical detail, and roentgenograms are given of the dog's leg.

Prensa Médica Argentina, Buenos Aires

April 20, 1919, **5**, No. 32

*Technic for Amputation of the Leg. A. A. Alsina.—p. 313.
*Serodiagnosis of Typhus. R. Kraus.—p. 317.
*Lean Diabetes. P. M. Barlaro.—p. 319.

Amputation of the Leg.—Alsina gives twenty illustrations to show the preferable technic for amputation at different heights. He advises to saw the fibula an inch higher than the tibia, and to provide a large posterior or antero-exterior flap.

Serodiagnosis of Typhus.—Kraus describes the application of the agglutination test with a strain of proteus during the recent public health expedition to foci of typhus in two remote provinces. An alcoholic preparation of the proteus was used, and he comments on the advantages of this durable preparation. Two agar slants of the proteus X 19 were emulsified with 2 c.c. of saline, and to this was added four times the volume of absolute alcohol and it was set aside for an hour, then centrifuged, the alcohol decanted, the sediment emulsified in an amount of saline equivalent to the alcohol, and 0.5 per cent. phenol was added. Control tests with other diseases were constantly negative, and only the tests with proteus obtained from Paris and Vienna were positive.

Lean Diabetes.—Barlaro illustrates the microscopic findings in a woman of 32 who had been in the hospital for a year with progressive lean diabetes. The pancreas seemed normal, except for the conspicuous absence of islands of Langerhans, and the ovaries also seemed normal except for absence of follicles. No other abnormalities in the endocrine system or elsewhere could be detected.

Revista Cubana de Obstetricia y Ginecología, Havana

February, 1919, **1**, No. 2

Case of Dorsal Trunk Presentation. J. Ramírez-Olivella.—p. 70.
Seventy Laparotomies. E. R. de Aragón.—p. 74.
Incarcerated Fibromas of Lower Uterus. M. C. Latatu.—p. 78.
Obstetrics from Social Standpoint. L. Huguet.—p. 84.

Revista Española de Medicina y Cirugía, Barcelona

April, 1919, **2**, No. 10

*Hydatid Cysts Opening into Biliary Passages. J. Blanc Fortacín.—p. 181.
*The Medulla Oblongata. J. Vilató.—p. 186. Cont'n.
Acute Pneumonia. A. Arteaga.—p. 192.

Hydatid Cyst Opening Into Biliary Passages.—Blanc Fortacín emphasizes that the clinical picture in these cases suggests infectious cholangitis with gallstones in the common bile duct only that the rapid course to an extremely intense maximum of the symptoms is not characteristic of gallstone mischief. Treatment must aim to clear out the bile duct as well as to evacuate the cyst. Attempts to drain the cyst into the gallbladder have proved disastrous, and this should be avoided. In his first case, the operation for evacuation of an abscess in the liver gave no relief although much pus and bile had been removed. Then an incision close to the costal arch released quantities of pus and bile, but still no opening could be found in the liver. To reach the upper portion of the much enlarged liver he resected part of the costal cartilage, and here found the large suppurating hydatid cyst. It had perforated into the bile duct and this in turn had ruptured, with a consequent circumscribed peritonitis.

The Medulla Oblongata.—Vilató recapitulates in detail the normal and pathologic anatomy and physiology of the medulla according to the present state of our knowledge.

Revista Médica de Bogotá

January-March, 1919, **37**, No. 438-440

*Persistence of the Gonococcus in the Urethra. V. Ribón.—p. 6.
*Fragility of Blood Corpuscles in Malaria. L. Netter.—p. 52.
*Relapsing Fever in Colombia. E. Robledo.—p. 65.
Criminology in Colombia. A. R. Blanco and A. C. Merlano.—p. 69.

Persistence of the Gonococcus in the Urethra.—Ribón warns of the danger of assuming that gonorrhea has been cured when the symptoms have subsided, as the gonococci may still lurk in the urethral glands and crevices. He describes how this can be detected and remedied by means of endoscopy, cauterization, copious permanganate irrigation, and massage with a stout catheter. He says that his remarks apply to both the male and female urethra.

Resistance of the Blood Corpuscles in Malaria.—Netter relates that in thirty-seven malaria patients the blood corpuscles displayed greater resisting powers during the malarial attacks than at other times. Quinin reenforces this augmented resistance and prolongs it temporarily. He queries whether it might not be possible to sustain and prolong this by other measures to combat hemolysis.

Spirochete Fever and Neo-Arsphenamin.—Robledo refers to relapsing fever as observed in Colombia, and emphasizes the prompt cure under neo-arsphenamin. He calls the parasite causing the disease the *Spirochaeta franci* as Prof. R. Franco was the first to diagnose the disease and identify the parasite in Colombia and also the arthropod, *Ornithodorus chinche,* which is the usual transmitter of the disease. In one of the two cases reported, the patient had recently returned from New York. Rapid recovery followed intravenous injection of 0.3 gm. of neo-arsphenamin, part of which was lost, so the dose was repeated the same afternoon. In a second case a single injection of 0.45 gm. sufficed. He uses only 1 or 2 c.c. of water for the vehicle, and says that he has always had *magníficos resultados* with this technic in a wide experience.

Revista Médica Cubana, Havana

January, 1919, **30**, No. 1

Vital Statistics for Havana, 1918. J. Le-Roy y Cassá.—p. 6.
Arsphenamin Treatment of Syphilis. N. G. de Rosas.—p. 15.
Film Treatment of Burns. L. Espin.—p. 23.

Semana Médica, Buenos Aires

April 10, 1919, **26**. No. 15

Improved Trocar-Cannula for Tracheotomy. R. Cabrera.—p. 355.
Proposed Requirements for Admission to Medical Course. U. Fernández.—p. 361.
*Bismuth Poisoning. R. F. Vaccarezza.—p. 366.
The Spirit of the Argentine Universities. W. Tello.—p. 371.
Teaching of Hygiene in Grade Schools. J. F. Montellano.—p. 374.

Bismuth Poisoning.—Vaccarezza published in 1916 two cases of bismuth poisoning and he now adds several more to the list. The bismuth suspension had been taken for roentgen examination. One man of 55 died after ingestion of 100 gm. of bismuth in the course of twenty-four hours. It had been fractioned in four doses, and death occurred three hours after the first symptoms; they developed eight hours after the roentgen examination. An infant a few months old, with megacolon, died in the same way after the bismuth meal. He cites four similar fatal cases from the literature; two were in infants. The toxic disturbances may occur when the bismuth is given either by the mouth or the rectum, but in most of the cases the bismuth had been partly arrested at some point in the digestive tract. The bismuth then, under the action of the bacterial flora, yields nitrites and their rapid absorption entails the cyanosis, the hemoglobinemia and the collapse. The poisoning from external use and tardy internal poisoning are the result of the transformation into a soluble albuminate, the absorption of which is followed by mouth and kidney lesions. Evacuation of the poison, venesection, heart stimulants and oxygen by inhalation and subcutaneous injection are the main reliance in treatment of the acute form of poisoning. He declares that bismuth subnitrate should never be used for any purpose in the digestive tract.

Siglo Médico, Madrid

March 29, 1919, **66**, No. 3407

*Jacksonian Epilepsy Following Influenza. E. F. Sanz.—p. 249.
Influenza in Toledo District. C. Martín González.—p. 252.
Introduction to Study of Operative Surgery. J. G. Capdevila.—p. 256. Cont'n.

Postinfluenzal Jacksonian Epilepsy.—Sanz has already published cases of postinfluenzal aphasia, hemianopsia, and other nervous affections showing a focal lesion, evidently the work of the influenza poison. The frequency of these brain and meningeal complications and sequels seems to link influenza with the disease called lethargic encephalitis. In a case described a young man developed attacks of paresthesia in the left hand after influenza, with a tendency to abrupt contracture or tension of the muscles. At present this is only subjective, after a period of pronounced motor spasms. It seems to be a partial sensory epilepsy. Sanz has also encountered cases of hysteric monoplegia consecutive to influenza, and cites one published recently by Vivanco.

April 5, 1919, **66**, No. 3408

The Work of the Heart and the Eight Hour Working Day. J. G. Ocaña.—p. 269.
The Forensic Necropsy. Jesús Canseco.—p. 270.
*Influenza and Typhus at Berlin. A. Ferratges.—p. 272.
Pretuberculosis. B. Gil y Ortega.—p. 275. Conc'n.

Influenza and Typhus in Germany.—Ferratges is the military delegate from Spain at the embassy at Berlin and this is his official report on influenza and typhus there. It is dated March 10, 1919, and states that the experience in Germany has confirmed the experiences elsewhere in this and previous epidemics of influenza in regard to the inability to check the spread of the disease on account of the impossibility of isolating the mild cases, the enormous diffusibility of the germ, and the appearance of thousands of cases at once. No attempt was made to close schools or theaters, etc., and declaration was not compulsory. The strict measures in this line that had been taken in some cantons of Switzerland had not seemed to check the spread of the epidemic, and Germany therefore refrained from anything of the kind. The bacteriologic findings differed widely and also the treatment. Köhler reported that he had found hot baths very useful, at 40 or 42 C. (104-107 F.). No mishaps were ever noted although the pulse usually rose and slight transient palpitations sometimes followed. Ferratges reported further that although there are twenty-four "lousoleums" in Berlin, to delouse the soldiers, yet typhus had got quite a foothold. In the two last two weeks in January there were 144 cases with 11 deaths and 502 cases with 28 deaths, but in the last week there had been only 18 cases reported, with 3 deaths.

Gann, Tokyo

March, 1919, **13**, No. 1

*Inoculation of Fowl Embryos with Human Cancer Tissue. K. Kiyono, Y. Sueyasu and H. Tsuji.—p. 1.
Primary Cancer of the Appendix. K. Suzuki.—p. 4.

Inoculation of Fowl Embryos with Human Cancer.—Kiyono, Sueyasu and Tsuji give an English summary of their long and illustrated report in Japanese of their inoculation of chicken, duck and geese embryos with human cancer cells. The cells from 64 cancer cases developed tumors in 12 of the embryos but in 3 of the cases the growth was not very pronounced. The 21 sarcoma implants gave 5 positive and 2 weakly positive responses; the 33 carcinoma implants 2 positive and one weakly positive; the 4 fibroma implants gave one positive result, and the one perithelioma elicited a weakly positive result. The outcome, the location of the human tumors and other details are shown in a table. When the tumor implants took root and grew, this occurred very slowly. The character of the tumor cells changed very little in some of the cases and in the others not at all.

Mededeelingen v. d. Burg. Geneesk. Dienst, Batavia

1919, No. 4. Parallel Dutch-English Edition

Pathologic Anatomy of Tuberculosis in the Dutch Indies. A. E. Sitsen.—p. 1.
*Folklore about Tuberculosis in the Netherlands Indies. C. D. De Langen.—p. 25.

Folklore about Tuberculosis in the Netherlands Indies.—De Langen sent a questionnaire to native physicians and health officers throughout the islands and to other persons whose occupation brings them in touch with sick natives. The replies emphasize that pulmonary tuberculosis is not encountered in children. It is supposed to be hereditary, and much interesting folklore is connected with it. A number of native remedies are described, and de Langen comments on the fact that so many of the formulas contain lime. In the mosques the water used to rinse the mouth for the prescribed ablutions is spit back into the basin and used over and over again in this way on Fridays when hundreds and hundreds visit the mosques.

Hospitalstidende, Copenhagen

April 23, 1919, **62**, No. 17

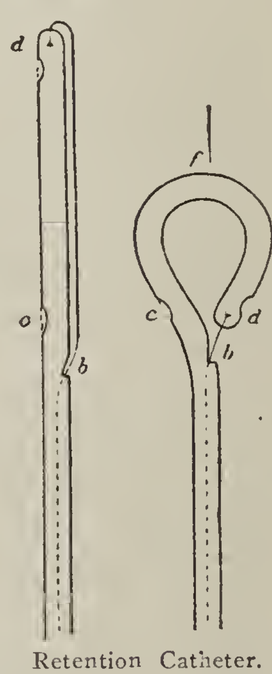
*Meningococcus Meningitis. O. Thomsen and F. Wulff.—p. 513. Com'd in No. 15, p. 449.
*Examination and Treatment of Dangerous Bacilli Carriers. O. Thomsen and F. Wulff.—p. 519.
*Simplified Retention Catheter. H. Bisgaard.—p. 523.
*Pyelography and Pyeloplastics. J. Nordentoft.—p. 529. Conc'n.

Meningococcus Meningitis.—Thomsen and Wulff comment on the recent Copenhagen epidemics of meningitis that they seem to prove that the close contact in military barracks is responsible for an exaltation of the virulence of the meningococcus. No other assumption will explain the fact that of the 500 new recruits from all parts of the country, taken on the training ship "Fyen" March 26, 1917, ten developed within a week the most malignant form of petechial meningitis without contact with cases of meningitis. A chart is given showing the distribution of the 79 military and 114 civilian cases of meningitis during the two years in that district. The malignant petechial form occurred in 59 of the military and in 58 civilians, but in the civilian cases contact with the military could almost invariably be demonstrated. Under no other conditions is there such close living together of large numbers as in military barracks and possibly in mines, and we can assume that a certain number of the men are meningococcus carriers. Others get the meningococci from them, and in some a meningococcus cararrhal affection develops. The cocci in adapting themselves to this condition become more and more virulent by repeated, rapid transmission until they are able to induce the petechial type of the disease. This gets transmitted to civilians, but the meningococci in civilian conditions rapidly lose their virulence until finally they become so slightly virulent that they are harmless for all except the least resistant, weekly infants in particular.

Thomsen and Wulff thus reject the idea of a special strain of meningococci as being responsible for the petechial type of meningitis. They argue that the virulence is not a constant property, but waxes and wanes. The meningococci linger usually long in the nasopharynx of convalescents from petechial meningitis, rebellious to all measures. In conclusion they say that the differential diagnosis in fulminating meningitis is often difficult; even cultivation from the blood may fail, and is almost sure to fail when not done until after death. But there is one finding that distinguishes meningococcus sepsis from other forms of sepsis, namely, the great accumulation of gram-negative cocci in the endothelial cells of the vessels in the skin of a petechial lesion. The cocci are found also in the lumen of these vessels. The skin should be examined for this as soon as possible after death, and fixation should be done with a weak solution of formaldehyd.

Treatment of Dangerous Carriers.—Thomsen and Wulff give an illustration of the arrangement at the State Serum Institute both for obtaining smears from the throat and for treating the throat of diphtheria, scarlet fever and other dangerous germ carriers. The aim is not only to protect the physician against infection from the subject's coughing, etc., but also to prevent accumulation of germs in the room. Two holes for the physician's arms are cut in a plate glass screen which is fitted into a window on the ground floor. The subject sits on a seat outside, in the open air, and the physician stands inside the room. A glass slide covers each hole when not in use; raising one closes the other, and both close automatically as the arms are withdrawn, so the carrier cannot talk through the holes. The screen does not prevent conversation. The spatula, etc., used on the subject are dropped into a pail on the ground outside before the arms are drawn in. A light is arranged above the window to throw a bright light into the throat. The illustrations show the carrier in cap and overcoat seated on the chair outside the window, his head held at the proper distance and position by an attendant standing behind.

Improved Retention Catheter.—Bisgaard comments on the drawbacks of ordinary retention catheters, and commends a device of his own which has answered its purpose admirably in several years of experience. It is merely an ordinary Nélaton catheter flexible enough to have the last fourth of its length bent to form a ring. He cuts a small opening, *b*, between the third and last fourth, sloping the top of the opening but keeping the lower edge perpendicular to the axis of the catheter, as it is thus stronger. Another opening, *c*, is cut on the opposite side, that is, on the same side as the original opening at the tip of the catheter but closer to the opening *b*, allowing about 2 cm. between them. With a needle, a silk, aluminum bronze or other smooth thread is then passed into the catheter and out through the extreme tip, a knot in the thread holding it firm at the tip. The threaded needle is then passed into the opening *b* and drawn out at the end of the catheter below. It is introduced like any catheter, but when the thread is pulled and fastened, the outer fourth bends into a circle, this circle holding the catheter firmly in place in the bladder. By unwinding the thread from the outer end of the catheter, the tip straightens out, and it can be withdrawn like an ordinary catheter. A knot near the outer end of the thread appears in sight when the ring is complete, and the end of the thread is then wound around the projecting end of the catheter. A small metal cylinder inside the catheter to strengthen it at its weakest point, namely, the opening *b* where the thread passes out and returns to the catheter, might prove useful but is not necessary for moderate use. Even at the worst, if the ring should become incrusted and break off, it could be withdrawn by pulling on the thread, as the sides of the ring would be squeezed together as it enters the urethra.



Retention Catheter.

Pyelography.—Nordentoft reviews at great length the advantages and disadvantages of pyelography and pyeloplastics, as encountered in his clinical experience and recorded in the literature. His final conclusion is that nothing is so instructive as pyelography in certain cases, especially with hydronephrosis, but that it should be used only with reserve and extreme caution. It is to be hoped, he says, that it may be possible yet to find some harmless contrast substance, and he warns that the procedure should never be applied to both kidneys at once.

Ugeskrift for Læger, Copenhagen

May 1, 1919, **81**, No. 18

*Pseudohermaphrodites. K. Lehmann.—p. 751.
*Adjustable Capillary Pipet. P. Bogason.—p. 757.

Hereditary Pseudohermaphroditism.—Lehmann investigated conditions in the family of a female pseudohermaphrodite infant that had died from cachexia. A cousin of the mother was a male pseudohermaphrodite, and one of the infant's brothers had presented hypospadias and cryptorchidism, and it had also succumbed to cachexia at about the fifth week of life. Similar investigation of the familial antecedents in a case of pseudohermaphroditism recently published by Fibiger revealed likewise malformation of the external genitals in three of the other six children. Two normal girls are living, but the boys all died in infancy. In both families all the children seemed to be strong and well developed at birth, except for the genital anomalies, but the children with the latter all wasted away and died in a few weeks without known cause. There was no enteritis. The early mortality is a striking feature of these cases; in Neugebauer's compilation of 1,250 cases of pseudohermaphroditism, 61 were less than a month old and 50 per cent. of these had died, as also 33 per cent. of the 93 other children under 10 years of age. The complete atrophy of the thymus in the infants whose cases are reported in detail suggests that the abnormal condition of the external genitals is accompanied by abnormal conditions in the endocrine system. This would explain the high and early mortality in such children. It suggests also that treatment with thymus might tide the children past the dangerous point or years. Corby reported the case of a pseudohermaphrodite of 15, a cretin, with polydactylia, and another child (dead) was also a pseudohermaphrodite. The parents were cousins, and most of their twelve children had died early. Lehmann discusses the application of the mendelian laws in these cases.

Improved Pipet.—The middle of the rubber bulb on the capillary pipet is squeezed flat with a small metal device. By turning the thumb-screw in this, the lumen of the bulb is opened, and it is possible by this means to aspirate a fluid into the pipet precisely to the desired mark, instead of the usual haphazard methods.

May 8, 1919, **81**, No. 19

*Uric Acid in Urine in Health. A. Faber and E. Gottlieb.—p. 787.

Uric Acid in the Urine in Health.—Faber and Gottlieb have been conducting research to determine the indications for restriction to a milk-vegetable diet with joint disease or metabolic disturbances of any kind. One way to determine this is to give purins in a test meal and examine the output in the urine. The previous experiments in this line to date have not been conclusive as they were made on patients with various diseases. The research here described was with twelve normal persons, and the tables given show thus the normal standard for comparison. Their diet was mixed, but with only 0.02 to 0.09 gm. nitrogen daily. The test meal consisted of 200 gm. sweetbreads, and the output of uric acid in the urine for three days afterward is charted for the different cases. The findings showed a proportional relation between the individual's weight and the capacity for eliminating uric acid, the two standing in inverse proportion, the larger the weight the less the output. Before the test meal, the output of uric acid varied in the different subjects from day to day by 3 to 37 per cent.

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RELATION OF INTERNISTS TO MILITARY MEDICINE *

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It has been a traditional custom in the medical departments of the Army and Navy to regard the medical officers as surgeons, the director of each department being referred to as the Surgeon-General. There is but one instance in the history of the medical corps of the Army in which reference is made to a different title, the occasion being the appointment of Dr. William Brown as physician general of the middle department. Dr. Brown served from 1775 to 1780.

In the field of preventive medicine, bacteriology and sanitation, the federal medical services have a brilliant record of achievement, and many epochal contributions to scientific medicine have been made by officers of the several medical corps.

During the Civil War, Surgeon-General Hammond, well known as a physiologist and neurologist, and founder of the Army Medical Museum, created special hospitals for cardiac, pulmonary and neural diseases, at one of which Da Costa first described the condition of irritable heart in soldiers. In the Spanish-American War no distinction was made of a medical division in either base or field hospitals.

It was not until the entrance of this country into the world war that internists became more intimately related to military medicine, and it is one of my purposes in this paper to record briefly the part taken by medical reserve officers, recognized as internists, and particularly by members of this section.

INTERNAL MEDICINE IN THE WAR

At the time when war was declared on Germany in April, 1917, there were twenty-nine Red Cross base hospitals ready for service, having been organized from the Medical Reserve Corps under the direction of Col. Jefferson R. Kean, M. C., U. S. Army. This number was rapidly increased until within a very short time fifty Army Red Cross hospitals were assigned for duty overseas. These base hospitals were largely representative of medical college faculty or hospital staff organizations in civil life. A medical service was an organic part of each, being in charge of a chief and usually two assistants, all well known internists. Later about ninety-four evacuation, field and mobile hospitals were organized, composed of a proportionately smaller personnel, each of which included a medical service as a part of the respective hospital.

Early in the organization of the office of the Surgeon-General of the Army, the importance of tuberculosis and cardiovascular disorders was recognized, particularly in the operation of the selective service regulations, as well as special examination of officers and men at the various military training camps.

A division of internal medicine was created under which the subdivisions for tuberculosis and cardiovascular and gastro-intestinal diseases were included. The efficient organization of this new division was due in a large measure to the experience and foresight of the first chief, Col. Theodore C. Janeway; and his untimely death in the line of duty is one of the tragic incidents of this war. The high standards set by Colonel Janeway were ably maintained by his successor, Col. W. T. Longcope, until his assignment to foreign service, when he was succeeded by Col. Lewis A. Conner, who served until the close of the war.

As the large base hospitals were established in connection with the National Army and National Guard cantonments throughout the country in 1917, the selection of chiefs and assistant personnel for the respective medical services involved a responsibility of the highest degree, and it must have been a distinct comfort to all concerned with the health and welfare of the new army to recognize the character and standing of the internists assigned to the different stations. In a number of instances the chiefs of medical services later became the commanding officers of the Army hospitals to which they had been originally assigned.

It was the evident policy of the department to retain the regular medical corps officers in charge only long enough to permit the medical reserve officers the opportunity to become familiar with the military organization, after which the responsibility was promptly transferred to them.

VALUABLE EXPERIENCES

The readiness with which the medical reserve officer adapted himself to the new environment was remarkable. The internist in civil practice was considered fortunate if he had supervision of a service of from fifty to a hundred beds. To be suddenly called on to assume charge of a medical service in a military hospital comprising from 1,400 to 1,800 beds, and during the influenza epidemic as high a number as 4,700 beds, required the exposition of rare tact, judgment and organizing ability. The fact that it was so successfully accomplished reflects great credit on the Medical Reserve Corps.

The opportunities offered for observing large numbers of cases of a particular disease were unique. Attention need only be directed to some of the papers presented at the 1918 session and those offered for this meeting. Reports on from 600 to 800 cases of pneumonia, 350 cases of pericarditis, 280 instances of

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* Chairman's address, read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

acute meningitis, 400 cases of arthritis, and 360 cases of epidemic parotitis, occurring in a single medical service indicate the unusual responsibilities entailed and represent a condition not likely ever to occur again.

It will no doubt be appreciated that the environment of the sick soldier as compared with the patient in civil life offered several new factors to be considered; nevertheless the accumulated records of careful observers will constitute a valuable addition to our knowledge of the particular diseases concerned.

It may be premature to indicate the gain to medical science through the experiences of military service; but even at this time it will be admitted that we have approached a little nearer to the control of respiratory infections; that attention has been more prominently directed to the extrameningeal manifestations of the meningococcus, and that a better understanding has been obtained of nephritis in the young, functional cardiac disorders, the effort syndrome and its importance as a problem in civil life, the result of inhaling poisonous gases, and the transmission and control of trench fever. The effect produced on diabetes among peoples affected principally by sugar restriction is one of the interesting revelations of the war period.

After the military hospital service was thoroughly organized, the medical officer lived under ideal conditions for the practice of medicine. Free from the embarrassment of professional competition and the financial cares of civil practice, he lived in congenial association with medical officers in charge of the surgical, roentgen ray and pathologic services, permitting daily conferences and a coordination of work contributing to the best in the diagnosis and the care of the sick.

As the medical officer, and particularly the internist, returns to civil life, it will be natural and very probable that he will wish to continue similar clinical associations at home, and thus gradually lead to a more general formation of groups of consulting specialists, a plan in keeping with the trend of modern medicine that promises much for professional development and the welfare of the public.

The purpose of group consultants in the American Expeditionary Forces will be considered at this session, and the advantages of this feature of the service more prominently presented.

The true function of the internist is exerted in the direction of higher attainments in diagnosis, and the degree to which military medicine was advanced in that respect may be a proper measure of the wisdom of establishing a special division of internal medicine.

MEDICAL TEACHING

In round numbers, about 150 military hospitals of the different types were established during this country's participation in the war. The fact that the department had great difficulty in finding a sufficient number of medical officers for the services in internal medicine is a commentary on the incompleteness of preparation among medical men for this special work.

In a study of the graduates of a leading medical school affecting the classes of 1915, 1916 and 1917 as to the preference expressed in the applications for commissions in the Reserve Corps, it was noted that a relatively small percentage chose the service in internal medicine; but on further investigation it was found that these usually represented the best students in the respective classes.

We are not specially concerned here with medical education as related to military conditions, recently so ably discussed by Munson and others,[1] except so far as the experiences in the services of internal medicine furnished the reason for this discussion.

The demonstrable use of examination methods, the proper interpretation of physical signs, and the ability to form diagnostic conclusions constituted the criteria of efficiency in this branch of the military service. It was in many instances the real index of the previous training of the medical officer.

Nevertheless it reflects great credit on the medical resources of this country that it was possible in one brief year to develop the School of Military Medicine at Fort Oglethorpe, where in October, 1918, 3,000 medical officers and 30,000 medical corps men were being trained.

That it was possible by short courses of intensive instruction to remedy some of the defects in medical training recognized in the general practitioner on admission to military service was probably due to the fine cooperative spirit and ideal conditions for teaching that prevailed in the military medical school. That it could so readily be done was indicative, at least, of a good fundamental education.

If the experience of medical teaching in the war has directed attention to an improvement in the scheme of education for the better practice of medicine, it will have offset in part the great sacrifices it has otherwise entailed.

INTERNISTS IN THE NAVY

It is fitting at this time to make reference to the internists afloat. At the beginning of the war the Medical Department of the Navy recognized the great need of internists, particularly in the large base hospitals in the naval training stations. Reserve officers were placed in charge of the different services of internal medicine, having supervision also of the clinical laboratory; and as rapidly as possible a similar plan was carried out on all ship hospitals and base hospitals overseas.

As the internists in the Naval Reserve are gradually being returned to civil life, Surgeon-General Braisted has endeavored to meet the occasion by requiring of medical officers of the Navy attendance at the Navy Medical School for a three months' course each in the branches of surgery, laboratory and clinical diagnosis, and the head specialties to determine fitness for special service, indicating that the new departure inaugurated during the war is to be continued.

The entire transport service was in charge of the Navy, and the completeness with which old vessels were transformed into hospital ships with every equipment for the care of sick soldiers and sailors testified to the initiative and organizing ability of the Navy Medical Corps. When the story is fully told of the devotion and sacrifice of medical officers in connection with influenza epidemics aboard ships, it will constitute one of the heroic chapters of the war.

DISTINGUISHED SERVICES

It is not possible at this time to recall the many examples of heroism displayed by the medical reserve officers; but there is a source of pride in directing attention to a few instances, and furthermore to the manner in which the medical officer measured up to the demands of entirely new duties.

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[1] Munson, E. L.: The Needs of Medical Education as Revealed by the War, J. A. M. A. **72**: 1050 (April 12) 1919. Vaughan, V. C.: Correspondence Department, ibid., p. 1095. Foster, N. B.: Medical Education as Revealed by the War, ibid. **72**: 1540 (May 24) 1919.

Reference has been made to the assignment of internists as commanding officers of cantonment base hospitals in this country, and evacuating hospitals in the American Expeditionary Forces, indicating that they had recognized administrative ability. The medical officers, among whom were several well-known internists who received the Croix de Guerre, form a large list.

It is quite impossible to estimate in any appreciative sense the service to the country of Colonel Billings in establishing the division for the rehabilitation of the disabled soldier and sailor.

In investing Brigadier-General Thayer with the Distinguished Service Medal, the citation read:

> As chief consultant in medicine of the A. E. F. it was largely through his individual efforts that the treatment of the sick was so standardized, coordinated, and proficiently perfected as to result in a direct saving of many lives and a consequent conservation of man power and morale of these forces.

One of the contributors to the war unit program of this section applied for active service, April 6, 1917, and went to France with the Second Division. In civil life he is associated with one of the prominent medical clinics of the country. With practically no surgical training, his entire military service was concerned with the charge of stretcher bearers and dressing stations at the front.

In regard to Capt. M. C. Pincoffs, the Division Surgeon, Lieut.-Col. Richard Derby reports that:

> His services have been of a high order of excellence. He possesses great initiative, and has performed every duty required of him with vigor and thoroughness. He has maintained excellent discipline and morale among his subordinates. He has time and again demonstrated his utter fearlessness and disregard of personal safety in the various engagements in which the Second Division has participated, as evidenced by his having been recommended for the Distinguished Service Cross, the Medal of Honor, and the Croix de Guerre.

As an example of versatility of talent I would like to refer to a member of the section who in civil life is chief of a department of medicine in a large university medical school, and was inducted into active service a few days after contributing a paper on pericarditis at the 1917 session in New York. During a military service of twenty-one months he probably did not make a single heart or lung examination because his activities were directed in an entirely different direction. He became the chief of the school for sanitary instruction at the Fort Riley medical officers' training camp, and when the military medical training was later concentrated at Fort Oglethorpe, he was assigned to a similar service there. He developed an open air school of military hygiene including every form of apparatus and equipment for demonstration, which permitted every student officer to gain a comprehensive knowledge of the subject in a short period of time. One of his distinct contributions was an incinerator capable of disposing of 10 tons of garbage with a minimum of expense, which has been adopted by the Medical Department of the Army. By reason of his training as a clinician, Colonel Williamson was able to direct the instruction in sanitary medicine, of particular value to the military service and of incalculable benefit to the thousands of medical officers that came under his charge and their future usefulness in civil practice.

When the medical history of this war is written, the record of the internist will indicate an important part in the efficient accomplishments of the several medical services during the great conflict.

Equitable Building.

THE EARLY ROENTGEN DIAGNOSIS OF ULCERATIVE TUBERCULOUS COLITIS

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Some years ago, it occurred to us that the reason tuberculous enteritis was so generally fatal was the fact that it was impossible by any medical means to give the intestine sufficient functional rest to enable it to resist and possibly to recover from its tuberculous lesions. Archibald[1] has shown what may be accomplished by proper surgical measures in carefully selected cases. For these reasons it has seemed to us wise to emphasize certain data, not particularly new, but certainly very little known, which may suggest the presence of tuberculosis of the large intestine, and thus aid in its early diagnosis. We shall not attempt to discuss the treatment of this condition, but refer those who are interested to Archibald's former article and to his forthcoming monograph on this subject. It might be added, however, that for surgical interference to be of any help, the diagnosis must be made in many instances long before symptoms, now considered characteristic of the disease, make their appearance. We refer to chronic, persistent diarrhea and abdominal pain, tenderness and rigidity.

The reluctance of many gastro-intestinal specialists to make an early diagnosis of intestinal tuberculosis emphasizes the importance of the procedure we shall discuss. Recently a patient with moderately advanced pulmonary tuberculosis saw, on his way back to Saranac Lake, a prominent specialist, who stated to him and confirmed it in a letter to us, that "no evidence of intestinal tuberculosis was demonstrated" in the patient. The patient had also seen, about the same time, a pulmonary specialist, who had apparently overlooked his intestinal tuberculosis, and stated that his lungs should improve as soon as his indigestion was relieved. At that time the patient had all the symptoms characteristic of intestinal tuberculosis, and we had suspected intestinal tuberculosis eight months previously, owing to the presence of constipation and irregular fever, and had confirmed the diagnosis by roentgenologic study.

CLINICAL DIAGNOSIS

The position of intestinal tuberculosis in the minds of many specialists today is similar to that occupied by pulmonary tuberculosis fifteen or twenty years ago. At that time, many refused to make a diagnosis of pulmonary tuberculosis without finding tubercle bacilli in the sputum, and the struggle to overcome this reluctance was long and hard. At the beginning of this century the presence in a patient with advanced pulmonary tuberculosis of chronic diarrhea, of more or less pain, of tender points in the abdomen, and nothing suggestive of an acute abdominal condition, led to the diagnosis of intestinal tuberculosis and a uniformly fatal prognosis. In a few instances, patients placed on treatment, for example, small doses of creosote and iodoform, lost their abdominal symptoms, which did not recur up to the time of death. Such cases were regarded by conservative thinkers as probable mistakes in diagnosis.

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[1] Archibald: Tr. Nat. Assn. for Study and Prevention of Tuberculosis, **13**: 117, 1917.

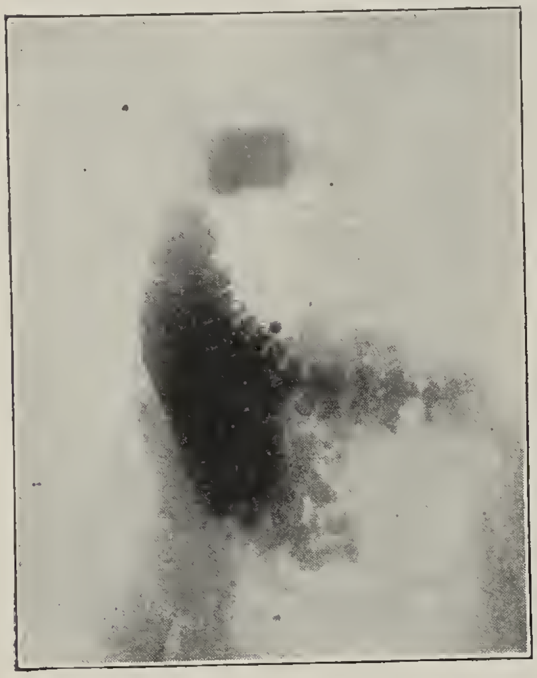

Fig. 1.—Normal plate, six hours, prone; average motility. Note well filled ascending colon and first half of transverse colon, with smooth haustration.

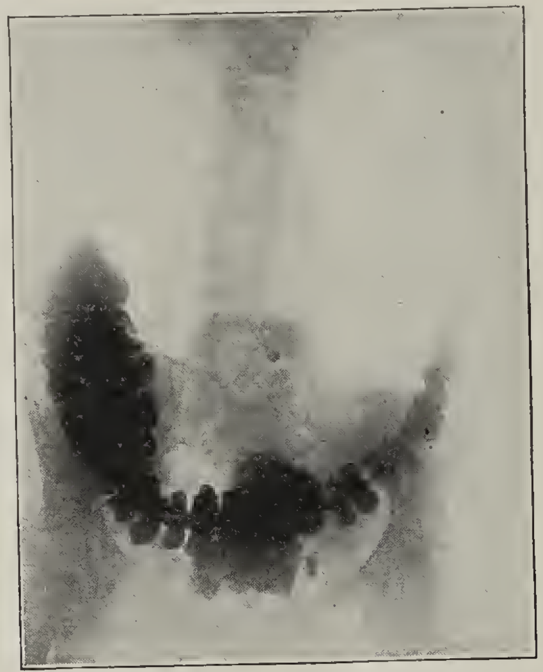

Fig. 2.—Same case as Figure 1. Twenty-four hours, prone; average motility. Bowel well filled, smooth haustration.

At this time, the occurrence of tubercle bacilli in the stools was considered proof positive of the presence of intestinal tuberculosis. Lichtheim[2] in 1883 was the first, it may be recalled, to demonstrate tubercle bacilli in the stools, but said that they occurred only in patients with intestinal lesions and not in those who swallowed their sputum. Bodo,[3] as early as 1891, examined the intestinal contents of patients who had died of pulmonary tuberculosis, and as he found tubercle bacilli when there was no tuberculous enteritis, he came to the conclusion that the presence of tubercle bacilli in the stools was no sure proof of tuberculosis in the intestine. We can, nevertheless, recall the amount of time which some of our confrères spent in searching for tubercle bacilli in the feces in order to confirm a diagnosis of intestinal tuberculosis. Again, Rosenthal, Strasburger and Schmidt elaborated special technics for the examination of the feces for tubercle bacilli. Some years later several observers, Philip and Porter,[4] Laird and Kite,[5] Petroff,[6] Engleson,[7] and Klose,[8] made routine examinations of the stools of patients with pulmonary tuberculosis and arrived at the conclusion that from 75 to 95 per cent. of all patients with tubercle bacilli in the sputum had them in the stools as well. These observations were controlled by animal inoculation. Later Petroff developed a technic which enabled him as the first to cultivate tubercle bacilli from the stools, and in some instances in which they had not been previously discovered by staining methods.

Walsh,[9] in 1909, from his clinical and necropsy studies at the Phipps Institute, came to these conclusions:

> Diarrhea, abdominal pain, tenderness and rigidity mean very little or nothing in the diagnosis of intestinal tuberculosis. . . . The diagnosis of intestinal tuberculosis cannot be made with the slightest degree of certainty from our present known symptoms, and since the condition carries with it an unfavorable prognosis, in order to reassure the patient, the nurse and the physician himself, the diagnosis should not be made, so that the patient will have a better chance for hopeful treatment.

These observations, of course, threw great doubt on the early, and, in fact, on any diagnosis of intestinal tuberculosis, and made newer methods most desirable.

It seems hardly necessary to dwell on the frequency with which intestinal tuberculosis occurs in the late and terminal stages of pulmonary tuberculosis, in which involvement of the intestine ranks next to that of the lung. The necropsy figures show an incidence of intestinal tuberculosis varying from 60 to 80 per cent., and such frequency itself suggests that the complicating enteritis and colitis may have much to do with the fatal outcome. It is only a step to conclude that in some instances removal of the early intestinal lesions might prolong life or even help to bring about recovery, for, while tuberculous intestinal ulcers may heal, such healing is, so far as we know, infrequent.

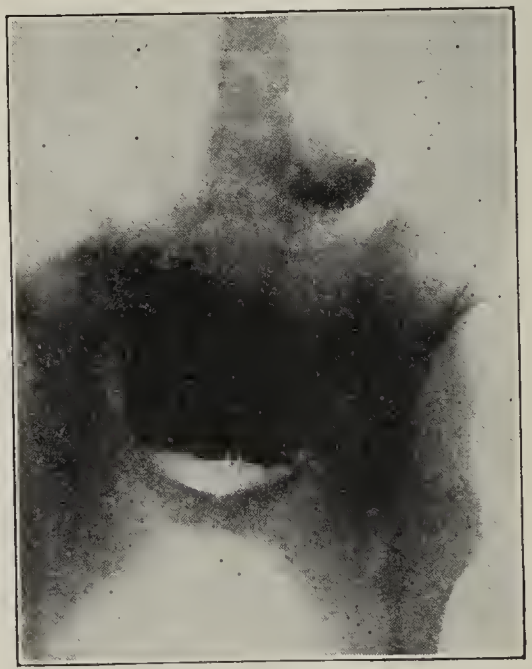

Fig. 3 (Case 7875).—Six hours, prone. Note ileac stasis, no barium shadows having reached the cecum. There are questionable faint traces of barium in the descending colon. Patient was referred for pulmonary tuberculosis, far advanced. Emaciation, persistent diarrhea and abdominal pain were the symptoms. Site of roentgen-ray lesion; diagnosis of tuberculous colitis (site not determined) made on ileac stasis at six hour examination, plus practically complete absence of barium shadows at twenty-four hours. Death occurred a few months after diagnosis of tuberculous colitis was made.

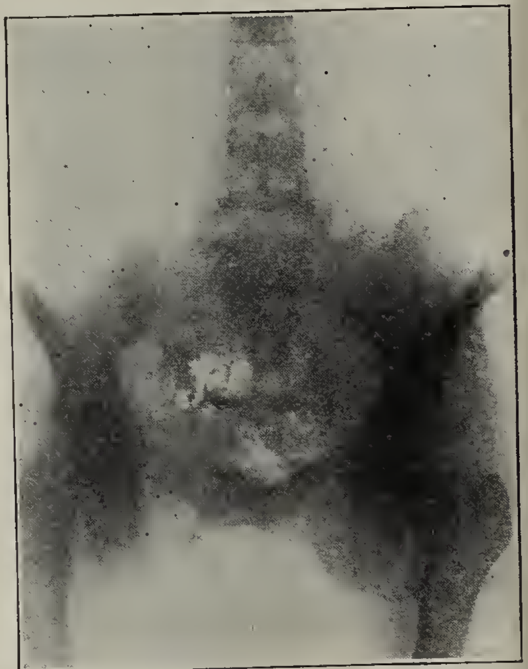

Fig. 4 (Case 7875).—Same case as Figure 3. Twenty-four hours prone, marked hypermotility.

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2. Lichtheim: Fortschr. d. Med., 1883, p. 8.
3. Bodo: Gazz. med. di Torino, 1891, p. 793.
4. Philip and Porter: Brit. M. J. **2**: 184, 1910.
5. Laird and Kite: J. M. Res. **29**: 31, 1913.
6. Petroff: Personal communication to the author.
7. Engleson: Beitr. z. Kennt. d. Tuberk. **35**: 37, 1915.
8. Klose: München. med. Wchnschr. **57**:133, 1910.
9. Walsh: New York M. J. **90**:100, 1909.

SYMPTOMS

We have stated that the clinical symptoms positive of intestinal ulceration often occur so late in the course of the disease that a speedy termination of the case can be confidently expected. On the other hand, extensive ulceration may be found at necropsy with no symptoms occurring during life. Such symptoms, then, may be of little value if remedial measures, especially of a surgical nature, are to be applied. We feel that when any patient, even in an incipient stage, begins to do poorly, and shows no increase of pulmonary symptoms or signs, or, what is even more significant, a lessening of signs and symptoms referable to the lungs, intestinal complications should be borne in mind. Further, if under these circumstances the patient exhibits extreme nervousness, constipation, slight dyspepsia, a feeling of fulness or discomfort in the abdomen after eating, in all probability accompanied by gas, so frequent in all patients undergoing treatment for pulmonary tuberculosis, or fails to gain weight under suitable conditions, the probability of intestinal complications is strengthened. These symptoms may be accompanied at times by a very slight and brief attack or by attacks of diarrhea, readily amenable to simple remedies. A slight, irregular rise of temperature may or may not be present.

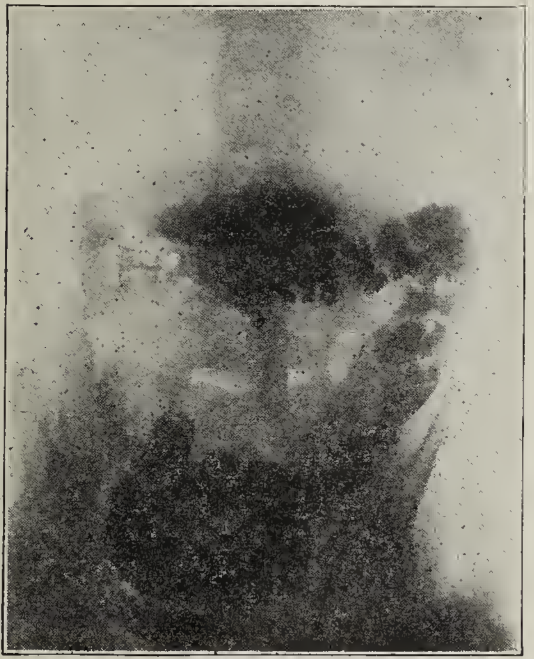

Fig. 5 (Case 5058).—Six hours, prone. Head of the barium column is seen in rectum. Note absence of barium shadows in the ascending colon. Patient was referred for pulmonary tuberculosis. There were definite periodic abdominal symptoms with pain. Site of roentgen-ray lesion: cecum and cecocolon. No operation was done. Twenty-four hour plate showed bowel entirely empty.

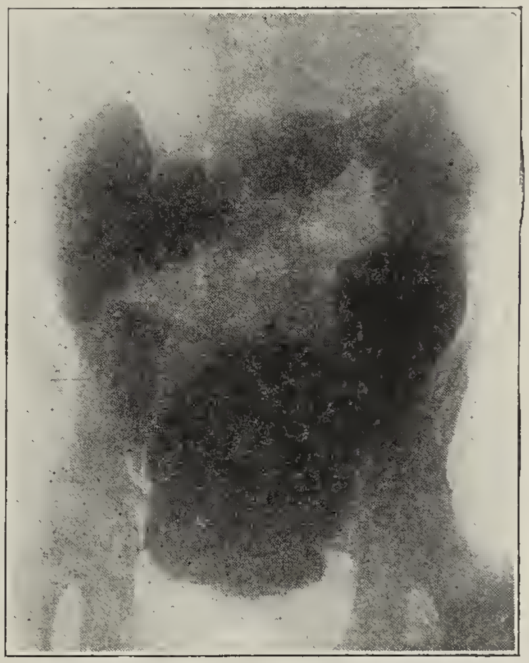

Fig. 6 (Case 5058).—Same case as Figure 5. Enema plate, prone. Note filling defect in cecum and cecocolon and questionably in middle of transverse colon.

As the disease progresses, the symptoms increase and depend on the location of the ulcers, the irritation of the nerves, the involvement of the peritoneum, and, of course, the effects of the ulceration on the intestinal contents (blood and pus).

In some instances, the patient complains that he does not feel well; his digestion is neither good nor bad, and he may have a slightly irregular temperature: often normal, but at times reaching 99.6 in the afternoon. In one such case, a slight thickening of the cecum and ascending colon was palpated, and at operation tuberculosis of the cecum and ascending colon was found and resected with good results.

In another case, with incipient pulmonary lesions, marked constipation was accompanied, at times, by persistent vomiting or regurgitation of food. A palpable cecum suggested intestinal tuberculosis, which was confirmed roentgenologically and by operation, with recovery as the result.

The point that we would like to emphasize at this time is that at the onset the symptoms of intestinal tuberculosis may be as slight and as indefinite as those of early pulmonary tuberculosis. In fact, the term "latent" might well be applied to many cases of intestinal tuberculosis, for, unless borne in mind and looked for, they escape detection.

PAIN

Severe pain is not an early symptom. At first, only slight discomfort is noticed. A little later, pain, just below the epigastrium, occurs at irregular intervals, often late in the morning or in the afternoon, and is at first transient, later, more often persisting, crampy or stabbing in character (suggesting gas), aggravated by food, relieved by fasting and recurring from day to day (Archibald). Sharp and, later, lancinating pains may follow a glass of cold milk or even cold water.

DIARRHEA AND STOOLS

At the onset, the stools may be mushy and occur once or twice at night. Again, some have only one loose stool a day, accompanied at times by tenesmus or griping. In some instances, the first manifestation is the disappearance of the previous constipation, and the patient remarks that his "bowels are better" because they move now without drugs. The diarrhea at first may be so transient and so easily remediable as to attract no attention. Later the attacks occur more frequently and are more severe. But diarrhea, even lasting for six to eight weeks in a patient with pulmonary tuberculosis, may be due to other causes than intestinal tuberculosis. Among those may be mentioned the irritation of swallowed sputum. Lebert says that diarrhea without ulceration occurs in from one tenth to one seventh of all cases coming to necropsy. As the disease advances farther, the diarrhea, no longer temporary and alternating with marked constipation, becomes more stubborn and persistent.

It has long been felt that the discrepancy between symptoms in life, for example, diarrhea and the postmortem findings, are due to the location of the lesions. Diarrhea is rarely persistent until the disease has extended along the large intestine to the transverse colon, and even then constipation may be rather marked and persistent. If diarrhea is persistent, it is probable then that the disease has reached the transverse colon, though this may be involved without persistently loose bowels.

We would like to draw attention to the fact that the "constipation" complained of by some patients may be due to some abnormal abdominal sensation attributed by them to constipation, which, in reality, is not present. It is of interest to note that constipation and diarrhea may alternate to the end of life. The odor of the stools is usually fetid and penetrating, even suggesting, to an experienced observer, the presence of tuberculous enteritis. Intestinal hemorrage is rare, but at times has led to a fatal termination. It is of slight diagnostic value. Flatulence is very common, and "gas pains" are frequently described. The temperature may be at times more subnormal than usual. A slight rise is often present without any increase of physical signs or symptoms from the lungs. Some patients have marked mental depression and great and often unaccountable nervousness. Acute intestinal tuberculosis has been described with symptoms suggestive of acute endocarditis or sepsis. We have not encountered any such cases, and the acute cases seen by us are usually due to a tuberculous appendix. Intestinal tuberculosis is rare in acute tuberculosis. Several cases later shown to be intestinal tuberculosis have presented the blood picture of pernicious anemia. These conditions, however, are very unusual, and none occurred in the cases we are discussing.

TABLE 1.—POSITIVE CASES *

Case	Pulmonary Condition	Roentgen Classification	Tubercle Bacilli	Duration of Illness in Months	Tuberculous Complications	General Condition	Six Hour Examination Barium Shadows							Twenty-Four Hour Examination Barium Shadows					Filling Defect Enema Plate	Abdominal Symptoms
							Il	Ce	HF	TC	DC	R	Spasm	Ce	HF	TC	DC	R		
4909	FA	3	+	33	....	Fav.	+	Sl	..	..	..	..	Ce	0	0	0	+	+	....	2, 5, 7
5045	FA	3	+	40	....	Fav.	+	Sl	..	..	..	..	Ce	0	0	0	0	0	Ce-HF	7
6867	FA	...	+	60	....	Fav.	0	Sl	+	+	+	..	Ce	†	..	..	..	..	0	
7162	I	2	0	3	....	Unfav.	0	Sl	+	+	+	..	Ce	Sl	Sl	Sl	Sl	Sl	....	3, 5, 6, 7, 8
7348	FA	3	+	30	....	Unfav-	+	..	..	..	..	..	....	0	0	0	Sl	Sl	....	2 and 5 questionable, 7 and 8 persistent
7366	FA	...	+	36	Nephritis	Unfav.	+	Sl	..	..	..	..	Ce	†	..	..	..	..	....	2, 3, 5, 7, 8 persistent
7514	FA	...	+	14	....	Unfav.	+	Sl	+	+	+	..	Ce	0	0	0	Sl	+	....	3 severe, 7
7521	MA	3	+	24	....	Fav.	+	Sl	+	+	+	..	Ce	0	0	0	0	0	Ce ?	1, 3, 6
7541	FA	...	+	8	....	Unfav.	+	+	0	+	+	..	HF	0	0	0	0	Sl	....	1, 3, 4, 6, 7
7561	MA	...	—	12	Larynx	Unfav.	+	Sl	+	+	+	..	Ce	0	0	0	0	0	0	1 persistent
7607	FA	...	+	13	....	Unfav.	Sl	+	0	0	0	+	Ce-TC	0	0	0	0	+	....	1, 4
7724	FA	...	+	6	Elbow	Unfav.	+	+	+	0	0	+	TC	0	0	0	0	0	0	1 and 7 persistent, 3, 5, 8
7739	MA	3	+	10	....	Fav.	+	?	..	..	..	..	Ce ?	0	0	0	0	+	0	1 and 6 alternately
7805	MA	...	+	14	....	Unfav.	+	Sl	0	0	0	Sl	Ce	0	0	0	0	+	....	1 and 6 alternately, 2, 3, 4, 5, 8
7806	I	3	+	24	....	Fav.	+	+	0	0	+	..	Ce	0	Sl	0	0	+	0	1, 4, 7
7822	MA	...	0	18	....	Unfav.	+	Sl	..	..	..	..	Ce	0	0	0	+	+	Ce	1, 2, 5, –3 severe
7875	FA	...	+	9	....	Unfav.	+	..	..	..	..	..	....	0	0	0	0	0	....	1, 3
7901	FA	3	+	36	....	Unfav.	+	Sl	..	..	..	..	Ce	0	0	0	0	0	Ce	1
5075	MA	2	+	9	....	Fav.	+	+	+	+	+	..	Ce	Sl	Sl	0	0	Sl	Ce	1
8544	FA	3	+	6	Larynx	Unfav.	..	..	..	..	..	..	....	0‡	0	0	0	+	Ce ?	6, 7
8593	MA	3	0	12	....	Unfav.	+	+	..	..	..	..	Ce	+	+	0	0	+	....	1, 3, 8, –7 severe
8873	I	3	0	14	Appendectomy	Fav.	+	+	Sl	Sl	+	..	Ce	0	0	0	0	+	Ce ?	1, 2, 3, 7, 8
7093	FA	3	+	36	....	Fav.	+	+	+	+	+	..	Ce-TC	0	0	0	0	..	Ce-TC	1 and 6 alternately
7733	FA	3	+	36	Larynx, ear, rectal abscess	Unfav.	+	Sl	..	..	..	..	Ce	0	0	0	0	0	....	1, 3, 4, 8
8985	MA	...	+	12	....	Fav.	+	..	..	..	..	..	Ce	Sl	+	..	..	..	....	3, 6, 8
5058	MA	3	+	10	....	Fav.	+	+	+	+	+	..	Ce	0	0	0	0	0	Ce	1, 2, 3, 4, 8
9307	FA	3	+	..	....	Fav.	+	0	+	0	+	+	Ce	0	0	0	0	0	....	1, 4, –7 marked
5096	FA	3	+	7	....	Fev.	0	0	0	0	+	+	....	0	0	0	0	0	Ce ?	1, 2, 4, 8
4876	FA	3	+	5½	....	Fav.	+	+	+	+	..	..	Ce	Sl	+	+	+	+	....	4, 7
9508	FA	3	+	..	....	Fav.	+	Sl	0	Sl	Sl	+	Ce-HF	0	0	0	0	0	....	1, 2, 3, 5, 7

* Key to Characters, Numbers and Abbreviations: Pulmonary condition: N, negative; D, doubtful; I, incipient; MA, moderately advanced; FA, far advanced. Roentgen classification: Pb. peribronchial; 1. an area of parenchymatous infiltration including to the superior margin of the first chondrosternal junction on one or both sides, or, to the superior margin of the second chondrosternal junction on one side; 2, greater than 1; an area of parenchymatous infiltration including to the superior margin of the second chondrosternal junction on one or both sides or, to the superior margin of the third chondrosternal junction on one side; 3 includes anything greater than 2. Tubercle bacilli: +, positive; 0, negative; blanks, no records. Six and 24 hour examinations: Il. ileum; Ce, cecum; HF, hepatic flexure; TC, transverse colon; DC, descending colon; R, rectum; Sl, slight; +, barium present; 0, barium has passed this site; the blank spaces indicate the head of the barium column has not reached these sites. Abdominal symptoms: 1. diarrhea; 2, nausea; 3, pain; 4, indigestion; 5, vomiting; 6, constipation; 7, nervousness; 8, gas.

† No examination.

‡ Twelve hour examination

§ Eighteen hour examination.

ABDOMINAL EXAMINATION

In some instances, as we have said, abdominal examination may reveal some localized thickening; but this frequently may occur only late in the disease, and then is usually accompanied by localized tenderness. Ulceration of the cecum and colon may occur without thickening of the intestine. Tenderness more often occurs when the ileocecal region is involved; but tender points may occur elsewhere.

SITE OF THE LESION AND ITS DIAGNOSIS

The sites of the ulcerative lesions in 500 necropsies have been stated to be as follows: ileocecal region, 85 per cent. (confined to this region in about 10 per cent.); jejunum, 28 per cent.; duodenum, 3.4 per cent.; ascending colon, 51.4 per cent.; descending colon, 21 per cent.; sigmoid, 13 per cent.; rectum, 14 per cent. (Fenwick and Dodwell).[10] Other observers have also clearly shown that the jejunum is not spared. The symptoms of involvement of the appendix may dominate the situation. They may occur in attacks, usually mild. Tenderness may persist, and a mass, of course, may be palpable. The ileocecal region is most often involved. The symptoms are those described, but later the pain and tenderness are often localized to the region, and some thickening may be obtained. If there is no cecal thickening and the usual symptoms occur, with constipation, the small intestine may be involved. Archibald, from whose observations we have drawn some of these statements, believes that alternating constipation and diarrhea indicate an involvement of both the large and the small bowel.

LABORATORY DIAGNOSIS

Many laboratory tests have been devised, but none are pathognomonic of intestinal tuberculosis. The whole subject is in a state far from satisfactory.

1. *Tubercle Bacilli.*—Evidence has already been quoted to show that tubercle bacilli in the stools are of no value in the diagnosis of intestinal tuberculosis. They occur in from 90 to 98 per cent. of all patients with tubercle bacilli in the sputum, irrespective of the intestinal condition.

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[10] Fenwick and Dodwell: Lancet, July 16, 1892.

TABLE 2.—NEGATIVE CASES

Case	Pulmonary Condition	Roentgen Classification	Tubercle Bacilli	Duration of Illness in Months	Tuberculous Complications	General Condition	Six Hour Examination Barium Shadows							Twenty-Four Hour Examination Barium Shadows					Filling Defect Enema Plate	Abdominal Symptoms
							Il	Ce	HF	TC	DC	R	Spasm	Ce	HF	TC	DC	R		
4716	MA	1	+	18	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	4
4743	MA	Pb	+	21	....	Unfav.	+	+	+	..	..	..	0	+	+	+	+	..	....	2, 5, 6, 7, 8
4768	MA	1	0	13	....	Fav	+	+	+	+	..	..	0	+	+	+	+	..	....	2, 4, 5, 6, 7
4773	MA	1	—	8½	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	2, 4, 6, 7
4774	MA	Pb	—	48	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	2, 5, 6, 7
4777	MA	Pb	+	42	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	1, 3, 4
4785	MA	Pb	—	8	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	6
4787	D	Pb	0	18	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	1, 2, 4, 5, 7
4803	MA	1	—	10	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	4, 6
4810	MA	2	+	12	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	4, 6
4814	D	Pb	0	24	....	Fav.	+	+	+	..	..	..	0	+	+	+	+			
4817	D	Pb	0	36	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	4
4818	MA	1	0	9	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	2, 4, 6
4783	MA	2	+	8	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	2, 4, 5
4824	I	Pb	0	24	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	..	....	4, 6
4827	MA	3	+	6	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	2
4829	D	Pb	0	6	....	Fav.	+	..	..	..	..	..	0	+	+	+	+	+	....	2, 4, 6, 7
4839	MA	2	+	16	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	4, 6
4846	MA	2	+	27	....	Fav.	+	+	+	+	..	..	0	+	+	..	..	..	....	2, 3, 5, 8
4852	MA	1	0	14	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	2, 4, 5, 6
4878	MA	1	+	5½	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	6
4887	MA	Pb	0	4	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	2, 4, 6
4894	D	Pb	0	16	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	2, 4, 5, 6
4905	N	Pb	0	65	....	Fav.	+	+	+	+	+	..	0	+	+	+	+	+	....	4
4895	MA	3	+	6	....	Unfav.	+	+	+	..	..	..	0	+	+	+	+	+	....	2, 5, 6
4907	MA	1	0	72	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	2, 4, 5, 6, 7
4916	MA	Pb	—	6½	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+		
4920	MA	2	+	30	....	Fav.	+	+	+	..	..	..	0	+	+	+	..	..	....	4, 6, 8
4921	N	Pb	0	18	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	2, 6, 7
4922	MA	2	0	20	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+		
4940	MA	1	0	10	....	Fav.	+	+	+	..	..	..	0	+	+	..	..	..	....	2, 4, 6
4942a	MA	2	+	19	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	4, 6
4943	MA	2	+	4	....	Unfav.	+	+	+	..	..	..	0	+	+	+	+	+	....	2, 4
4953	MA	3	+	14	....	Fav.	+	+	+	..	..	..	0	Sl	Sl	+	0	+		
4978	MA	1	0	120	Addison ?	Unfav.	+	+	+	..	..	..	0	+	+	+	..	..	....	2, 4, 6
4998	MA	2	+	4	....	Fav.	Sl	+	+	+	..	..	0	+	+	0	0	+	....	2, 3, 4, 5, 6
5007	MA	3	+	72	....	Fav.	+	+	+	+	..	..	0	Sl	Sl	+	+	..	....	4, 7
5024	I	Pb	0	72	....	Fav.	+	+	+	+	..	..	0	+	+	+	0	0		
5042	MA	1	0	96	....	Fav.	+	+	+	..	..	..	0	+	+	+	..	..	....	2, 4, 6, 7
5080	I	1	+	12	....	Unfav.	+	+	+	..	..	..	0	0	+	+	+			
7505	D	Pb	NS	48	....	Fav.	Sl	+	+	..	..	..	0	Sl	+	+	0	0	....	3, 6
7681	MA	2	+	11	....	Fav.	+	+	+	..	..	..	0	+	+	+	+	+		
7770	N	?	0	1	....	Fav.	Sl	+	+	Sl	Sl	..	0	Sl	+	Sl	0	+	....	3
7977	I	2	NS	6	Epidid. ?	Fav.	+	+	+	..	..	..	0	+	+	+	+	+	....	3
5037	MA	2	0	6	....	Fav.	+	+	+	..	..	..	0	+	+	+	0	+	....	2, 4, 5, 7
8526	I	2	0	14	....	Fav.	+	+	+	+	..	..	0	+	+	+	0	+	....	8
8551	MA	...	+	22	....	Fav.	..	..	..	..	..	..	....	+§	+	+	+	+	0	1
8559	MA	2	+	42	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	0	3
8792	MA	1	+	8	....	Fav.	+	+	+	..	..	..	0	+	+	0	0	+	....	8
8913	MA	2	+	18	....	Unfav.	+	+	+	+	+	Sl	0	..	..	..	..	..	....	2, 5, 6
9088	MA	2	+	156	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	1, 4
9207	I	...	0	60	....	Unfav.	+	+	+	..	..	..	0	+	+	+	0	Sl	....	8
9192	MA	3	+	6	....	Fav.	+	+	+	..	..	..	0	+	+	+	Sl	..	....	8
9141	I	...	+	96	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	1, 2, 3, 8
9106	MA	...	+	120	....	Fav.	+	+	+	+	+	..	0	+	+	+	+	+	....	4, 7
9105	MA	2	..	120	Effusion	....	+	+	+	+	..	..	0	Sl	Sl	0	0	+	....	1, 2, 3
4822	MA	1	+	5½	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+		
5065	MA	2	+	18	....	....	+	+	+	..	..	..	0	+	+	+	+	+	....	4
9227	MA	2	+	84	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	4, 8
9228	MA	2	+	24	....	Fav.	+	+	+	+	..	..	0	+	+	+	+	+	....	4, 6

TABLE 3.—DOUBTFUL CASES

Case	Pulmonary Condition	Roentgen Classification	Tubercle Bacilli	Duration of Illness in Months	Tuberculous Complications	General Condition	Six Hour Examination Barium Shadows							Twenty-Four Hour Examination Barium Shadows					Filling Defect Enema Plate	Abdominal Symptoms
							Il	Ce	HF	TC	DC	R	Spasm	Ce	HF	TC	DC	R		
4775	MA	3	+	30	....	Fav.	+	+	+	..	..	..	....	0	0	0	0	+	....	1, 2, 3, 4, 5
4780	MA	3	+	54	....	Fav.	+	+	+	..	..	..	....	0	0	0	0	0	....	6
4815	I	1	0	42	....	Fav.	+	+	+	+	..	..	Ce ?	0	0	0	+	+	....	4, 7
4881	MA	3	+	30	....	Fav.	+	+	+	..	..	..	....	+	+	+	+	+	Cecum	2, 3, 4, 6, 8
4902	MA	2	+	3	....	Fav.	+	+	+	+	..	..	Ce ?	Sl	Sl	Sl	Sl	+	....	2, 4, 5, 7
4908	MA	2	0	7	....	Fav.	+	+	+	+	+	+	....	0	0	0	+	+	....	2, 3, 4
4948	MA	Pb	0	36	....	Unfav.	+	+	+	..	..	..	....	0	0	0	0	+	....	2, 4
4955	MA	2	+	2	....	Fav.	+	+	..	..	..	..	....	0	0	0	0	+	....	4, 6
5000	MA	3	+	24	....	Fav.	+	+	+	+	..	..	....	0	0	0	0	+	....	4, 6, 7
7522	FA	...	+	36	Larynx	Unfav.	+	+	+	+	..	..	Ce ?	0	0	0	Sl	+	....	1 and 6 alternately
7529	FA	3	..	60	Appendectomy	Unfav.	+	Sl	Sl	..	..	..	Ce ?	Sl	0	0	+	+	....	1, 3, 4, 7, 8
7722	MA	3	+	18	Larynx	Fav.	+	+	+	+	..	..	....	0	0	+	0	+	0	1
7863	MA	...	+	24	Larynx	Fav.	+	Sl	0	0	+	..	....	+	+	+	0	Sl		
7877	FA	3	+	9	Larynx	Unfav.	+	..	..	..	..	..	....	+	+	+				
8563	MA	3	+	42	....	Fav.	..	..	..	..	..	..	Ce ?	+‡	+	+	0	+	0	1
4544	MA	Pb	+	10	Larynx	Fav.	0	+	+	+	..	..	Ce ?	Sl	+	+	+	+	....	1, 3, 4
8942	MA	3	+	12	Otitis media	....	+	+	+	+	Sl	..	....	0	0	+	0	Sl	....	8
9206	MA	3	+	18	....	Fav.	+	+	+	+	..	..	Ce ?	0	+	+	+	0	....	6, 8
9135	FA	3	0	12	....	Unfav.	+	+	+	..	..	..	Ce ?	+	+	+	+	0	....	3, 6
7493	FA	3	+	20	Larynx	Unfav.	+	Sl	..	..	..	..	....	Sl	Sl	0	Sl	Sl	....	2, 3, 8, 1 and 6 alternately
7923	MA	3	+	48	Nephritis	Unfav.	+	+	+	+	+	..	....	Sl	+	+	0	0	Cecum	1, 3, 7, – 8 marked

2. *Pus and Blood in Stools.*—The occurrence of either pus or blood in the stools points to intestinal ulceration, but both may be lacking and tuberculous intestinal ulcers may still be present. Blood should always be looked for after abstinence from meat for three days. Macroscopic blood is rare, though Kidd[11] and others have reported deaths from intestinal hemorrhage in intestinal tuberculosis.

3. *The Blood.*—The blood in rare instances may give a picture suggesting pernicious anemia, but usually the most characteristic finding is a leukocytosis, with a nearly normal relative count.

4. *Tuberculin.*—This may cause some increase of pain, but aids little in diagnosis.

5. *Urine.*—The urine may show a marked indican reaction.

It seems likely that either slight rise of temperature without increase of pulmonary symptoms, anorexia prolonged and marked, slight digestive disturbances, regurgitation or vomiting of food, nausea, slight abdominal discomfort or actual pain, constipation or slight diarrhea, or constipation alternating with diarrhea, should attract attention to the intestinal tract and suggest possibly tuberculous ulceration. It must always be borne in mind that the occurrence of several of these symptoms usually takes place only when the process is well marked. In fact, any patient with chronic pulmonary tuberculosis who fails to gain weight or to make satisfactory progress, no matter how slight the abdominal symptoms are, should be studied for latent tuberculous colitis. The frequency of such symptoms in the course of pulmonary tuberculosis is well recognized, and we hold that in the presence of such symptoms a diagnosis of intestinal tuberculosis cannot be made positively, except by roentgen study. It is possible that roentgenologic examination of the intestine may eventually become part of the routine work in many sanatoriums for pulmonry tuberculosis, and in every instance, no advanced case should be subjected to radical treatment until the intestinal tract is studied by this method.

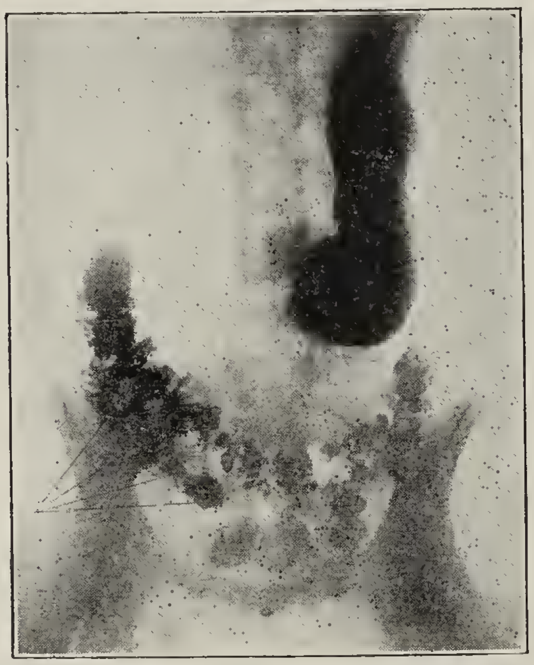

Fig. 10 (Case 7521).—Six hours, prone. Note spastic ragged appearance of cecum and cecocolon. There was hypermotility; the head of the column was in the rectum. The patient was referred for pulmonary tuberculosis. There was hyperacidity and occasional vomiting, frequent regurgitation of food, marked constipation. Cecum palpable, possibly thickened. Site of roentgen-ray lesion, cecum and cecocolon, is indicated by lines. At operation, cecum and cecocolon were tuberculous. Operation was done with excision of diseased area. Condition, one year after operation, apparently complete recovery.

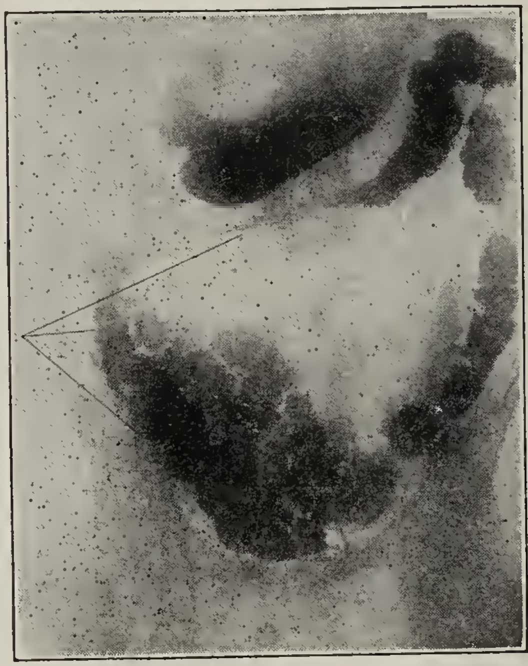

Fig. 8 (Case 7213).—Six hours, prone. Note spastic, ragged appearance of ascending and first portion of transverse bowel. There was hypermotility; the head of the column was in the sigmoid. The patient was referred for pulmonary tuberculosis. There was occasional diarrhea; the stools were foul, and there was slight abdominal discomfort. Site of roentgen-ray lesions in ascending and probably in first portion of transverse colon are indicated by lines. At operation, the ascending and the first half of the transverse colon were tuberculous. Appendectomy was performed. Condition twelve months after operation: There were no symptoms; the patient had gained 30 pounds. Twenty-four hour examination: bowel was entirely empty.

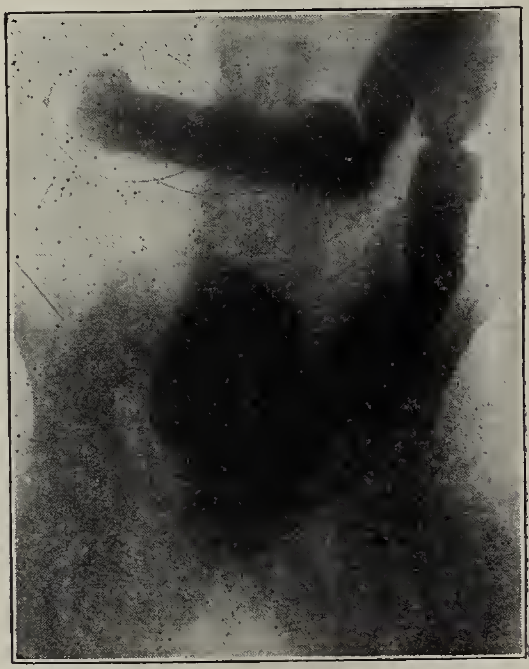

Fig. 9 (Case 7213).—Same case as Figure 8. Filling defect of the ascending colon and the ragged appearance of the first portion of the transverse colon (indicated by line).

ROENTGENOLOGIC EXAMINATION—PREVIOUS WORK

For some years, the medical profession has had at its beck and call a technic which discloses the variations in the motility and contour of the large intestine. It is rather curious that so few have made use of this procedure in the study of tuberculous colitis. So far as we are aware, the first to call attention in American literature to hypermotility of the cecum was Pirie, who, after carrying out work suggested by Archibald, wrote a paragraph in the article by Archibald already referred to. He states that in tuberculosis of the cecum he was never able to visualize the barium meal in the cecum and was greatly disappointed. By careful observations repeated at half hour intervals and continued for from four to twelve hours, he was able to show that the tuberculous cecum retained none of the barium meal which normally should have accumulated there. He based his conclusions on a study of about twelve of Archibald's twenty-seven cases.

It was quite natural that we should have undertaken the study of this method of early diagnosis, as so many suspicious cases came under our observation. After our work was nearly completed, we discovered that in 1911 Stierlin[12] of Basel studied six such cases, in which later operation was done by Wilms. In these cases the absence of barium or bismuth shadows at certain times in certain sites, when normally they should have been present, suggested hypermotility. Stierlin diagnosed on this fact the presence of ulceration of the large bowel at the site which threw no shadow. In six such cases of tuberculous colitis and in one of chronic nontuberculous ulceration, Stierlin's diagnosis was confirmed at operation.

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[11] Kidd: Allbott's System of Medicine, **5**: 216.

[12] Stierlin: München. med. Wchnschr. **58**: 1231, 1911.

Several years ago, it occurred to us that the only treatment of tuberculous enteritis that promised much relief, or even suggested the possibility of cure, was surgical intervention, which led us eventually to discuss the subject with Archibald. For this reason, and because we have had an opportunity of seeing clinically and of studying roentgenographically some of the cases in which later operation was done by Archibald and by R. M. Brown, our interest in the subject has increased; especially is this true since we have been impressed with how little general medical practitioners and, for that matter, even specialists in tuberculosis, gastro-enterology, and roentgenology, know of the technic necessary to make a diagnosis of tuberculosis of the large intestine.

TECHNIC

The technic varies little from that used in most roentgen laboratories. The day before the examination the patient is requested to abstain from taking any laxative. At an appointed hour the next morning he is given a barium suspension on an empty stomach (formula: 1 tablespoonful of cocoa, 1 tablespoonful of sugar, 1 tablespoonful of flour, 4 ounces of barium, and milk to make 16 ounces). The examination during the ingestion of the meal has often been omitted, on account of the patient's condition. However, it is not usually of any importance in this work. Six hours after taking the meal, the patient is examined fluoroscopically and roentgenographically. This examination is important, as at this hour, one should visualize the cecum and probably the ascending colon. An examination every half hour for the next hour or two may be necessary in order to catch the cecum partially or wholly filled. When possible, the patient is examined at the end of eighteen hours, but always at twenty-four hours. The eighteen hour examination may make the twenty-four hour examination unnecessary. Plates are absolutely necessary at all examinations. A day or two later, the patient, having taken an ounce of castor oil eighteen hours before, returns for a barium enema. The enema is administered by low gravity pressure, from 10 to 12 inches, and the injection is observed fluoroscopically. When the enema is seen to have reached the cecum or, as in many cases, has passed through the ileocecal valve, it is stopped and a plate is made in the prone position.

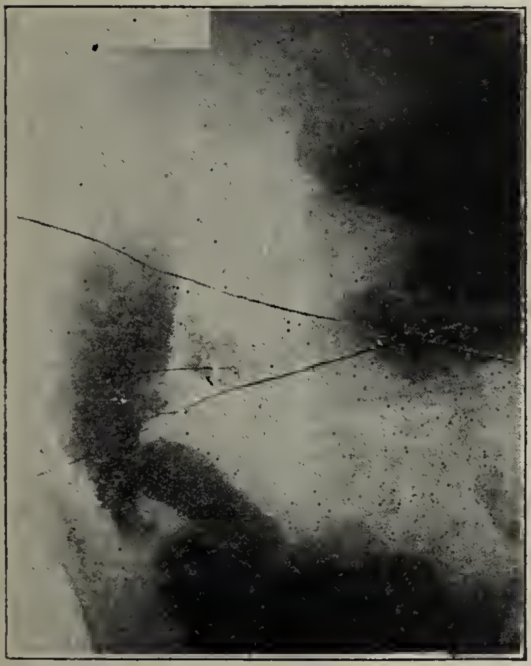

Fig. 10 (Case 7521).—Six hourrs, prone. There is a spastic, ragged appearance of the cecum. The patient was referred for pulmonary tuberculosis. Leukocyte count was 16,000. There was a persistent, slight increase of temperature and alternating constipation and diarrhea. The site of the roentgen-ray lesion is in the cecum (indicated by lines). Operation was refused. Later there was marked increase of all abdominal symptoms. Twenty-four hour examination showed a marked hypermotility.

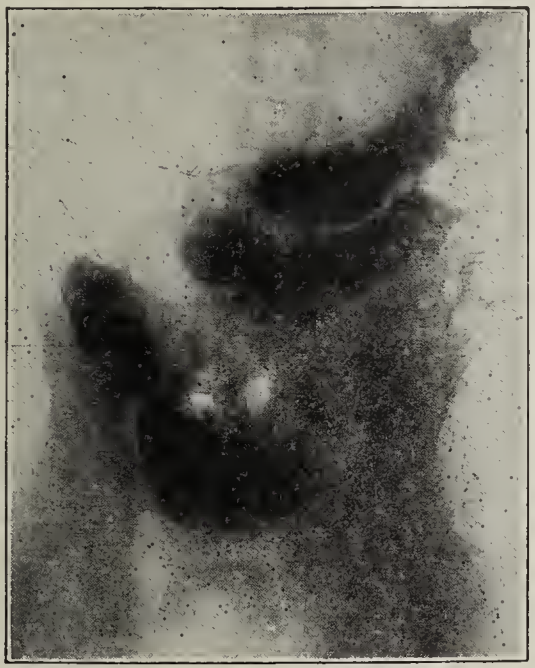

Fig. 11 (Case 7541).—Six hours, prone. Note absence of barium shadows at hepatic flexure. Same manifestation is seen in a series of plates taken on different days. Note the filling defect in cecum. There was hypermotility; the head of the column was in the sigmoid. The patient was referred for pulmonary tuberculosis. There was marked abdominal discomfort and severe "constipation." Surgical diagnosis was appendicitis. The site of the roentgen-ray lesion was the hepatic flexure region (indicated by lines). At operation, tuberculosis of the hepatic flexure region was diagnosed. There was an adhesion across the cecum. Postoperative death resulted.

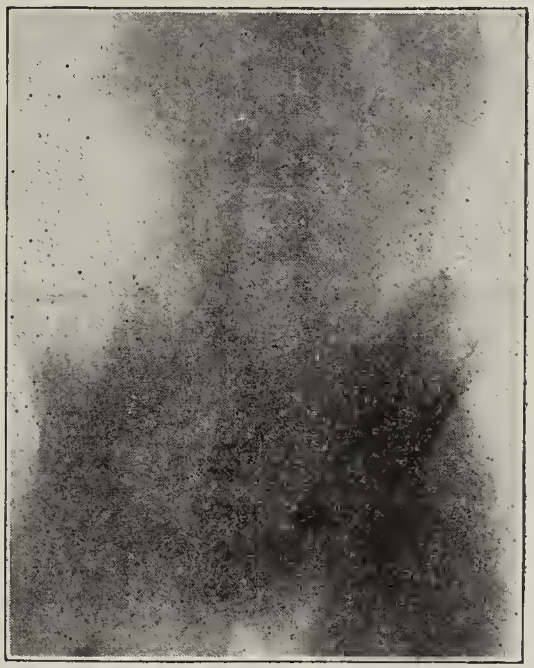

Fig. 12 (Case 7541).—Same case as Figure 11. Twenty-four hours, prone. There was hypermotility. The bowel was virtually empty.

NORMAL MOTILITY

For convenience, we may say that the normal stomach empties itself in from three to six hours. The head of the barium meal reaches the ileocecal valve in from one to three hours. The ileum empties itself in from five to nine hours. The cecum is seen in from two to four hours after the ingestion of a meal. Six hours after the meal has been taken, the head of the column is seen at the hepatic flexure or the splenic flexure. Complete evacuation of the meal takes place in from thirty-six to forty-eight hours. The cecum remains well or partially filled from the fourth to the thirty-sixth hour.

PATHOLOGIC HYPERMOTILITY

The first rather marked variation in the foregoing order of things to attract our attention was the rapidity with which the barium passed through the large bowel. Complete evacuation often occurred in from twenty to twenty-four hours, although it is not unusual, in a certain number of cases, to find a small amount of barium still in the rectum at the end of this interval. In many cases (usually the more positive), in six hours the head of the column could be seen in the sigmoid and rectum, while at the same time there was a small retention in the stomach. In view of the fact that the patients manifesting this hypermotility had not taken any cathartic for thirty-six hours prior to the examination, this rapid progress through the large bowel needed explanation. On closer observation, it was noticed in many of the cases that apparently the cecum or cecocolon was the seat of this definite hypermotility. A typical illustration is Case 7875. The six hour examination gave no trace of barium beyond the ileocecal valve; the terminal ileum was well filled. The nine hour examination disclosed faint traces of barium in the cecum and a fair amount around the hepatic flexure. This case would seem to indicate that the cecum and cecocolon refused to retain the material delivered to it and passed it along about as rapidly as it was received. In none of the cases later proved at operation to be tuberculous were we able to visualize a well-filled cecum or cecocolon, with the usual smooth haustral sacculations. It appeared as though the ulcerated portion of the bowel was unable to retain the usual amount of barium; or, indeed, it seemed to be completely emptied. In many of the positive and probable cases there was noticed a definite ileac stasis[13] at six hours with hypermotility in the cecum at subsequent examinations. Whether this apparent stasis was due to stricture, to spasm of the sphincter or to regurgitation, it is difficult to say. The last would seem to be very likely in many of the cases.

The question arose immediately: Could conditions other than ulceration of the cecum or of the ascending colon produce this rapid type of hypermotility with its peculiar attending features? A few control cases were examined after the administration of a cathartic (castor oil), and while there was an increase in rapidity of the passage of feces through the large bowel, the bowel did not present the same manifestations as are seen in those patients proved to have had tuberculous colitis. The former cases showed smooth haustration, and, while the contents moved along more rapidly than they did when not under the influence of the cathartic, a spastic or ragged contour was never visualized.

A few cases of acute or habitual diarrhea produced about the same manifestations as were observed in those in which cathartics were given. A study of an article by Jordan,[14] in which he illustrates a number of cases of colitis and diarrhea, fails to reveal any indication of the hypermotility observed in tuberculous colitis. From a study of the prints in articles by Imboden[15] and Spriggs,[16] it seems possible to exclude definitely disease of the appendix as the cause of these manifestations. George and Leonard,[17] in their book, apparently make no mention of such a picture as due to any other cause.

FILLING DEFECTS

The second, and probably the more important, manifestation observed was the spastic appearance of that portion of the bowel later proved to be involved, usually the cecum or cecocolon. The smooth haustral sacculations were absent and the bowel had a distinctly irregular and ragged appearance. In the positive cases the affected portions of the bowel were only partially filled. Under the fluoroscope, barium was seen to enter the diseased cecum; but a few minutes later it had passed on to the transverse colon. In some cases, while the abdomen was being palpated in the region of the ascending colon, the barium shadows were seen to move out of this portion of the bowel, even though no more barium had entered it, and vis a tergo could apparently be excluded. We have not been able to reproduce this particular manifestation in patients having apparently no tuberculous colitis.

STUDY OF BARIUM ENEMAS

In many of the cases we were unable to administer barium enemas, owing to the weakness of the patients, who, however, had usually a positive diagnosis. With the administration of the enema, in some cases, the barium was seen to move slowly, as a smooth mass, until it reached the suspected portion of the bowel, where it stopped. It was usually necessary to increase the gravity pressure in order to fill, in part, this portion of the bowel, which at times showed here and there irregular, stringlike barium shadows, extending from the main column of barium into the portion of bowel we were attempting to fill. These manifestations suggested that the suspected portion of the bowel was in a state of spasm or collapse, and refused to receive the barium enema. By manipulation, however, it could usually be filled fairly well. In many cases, nevertheless, the filling was only temporary, for this portion of the bowel apparently developed a contraction or spasm, and the barium column was seen to move distally rather rapidly. In a few instances the ascending and transverse portions of the colon were emptied completely, producing a dilatation of the distal colon. The plates taken at this time which were considered to give positive evidence showed a definite filling defect in one or more portions of the bowel, usually the cecum or the cecocolon. So far, we have been unable to discover any condition, apart from intestinal ulceration, which produced this picture.

ANALYSIS OF RESULTS

In all, examinations were made in 110 cases. Three cases (2.7 per cent.) were negative for pulmonary tuberculosis; six cases (5.4 per cent.) presented only suspected pulmonary tuberculosis; eleven cases (10 per cent.) exhibited incipient pulmonary tuberculosis; in sixty-eight cases moderately advanced pulmonary tuberculosis was present, and in twenty-two cases pulmonary tuberculosis was far advanced.

Among the negative and suspected or doubtful pulmonary cases there was no roentgenologic evidence of tuberculous colitis. In these groups, however, there were a few cases which showed a mild hypermotility.

Of the eleven incipient pulmonary cases, seven were negative; one gave doubtful roentgen findings; three gave positive findings. Of the last three cases, one was proved at operation; one patient died of pulmonary and intestinal tuberculosis (?); one patient is alive, and has not been operated on.

Of the sixty-eight moderately advanced pulmonary cases, forty-four were negative; fifteen, doubtful, and nine, positive. Of these nine, four were proved at operation, and five patients were not operated on.

Of the twenty-two far advanced pulmonary cases, none were negative; five were doubtful. Of these five, three patients were not operated on, and two are dead. Seventeen were positive. Of these seventeen, nine were verified at operation; three ended with death; five patients were not operated on.

In many of the foregoing cases the operative findings tallied very closely with the diagnosis as to site and extent. The remainder, however, revealed more extensive ulceration than the plates or screen indicated. This can be readily explained by the fact that the barium remained such a short time in the diseased areas, particularly in the transverse and descending colon, that it was mere guesswork when these portions of the bowel were under consideration to confirm or exclude tuberculous changes. Then again, the motility of this part of the bowel would in all probability have to be studied at different hours. The lack of haustration would depend largely on the character and quantity of the barium visualized.

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[13] We considered ileac stasis present if, at the six hour examination, the following was observed: stomach seven-eighths or completely empty, ileum well filled, no barium having reached the cecum.

1 . Jordan: Arch. Roentg. Ray **18**: 328, 1914.

[15] Imboden: Am. J. Roentgenol. **2**: 582, 1915.

16 Spriggs: Lancet **1**: 91, 1919.

[17] George and Leonard: The Roentgen Diagnosis of Surgical Lesions of the Gastro-Intestinal Tract, Boston, 1915.

Through the kindness of Drs. Robert M. Brown, R. C. Paterson, S. F. Blanchet and Charles C. Trembley, we have been enabled to study roentgenographically some of their cases. It is interesting to note that in this second set of similar cases, the results were identical with those mentioned above.

We have intentionally omitted from this article any mention of the diagnosis of tuberculosis of the small intestine. So far as we are aware, no one has yet been able to diagnose definitely tuberculosis of the small intestine. This should always be borne in mind in suggesting operative measures. We have at present the problem under study and hope to arrive at its solution.

A number of cases classified as doubtful, which presented, on clinical study, all the typical symptoms of intestinal tuberculosis, revealed at the roentgen examination a fairly marked tendency toward hypermotility, which was not sufficient, however, to enable us to regard it as a positive finding. Further, the cecum at the six hour examination (which usually extended over a period of at least fifteen to thirty minutes) never assumed its normal pouchlike appearance, but appeared more or less narrowed, or was distinctly incompletely filled, even though barium was seen distal to this site. The diameter of this portion of the bowel was apparently less than the diameter of the ascending and transverse portion. Normally, it may be recalled, the cecum is larger in diameter than any portion of the colon with the exception of the sigmoid and rectum. Furthermore, fluoroscopic examinations were necessary to confirm these data. The outline, while not typically ragged, did not reveal the smooth haustral sacculations normally seen. Finally, we would like to call attention to the fact that some of these cases were put in the doubtful group because we thought the plate might have been taken at a time when the characteristic appearance of the cecum was not present. Had we waited, a few minutes later we might have observed this portion of the bowel virtually empty. The enema plate, as a rule, with the possible exception that the cecal shadow was definitely narrower than the ascending colon, revealed no abnormalities. In a few of these cases operation has been done and they have been found tuberculous. Further, we would not like to assert that the absence of detectable hypermotility and filling defects absolutely excludes the possibility of tuberculous colitis. The presence of a beginning hypertrophic colonic tuberculosis may cause not only lack of emptying but even cecal retention at the end of twenty-four hours.

CONCLUSIONS

1. Tuberculous colitis can be diagnosed clinically with a considerable degree of certainty when the disease is far advanced.
2. On the other hand, in the early or latent stages, when remedial measures may prove of avail, the clinical picture may be of little aid in diagnosis.
3. In all stages, certain shadows cast by the barium meal at the end of six, eighteen and twenty-four hours determine definitely the presence of colonic ulcerations, but the absence of such shadows does not absolutely exclude colonic ulcerations.
4. The roentgenologic picture shows hypermotility and spasm, or filling defects.
5. The presence of such a picture in a patient with pulmonary tuberculosis should lead to a definite diagnosis of colonic tuberculosis.
6. Tuberculous colitis occurs far more frequently than hitherto supposed, and must be excluded in all advanced cases and in any early case with any abdominal symptoms, before submitting the case to radical treatment.
7. No examination of a patient with pulmonary tuberculosis can be considered today complete without a roentgenologic study of the intestine.

THE EGGS OF DIPHYLLOBOTHRIUM LATUM *

THOMAS BYRD MAGATH, Ph.D.

CHICAGO

Since most diagnoses of parasitic worms depend on the identification of the egg of that species in the excreta or the blood of the patient, it is very important that data should be available for the identification of the various eggs of the different species encountered in man. Ward,[1] in 1903, called attention to the importance of the eggs of human parasites, and in 1908 stated[2] that "the very existence of marked variation (in the egg size) in the records of a single form is presumptive evidence that in the absence of errors of observation, two or more species are confused under the single appellation." The importance of the size of the egg as a diagnostic feature has been emphasized by many writers, and Looss gives the size of the egg as a specific character in trematodes. All textbooks on laboratory diagnosis give dogmatic measurements for the parasitic eggs, and very little can be found on the subject of variation in them.

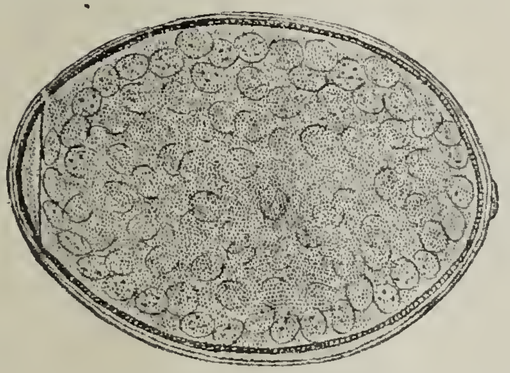

Fig. 1.—Camera lucida drawing of an egg of D. latum, in which may be noted the lid at one pole and the thickened nodule of the shell at the other; × 680.

Foster[3] has called attention to marked variations in the size of *Ascaris* eggs, both from man and from swine, while Cort[4] noted in *Pneumonoeces similiplexus* from the leopard frog very definite variations in the size of the eggs. He stated that the variation within this species was greater than that between two species within the same genus. I have many times noted the great difference in the size of eggs of parasitic worms as seen in smears of feces, and have undertaken to investigate more carefully the degree of variation to be found in a single species.

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* From the Department of Anatomy, University of Illinois, College of Medicine.

* Diphyllobothrium latum is perhaaps more commonly known under the generic name of Dibothriocephalus or Bothriocephalus. On the law of priority, however, the name used here is the correct one. An intermediate host of this parasite is to be found among certain fishes, such as the perch and the pike.

[1] Ward, H. B.: Data for the Determination of Human Entozoa,

[2] Ward, H. B.: Data for the Determination of Human Entozoa, II, Tr. Am. Micr. Soc. 28: 177-202, 1908.
Tr. Am. Micr. Soc. 24: 103-138, 1903.

[3] Foster, W. D.: Observations on the Eggs of Ascaris Lumbricoides, J. Parasitol. 1: 31-36 (Sept.) 1914.

[4] Cort, W. W.: Egg Variation in a Trematode Species, J. Parasitol. 2: 25-26 (Sept.) 1915.

The material for this study was kindly supplied by Dr. Charles S. Williamson of Chicago. A very large specimen of *Diphyllobothrium latum* was obtained from a patient, and from the macerated fresh proglottids were obtained a great number of eggs. One hundred of these were measured and the results recorded. None were measured which looked abnormal in any way, and only those which were oriented in the field with the polar axis parallel to the slide were used. All the eggs measured were well along in development, as was noted by the color of the shells and the segmentation of the yolk cells.

From a study of the measurements, it was found that the length of the eggs varied from 55 microns to 76 microns, while the average length was 63.64 microns. The transverse diameter varied from 41 to 56 microns, the average being 47.33 microns. The ratio between the width of the egg and its length varied from 1 : 1.19 to 1 : 1.56, with an average of 1 : 1.3775.

The longest eggs measured 76 by 49 and 76 by 52 microns, while the shortest egg was 55 by 46 microns. The egg having the longest transverse diameter was 67 by 56 microns, and the one with the least transverse diameter measured 60 by 41 microns. An egg of average length and average transverse diameter would have a ratio of diameter to length as 1 : 1.30.

It becomes evident from this study that the mere size of the egg in the case of this interesting cestode is not of a great deal of value in identifying the species with which the host is infected. This becomes all the more evident when one recalls that the eggs of *Diphyllobothrium cordatum* are said to range from 75 to 80 by 50 microns, and those of *Diplogonoporus grandis* are given as being 63 by 48 to 50 microns. Even the eggs of trematodes and nematodes might be mistaken for these eggs if size alone is the criterion for distinction. The eggs of the hookworms are but slightly smaller in the transverse diameter, and are as long as those of *D. latum.* The eggs of *Dioctophyme gigas,* the kidney worm, are 60 by 40 microns, and the eggs of the species of *Trichostrongylus* found in man lie within the range found to cover those of *D. latum.* The eggs of *Paragonimus* are but slightly larger, and some individual eggs are without doubt as small as the largest ones found in the cestode.

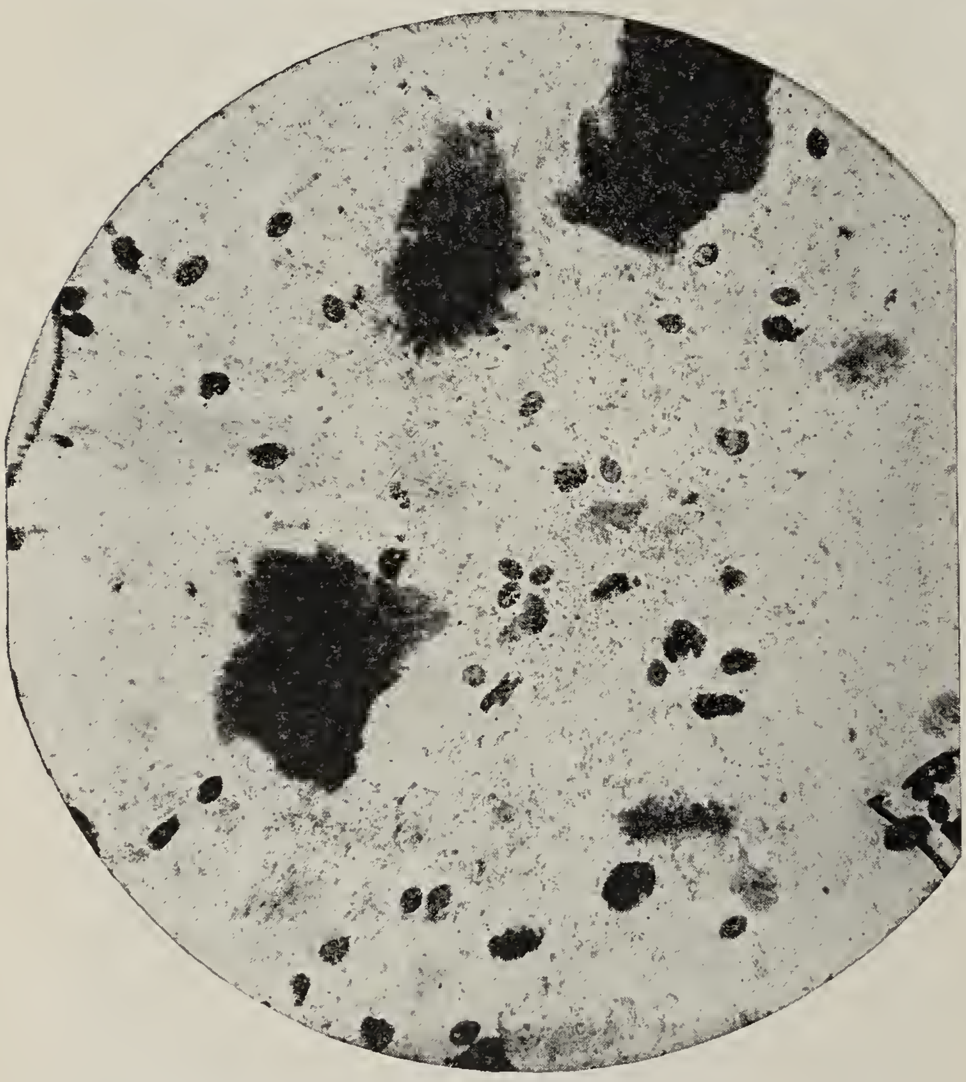

Fig. 2.—Photomicrograph of a field of D. latum eggs, as seen under low power; × 50.

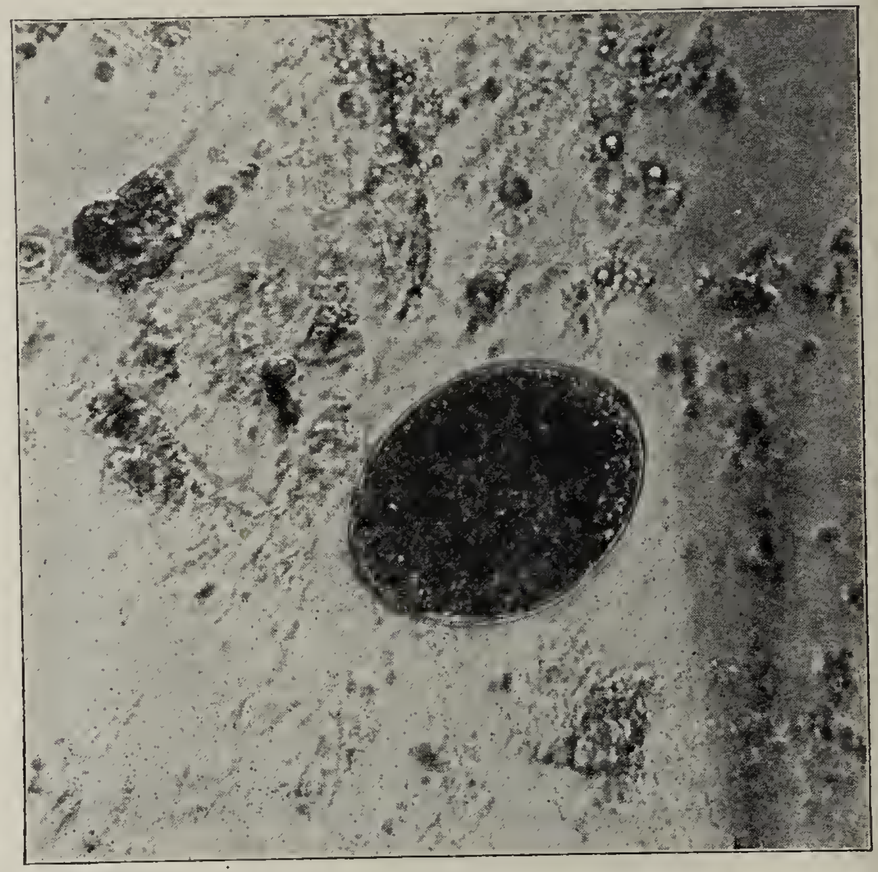

Fig. 3.—Photomicrograph of an egg of D. latum, × 400, in which the characteristic features of the egg are shown.

It is evident that if one is to make a positive diagnosis in the case of an infection with *Diphyllobothrium latum,* it will be necessary to have some characteristics which will identify the eggs found in the stools. Figures 1 and 3 illustrate the eggs of this species. It will be seen that within the shell there is an irregular mass of granular material which represents the rapidly segmentating yolk cells in which is surrounded the growing embryo. The shell is a light straw color, transparent and with a thin shell, which is less than a micron thick. Within this shell is a very thin membrane, and the yolk cells are within this membrane. The eggs are almost ellipsoidal in shape, but tend to be more pointed at one pole. This pole is fitted with a very small cap, which in Figure 1 is seen slightly opened. Later on the embryo makes its escape through this opening of the shell. At the opposite pole there is a minute thickening of the shell, which has apparently escaped the observation of previous workers, but which is constant and becomes more conspicuous as the eggs mature, just as in the case of the cap at the other end. With these characteristics, which are purely morphologic, one may make a very definite diagnosis of the presence of this worm, the egg lying within the range of size given above.

It is interesting to note the statements of previous writers on the subject of the eggs of *D. latum.* Thus Ward[5] says:

> Eggs oval, 0.05 to 0.07 long, 0.035 to 0.045 wide; they have a brown shell with a cover.

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[5] Ward, H. B.: The Parasitic Worms of Man and the Domestic Animals, Report for 1894, Neb. State Board Agr., p. 294, 1895.

Ward,[1] quoting from Schauinsland, says:

> The eggs possess a thick brown shell, and a small lid, which becomes especially distinct at the close of development. They contain a large amount of yolk substance, and do not increase in size. As in all Bothriocephalids the development is carried out in the water and not in the maternal body, so that the inconspicuous egg cell is only rarely to be found in the mass of yolk cells which usually completely conceal it.

Ward[6] further states that the eggs are from 68 to 70 by 45 microns in size.

Castellani and Chalmers[7] state that:

> The brown eggs are oval, 68 to 71 microns in length, and 45 microns in breadth, with an operculum.

Stephens[8] gives the following data:

> Eggs large, with brownish shells and small lids, 68 to 71 by 45 microns; the ovarian cell, which is already, as a rule, in process of segmentation, is surrounded by numerous large yolk cells.

Faught[9] says:

> The eggs are large with brownish shells and small lids. They measure 0.068 to 0.071 by 0.045 mm.

Todd[10] maintains that:

> The ova are characteristic. They measure about 45 to 70 microns, are brown in color, and are filled with small spherules. The shell is thin and has a small hinged lid at one end. As the eggs appear in the feces the lid is not easily seen, but it may be demonstrated by sufficient pressure upon the cover glass to force it open.

Wood[11] says:

> The eggs measure 45 by 67-71 microns. They are of a brown color and occasionally a small cap or lid can be demonstrated at one end of the egg. The shell is thin and highly refractile. The germ cells are often segmented and surrounded by a number of large yolk cells.

Webster comments thus:

> The ova are brownish in color, ellipsoidal in shape, 68 to 71 microns in length and 44 to 45 in transverse diameter, have a thin shell, and a lid which may be opened or closed. The contents of the ova are coarsely granular or mulberry-like.

From these accounts it can be seen that the previous statements concerning the size of the egg in *D. latum* have been misleading on the basis of the present study, and from other indications I am inclined to think that all of our common species of parasites of man and the lower animals will bear investigation along the line of the size of the eggs. It is hoped that others who have material available will undertake such a study on fresh material. The quickest way in which to measure eggs that I know of is to project a scale on a card from a stage micrometer by means of a camera lucida, and to draw the scale, subdividing the spaces to have divisions equal to 5 microns. A similar scale is projected over this scale and at right angles to the first lines. Then the eggs are projected on the scale on the card by the camera lucida and the measurements read off. For the present work a magnification of 700 diameters proved efficient.

CONCLUSIONS

1. There is great variation in the eggs of *Diphyllobothrium latum.*
2. The average length is 63.64 microns, the average transverse diameter 47.33 microns, and the average ratio between transverse diameter and length is 1 : 1.3775.
3. Because of the great variation in the size of the eggs it is not wise to make a definite diagnosis of the presence of this species entirely from measurements of the eggs, but to consider the morphology of the eggs as well. The cap on one pole and the small thickened nodule at the other clinch the diagnosis. A thorough search for proglottids should be made in the feces in suspected cases.

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[6] Ward, H. B.: Cestoda, Reference Handbook of the Medical Sciences, New York, William Wood & Co. **2**: 776, 1912.

[7] Castellani, A., and Chalmers, J.: A Manual of Tropical Medicine, New York, William Wood & Co., 1914.

[8] Stephens, J. W. W.: Platyhelminthes, in Fantham, Stephens and Theobald: The Animal Parasites of Man, New York, William Wood & Co., 1917.

[9] Faught, F. A.: Essentials of Laboratory Diagnosis, Ed. 6, Philadelphia, F. A. Davis Company, 1917, p. 152.

[10] Todd, J. C.: Clinical Diagnosis, Ed. 2, Philadelphia, W. B. Saunders, 1912, p. 352.

[11] Wood, F. C.: Chemical and Microscopical Diagnosis, New York, D. Appleton & Co., 1905, p. 349.

[12] Webster, R. W.: Diagnostic Methods, Chemical, Bacteriological and Microscopical, Ed. 5, Philadelphia, P. Blakiston's Son & Co., 1916, p. 144.

A METHOD FOR THE PREPARATION OF PROPHYLACTIC AND AUTOGENOUS LIPOVACCINES *

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AND
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In prophylactic inoculations with a mixed vaccine against influenza and its complications, it was noted that a small percentage of the persons inoculated developed rather severe reactions.[1] The possible advantages to be derived by suspending the bacteria in oil, especially when a mixed vaccine is indicated, as first practiced by Le Moignic and Pinoy[2] and studied on a large scale by Whitmore and his co-workers in the Army Medical School,[3] have been pointed

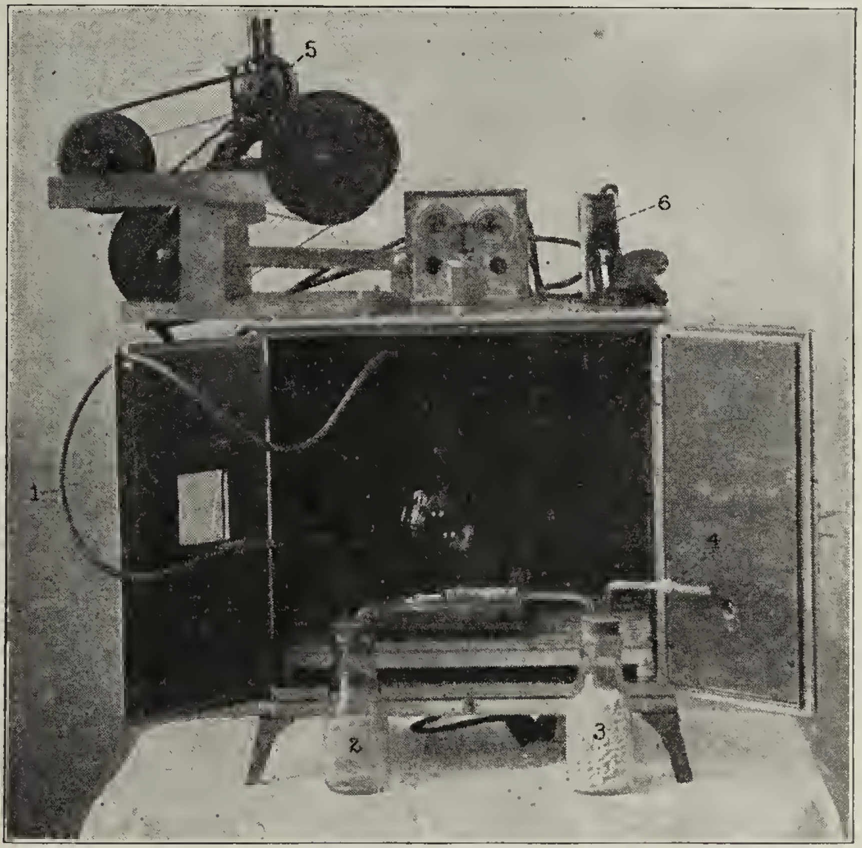

Fig. 1.—Oven and shaking machine.

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* From the Mayo Foundation.

[1] Rosenow, E. C.: Prophylactic Inoculation Against Respiratory Infections During the Present Pandemic of Influenza: Preliminary Report, J. A. M. A. **72**: 31-34 (Jan. 4) 1919.

[2] Le Moignic and Pinoy: Les vaccins en emulsion dans les corps gras ou lipovaccins, Compt. rend. Soc. de biol. **79**: 201-203, 1916.

[3] Whitmore, E. R.; Fennel, E. A., and Peterson, W. F.: An Experimental Investigation of Lipovaccines: A Preliminary Note, J. A. M. A., **70**: 427-431 (Feb. 16) 1918. Whitmore, E. R., and Fennel, E. A.: An Experimental Investigation of Lipovaccines: An Additional Note, with a Note on Triple Dysentery Lipovaccines, J. A. M. A. **70**: 902-904 (March 30) 1918.

out in a preliminary report. Owing to the slow absorption and the fact that bacterial toxins are lipotropic, larger doses may be given with less local and constitutional reaction than when the bacteria are suspended in salt solution. The formation of antibodies should be more marked and the resulting immunity more enduring.

The chief difficulty encountered in the preparation of a lipovaccine arises from the fact that the bacteria must be dried, and all methods used thus far for drying produce a clumping of the bacteria. This makes it necessary to break up the masses formed in the drying process before a homogeneous mixture in oil can be made. The method as worked out at the Army Medical School[4] consists essentially in drying the collected bacteria in Petri dishes at a relatively low temperature (53 C.), which inevitaby causes them to clump in a firm, hard mass. They are then separated by prolonged grinding in bottles containing steel shot. This requires cumbersome and expensive apparatus and involves a number of steps in which contamination is prevented with difficulty. The method is obviously impracticable for the preparation of autogenous vaccines. The possibility that the prolonged grinding may render the bacterial substance more readily absorbable is also an apparent objection.

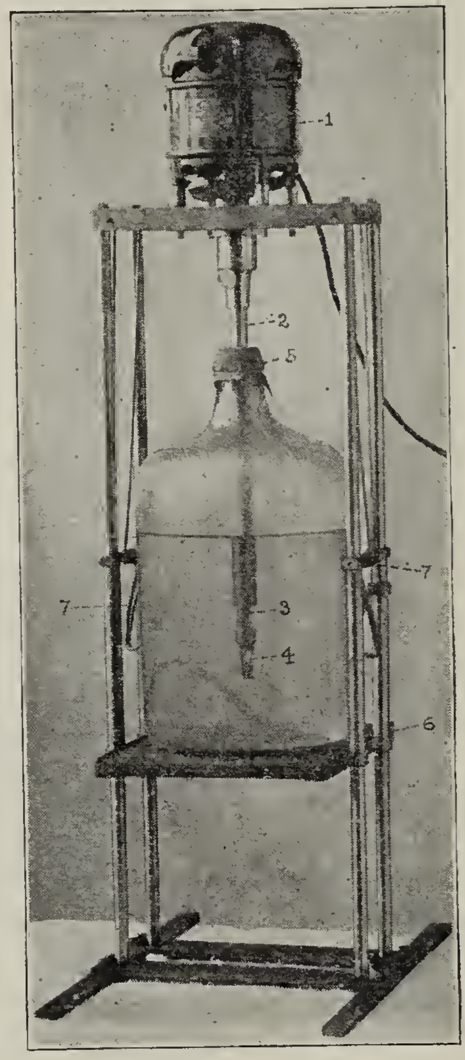

Fig. 2.—Machine for mixing the stock suspension with oil.

We have tried various procedures in order to simplify the methods used. In connection with some work in poliomyelitis it was noted that streptococci and pneumococci not only remained gram-positive but also retained specific immunologic characteristics for many months when suspended in 50 per cent. glycerol. The dehydrating power of pure glycerol is well known, and it was thought that this might be an effective agent in drying the bacteria and in preserving their antigenic properties. But glycerol and oil will not mix, even when emulsifying agents are used, and hence this method was found impracticable. Drying the bacteria with absolute alcohol and ether or with acetone and ether, in which the bacteria are less solidly packed than when dried by heat, was thought of, but the possibility of destroying the antigenic properties would not justify the slight advantage gained, since the grinding process would still be necessary. The method of drying the frozen bacteria in vacuo is difficult, requires special apparatus, and does not eliminate the grinding process. The method of drying serums and other liquids at a low temperature in vacuo, as used by Burrows and Cohn,[5] and by Marmier,[6] was suggested by Dr. E. C. Kendall. This was found to be effective in getting rid of the water in a closed system and undoubtedly in preserving antigenic properties, but the grinding process was still found necessary. It occurred to us that if the water were removed by distillation in vacuo from a water-bacterial-oil emulsion, the oil would prevent the clumping of the bacteria and thus make the cumbersome, time-consuming, and otherwise objectionable grinding process unnecessary. With this as the underlying principle, a method has been developed for the preparation of varying quantities of lipovaccines.

METHOD EMPLOYED

The steps in the preparation of large quantities of oil vaccines may thus be subdivided:

1. The method for the preparation of the bacterial paste is identical with that used in the preparation of saline vaccine. The bacterial growth contained in glucose broth is centrifugalized out, the continuous feed centrifuge being used.

2. The bacterial paste is removed from the centrifuge bowl under a hood by the use of a spatula, and is transferred to the proper sized, wide-mouth bottle.

Sufficient sterile water is added to give a very dense but homogeneous suspension, and the mixture is thoroughly shaken. One c.c. of water to each liter of broth-culture medium gives about the correct degree of concentration. The bacteria suspended in water are killed by thermal or chemical means. If heat is used, the bottle is immersed in a water bath and kept at a temperature of 60 C. for one-half hour, at the end of which time cultures are made. If a chemical method is to be used, sufficient cresol is added to the water suspension to make it a 2 per cent. cresol solution. The mixture is well shaken. After it has stood for twelve hours, cultures are made. In the case of *Staphylococcus aureus* and of other resistant bacteria, heat and cresol are used in combination. The suspension is heated for one-half hour at 60 C. in a 2 per cent. solution, and then allowed to stand for twelve hours or longer.[7] When the cultures prove sterile, the dense water-bacterial suspension is transferred to a proper-sized, round-bottom flask. We use the heavy Pyrex flask and have found it very satisfactory. For the preparation of large amounts of vaccine, for instance using the growth from 200 to 300 liters of glucose broth averaging 2 millions of bacteria per cubic centimeter, we ordinarily use a 3-liter flask. For smaller amounts a two or a one liter flask may be substituted. It is desirable, however, to use one of fairly large capacity because of the increased amount of surface obtained for the subsequent removal of the water in vacuo.

3. For each liter of broth culture, 5 c.c. of sterile cottonseed oil, containing from 5 to 10 per cent. lanolin, are added to the water suspension. To facilitate boiling and to aid in breaking up any bacterial clumps which may form, about 100 gm. of solid glass beads (3 mm. in diameter) or steel shot, three-thirty-seconds inch in diameter,[8] are added, and the flask is placed in the oven, as shown in Figure 1. Glass beads obviate any oxidase reaction which, in the case of steel shot, may result in a darkening of the suspension. The oven is maintained at a temperature of from 60 to 65 C. The oven and shaking machine, although convenient, are not essential.

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[4] Fennel, E. A.: Prophylactic Inoculation Against Pneumonia: A Brief History and the Present Status of the Procedure, J. A. M. A. **71**: 2115-2120 (Dec. 28) 1918.

[5] Burrows, G. H., and Cohn, E. J.: A Quantitative Study of the Evaporation of Blood Serum, J. Biol. Chem. **36**: 587-590, 1918.

[6] Marmier, L.: Nouvel appareil pour la dessiccation ou la concentration des liquides a basse temperature, Ann. d. l'Inst. Pasteur **32**: 145-149, 1918.

[7] Sterilization in cresol is more effective at 37 C. than at room or icebox temperatures. Suspensions accidentally contaminated with Bacillus subtilis are rendered sterile when incubated at 37 C. for from twenty-four to forty-eight hours, while the control suspensions at the lower temperatures continue to show living bacteria.

[8] Hoover Steel Ball Company, Ann Arbor, Mich.: 3/32 inch diameter, steel burnishing balls.

Numerous large batches have been evaporated by immersing the flask in a water bath at 65 C., and shaking it by hand at intervals. The flask is connected by flexible pressure tubing (1) to the condensing bottles (2 and 3), the first bottle serving as a condensing reservoir, and the second containing unslaked lime or calcium chlorid, which acts as a further drying agent. The parts sterilized include the flask, Tube 1 and Bottle 2. Tube 4 connects with the vacuum pump. The Geryk type of pump is used to develop a vacuum of 1 mm. or less of mercury. The rate of shaking is controlled by the small sewing machine motor (5) and the rheostat (6). The length of the stroke is 4 inches. Good agitation is obtained by using eighty strokes per minute. The time necessary to drive off completely all the water depends, of course, on the total volume present. From four to six hours ordinarily suffice for quantities requiring the removal of 150 c.c. or so of water. This length of time is proportionately decreased as smaller volumes of water are used. Until the water is practically all removed, the temperature of the evaporating liquid is from 10 to 15 degrees lower than that of the oven. The distillation requires little or no attention, the apparatus running very smoothly. As the mixture becomes more anhydrous, the viscosity is increased, and the suspension appears as a very thick emulsion when the major portion of the water is removed. As the last portions of water are driven off, the bacterial mass becomes solvated, forming a thick, nearly clear homogeneous suspension. It is important that all of the water shall be removed. The end-point of the distillation may be determined by the almost complete clearing of the mixture and the absence of water condensation in the condensing tube. The vacuum pump is disconnected at the cotton plug in Tube 4. The sterile cotton plug between Bottles 2 and 3 prevents contamination by the inrushing air. The contents are poured through a fine mesh screen into a stock bottle in order to remove any pieces of cork or clumps of bacteria that may not have been broken up. To prevent any material loss of suspension, the flask may be washed out with small quantities of sterile oil.

4. For use as a vaccine, 1 c.c. of the stock suspension is diluted so as to give a final concentration of 50 billions of bacteria per cubic centimeter. For example, in the procedure just described, 5 c.c. of cottonseed oil are added to the growth from each liter of broth culture, representing 2,000 billion bacteria. Thus the stock suspension contains 400 billions of bacteria per cubic centimeter. This is diluted eight times, giving a concentration of 50 billions of bacteria per cubic centimeter for use as a vaccine. We prefer to base our dosage on bacterial counts rather than on the basis of weight of the bacterial substance. The percentage or error in weighing the dried bacterial substance, containing a variable amount of the precipitate formed in glucose broth as the result of acid produced during bacterial growth, is comparable with the experimental error made in counting bacteria. Moreover, it is difficult to avoid contamination in weighing the dried bacterial substance. If, however, the weight of the dried bacterial substance is desired when large amounts are dealt with, it may readily be obtained by subtracting the weight of the oil used from the total weight of the oil-bacterial suspension as removed from the flask at the end of the distillation.

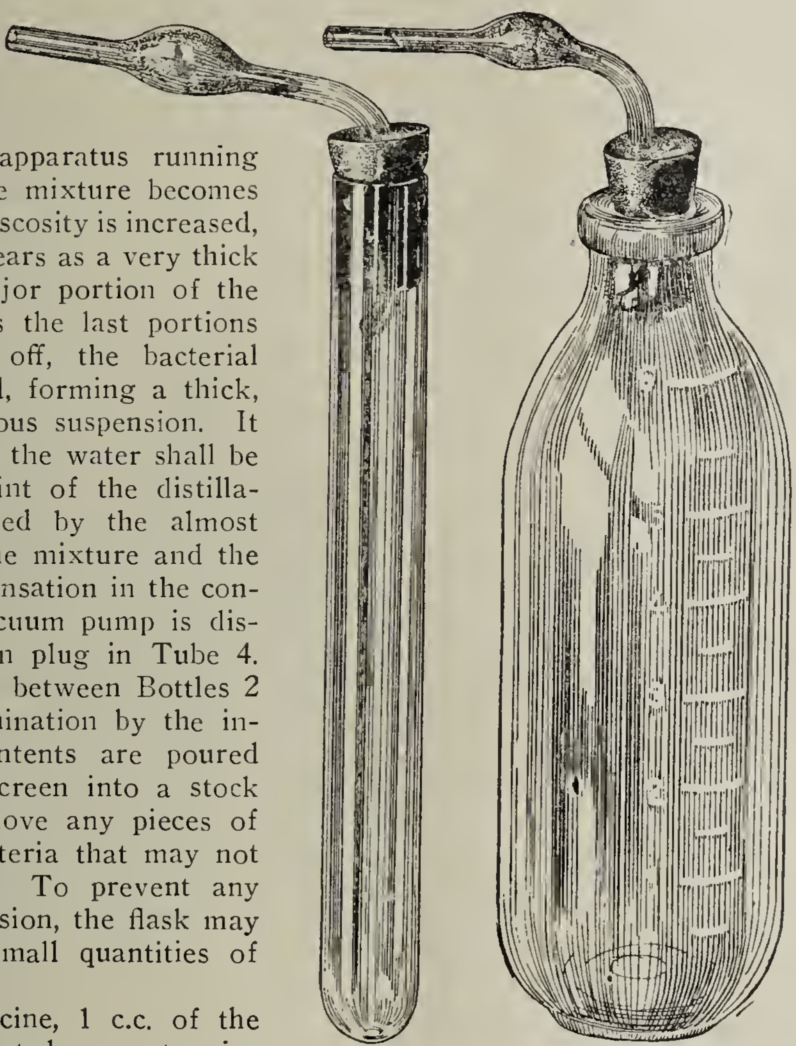

Fig. 3.—Flasks used for the vacuum distillation of water from water bacterial-oil emulsion.

5. The cottonseed oil and lanolin are sterilized in the autoclave at 15 pounds pressure for thirty minutes, and then removed while hot and placed in a hot-air oven at 105 C. for an additional thirty minutes, or longer if one is dealing with larger quantities. The flasks should be of the wide-mouth type to facilitate the entrance of steam; they should be filled well to the top and stopped with a cotton plug. This sterilization, together with the removal of the oil from the autoclave while hot, reduces to a minimum the amount of water taken up. Heating in the air oven insures sterilization and removes what water has been taken up by the oil. Contrary to the general opinion with respect to the difficulties encountered in sterilizing oil, we have experienced no difficulty by using this method. Control tests, in which the oil was contaminated with dust containing highly resistant spores, were found sterile in every instance, after using the foregoing method of sterilization. Because of the absence of water, the need for a preservative in lipovaccines is less than in saline vaccines. Various preservatives, such as camphor and chlorbutanol, have been used. In this method the small amount of cresol present in the stock suspension is sufficient to prevent bacterial growth from accidental contamination.

6. In order to insure complete sterility of the final vaccine, rigorous sterility tests are made: (1) of the water suspension of the bacteria after the cresol and heat have been used; (2) of the cottonseed oil containing lanolin which is added to the water suspension; (3) of the stock suspension after distilling off the water, and (4) of the final oil suspension to be used as a vaccine. The cultures are made on blood agar in tall tubes of glucose bran broth and litmus milk. In addition the final product is injected into animals to insure sterility.

In order to thoroughly mix large quantites of the stock suspension with the oil for final use, the machine constructed for us by Mr. Little, is found convenient (Fig. 2). It consists of a vertical, one-eighth horse-power motor (Fig. 2, 1) fitted with a removable sleeve (2) which contains bearings for the shaft (3), to which are fastened two propeller blades (4). These are thrown out horizontally as the shaft revolves at a rapid rate (1,700 revolutions per minute). The sleeve and shaft slip off together; these are sterilized and introduced through the small hole in the rubber dam (5). The support (6) is adjustable and is held securely in place by the hooks (7). The bottle, which has a capacity of 5 gallons, is filled three-fourths full. Smaller bottles may be used as required. The revolving blades are placed so as to produce a vigorous downward and outward current; hence the agitation is violent and soon results in an even mixture.

COMMENT

This method has given perfectly even, homogeneous suspensions with various species of bacteria. Large quantities of the mixed vaccine used for prophylactic inoculation against influenza, containing type pneumococci, Group IV pneumococci, green-producing streptococci, hemolytic streptococci and staphylococci, have been prepared by mixing in the centrifugal bowl the bacteria grown separately, as well as by mixing the dried oil suspensions of the different strains. In addition, excellent lipovaccines have been made of typhoid-paratyphoid and dysentery bacilli, of influenza bacilli, colon bacilli, *Streptococcus viridans* from endocarditis, gonococci and meningococci. The antigenic and toxic properties, especially in varying the doses of the mixed vaccine for influenza, will be reported in detail later. It is sufficient to state here that as high as 90 billions of bacteria have been given to a few persons, with only slight constitutional and local reaction. A dose of 0.5 c.c. containing 25 billions of the dried bacteria in the oil given more than 500 persons during a recrudescence of influenza rarely produced more than a slight reaction. But after the use of this vaccine, as after the use of the saline vaccine, an occasional person reacted more severely and a sterile abscess formed. Antibody production—agglutinins—has been found pronounced following the injections of such dosage. It is therefore evident that the somewhat prolonged heating in the oil in vacuo when large quantities are prepared does not destroy the antigenic properties.

It is imperative that there shall be no living bacteria in the water suspension at the time the oil is added. Early in the work it was thought that heating during the distillation in vacuo would serve the double purpose of killing the bacteria and driving off the water. This was found not to be so. Many of the suspensions showed living streptococci and other bacteria after prolonged heating at temperatures from 60 to 75 C. Temperatures as high as 100 C. for a period of two hours failed to kill after the water had been removed.[9] It is obvious that the mixture must be sterile at the time the oil is added. The heat used in the distillation does not alter materially the antigenic properties of the bacteria since it is not even sufficient to kill them. On the basis of this fact, moreover, there is good reason to believe that heating the water-bacterial-oil emulsion to the boiling point of water under atmospheric pressure will not destroy the antigenic properties of the bacteria. Should this be found to be the case the method might be simplified still further.

It is desirable in order to decrease the toxicity of the vaccine that the distillation shall be continued until the suspension has become cleared. This is well indicated in the following experiment: Two parallel series of persons—six in each series—were inoculated with equivalent doses of the mixed vaccine as used for prophylactic inoculation against influenza. One series received the incompletely dried, turbid suspension; the other the more completely dried and cleared suspension. Two persons in each series received each, respectively, 25 billions, 50 billions and 75 billions of bacteria subcutaneously. The results showed that the incompletely dried suspension was decidedly more toxic, producing more reaction, both constitutionally and locally, especially locally, than the completely dried suspension. There was no fever nor other evidence of constitutional reaction in any who received the latter. This decreased toxicity is apparently due to a detoxicating action of the oil or lanolin as they permeate the bacterial substance or to a delayed absorption or both.

The clearing that occurs as the oil permeates the dried bacteria is so striking as to suggest actual solution; but this is not what takes place, since the bacteria, on making a watery suspension from the oil, stain normally and are of sharp outline.

It has been found that the oil will not permeate bacteria dried in air in the usual way as completely as those dried in vacuo in the presence of oil. The toxicity of the former should, according to the foregoing experiment, be proportionately greater.

It may be suggested that desensitization against pollen or other protein substances may be greatly enhanced by the use of an oil instead of a saline suspension.

PREPARATION OF AUTOGENOUS LIPOVACCINES

The common 6-ounce nursing bottle shown in Figure 3 has been found useful for the preparation of autogenous, lipovaccines. It serves admirably as a culture flask, centrifuge tube and vacuum flask. The bacteria are grown in tall columns of glucose broth (150 c.c. per bottle) for twenty-four hours, centrifugalized, the supernatant clear broth decanted, and the sediment suspended in 10 c.c. of a 1.5 per cent. solution of purified cresol in water or salt solution. This is thoroughly mixed and placed at 37 C. for from two to fifteen hours, when cultures are made. Streptococci and pneumococci are usually killed in from two to twenty-four hours. As soon as the suspension is found to be sterile it is centrifugalized; the supernatant fluid is decanted, and 6 c.c. of cottonseed oil containing 2 per cent. anhydrous lanolin and a number of sterile glass beads or steel shot are added. The mixture is emulsified by being shaken for a short time. The small amount of water from this water-bacterial-oil suspension is now removed by applying the vacuum and immersing the bottom of the bottle in water heated to 60 C. By means of vigorous shaking at intervals the removal of the water is hastened. The vacuum and the heat are applied until bubbling ceases and the mixture becomes clear. The time required depends on the completeness of the vacuum and the amount of water to be removed, but the clearing usually takes place in from twenty minutes to one hour. The ordinary bacteriologic test tube as shown in Figure 3 may be used for the preparation of still smaller amounts, but for most purposes the bottle is to be preferred. If larger amounts of bacteria are required, the water or salt solution suspensions of a number of bottles are placed in one, and a correspondingly larger amount of oil is added. By the use of Y tubes the water from a series of suspensions may be removed at one time.

If, for example, bacteria such as influenza bacilli, gonococci, and meningococci, which grow better on solid mediums, are to be used, the growth should be scraped together and washed off with salt solution so that the final suspension is roughly equivalent to that containing the bacteria from the broth culture. Sterilization and the further steps are carried out as above. In the case of the more resistant bacteria, such as staphylococci and parathyphoid bacilli, heating the cresolized suspension to 60 C. for one hour hastens the sterilization. The final bacterial content of the lipovaccine is calculated on the basis of counts made of the bacteria suspended in salt solution or on the basis of the total number of bacteria per cubic centimeter of broth culture. In the broth used in our laboratories, the amount of growth of pneumococci and streptococci is usually about 2 billions and the vaccine is made to contain approximately 50 billions of these organisms per cubic centimeter. The number of bacteria in the oil may be increased ten or twenty fold without interfering materially with the evaporation of the water or with the even distribution of the bacteria.

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[9] This observation suggested at once the possibility that bacteria might live in latency for a long time when dried in vacuo in oil. Strains of many species of bacteria have been filed away and are being studied as to viability and antigenic properties. Both viability and specific immunologic properties of some have been retained for months. Also the present method for immunization against rabies might be greatly simplified if the dried virus (rabbit cord) were suspended in oil. The further results will be reported later.

The value of autogenous lipovaccines in the treatment of various diseases is now being studied. Striking cures have been noted following the administration of a single large dose of staphylococci (80 billions) in severe recurring furunculosis. Benefit has followed the administration of autogenous pneumococcus and staphylococcus lipovaccines in infections of the maxillary sinus. Judging by the slight constitutional reactions, even when huge doses are given, and the improvement in the few cases studied, it would seem that much good might come from the use of autogenous lipovaccines, especially in the treatment of chronic or recurring infections, when a prolonged immunization is indicated. Marked benefit, it would seem, might come from the use of autogenous lipovaccines in diseases due to focal infection, particularly if foci are removed and the vaccine is made to contain the specific micro-organisms as isolated from the focus.

THE NEWER METHODS OF CESAREAN SECTION

REPORT OF FORTY CASES *

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The classic cesarean section has come to be one of the safest laparotomies, and at the same time one widely practiced. There is no question that it is too widely practiced, the trust in its general safety being great. This idea in regard to its general safety is the result of the publication by obstetric specialists of series of from fifty to 100 cases without mortality. I myself have had more than 100 successive classic cesarean sections without maternal death ascribable to the operation. Even the people have become imbued with the notion that cesarean section is entirely safe. Indeed, one woman was sent to me by a physician who told her the abdominal delivery was *the* method of childbirth of the future.

MORTALITY FROM CESAREAN SECTION

Accoucheurs of experience know that cesarean section is not so safe. They know that their good results are due to the careful selection of the patients submitted to the operation. They have observed numerous fatalities when proper strictness was not observed in deciding on the abdominal delivery. F. S. Newell said he knows that in several towns around Boston, the mortality (unpublished) from cesarean section has been frightful. He reports eight deaths in 100 cases at the Boston Lying-In Hospital up to 1909. Amand Routh, in 1910, found a general mortality for England of from 2.2 to 34 per cent., depending on the condition of the mother at the time of the operation. Cragin had 143 clean nontoxic cases with three deaths. Williams believes the general mortality will be 10 per cent., and only in the most ideal surroundings and, at the beginning of labor, will it be from 1 to 2 per cent.

In Chicago, deaths due to cesarean section not infrequently occur but are not put on record, and recently the newspapers of a certain county of the state published a successful cesarean section as a wonderful achievement, the woman being the first to survive the operation in the county.

There is an unavoidable mortality to cesarean section. It increases: First, with the length of labor; one might say about 1 per cent. every two hours; second, with the number of vaginal examinations made, or operations attempted; third, with the rupture of the membranes; fourth, with the lack of skill of the operator. Furthermore, there are certain women who carry infection in the vagina—harmless there, but fatal if brought on to the peritoneum. There is no way of discovering it beforehand. Leopold of Dresden found gonorrhea in some of these cases.

MORBIDITY OF THE CLASSIC CESAREAN SECTION

In addition to the mortality, the classic cesarean section has a distinct morbidity. Just as the mortality has been gradually reduced by proper selection of the cases, by operating early, by refinement of operating-room technic, etc., so has the morbidity been reduced—but not in like proportion. A large proportion suffer from peritoneal shock. In fully 20 per cent. of the cases there is fever after operation. Uterine abscess occasionally follows, partial paralytic ileus and gastric dilatation not seldom occur, adhesions of omentum or intestine to the uterine or abdominal scar are the rule, and the danger of rupture of the uterine line of suture in subsequent labor is still a real one. The five main objections to the classic cesarean section are: the inherent mortality, the frequency of abdominal complications, adhesions, rupture of the scar in subsequent labor, and the necessity to restrict the operation to clean cases.

In infected, or possibly infected cases of obstructed labor, since pubiotomy is too dangerous, craniotomy is the only alternative; and it is to reduce the necessity of this horrible operation that the newer methods of cesarean section have been developed.

Since the objections enumerated always beset the classic cesarean section, and since the greatest dangers came from the fact that the peritoneum was opened, the old accoucheurs sought to avoid this necessity and tried to extract the child from beneath the peritoneum. The first suggestion came from Joerg in 1809, and Ritgen performed the operation in 1821. Physick of Philadelphia, in 1824, recommended this method to Dewees of Philadelphia, but I could not find that Dewees had performed it. Joerg had suggested that the incision be made in the flank, and that the peritoneum be dissected upward, in the manner preparatory to ligation of the internal iliac artery, the child then being extracted from the parturient canal. In 1870, T. Gaillard Thomas revived the operation which had been named "gastro-elytrotomy" by Baudelocque. Very few of these cases were successful, as we can readily understand. It was because of the lack of asepsis, and infection killed nearly all of the women.

ATTEMPTS TO IMPROVE THE CLASSIC CESAREAN SECTION

Attempts to improve the classic cesarean section, to make it adaptable to the neglected cases, failed until 1906, in which year Frank, of Bonn, disinterred the old extraperitoneal methods. He opened the abdomen just above the pubis, united the peritoneum of the uterus to the peritoneum of the abdominal wall, thus shutting off the general peritoneal cavity, and delivered the child through the almond-shaped space provided.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

Later Sellheim attempted to push the peritoneum upward from off the bladder, as was recommended by Physick in 1824, which thus freed the space over the cervix and lower uterine segment, through which he delivered the child.

Many operators, mostly continental, developed these ideas, and now there are about twenty different procedures.[1] All these methods of performing the operation depend on certain changes which occur during pregnancy and labor in the relations of the cervix and lower segment to the bladder and vesical peritoneum.

We know that during pregnancy the peritoneum over the lower uterine segment and bladder becomes very much softened and loosened from its base. It also hypertrophies under the stimulation of pregnancy. With the development of the lower uterine segment and cervix in the latter weeks of pregnancy and particularly in labor, the muscle of the cervix is drawn away, upward and outward, from the bladder attachments. The vesico-uterine culdesac is usually obliterated. The peritoneum is also drawn upward at the sides of the bladder in the neighborhood of the round ligaments. At the same time the mobility of the peritoneum on the subjacent structures becomes much increased. It is therefore possible, after incising this portion of the peritoneum, to push the bladder off of its cervical attachments with great ease, and to expose an area of the cervix and lower uterine segment large enough for the delivery of the child without encroaching on that portion of the peritoneum which is opened in the classic cesarean section. Of the twenty or more operations that have been invented, only two seem likely to obtain recognition.

MORTALITY IN CESAREAN SECTIONS

Name	Extraperitoneal No. of Operations	Extraperitoneal Deaths Mother	Extraperitoneal Deaths Baby	Transperitoneal No. of Operations	Transperitoneal Deaths Mother	Transperitoneal Deaths Baby	Remarks
Hirst	6	1	1	27	0	0	
Brodhead	1	0	0	4	0	0	
Davis	8	1	1	..	..	..	All infected cases
McPherson ...	10	2	2	..	..	..	All infected cases
McNeile	..	..	..	2	0	0	Both infected
Ritchie	..	..	..	1	0	0	
Chalfant	..	..	..	2	0	0	
Williams, J. W.	4	0	0	..	..	..	
Polak and Beck	..	..	..	34	1	0	All suspicious
Kohlman	8	0	0	3	0	0	5 suspicious
De Lee, Stowe and Cornell.	2	0	0	44	0	0	10 suspicious
	39	4	4	117	1	0	

THE TRANSPERITONEAL VERSUS THE EXTRAPERITONEAL METHOD

All these methods may be divided into two classes: first the transperitoneal, or perperitoneal, and second, the extraperitoneal. In the transperitoneal operation, the abdomen is opened above the pubis, and the peritoneum over the cervix, near the bladder, is incised and loosened from its bed. By means of closely set continuous sutures, or by clamps, the parietal and visceral peritoneal layers are united. Some operators omit this part and protect the general peritoneal cavity by packing sponges around the uterus. In clean cases no more is necessary. The lower uterine segment and cervix are then incised, the child delivered, the placenta following; then the uterus is closed and the double layer of the peritoneum also reunited. The general peritoneal cavity thus is temporarily removed from the field of operation, and infectious matters, such as meconium, liquor amnii and blood, are not permitted to spread over it. Some operators cut the line of temporary peritoneal sutures, and reunite the individual layers of peritoneum. Others do not do this, but sew the two layers together. Sellheim sews the uterine wall to the skin and leaves the wound open to drain, and calls such a delivery one through a utero-abdominal fistula. Among the transperitoneal cesarean sections, that invented by Krönig and modified by Gellhorn of St. Louis seems to possess most advantages, and is used in suspected cases.

Of the extraperitoneal methods, that of Latzko is the best. In Latzko's operation the incision is made either transversely or longitudinally, just above the pubis. The peritoneum is pulled out of the pelvis, the bladder is pushed off of the cervix to the right; and beneath the vesico-uterine fold which has been pushed up toward the navel, a bare space of cervix and lower uterine segment is provided, through which the child is delivered.

THE INDICATIONS

From the description given above it is evident that two new operations have been added to our armamentarium. Both have this in common—the lower or cervical zone of the uterus is opened for the delivery of the child, whereas, in the old, the classic operation, the corpus or fundus uteri is opened. We must hereafter speak, therefore, of cervical cesarean section, and corporeal, or classic, cesarean section. Since there are two methods of cervical section, and each one has its own indications and conditions, we have three distinct operations to consider when the question of abdominal delivery arises. It is not alone, "Shall we perform cesarean section in this case?" but, "Given the indication for abdominal delivery, what kind of section shall we perform?"

ABSOLUTE AND RELATIVE INDICATIONS FOR CESAREAN SECTION

The old teachers divided the indications for cesarean section into absolute and relative: The absolute indication existed when there was no possibility of delivering the child through the natural passages, the way being blocked by a contracted pelvis, a neoplasm, scar tissue, etc.; or the child being a mammoth. The relative indication existed, when, after carefully balancing all conditions, the accoucheur decided that the abdominal delivery offered the best chances for mother and child. It is therefore almost wholly subjective, and it left a wide field for the play of individual preference, for the influence of isolated experience, and for the clash of contending statistics. Moderately contracted pelvis, placenta praevia and eclampsia are the main so-called relative indications. Before taking up the specific indications, let us study the comparative merits of the two contenders for favor, the corporeal and the cervical cesarean sections.

The objections to the classic cesarean section have been mentioned.

1. *The Mortality.*—I believe no one of experience will contest the statement that 2 per cent. of patients undergoing a clean nontoxic cesarean section die at present. Does the cervical cesarean section reduce this mortality? In reply to a questionnaire ten operators report 117 cases of transperitoneal and thirty-nine cases of extraperitoneal cesarean section, with

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[1] For literature compare Nicholson: Surg., Gynec. & Obst., Feb., 1914, p. 245, and Küstner: Zentralbl. f. Gynäk., No. 31, 1915.

the death of five mothers and four babies. Hirst, Brodhead, A. B. Davis, McPherson, McNeile, Ritchie, Chalfant, J. W. Williams, Polak and Beck, De Lee, Stowe and Cornell did these operations, and it should be noted that most of these women were either frankly infected, or suspected, at least unsuitable for the classic section. Reusch[2] completed a list of 595 operations which have been performed in Europe, with a mortality of less than 2 per cent., and, again, these were largely on patients who were already infected.

My assistants and I have operated in forty-six cases without fetal or maternal mortality. Theoretically and practically there are many reasons why this should be so. The incision is made in the lower part of the uterus, the cervix, well known to resist infection. The same may be said of the lower abdomen; it resists infection better than the upper; hence, the Fowler position. The uterine wound is at rest, lochia is not squeezed through it by the after-pains, and furthermore, should a leak in the cervical line of suture occur, the leakage is under the peritoneum, between the bladder and the cervix, where it could be easily reached in three ways: by the cervix; between the cervix and the bladder—a simple anterior colpotomy—or by opening the lower corner of the abdominal wound. Should infection wander along the line of suture (as it often does) in the corporeal section, it at once reaches the peritoneal cavity; in the cervical section it reaches a safer area—one more easily drained.

Another element of safety is the entire absence of any handling of the intestine. Often the intestine does not even come into view. Liquor amnii, vernix caseosa, meconium do not soil the peritoneum.

2. *Abdominal Complications.*—Comparative statistics on this point I have been unable to obtain; but the opinions of careful observers are worth something. The convalescence after the cervical cesarean section is, without question, smoother than after the classic section. Peritoneal shock, ileus, gastric dilatation, I have not yet observed—for reasons above mentioned; tympany and postoperative pain are decidedly less, and one gets the impression that the woman has suffered only a minor operation, not the ordeal of the old cesarean section. This feeling of well being after the cervical operation is really remarkable. The puerpera is more comfortable than a patient after an interval appendectomy, the convalescence resembling that after normal labor. These observations are confirmed by the interns and nurses who can compare the two kinds of operations. Of my own thirty-one cases, there was suppuration in only one case, which is the more noteworthy since in nine of them there was a slight suspicion of infection.

3. *Adhesions.*—Regarding peritoneal adhesions, I cannot speak finally, having operated on only two patients for the second time. There were none in the one case, and in the other there was suppuration, so we expected them. Titus reports three cases (reoperations) without adhesions. Continental accoucheurs report them absent, and theoretically they should be. In most of my operations the intestine was not touched, and in many of them it did not come into view at all. Furthermore, the contents of the uterus, which many times are irritating if not actually infectious, do not soil the general peritoneal cavity, and finally the line of uterine suture of the finished operation is only about 2½ inches long, smooth and without catgut knots, and when the bladder fills, is covered by this viscus. In the true extraperitoneal method (Latzko) the peritoneal cavity is not opened at all, and in the absence of infection, adhesions, ileus, etc., will not occur. Adhesions are sometimes caused by seepage of lochia. This is impossible with the newer methods.

4. *Rupture of the Uterus in Subsequent Labor.*—I found only two cases of this on record, and, in both of these, part of the incision had been made in the body of the uterus. In my two cases of pregnancy after the cervical operation, the scar was not visible at the second cesarean. Continental writers claim this immunity from rupture as a specially strong point in favor of the low cervical method. Experience with vaginal cesarean section in which the incision is made in the same part of the uterus is confirmatory. The freedom from danger of subsequent rupture is easily understood. When the cut is made in the body of the uterus, the wound surfaces are not at rest during the healing process. With each after-pain, the sides of the wound grind on each other, and even in the absence of infection, are prone not to unite. When the cut is made in the cervix, all this is absent. The wound is at perfect rest.

5. *Expansion of the Field for Abdominal Delivery.*—Without doubt, the cervical cesarean section will in many cases obviate the necessity of craniotomy, and its greater safety will allow us to perform the abdominal delivery under circumstances in which previously we may have desisted: for example, in eclampsia, breech presentation, or prolapse of the cord. Best of all, we may give the parturient a thorough test of labor, lasting hours if need be, which is most unwise with the classic operation.

SPECIAL INDICATIONS FOR THE CLASSIC CESAREAN SECTION

In general, I must say that the more I do these newer operations, the better I like them, and now they are the first thought when the question of cesarean section arises. For doing the old, or classic, cesarean section, I have to have special indications, and these are, usually, the necessity for instant delivery, the desire to remove fibroids, placenta praevia, when a Porro operation is to follow, and in the case of an extremely pendulous abdomen. Experience may prove it possible to omit some of these exceptions.

The choice between extraperitoneal and transperitoneal methods is still undecided, but the majority of operators prefer the latter. The true extraperitoneal operation has the distinct advantage that it protects best against peritonitis—infection, if it occurs, being less dangerous in the connective tissue, and drainage being easily procured. Its disadvantages are that it is often hard to separate the peritoneum and the bladder from the uterus, the peritoneum often and the bladder occasionally tearing through. The uterine incision sometimes extends down into the base of the broad ligament where lie the large veins and ureter; also the delivery of the child is technically more difficult and its mortality slightly higher. For these reasons, and further, since the results for the mother are almost as good, the transperitoneal operation is most often selected.

Let us now consider briefly the most common indications for abdominal delivery. In the presence of insuperable mechanical disproportion, that is, the absolute indication for cesarean section, the older obstetricians could only do, if discovered in time, a therapeutic abortion, or the classic cesarean section at term. If the dystocia was experienced only after infection was present or suspected, a Porro or complete uterine extirpation was demanded, if the life of the woman was not to be forfeited.

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[2] Reusch: Zentrabl. f. Gynäk., No. 40, 1917.

Nowadays we may proceed differently. Therapeutic abortion is absolutely contraindicated. At full term we have four courses to select from: the classic cesarean section, the classic cesarean section with the Porro modification, the transperitoneal cervical section, and the extraperitoneal section. In clean and in suspected cases I recommend the transperitoneal cervical section, and in frankly infected cases, the extraperitoneal section or the Porro cesarean section.

Of the indications comprised in the term "relative," nearly every obstetric complication we know has been advanced as a good reason for abdominal delivery.

In the treatment of labor in pelves that are not absolutely contracted, my plan has become more simplified in recent years. Unless the patient positively demands the induction of premature labor, I do not do it, but I allow the pregnancy to go to term. Just before labor begins I make a careful rectal and abdominal examination to determine whether or not there is any chance that the fetus will pass through the pelvis. If I decide it is highly improbable, I do the transperitoneal cesarean section as soon as labor is well under way. If there is reason to believe that the head will go through, I give the patient a real test of labor. If delivery is impossible, in primiparas, I do the transperitoneal section, in multiparas either this or pubiotomy, being guided by the individual conditions present. This statement holds also for cases in which infection is suspected. In frankly infected cases I still fear to perform an abdominal delivery, in spite of the wonderful results recorded by continental operators. If such is necessary I would recommend the extraperitoneal method with free drainage in young women, and uterine extirpation in old. Williams recommends the Porro operation to meet this emergency. It is just in these neglected cases that the extraperitoneal method is the easiest of performance. The prolonged action of the pains has drawn the lower uterine segment out, pulling the uterovesical fold of the peritoneum high up away from the bladder, thus giving a large area for incision and the extraction of the child. However, in frankly infected cases, craniotomy is still to be held in reserve, since the child is almost always doomed anyway. Küstner is the only authority to contend that the operation will completely eliminate the necessity for craniotomy.

Eclampsia.—I will not discuss the question as to whether or not cesarean section has a place in the treatment of eclampsia. I am not yet ready to go back to the expectant and medicinal treatment of my student days, nor do I treat every case by instant delivery. If one desires a rapid, easy method of emptying the uterus, and one unattended by shock, the transperitoneal cesarean section may be selected. It may be performed under local anesthesia, just the delivery of the child being assisted by a little gas-oxygen anesthesia.

Placenta Praevia.—If cesarean section is done for this condition, I prefer the classic operation. In abruptio placentae, the transperitoneal is the method of choice, unless great speed of delivery is required to save the child. For neglected shoulder and breech presentations, prolapse of the cord, and in the innumerable other obstetric complications, the new operation will, I am sure, find a restricted field of usefulness.

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ABSTRACT OF DISCUSSION

Dr. James W. Markoe, New York: Never have we had a better paper or one more called for than this one on cesarean section. I have had nearly thirty years' experience doing this operation. The curse of cesarean section is that it is too easy and too dangerous. The method brought forward by Dr. De Lee is applicable in all those cases in which we previously did the classical operation. I have never done the extraperitoneal operation except in cases known to be septic. I have had one death. In some of the septic cases in which the peritoneum has been opened accidentally it is possible to strip the peritoneum up to the umbilicus; in other cases this is not done so easily. The possibility of this operation taking the place of the old classical operation almost entirely is great. It has difficulties; pulling the bladder to one side is much more difficult in some cases than in others, especially if the head is very large. The women I have operated on by the method described by Dr. De Lee have come to me with histories of from twenty-four to forty-eight hours of labor, with a pelvis in which there was no possibility of the head coming through; forceps had been applied, version tried and cultures showed the streptococcus, staphylococcus and colon bacillus present. One of these patients died. Suppuration occurred in a few cases, and there was destruction of tissue. Using the Carrel-Dakin method the wounds healed extremely rapidly, without complications. I delivered one of these women again by cesarean section recently. There was no sign of adhesions. Had I known that such would be the case I would have done a transperitoneal operation such as Dr. De Lee describes. That is the coming operation.

Dr. John Osborn Polak, Brooklyn: I am entirely in accord with practically everything Dr. De Lee said in regard to the transperitoneal operation. I have had no experience with the extraperitoneal operation since my student days. Since 1912 I have been doing the transperitoneal operation. For a few years I did the Kernig operation until recently when at the necropsy on a patient operated on by one of my staff we found what happens. We have had seven necropsies in the last twenty years in these cases and all have shown that the infection is not from the spill but from the extension of the infection from the uterus through the suture hole. The history bears out the necropsy findings. The peritonitis develops five and seven days afterward and the patient dies promptly as the result of an ascending peritonitis. In those instances in which we had been using the Krönig operation, in line with what Dr. De Lee said, we could always cover the incision with the flap. If this incision was made too far up on the uterus and it was not covered the leak came through. A suggestion made by my associate, Dr. Beck, was to make an upper flap of the upper part of the peritoneum. The upper and lower flaps were retracted by retractors, the uterus incised and the child's head delivered by any method indicated. One point in technic is to put the lower and upper sutures in before the rest of the sutures are placed in order to bring the wound out of the field and make suturing of the wound easier. After that is done the upper flap is brought down over the line of incision and tacked by one or two sutures distal to the median line. In the convalescence of these patients there is no gas distention, no elevation of temperature. In this operation we are subjecting the patient to slight risk and if there is infection, drainage is easy and we do not have a peritonitis in which one is absolutely hopeless.

Dr. Bertha Van Hoosen, Chicago: The principal advantage of his operation is the fact that it is so much more difficult than the classical operation that it will not be attempted too readily by the man who does only occasional surgery. Another advantage is that the placenta will not give the annoyance that it often does in the classical operation. We must, however, use the classical operation and I have made a little attempt to copy some of the advantages of this cervical operation in the technic for the corporeal operation. Opening the abdomen in the usual way the body of the uterus completely fills and actually plugs up the incision. One of the things I have often noticed is that the operator uses great haste, and especially those who are inexperienced seem to think there is great haste in opening the uterus. But you may cut the peritoneum and the muscularis with great deliberation. The incision is first through the peritoneum, which retracts. There is practically no bleeding. With another incision the muscularis contracts and the uterus is delivered. Another incision is made rather deeply. Just as you approach the endometrium in some one place the blood will spurt up. At this place push in the finger and separate the mucosa from the membranes and with the knife on your finger open up the uterus. Now that the uterus is opened and the membranes are normally ruptured you can see the form of the child through the membranes and the bleeding has again on account of the tension stopped. For a few moments it is better to use a little haste. You can quickly incise the membrane and just as you do this your assistant puts her finger in the upper angle of the uterus and hooks it over so as to clamp the uterus to the abdominal wall so that the intestines will have no opportunity to be seen and the liquor amnii will have no opportunity to escape into the abdominal cavity. With the hand still clinging to the abdominal wall and hooking the uterus the placenta is removed and the suturing is now begun. Following the suggestion of Dr. Polak the first insertion is through the lower part of the muscularis which is followed by a suture through the top of the incision. The finger is removed and the two sutures are used to bring the uterus closely up to the abdominal wall. You can suture as you wish. As soon as the uterus is closed this lower suture by which the uterus was suspended is cut away, but the upper one is left in place until the peritoneum is closed down to the umbilicus or at a point where there is no tension on the uterus, and when there is no more tension it is cut. The uterus, now contracted, fills the abdominal incision and the peritoneum and abdominal wall can be closed in the usual way. The chief advantage of the method is that little blood is lost and that you have absolute control of the abdominal contents.

Dr. Gustav E. Zinke, Cincinnati: During the last month I have performed two cesarean sections which illustrate the ease of the operation and its dangers. The first was a perfectly clean case in a secundipara. There was no complication except a placenta praevia, and for that reason I did the cesarean section. I made a high incision finishing the operation with the patient in bed in thirty minutes from the time of my abdominal incision. She recovered without the slightest symptom and went home at the end of two weeks with her baby in her arms. The second patient had a so-called justominor pelvis. She had passed through a very severe labor, the child being lost because of forceps delivery and version and there were a good many injuries to the soft parts of the pelvis. I put her to the test of labor, but it proved that the passenger was larger than the passage. At the end of the first stage I concluded to do a cesarean section. I delivered the child without difficulty. The woman began to vomit soon after the operation and her husband, a doctor, attributed it to the calomel she had received the day before, saying it always made her sick for a week. She kept on vomiting, yet there was no serious distention of the abdominal cavity. The vomiting grew worse daily. After forty-eight hours I came to the conclusion that probably this was the beginning of an ileus. Her husband insisted that the calomel was responsible. This threw me off the track for another day. On the third day there was fecal vomiting, and the picture was clear. I opened the abdomen five days after the cesarean section and found a knuckle of bowel adherent to the uterine wound. The patient went home three weeks after the cesarean section—two weeks after we reopened the abdomen. Ileus is the danger of cesarean section. One point which impressed me in Dr. De Lee's paper is that cervical cesarean section, the old operation, is looked on with favor in cases in which sepsis is present. There is one mistake which practitioners are apt to make when they speak of sepsis in puerperal cases. We have two forms of sepsis, sapremic and streptococcic. Streptococcic or true septic infection is nearly always fatal, no matter what you do. In the sapremic variety the patients usually get well if they are treated properly.

Dr. Joseph B. De Lee, Chicago: The first impression a man gets of this operation is usually bad. Do not stop at the first operation but do three or four. In the presence of a virulent streptococcic infection I doubt whether any form of section is safe. Therefore, craniotomy would not be safe. A Porro operation or extirpation of the uterus might possibly increase the patient's chances. There is a big difference between the ordinary forms of infection which may under unfavorable conditions become dangerous and these rarer cases of streptococcic infection. Dr. Van Hoosen pulls up the uterus against the abdominal wall to prevent the intestine getting in the way. This is not necessary. A corporeal cesarean section is a corporeal cesarean section, no matter how you do it. Dr. Zinke seemed rather proud that he got his patient back into bed in thirty minutes. I know a man who did a cesarean section in eighteen minutes. Whether we take eight, ten or twelve minutes longer to do a complete operation makes little difference so far as the patient is concerned but it does make a difference when you are hurried. You put in fewer stitches and tie knots carelessly, do some damage to the tissues and do not make good uterine sutures. I put in four layers of sutures and sometimes five.

END-RESULTS IN MORE THAN ONE HUNDRED OPERATIONS FOR UTERINE MYOMA

OPERATIVE VERSUS ROENTGEN-RAY TREATMENT *

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In this contribution I hope to show, on the basis of accumulating personal experience and a careful comparison of my results with those of others, that in the successful treatment of uterine myoma surgery still is and probably always will be the most efficient measure at our command. Many attractive and apparently plausible arguments are continuously advanced on behalf of roentgen-ray treatment of these tumors, and the time has come for a definite agreement on this question in the best interest of patients and physicians.

An exaggerated confidence in the benign character of uterine fibroids, not warranted by facts, has led many to accept the roentgen-ray treatment temporarily, relying on surgery in case of failure. The tendency of fibromyomatous tumors of the uterus to undergo sarcomatous degeneration, as well as many serious complications on the part of other pelvic organs, are too often overlooked in the prevailing tendency toward generalization of roentgen-ray treatment. This serious risk I have emphasized before[1] in an article in which I mentioned the case of a young girl in the early twenties. We contemplated radiation for a large uterine fibroid, but for certain reasons decided to operate, and on microscopic examination found the tumor to be a fibrosarcoma. It is of great interest to note this patient's subsequent history, reported by Dr.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

[1] Stein, Arthur: The X-Ray Treatment of Uterine Myomata: A Warning Based on a Study of the Literature, M. Rec. **89**: 991 (June 3) 1916.

Vineberg at the meeting of the New York Obstetrical Society in January, 1919:

About two and a half years after the first operation she came to the Mount Sinai Hospital with the complaint of pains in the lower abdomen, and two masses were found behind the cervical stump. At operation both these masses were found to be retroperitoneal, a considerable distance from the cervical stump, and lying deep in the abdominal cavity. They were both removed, and were found, on microscopic examination, to consist of myomatous tissue showing sarcomatous elements.

Dr. Vineberg quite rightly emphasized the importance of this case, for we had here the recurrence, extraperitoneally, of a myosarcoma after its removal from the uterus, in contradistinction to the belief that a myoma of the uterus, with sarcomatous elements, is not truly a malignant growth and seldom or never recurs or gives rise to metastatic growth.

It is, of course, impossible to recognize incipient or even advanced malignant changes of a myoma within the uterus. Its benign character is taken by the radiologist entirely "on faith." As Tracy[2] puts it, he is indeed to be congratulated if he can in every case determine when malignancy is present, or when the tumor is undergoing degenerative changes.

DIFFICULTIES OF DIAGNOSIS

The unrecognizable degenerative changes present in these tumors, as well as the associated pathologic conditions in the adnexa, have very recently been emphasized by Le Roy Broun[3] as contraindications to roentgen-ray treatment. The absence of malignant change can be reliably established only with the assistance of curettage, permitting exclusion of a concomitant carcinoma of the uterus.

As is well known, however, it is in many instances absolutely impossible to perform a probatory curettage of the uterus because of the fact that the uterine cavity is entirely obstructed by an intramural myoma. In these cases we are unable to determine by microscopic examination whether or not sarcomatous changes are present in the tumor or carcinoma of the body of the uterus exists. No gynecologist, no matter how skilful a diagnostician he may be, is safe from the danger of mistakes in these cases. Furthermore, old, hardened pus tubes lend themselves to confusion with uterine myoma. Even sarcoma of the ovary may be mistaken for a fibroid growth.

Two examples of mistaken diagnosis recently came to my attention, and in both instances the patients were examined by several well trained diagnosticians, who all agreed that each patient had a simple myomatous tumor. When the first was operated on, the hard, regular mass was found to be not a myoma but a very old and large pyosalpinx sac, firmly adherent to the normal sized uterus. The second patient was a woman aged about 45, with two large tumors on each side of the uterus. These tumors were hard and easily movable and were thought to be subserous myomas of the uterus, whereas, on operation, the uterus itself was found to be perfectly normal in size and shape, and the tumors were found to belong to the ovaries. Each tumor was found to be about the size of a man's fist and nowhere adherent, and, on microscopic examination, both proved to be spindle-cell sarcomas.

The case of a fibroid tumor associated with adenocarcinoma of the uterus in a woman aged 54, reported by Dr. Vineberg at the November, 1918, meeting of the New York Obstetrical Society, is also of interest in this connection. There was absolutely no reason to suspect malignancy until the extirpated uterus was opened, and evidence of extensive adenocarcinoma of the endometrium was discovered, requiring a second operation.

The statement of Stern[4] to the effect that all uncomplicated cases of uterine fibroids are amenable to roentgen-ray treatment is thus seen to be open to the very serious objection that about 50 per cent. of the cases are complicated, as I shall show in my own material, and that it is not possible at the present state of our knowledge to acquit a given uterine fibroid of all suspicion in this respect.

DANGERS OF DELAY

In view of the high percentage of associated malignant disease, Deaver[5] distinctly challenges any form of treatment tending toward delay. Many degenerative changes were discovered at the time of operation in his series of cases; of the last 513 myomas, 111 showed hyaline degeneration; hemorrhagic, necrotic or calcareous changes, or a combination of these, were found in twenty-six others. Pus tubes were noted fourteen times. Eight uterine fibroids were associated with cancer. Sarcoma of the ovary was also represented. Several associated ovarian cysts, when operated on, already showed early malignant changes. The exposure of these patients to carcinoma or sarcoma through postponement of surgical intervention, aside from a possible deleterious influence of radiotherapy through stimulation of tumor cells, is too serious and far reaching to be condoned by the conscientious gynecologist.

In my article,[1] previously mentioned, I have warned against the possibility of starting proliferative changes of a degenerative character in those cell areas of a radiated myoma which are not destroyed by the roentgen rays. Undoubtedly, in the case of sarcomatous tumors of both ovaries just referred to, which was diagnosed as myoma, the sarcoma would have been stimulated by the roentgen rays with disastrous results. The enumeration of similar instructive cases could be indefinitely prolonged. Tracy[6] pointed out some years ago, on the basis of solid arguments advanced agains roentgen-ray treatment of uterine fibromyomas, tha with few exceptions the only rational treatment is early surgical intervention, for a certain percentage of these tumors undergo various forms of degeneration which may positively be hastened by the application of th roentgen rays, and other myomas are complicated b malignant disease in the genital organs.

The corroborative observations of others have natu rally served to confirm me in the very decided stand have previously taken against the roentgen-ray treat ment of uterine myomas, for nothing has been brough forward to cause a change of attitude on my part. am still convinced of the superiority of surgery, an find my experience supported by that of promine gynecologists and surgeons, both in this country ar in Europe.

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[2] Tracy, S. E.: Report of One Hundred Consecutive Cases of Fibromyomata Uteri Subjected to Operation, J. A. M. A. **67**: 1213 (Oct. 21) 1916.

[3] Broun, Le Roy: A Review of the Uterine Myomata Operated on at the Woman's Hospital during 1918, Comprising 262 Cases, Am. J. Obst. **79**: 333 (March) 1919.

[4] Stern, S.: X-Ray Treatment of Uterine Fibroids, Am. J. Ob. **72**: 396 (Sept.) 1915.

[5] Deaver, J. B.: Operative Treatment of Fibromyomatous Uteri Tumors, J. A. M. A. **67**: 1216 (Oct. 21) 1916.

[6] Tracy: Pennsylvania M. J. **28**: 353 (Feb.) 1915.

LIMITATIONS AND FAILURE OF RADIATION

The question of radiation versus surgery in uterine myoma was recently discussed by Cernezzi,[7] in Italy, whose findings are much in conformity with my own. He pointed out that not a few gynecologists, and the great majority of general practitioners, adopt and recommend a passive attitude, with more or less reliance on the roentgen rays in patients at or near menopause, waiting for its favorable influence on the tumor. According to these Italian statistics, there is good reason to modify this optimism, for in no less than 68 per cent. of his patients who had been radiated elsewhere, the symptoms of the myoma reappeared or became aggravated, with the result that operation was requested by the patients themselves. These statistical figures are of great practical importance, as the artificial menopause induced by radiotherapy is often credited with the cure of uterine myoma. It is admittedly unwise to wait for the problematic benefits of the natural change of life in the presence of well marked symptoms, or of severe and repeated hemorrhage due to a myoma.

Le Roy Broun,[3] in a review of the uterine myomas operated on at the Woman's Hospital in New York during 1918, comprising 262 cases, is led by the excellent end-result of surgery applied to a series of consecutive cases to raise the very urgent question whether this record can be equaled by roentgen rays applied for the purpose of absorbing or curing the myoma. The roentgen ray, in his judgment, should be used in myomas only for the purpose of controlling hemorrhage, and then only when the contents of the pelvis can be mapped out clearly.

The assertion that fibroid tumors disappear under the influence of radiation cannot be taken seriously, according to Deaver,[5] whose findings entirely coincide with my own. Such patients still have their tumors, although the symptoms may have been relieved. He accepts the view of those who hold, like myself, that the roentgen ray has failed to demonstrate specific power over fibroid growths, and is capable of doing great harm through delay of the necessary radical treatment.

RESULTS OF OPERATION

The surgical treatment of uterine myoma is simple, efficient and safe. The patient wastes neither time nor money, and her expectations of rapid relief are not doomed to disappointment.

In my own experience, as covered by the clinical material of the last two years in the Harlem Hospital of New York, and the last twelve months in the Lenox Hill Hospital, as well as in private practice, the surgical treatment of uterine myoma in the form of myomectomy (twelve cases), supravaginal hysterectomy (eighty-nine cases), vaginal hysterectomy (one case), and total hysterectomy (eighteen cases), in all 120 cases, was attended by very favorable results and a low mortality.

Age of patients.—The youngest two patients were 23 years of age. Very massive doses of radioactive substances would have been required, involving a permanent loss of ovarian function. The oldest patient was a woman, aged 62, with large multiple fibroids which had undergone necrotic changes and partial calcification.

Complications of Uterine Myomas.—These were represented by a variety of findings. Needless to say, a simple diagnosis of myoma was rendered in the majority of the cases, not of accompanying pus tubes, for example, on account of the large size of the myomatous tumor.

COMPLICATIONS OF UTERINE MYOMA

	Number of Cases
Single or double pyosalpinx	26
Acute or subacute appendicitis or retrocecal, adherent appendix (not including chronic appendicitis)	18
Large ovarian cyst, single or double (including dermoid)	17
Ectopic pregnancy	1
Hydrosalpinx or hematosalpinx	12
Intra-abdominal adhesions	8
Gallstones	2

The associated complications of uterine myoma in my series of cases are given in the accompanying table. These complications occurred, single or combined, in sixty-one cases, or 50.8 per cent. This percentage is much higher than those reported by other observers, such as Tracy[6] (33 per cent.); but it is easily understood when consideration is given to the type of material we get at Harlem Hospital (a city hospital) at which the most desperate and complicated cases are received. This also explains our comparatively high mortality. We had four deaths, or 3.3 per cent., three of which occurred at Harlem Hospital in very complicated cases.

Mortality.—The entire series of 120 cases included four deaths, or 3.3 per cent.

One occurred in private practice in a woman, aged 39, with a very large myoma, large left pus tube and large right-sided ovarian cyst with many old adhesions, who died very unexpectedly on the sixth day after the operation, from acute cardiac dilatation. Her heart had been normal up to that time.

Another fatal case was one of very large multiple fibroids, complicated by early pregnancy, in a woman, aged 28, who was stuporous after the operation (total hysterectomy) and died without regaining consciousness. The actual cause of death could not be ascertained, as a necropsy was not obtainable.

A woman, aged 40, with a large fibroid and complications in the form of left pyosalpinx and dense adhesions of intestine and omentum, succumbed to hypostatic pneumonia forty-two hours after the operation.

Embolism was responsible for the death of a patient, aged 37, who, on the twelfth day following the removal of a large fibroid complicated by double pyosalpinx, cystic ovaries and appendicitis, was suddenly attacked by pains in the chest and died three minutes later.

Convalescence.—In the case of a woman, aged 40, with a large intramural myoma and many firm adhesions due to former operations, recovery was delayed by postoperative, acute dilatation of the stomach; but this was successfully controlled. Postoperative bronchopneumonia occurred in two cases. Thrombophlebitis of the left femoral vein was noted in a woman, aged 33, after supravaginal hysterectomy for multiple fibroids, which were complicated by acute salpingo-oophoritis.

Retention of urine occurred after the performance of supravaginal hysterectomy in a case of giant, multiple myoma, complicated by dermoid cyst, in a woman, aged 34. Another patient, aged 50, with a large intramural myoma and subacute appendicitis, complained of backache and passed gravel and blood following the performance of myomectomy. In a case of a large, inflamed, soft fibroid complicated by unilateral pyosalpinx in a woman, aged 30, supravaginal hysterectomy was followed by a stump exudate, which was successfully treated by incision and drainage. Superficial cutaneous infection occurred in two instances after supravaginal hysterectomy for multiple fibroids complicated, respectively, by chronic, bilateral salpingo-oophoritis, and by adherent retrocecal abscess.

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[7] Cernezzi, Aldo: Riforma med. **34**: 233 (March 23) 1918.

Microscopic Findings.—The tumors were plain and simple myomas in the great majority of the cases. No instance of sarcomatous degeneration occurred in this series; but this was purely accidental, for sarcoma was demonstrated in myomas shortly before and immediately following our series. Hyaline degeneration of uterine fibroids was repeatedly demonstrated, and minor changes of a hemorrhagic or necrotic type were exceedingly common.

It has been my good fortune of late to operate, in private practice, on several patients who had received quite extensive roentgen-ray treatment without having been cured by it.

One case of special interest was that of a woman, aged 34, who had been sent by a New York gynecologist to a roentgenologist with a diagnosis of uterine myoma. After receiving roentgen-ray treatment the hemorrhages stopped for a few months, only to return again with increased severity. When I saw the woman, she was very much exsanguinated, and examination revealed a uterine myoma about the size of a man's fist. She submitted to a supravaginal hysterectomy and, I am glad to say, is in excellent condition at the present time.

Another case was that of a woman, aged 40, who had previously undergone three laparotomies, one for appendicitis, one for double salpingitis, and the third for a cyst in the right ligament and right oophoritis. She had been seen by another gynecologist, who made a diagnosis of a large myoma of the uterus and advised roentgen-ray treatment. In this case, also, the hemorrhages disappeared for a short time only to return again, and when I saw the patient I made a diagnosis of a uterine myoma the size of a man's fist and advised a supravaginal amputation. This operation was performed under extraordinary difficulties because of the fact that, in consequence of the three former laparotomies, there were tremendous adhesions between the intestines themselves and between the uterus and intestines. Because of an acute dilatation of the stomach on the fourth day, the patient made a rather stormy convalescence, but is now in excellent health.

POSSIBLE CONSEQUENCES OF RADIATION

When those strong adhesions between the intestines themselves, and between the uterus and intestines, are found, it is wise to consider their bearing on roentgen-ray treatment. Fixed at one point by adhesions, the same portion of the intestine is continually exposed to the strong roentgen ray, risking destruction of the intestinal mucosa, which might in turn lead to intractable diarrhea.

In my previous contribution[1] to the subject, some space has been devoted to the occurrence of intestinal lesions as a sequel of radiation, and I have quoted a number of French investigators who produced intestinal lesions through roentgen-ray applications in animal experimentation.

In a comparison of the operative and radiotherapeutic treatment of uterine myoma, Case[8] arrived at the conclusion that the ray treatment should not be used when time is a factor, and that it cannot be used with safety in rapidly growing tumors, in fibroids complicating pregnancy or when serious disease exists in the tubes or ovaries. Mayo[9] emphasized that this type of treatment in myomatous disease is destructive, nonoperative, but not conservative. The function of the ovaries, tubes and uterus is lost in practically all cases in which uterine myomas completely disappear under this treatment. No radical treatment of myoma by roentgen rays is possible without sacrificing the ovaries, thereby exposing those patients below the climacteric age to physical and nervous changes of an undesirable kind.

At best, the radiated patient retains her tumor, although the symptoms may be relieved. My views are in thorough agreement with those of Deaver,[5] as quoted above, and other authorities such as Tracy,[2] Frank,[10] Mayo[9] and Case.[8]

The operation for fibroid tumor of the uterus, as pointed out by Deaver,[5] and confirmed in my own experience, is one of the most satisfactory in all surgery. The mortality in his last series of 750 operations was only 1.73 per cent. Tracy's report[2] of 100 consecutive operations for uterine fibromyoma records a primary operative mortality of 2 per cent., while mine is 3.3 per cent. for reasons given above.

According to the preceding statements, it is evident that I am still an adherent of operative procedures in the treatment of uterine myoma and do not advocate, in these cases, any form of roentgen-ray treatment except with those cases in which operative interference is contraindicated, such as chronic cardiac or nephritic cases, and in those instances my preference would be for radium.[11]

CONCLUSION

I do not deem the roentgen-ray treatment of uterine myomas a safe procedure for the following reasons:

1. It is impossible to determine whether the growth to be dealt with is a benign or a malignant tumor.
2. My statistics show that about 50 per cent. of all myoma cases are complicated by pus tubes, hydrosalpinx or hematosalpinx, acute or subacute appendicitis, ectopic pregnancy, etc.
3. In young women who have not reached the menopause, the roentgen ray is almost certain to destroy the function of the ovaries, resulting in a premature menopause.
4. The continued application of the roentgen ray is apt to have a deleterious effect on the intestinal mucosa.
5. My experience has shown the surgical treatment to be the safest (with only 1 to 3.5 per cent. mortality), quickest, and most reliable method at our command.

48 East Seventy-fourth Street.

ABSTRACT OF DISCUSSION

Dr. George E. Pfahler, Philadelphia: It is quite natural that in an audience composed of surgeons and gynecologists who operate, and of whom only a few are familiar with the roentgen ray and radium results, the sentiment should be in favor of operation. I disapprove of the radical position taken by Dr. Stein. It is my practice to treat the patients referred to me by gynecologists, depending on their diagnosis. Patients coming to me without a diagnosis are advised to go to a gynecologist for such diagnosis. The great objection to roentgen-ray treatment of fibroids of the uterus seems to be the danger of malignancy and the difficulty of diagnosing malignancy. The single case which the author presented in which recurrence followed operation is a good argument against his own procedure. I have treated 150 patients and not one developed malignancy since. If from 7 to 10 per cent. of all fibroids are malignant what has become of those which I have treated by the roentgen rays? Where are the ten to fifteen cases of carcinoma that should have developed in these cases? What has become of the 200 or more cases of malignancy that should have developed in the thousands which have been treated and reported by roentgenologists? They have not developed. I do not say that to give the idea that we should be careless in diagnosis, but let us not be too radical. Let us give the patients the advantage of the best treatment. If we allow the gynecologist to decide which cases shall be treated by radium or roentgen rays we shall be on safe ground. I can give that advice to every roentgenologist. Only two out of the 150 patients I have treated had to have operations later on account of complications. These two developed pelvic abscesses requiring incision and drainage through the vagina. These two at least had this complication at the beginning of treatment. In one woman who was very fat and in whom the doctor had diagnosed myocarditis, operation was contraindicated. The other patient had a marked anemia which forbade operation. Both were inoperable cases. I do not believe that we should go to the other extreme any more than that we should say that all cases ought to be treated by the roentgen ray. The tumors do disappear under roentgen-ray treatment.

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[8] 8. Case, J. T.: Comparison of the Operative and Radiotherapeutic Treatment of Uterine Myomas, Surg. Clinics, **1**: 579 (June) 1917.

[9] 9. Mayo, W. J.: Myomas of the Uterus; with Special Reference to Myomectomy, J. A. M. A. **68**: 887 (March 17) 1917.

[10] 10. Frank, R. T.: The Choice Between Operation and Roentgenization of Uterine Fibroids, Am. J. Obst. **72**: 408 (Sept.) 1915.

[11] 11. In addition to the references already given, the following will be found of interest:

Moeller, W.: Fibromyoma Uteri, Svenska Läk.-Sällsk. Handl. **44**, No. 10, p. 181, 1918.

Oliva, L. A.: I raggi X e il radium nella cura dei fibromiomi dell' utero, Gazz. d. osp. **39**: 345 (May 2) 1918.

Dr. J. Riddle Goffe, New York: I am very glad that Dr. Stein has read this paper, for I think the whole tendency of the discussion was in favor of the roentgen-ray or radium treatment. The operative work has not been emphasized sufficiently. I recall when operations on fibroids were very disastrous. Many of us can recall when the fatality was more than 50 per cent. We must bear in mind that during the last few years operative results have improved. Dr. Le Roy Broun has given us a record of 262 cases of fibroid tumor operated on by twelve or fifteen different men during 1918 with a death rate of only 1.53 per cent. Analyzing the cause of death we find that there were complications which would undoubtedly have been very serious following the application of radium and they might have been quite as fatal. Therefore complications are a large factor in fibroid cases and can be relieved only by operative procedures. I am in favor of adhering to the operative procedure. The dangers and discomforts of the radium treatment have not been emphasized sufficiently. In contrast, the operative procedure is more simple.

Dr. Joseph B. De Lee, Chicago: I would like to ask those who have used radium whether any woman in their practice has become pregnant after the radium treatment. In three cases in which I used radium to preserve the uterus with the view of rendering possible a pregnancy, I have not yet been able to report such an occurrence.

Dr. Thomas S. Cullen, Baltimore: I have listened with much interest to the discussion of Dr. Stein's paper particularly that in reference to the part played by the roentgen ray. One of the gentlemen has told us that there is malignancy in from 7 to 10 per cent. of the cases he has treated, and further, if I mistake not, that these patients have been sent to him by gynecologists. This percentage is far afield from what Dr. Kelly and I have obtained in a careful examination of nearly seventeen hundred cases. In about 1.3 per cent. we found carcinoma of the cervix, in 1.7 per cent. carcinoma of the body of the uterus and in 1.2 per cent. sarcoma developing in or associated with the myomas. Thus in about 4.2 per cent. we have found malignancy. In those cases where carcinoma of the cervix is present the gynecologist will, as a rule, hardly refer the patient to the roentgenologist, and in a certain percentage of the cases where adenocarcinoma of the body exists with the myoma the diagnosis will also be made. In these cases likewise the surgeon will deem operation the wiser procedure. If we deduct these cases there will remain at the outside from 2 to 2.5 per cent. where the use of the roentgen ray or radium will be considered as a factor in the treatment. Radium and roentgen ray are without a doubt destined to play a large rôle in the treatment of fibroids. In a few years sufficient data will be available to enable us to crystalize our views on the subject. We will then be able to tell fairly accurately when to operate and when to advise roentgen ray or radium treatment.

Dr. Henry Schmitz, Chicago: I had a patient, 42 years of age, who came to the clinic suffering with severe menorrhagia. Refusing any operative procedure, she was treated by radium. Nine months afterward she became pregnant and gave birth to a perfectly healthy child at full term. The infant is now five years of age and has no defect of development.

Dr. Peter B. Salatich, New Orleans: I do not know anything about radium for fibroids, my experience being principally on the operative side. We lose very few cases by operation for fibroids and our results have been uniformly good. When we operate on a patient she generally convalesces well and that is the end of it. In many cases where radium is used, the patient is relieved partially for a time and then must go back and have the radium reapplied. I have seen two or three cases, one especially, with very disastrous results. In one case there seemed to be a friability of the tissues and the rectum was opened in separating adhesions. We had to drain and following this there was a fistula. I think radium should be limited to cases which are inoperable, when the heart is so bad that you do not care to take a chance or the patient is so anemic that you merely want to tide the patient over and operate later. I believe that syphilis plays some part in the causation of fibroids. Many cases of fibroids occur in young women and often in unmarried ones. Many married women who have fibroids are sterile. I find that a larger percentage of fibroids occur in the negro race than in the white. You find more syphilis in the negro for the same reason that you find keloids there, the cause of which we know very little about. The heart complications are frequent in fibroids. In 25 per cent. of heart cases in which you cannot get a positive history of infection you find either a positive or weakly positive Wassermann. I have had a Wassermann made in every case of fibroids in the negro and the reaction was positive. Not every negro woman, however, with a positive Wassermann has a fibroid, although the large majority having fibroids show a positive Wassermann. I merely mention this fact because we are all anxious to know the cause of fibroids.

Dr. Le Roy Broun, New York: As to the sarcomatous changes in fibroids referred to by Dr. Clark, our experience in nine years in the Woman's Hospital gives us seven cases out of 1,760 consecutive cases in which we operated, a little less than four-tenths of 1 per cent. This is in keeping with what Dr. Clark has said and is rather opposed to the figures usually stated in the literature which give the percentage as 1.5 to 2 per cent.

Dr. C. N. Cowden, Nashville: We all know what our results are in operations for fibroids. In radium treatment, however, tissue is left behind. What the future of that tissue is going to be when the patient undergoes retrograde change, say at 60 years of age, we do not know.

Dr. Miles F. Porter, Fort Wayne, Ind.: I think it important to bear in mind that on the side of the question of operation we have some adequate and definite facts. On the other side, we have some very suggestive facts. Our attitude in regard to the application of the roentgen ray to fibroids should be what it is in regard to cancer. It occurs to me that there is no question but that the proper thing to do with a fibroid, other things being equal, is to take it out. Just as we do in cancer, we should call in a consultant and if there is any reason why operation should not be done the roentgen ray should be tried. In the meantime we must not forget that it seems to be proved very conclusively that mild doses of the roentgen ray increase the rapidity of growth of all sorts of malignant tissue. It has been proved rather definitely by Kimura that mice carcinoma and sarcoma subjected to these mild degrees of radiation will grow with greater rapidity when grafted into other mice than they will when not exposed to this mild current; and, on the other hand, if they are exposed to rays of greater strength the growth is so inhibited that the grafts do not take at all. So that in the application of this method of treatment these facts should be borne in mind and the roentgenologist or radiologist should know pretty definitely whether he is dealing with a case which is malignant or one which is not malignant and the dosage should be applied in accordance with these facts. In the meantime, until we have something more definite we should go along the old lines. With a death rate of not more than 1 per cent. in uncomplicated cases, these patients should be subjected to operation unless there is some particular reason why they should be treated by roentgen ray or radium.

Dr. Arthur Stein, New York: Dr. Pfahler is to be congratulated on having such splendid results, but the question arises, Are these results obtained in all cases? As stated in my paper, I had three cases in which I operated after the roentgenologist had pronounced the patient cured because they had stopped bleeding for three or four months, only to bleed again much more than before. They are cured now after an operation. To my mind the whole question comes to this: We have all to improve on our diagnosis, so that we can rule out in each case with absolute certainty whether it is a simple myoma or one complicated by some other disease. If we can do that, then surely all the cases amenable to radium treatment ought to be treated by radium and not by roentgen ray.

ALTERNATING PERIODIC OVARIAN SWELLINGS *

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From time to time certain abnormal conditions of the ovaries have been reported in isolated and unconnected observations, and it is my purpose in this article to endeavor to explain these and to link them up into a connected whole.

There are four types of cases which, I think, may be properly treated under this head. Descriptions of the first three types may be found in the literature, and I have encountered them in my own practice. These four types may be thus briefly described:

TYPE 1.—THE VANISHING TUMOR

On examination of a patient, a cystic tumor, at the side of the uterus, of the size of a hen's egg, or larger, is found. The tumor suddenly breaks under the examining hand. The patient may have had some irregularity of menstruation and some pain. Pus tube or extra-uterine pregnancy may have been suspected and it is feared that rupture of the tumor may produce serious results. The patient is rushed to the operating room and an incision is made. A little serous fluid (sometimes blood-stained) is found in the abdomen. Both tubes are discovered to be normal. One ovary shows a ruptured cyst, the thin walls of which on examination prove to be those of a corpus luteum cyst, with more or less lutein layer in its walls.

TYPE 2.—THE FALSE EXTRA-UTERINE PREGNANCY

A patient with more or less irregularity of menstruation, at times absolutely of the type found in extra-uterine pregnancy, comes for observation and presents a soft cystic tumor at the side of the uterus. Other symptoms of pregnancy may be wanting or not decisive, one way or the other. The hemorrhage is most likely to suggest extra-uterine pregnancy and may be so protracted that it seems advisable to operate. Accordingly, the incision is made, but both tubes are found normal. Instead of an extra-uterine pregnancy a corpus luteum cyst in one or both ovaries is disclosed, usually with a thick lutein cell layer, often with chocolate-colored hemorrhagic contents in one or both ovaries. With the removal of the cyst or cysts all symptoms promptly cease. The pathologic examination shows a corpus luteum cyst or cysts.

TYPE 3.—THE TUMOR WHICH DISTURBS THE PEACE OF THE COMMUNITY

The patient consults Dr. A in regard to certain pains in the abdomen, with or without much menstrual disturbance. The physician tells her she has an ovarian cyst on the right side and should have it operated on. After a few days, the patient consults Dr. B for confirmation of the diagnosis. He examines her and assures her that there is no tumor at all. The patient is now thoroughly disturbed and seeks the advice of a third physician, Dr. C. He examines her and tells her that she has an ovarian cyst; that it is not, however, on the right side, but on the left side. The amount of ill feeling created between practitioners themselves and their patients by such an occurrence may readily be imagined. In a case of this kind, which came under my observation three years ago, I advised the patient to have no operation for the time being and she is still alive and well. Further observation has proved that her case comes under Type 4, as I could suspect from her story. It was owing to my observations on Type 4 that I was able to treat the patient conservatively and my colleagues with sympathy who had made diagnoses differing from my own.

TYPE 4.—ALTERNATING PERIODIC OVARIAN SWELLINGS

This type I have named alternating periodic swellings of the ovary. I gave my first description of it in 1913.[1]

This group has now been studied in over a dozen cases since my attention was first directed to it in 1906. In three of the cases I have operated and have thus secured material for pathologic investigation. A number of cases have been observed in which the condition was present in a rudimentary way. In the case of the three patients operated on, and of some who were not operated on, my observations extended over several years: In Case 1 from 1906 until the operation in 1913; in Case 2 from 1910 until the operation in 1918, and in Case 3 from 1916 to the present time. Without this protracted observation in these cases and in a number of those not coming to operation, it would have been impossible to establish this clinical entity.

REPORT OF CASES

The first case of this kind to come under my observation was one in which the picture was presented in the most pronounced colors and may therefore deserve a more extended description:

Case 1.—*History.*—When the patient first presented herself, she was 41 years old. She had had no previous sickness.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

[1] Festschrift for Prof. Freund and Ztschr. f. Geburtsh. u. Gynäk.

She had had a normal pregnancy, labor and puerperium at the age of 27. Her menstruation had always been regular, of three or four days' duration, with moderate loss of blood and without pain. In the summer of 1905, while on a European trip, she was taken ill with a severe inflammation in the abdomen. After several weeks of treatment she improved so far that she could return to America. A letter of the colleague who had treated her reported that she had considerable swelling of the right adnexa when she left him.

My first examination, Feb. 28, 1906, found the patient well nourished, with normal temperature, and all of her organs normal with the exception of the pelvic organs. The pelvic organs showed slight laceration of the perineum; moderate cystocele and rectocele; uterus large, hard, anteverted, movable; the right adnexa thick and adherent, barely sensitive; the left adnexa not enlarged, but not freely movable.

The conservative treatment that had been begun in Europe was continued, and the patient presented herself frequently for examination. In the course of several years the following observations were made:

March 15, 1906, the right adnexa were smaller. April 17, there was a feeling of heaviness and fulness in the right hypogastrium. The patient had just finished a copious menstruation of three days' duration. The right ovary was the size of a goose's egg. The left adnexa were adherent, but not enlarged. May 15, the patient reported that moderate menstruation had begun April 26 and had lasted three days. The right ovary was slightly thick. October 8, menstruation was reported regular. The findings were the same as last time. November 12, the right adnexa were quite small.

Jan. 28, 1907, the right adnexa were larger than a hen's egg. March 21, the condition was the same as last time. May 14, both adnexa were quite small. Menstruation was regular. June 17, the condition was the same as in May. November 8, there was pain in the back and in both hypogastria. Both ovaries were large, especially the left one, which was fully as large as a hen's egg. November 14, there was less pain. Both ovaries were small.

March 31, 1908, there was at times discomfort in the abdomen. This had been true more especially for a few days previously. Both adnexa were thick, and enlarged. Menstruation was regular. June 16, there were no symptoms. The adnexa were quite small. In October, 1908, menstruation was a few days early, and lasted three days. There was no pain. The right adnexa were larger than a hen's egg; the left adnexa were small. October 8, the right adnexa were the size of a hen's egg. October 26, there was no swelling at all. December 24, there was again pain in the abdomen. The right adnexa were the size of a hen's egg, and were slightly sensitive.

April 16, 1909, there had been pain in the abdomen for two days. There was a large swelling of the right adnexa, which appeared the size of a fist. There was a slight thickening on the left side.

In April, 1909, there was no swelling. May 12, the uterus was thick, and both adnexa were small. June 25, there was no swelling.

March 21, 1910, both adnexa were thick. Menstruation was regular. May 25, both adnexa were small. December 15, there was a right tumor the size of a fist, and a left swelling the size of a hen's egg. December 27, the left adnexa were quite small, and the right adnexa were the size of a hen's egg.

Jan. 3, 1911, there was no pain. The right adnexa were quite small, and the left adnexa were larger than a goose's egg. February 27, both adnexa were small. April 22, there was some drawing pain in the abdomen. The right ovary was somewhat large, and the left appendages were normal. May 24, the adnexa were small. July 3, the adnexa were small.

March 18, 1912, there was pain in the right hypogastrium. Menstruation was regular. The uterus was thick. On the right side was a distinctly cystic mass larger than a fist. The left adnexa were quite small. March 27, menstruation was reported as having occurred between March 22 and 25. There was a tumor on the right side of the same size as at the last visit. April 5, the right ovary was quite small. April 23, menstruation was reported as having occurred between April 12 and 15. The right adnexa were quite small; also the left adnexa. May 28, the condition was the same as at the last visit. July 2, menstruation was reported as occurring between June 10 and 13. The left adnexa were enlarged; the right adnexa were small. December 27, the patient reported that for several weeks she had had pain in the left knee. The left adnexa showed a tumor the size of a fist. An examination of the knee revealed nothing of a pathologic nature. Menstruation was reported as occurring, Dec. 7-10.

Jan. 2, 1913, there was a swelling on the right side the size of a fist. The pain in the knee was reported as at the last visit. January 10, menstruation was reported as having extended over three days. The pain in the knee was better. On the right side the adnexa were the size of a goose's egg; the left adnexa were only slightly enlarged. January 15, there was no swelling on the left side and only a small swelling on the right side.

Operation and Result.—After the patient had thus had thirteen right and seven left swellings, of which four had involved both sides simultaneously, and after the patient had frequently had considerable pain as a result of them, I proposed operative procedure.

The case came to operation, Jan. 20, 1913. The operative findings were as follows: There was a small left hydrosalpinx. The uterus was large. There was a fibroid the size of a walnut on the fundus. There was a small right hydrosalpinx in adhesions, and a small right ovary. There was a left ovarian tumor consisting of multiple cysts with clear contents and thin walls. There were adhesions of the sigmoid to the left hydrosalpinx, of the bladder to the anterior wall of the left uterus, and of the rectum to the posterior wall of the uterus.

The operation consisted in the removal of the ovaries and tubes and supravaginal amputation of the uterus.

Inspection of the appendix disclosed a thin cordlike structure connecting the normal point of insertion of the appendix with a small white calcareous nodule at the end of which an appendix of normal appearance was seen. The cordlike structure was 1 cm. long. The appendix was removed.

The pathologic examination of the removed organs disclosed two more fibroids in the uterus, and a thick mucosa. There were small cysts with serous contents and a partially yellow, partially white wall in the right ovary. In the left ovary there were cysts of the same kind.

Microscopically the cysts were corpus luteum cysts of various sizes and varying structure as to lutein contents. The fibroids were simple white fibroids. The tubes showed fibrous condition of the folds, and no other inflammatory condition. The part of the appendix which on inspection appeared normal showed on microscopic examination complete obliteration without a trace of mucosa or follicles.

The patient made a smooth recovery. The pain in the left knee disappeared quickly and had not returned on the last examination in March, 1913. At this time the pelvis was free from tumors.

If before the operation on this patient some justifiable doubt might have existed as to whether the swellings concerned the ovary or the tube, such doubt could be excluded with absolute certainty in Case 2:

Case 2.—The tubes of the patient had been removed in 1910. At this time both ovaries were left behind and their inspection in the course of the operation had shown the left one absolutely normal and the right one somewhat thick and containing some small cysts with serous contents. Before this operation the patient had had two swellings, one on the left side in September, 1910, and one on the right side, Oct. 6, 1910. After the operation, up to 1917, this patient had at least seven swellings on the right and four on the left—twice on both sides simultaneously. In 1917, a fibroid developed which caused severe hemorrhages and was operated on in November, 1918. At this time both ovaries were removed with the fibroid. They were embedded in extensive adhesions and contained a number of cysts with bloody and serous contents, which, on macroscopic and microscopic examination, proved to be corpus luteum cysts of various stages.

In Cases 1 and 2 the symptoms which accompanied the swelling were a feeling of fulness in the hypogastrium, a bearing down sensation, backache, and in the first case, at one time, pain extending into the knee of the affected side.

In Case 3 the symptoms were somewhat more severe and showed the connection of this type of case with Type 2 as described above.

Case 3.—This patient had a prolapse operation in September, 1916, after the method I have described elsewhere.[1] The patient made a good recovery.

Oct. 12, 1918, she reported that she had been flowing for a month without pain, that she felt nauseated, and that her breasts felt full. A week previously she had passed something like a membrane. The examination revealed a firm tumor to the right and behind the uterus. She was put under observation and reported, November 24, her last menstruation as occurring from November 1 to 8. The tumor was unchanged. As she had been sterilized in her prolapse operation and as I had never observed a pregnancy after any of my sterilizing operations, I should have been much surprised if the tumor had proved to be a tubal pregnancy. But as her symptoms certainly pointed toward this condition and as her pain was not relieved by conservative treatment, I advised operation and carried it out, Nov. 25, 1918.

The technic of the sterilization had been perfect. The tumor belonged to the right ovary. Both ovaries were perfectly free from adhesions, the right one being almost the size of a fist, the left one the size of a hen's egg. The right tumor contained chocolate-colored fluid. The right ovary was removed entirely The left ovary had healthy tissue at the base, and the tumor was excised and the ovary reconstructed by suture. The cyst of this side also contained chocolate-colored fluid. The patient made a good recovery.

Feb. 20, 1919, the patient returned. She had had her menstruation every twenty-three days since the operation, the last time February 11, lasting six days, copiously, with clots and pain in the left hypogastrium for two weeks. Examination detected now a cyst the size of a fist on the left side. The patient was advised to use hot baths. March 3, the swelling was the size of a hen's egg. As I could be positive that it was not a case of extra-uterine pregnancy, since I had observed the complete separation of the uterine cavity from the tubes and had recently seen that there was no infected tube, I simply burst the sac by sudden bimanual pressure. The maneuver produced no pain. I observed the patient for an hour, and in the absence of all untoward symptoms, I allowed her to go home. Sixteen days afterward she was still free from pain and had not menstruated. The left appendages were of normal size.

COMMENT

This was the first case in which I have deliberately broken such an ovarian swelling, a form of conservative treatment which I had contemplated for the relief of patients in whom operation was not desirable. As I had removed the right ovary from this patient; as she was less than 35 years old, and as I could feel certain of the nature of the cyst, this manipulation could be risked without undue hazard. If a patient who has been observed a sufficient period of time to establish the diagnosis on a sound basis, suffers from these alternating swellings and has considerable disturbance in consequence thereof but for some reason should not be operated on, this intentional rupturing of these cysts presents a simple method of relief, if only temporary. Otherwise, if the swellings continue to return, and especially, if ultimately the ovary does not go down to normal size between the swellings, but remains large and produces pressure symptoms, then operation is indicated, in order to give permanent relief.

PATHOLOGY

While the question of treatment is comparatively easy to settle, a more difficult and interesting problem is presented by the pathology of the condition. Why do these ovaries swell? From the macroscopic and microscopic examination of these ovaries it is evident that the swelling has its seat in the corpus luteum and represents a cystic enlargement of this structure with contents of serum or blood. In the first two cases in which I operated, the ovaries were embedded in adhesions, and this suggested that the presence of the adhesions prevented the follicle from rupturing freely. But aside from the fact that everyday observation fails to show cyst formation in every case of adherent ovaries, the findings in the third case, reported here, prove conversely the possibility of cyst formation without any adhesions. However, of the cases that did not come to operation, of which a number have been observed for years presenting alternating swellings, a large majority presented adhesions.

The age at which the swellings occur was as low as 25 and (as in Case 1) as high as 48.

The relation of the swellings to the monthly periods is commonly so that the swelling is first noticed from eight to fourteen days before the menstruation and has more or less disappeared within three or four days after the menstruation. This periodicity caused the addition of the term "periodic" to the nomenclature of the clinical entity.

Many authors have reported periodic increase in the size of ovaries which were the seat of what they called chronic oophoritis; but I have not been able to find any description of a series of alternating cases anywhere in the literature. The microscopic findings in the organs removed in my operations resemble the descriptions of chronic oophoritis contained in the literature, but I fail absolutely to see any signs of inflammatory changes in the ovaries themselves, while the adhesions found on the outside of these ovaries can readily be explained independently of the ovarian condition (for instance, in Case 1 by the presence of an old appendical peritonitis).

The changes going on in these ovaries are dependent on the corpus luteum. Their effect may be simply due to the size of the cyst producing pressure symptoms, or, what is equally important, the effect is that of faulty corpus luteum function.

CHANGED CONCEPTION OF THE VALUE OF THE CORPUS LUTEUM

We have changed our conception of the value of the corpus luteum very much. Years ago the ovary was considered useful mostly for the production of ova. The corpus luteum was not understood. It was permissible then to consider it merely as a temporary false scaffolding which would keep the ovary from collapsing after the rupture of the follicle, if I may express it so crudely. Now we know that the ovary and the corpus luteum have special functions. We might compare the female sexual tract with a clock. The ovaries are the weights which make the whole machine go. The uterus might be compared to the hands and the corpus luteum to the regulating mechanism—say, the pendulum. The periodic function of the corpus luteum, same as the periodic swinging of the pendulum, keeps the apparatus in rhythmic action indicated by the rhythmic menstruation. As soon as the pendulum gets out of order, the rhythm becomes disturbed; as soon as the corpus luteum becomes pathologic, we have irregularity of menstruation in one or the other direction. The function of the corpus luteum under pathologic conditions is a chapter which must be added to the old pathology.

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[1] Ries, Emil: Am. J. Obst. 77: 758 (May) 1918.

CONCLUSION

It may be clear now why I have enumerated several types of puzzling clinical observations. It is evident that if we have such a patient with alternating periodic ovarian swellings and see her for the first time and break her cyst under our fingers, we cannot tell what we have broken. But when we are better acquainted with the abnormal periodicity of her ovaries, we can even go so far as to rupture her cyst intentionally and with beneficial results.

It may also become clear that Drs. A, B and C were all correct in their various diagnoses of right tumor, left tumor and no tumor, and that it might be wise to remember this clinical picture before upsetting the patient's confidence or injuring the standing or wounding the feeling of our brethren.

It may also be clear now how an irregularity of the corpus luteum may affect the menstrual function so that on the first examination a diagnosis of extra-uterine pregnancy may seem warranted, whereas a further acquaintance with the patient may (as for instance in Case 3) show the symptoms to be those of alternating periodic ovarian swelling.

ABSTRACT OF DISCUSSION

DR. EMIL NOVAK, Baltimore: The cases such as Dr. Ries reports are grouped under three special types, all attributed to some abnormality of corpus luteum structure. I think he is right in attributing this important rôle to the corpus luteum. That, of course, is the thing that undergoes cyclic change every month. The first case which he reported I think was simply a case of ruptured corpus luteum cyst. The second group of cases of which he spoke were those in which he found unruptured corpus luteum cysts. Such cases have been reported quite frequently in the literature, chiefly because they give rise to a picture simulating that of extra-uterine pregnancy. There are the symptoms of delayed menstruation, irregular or continuous bleeding and the presence of a mass. The most interesting group is the third, those cases in which was found the cystic condition regarded as due to the presence of corpus luteum cysts either with or without epithelial lining. I think it is open to question whether these were due to corpus luteum cysts or whether they were simple lutein cysts which are not genuine corpus luteum cysts. Such cases are best illustrated by the striking group of cases in which there are lutein cysts similar to those found in hydatid mole or chorionepithelioma. These cysts are not genuine corpus luteum cysts, and when we remove the hydatid cyst the tendency is for these ovarian cysts to vanish. Granulosum cells are not found in the genuine corpus luteum cysts.

DR. ALFRED BAKER SPALDING, San Francisco: The author spoke of these tumors appearing on one side and then on the other, accompanied by pain. I wondered whether in going back over the cases he did not find that patients had the large ovary without pain. That has been my experience. I have seen women with ovaries such as Dr. Ries described and have unfortunately operated on some of them, removing the ovaries. I have studied them in the laboratory and invariably found not only the corpus luteum cyst but that the ovary resembled an angioma. At operation I have seen the large veins running from these ovaries to form a varicocele. I have wondered whether many of the symptoms complained of might not be due to the varicocele that occurs in the broad ligament rather than to the cyst. These patients have been very difficult to handle in the matter of giving relief. I have frequently treated them for a number of years with hydrotherapy, and I have sometimes referred them to colleagues who were using high frequency or electrical treatment, and they have been relieved. Only surgery will give such patients real relief—suspending the ovary in a hammock by bringing enough peritoneal fold over the uterine ligament to give that ovary a bed. This gives relief for a time. I have reoperated on a patient who had a recurrence of a retroversion because of an improperly done operation to hold the fundus forward, and I found that those folds had become strings, like those Kelly described in his old operation of ventral fixation. With a good fixation forward, the support of the ovary will relieve the patient of the symptoms and let the corpus luteum go on through its function as it pleases. So long as the patient is not in pain she does not care. Without a good support of the fundus forward I do not believe any support of the ovary will relieve a congestion which causes the varicocele which is the condition causing the pain.

DR. PETER B. SALATICH, New Orleans: I have been making a study of this subject for several years. A patient will often complain during menstruation of more pain on one side than on the other. Examination of these patients a few days before menstruation will show the ovary to be larger at that time than a week or two after menstruation. In all cases in which I have removed both ovaries I plant a piece of ovary between the fat and the fascia and in many of these patients two or three days or a week before menstruation the ovary enlarges to two or three times the size of the piece planted. Sometimes just before menstruation the ovary will stretch and be as large as a lemon and in a week or two afterward the swelling will disappear and there will be no more pain or swelling. I had one patient who refused operation. She would have considerable pain, at times with temperature elevation. Then in two or three days there would be a discharge of pus from the vagina when the pain and swelling would disappear. This has occurred about half a dozen times, and finally the condition cured itself without an operation. You will find that the pain on the right side will come on every two or three months and that the menstruation will be more profuse and attended with greater pain than that of the previous month or two. Operation will probably show both ovaries to be cystic. The important point is that on the right side where the pain is greatest you will find that the ovary is probably worse than on the side where there is no pain. But if you are going to save the ovary on the side of which the patient complains, no relief is obtained; the pain will continue just as before. Therefore, I always make it a rule to study the patients carefully and remove the ovary on the side on which they do not complain of pain.

DR. EMIL RIES, Chicago: I wish to correct a misunderstanding. The swellings which I have described are not the swellings of an ordinary ovary, but often tumors the size of a fist or larger. There is not always pain; there may be just a little feeling of fulness. Sometimes I discover that the patient knows nothing about the presence of a tumor. The most important thing is that these tumors recur—not that there is a tumor. I am not talking of ordinary corpus luteum cysts—I am talking about returning tumors. The nature of the cysts was established by microscopic examination, of course. It is not necessary to go into the pathology of corpus luteum cysts. The important point is the return of the tumor. I am not speaking of the cyclic swelling of the ovaries mentioned in every good textbook. This is something new, not previously described anywhere.

Health Board Celebrates Centenary.—On March 18, the births and deaths department of the New Orleans Board of Health completed 100 years of service. In March, 1819, sixteen years after the Louisiana Purchase, the first death, "That of a free man of color," was reported by the Board of Health of New Orleans. The first birth was reported, March 25, 1919. The present recorder, P. Henry Lanauze, has held the position for forty-four years.

Clinical Notes, Suggestions, and New Instruments

TREATMENT OF SEASICKNESS

A. E. Lemon, M.D., Sault Ste. Marie, Mich.
Major, M. C., U. S. Army; Surgeon, One Hundred and Twenty-Fifth Infantry

It has long been believed that seasickness is the result of the motion of the ship affecting the semicircular canals, the organ of equilibrium in the internal ear.

I was aboard the U. S. S. *Great Northern,* en route from Brest, France, to New York, May 2 to 9, 1919. This ship was carrying troops, and was making a record for the round trip to Europe. With her high speed and light forward ballast, although she pitched or rolled very little, she had a very pronounced plunging motion, with the rising and falling motion predominating. As a result of this accentuated rise and fall, about 90 per cent. of the troops, and a considerable number of the crew, were more or less seasick; and at least 700 were in very great distress.

I had put in three years in Newfoundland; had not been seasick for years, and was not sick at all on the trip to Europe, in February, 1918, when the sea was less smooth than on this trip. But as soon as we cleared from the harbor at Brest, I became, unexpectedly, very seasick. I had been careful to see to it that diet indiscretions, alcohol and lack of elimination were eliminated as a possible cause of seasickness in my case. And yet, at 4 p. m., May 4, I was more seasick than during the first twenty-four hours, with no indication of improvement. I felt a fine, indefinite sense of change of pressure on the ear drums, which, I may say, however, was not shown by a barometer in my room.

I reached for some sterile gauze, and, with the aid of a match, packed both external ear canals, packing against the eardrums. It took only a few minutes to find out that relief was immediate as soon as I had packed the gauze tightly enough so as to cause a decided sense of pressure in the ear canal.

I immediately began relieving others, being, officially, surgeon of troops aboard the ship, which gave me the right to treat every one I found sick. Although we were forty-eight hours out, I still found about 200 persons quite sick.

Further observation on the relation of the outer ear canal to seasickness shows that soldiers who were exposed to shell fire in Europe were almost without exception much more affected with seasickness coming back from Europe than they were going over. Surgeons on board ships carrying troops have told me that this observation is borne out in their experience. In my own case, I had both ear drums injured by shells exploding in two cases within 7 yards by measurement, and with only open space between me and the shell. I cannot otherwise account for the violent case of seasickness I suffered on leaving Brest, and which led, or rather forced me, to look for a new method of relief.

In collecting more information from those whom I was able to relieve on the trip across, I found several cases in which, after being relieved for several hours, the packing was removed from the ears, when the seasickness at once returned, and was again relieved by repacking the ears. The treatment was so immediately and positively effective in the cases on this ship that the only possible cause of failure on other ships would seem to be the unlikely but possible existence of more than one variety of seasickness.

AN IMPROVEMENT OF THE AEROPLANE SPLINT

Frank W. Romaine, M.D. (Washington, D. C.)
Captain, M. C., U. S. Army
CAMP UPTON, YAPHANK, N. Y.

During the European war, many varieties of splints came into vogue. Some of them were resurrected from the discard, while others combined old ideas with new positions and arrangements. Among the various mechanical supports is the "aeroplane" splint used for fractures of the surgical and anatomic necks of the humerus, gunshot wounds of the shoulder involving the joint, and wounds of the outer end of the clavicle and spine of the scapula. This splint has been used to great advantage and with much comfort to the patient, both before and after operative procedure. But as devised it does not meet all the requirements of the long convalescence of these types of cases. A later style is open to practically the same objections, as it does not permit of the lowering of the arm with support in the axilla, the point at which support is most needed.

Figure 1 (the original splint) shows the rigid support, desired in the first weeks of convalescence, to maintain the arm and forearm at right angles to the body.

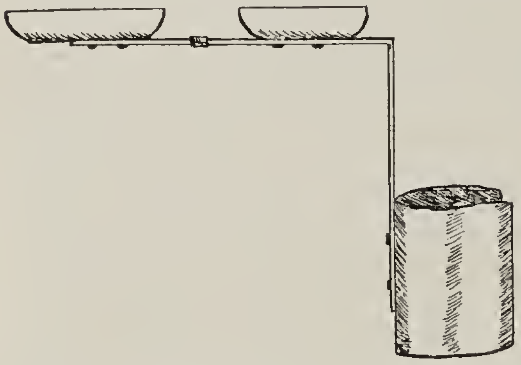


Fig. 1.—Original type of aeroplane splint; rigid.

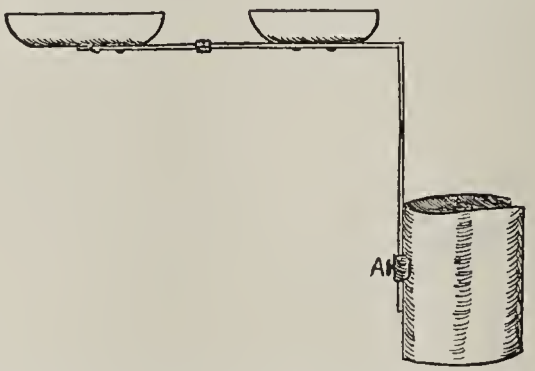


Fig. 2.—Second type of splint permitting lowering of arm by loosening thumb screw *A;* lowering occurs in the same plane as in rigid or first position.

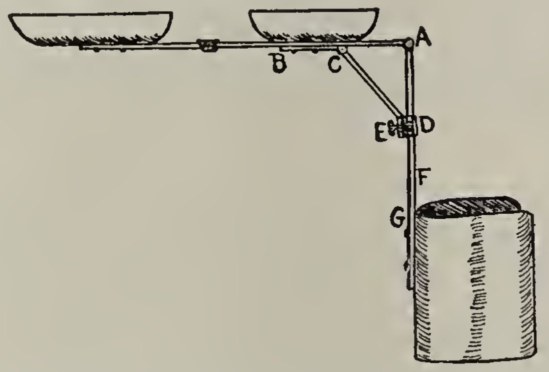


Fig. 3.—Improved splint permitting horizontal arm to be moved at any angle by loosening thumb screw *E* and sliding sleeve *D* up or down upright bar *F*. This is accomplished by hinges at points *A* and *C*.

Figure 2 shows the splint devised to permit the lowering of the arm and forearm. In this type the arm and forearm are lowered en masse by loosening the thumb screw (Fig. 2 *A*) and allowing the upright rod to slide down the desired distance, whereupon the screw is tightened. This permits of a relaxation at a point where support is most desired, and of a general sagging of the arm, causing a greater strain where support is needed most. This splint has been found to be undesirable, uncomfortable and painful to the patient.

In the improved splint (Fig. 3) as devised during the war and used on war wounds of the shoulder involving the head of the humerus, the clavicle and the scapula, a happier result is obtained. A greater degree of comfort is afforded the patient, a rest is established for the arm and forearm, and support is maintained in the axilla. The lowering and raising of the arm and forearm are executed without disturbing the dressings or requiring the removal of the splint.

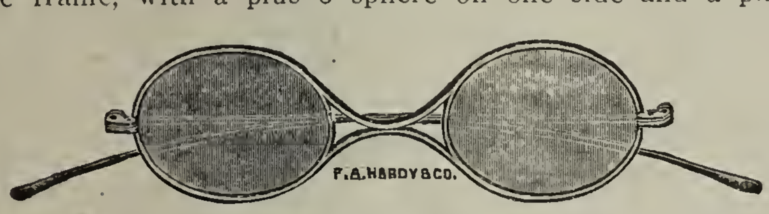
At the angle formed by the horizontal and perpendicular rods (Fig. 3) a hinge is made (*A*). A band of steel (*B*) three-quarters inch wide and 2¼ inches long is riveted to the horizontal rod 1¼ inches from *A*. At point *C* is hinged a band similar to the first band, 2¾ inches long, connected at an angle of 45 degrees with a sliding double sleeve (*D*), which is fitted with a thumb screw (*E*) permitting the lowering and raising of the sleeve and the consequent movement of the horizontal arm support. The upright (*F*) between the points *A* and *G* is roughened, permitting the thumb screw (*E*) to bite and hold firmly.

A TRIAL FRAME FOR EYE MALINGERING

Frank Allport, M.D., and James R. Smith, M.D., Chicago

In the detection of eye malingering we have adopted the old and simple method of inserting in the trial frame a strong convex lens on one side with a plano lens on the other, without the patient's knowledge of the relation of the lenses, and with rarely a suspicion that he is being subjected to a test for malingering. The strong convex lens, which excludes vision at a distance of 20 feet, is placed over the patient's good eye, with a plano lens over his supposedly injured or amblyopic eye. Then, with both eyes open, the patient is asked to read the letters on the test chart. Any resulting vision is very evidently the vision which the patient obtains with the supposedly defective eye. This is a very simple test, and demonstrates to what extent the patient sees with the eye in question.

There are numerous devices for the detection of malingering, many of which are complicated and confusing in their application. We have devised a convenient reversible spectacle frame, with a plus 6 sphere on one side and a plano lens on the other, which constitutes, to all intents, a pair of spectacles. There is a cross or X bridge which allows the glasses to be easily reversed and adds very much to the ease with which the test can be made. It is also more or less deceptive to the patient, even though he mistrusts that he is being made the subject of a malingering test. If one suspects that a person is malingering, one may simply place the trial frame on the face, with the convex lens over the good eye and the plano lens over the supposedly injured eye. One should observe the patient very closely to see that he does not close either eye, but that the test is made with both eyes wide open. As before stated, any resulting vision will represent the vision of the defective eye. An advantage of this trial frame is the ease with which it can be manipulated; that is, it can be removed and reversed, adding confusion to the patient.



Trial frame for eye malingering.

Malingering is often difficult to detect, especially if a patient has been instructed to be suspicious of ocular examinations.

7 West Madison Street.

AN ANOMALOUS ABDOMEN

Thomas B. Noble, M.D., and Scott R. Edwards, B.S., M.D.
Indianapolis

Intra-abdominal anomalies are relatively rare. This conclusion is warranted, at least, by the literature. The fact that they are diagnosed, except in exceptional instances, only at operation or necropsy, limits our knowledge concerning their frequency of occurrence. Anomalies are encountered most often in the genito-urinary apparatus of the female. The case here reported is that of a woman having two distinct anomalies of the genito-urinary system, and one of the alimentary system.

REPORT OF CASE

History.—Mrs. J., a married white woman, aged 37, had had chronic constipation and long continued epigastric pain, accompanied by sterility. The present illness began two days before her admission to the hospital, with vomiting and epigastric pain. On admission the patient presented symptoms of acute intestinal obstruction. She was almost in collapse. Her appearance was cachectic, and a distinct tumor was palpable, which was taken to be the head of the colon.

Operation and Result.—A tentative diagnosis of cancer of the cecum with obstruction was made and she was operated on immediately under ether anesthesia. A wide exposure, made by a midline incision, revealed, to our surprise, these conditions: There was an absolute failure of rotation of the colon. The right kidney lay in the right iliac fossa with the renal pelvis lateral; the vessels came off just above the bifurcation and passed over the ventral surface to dip down into the kidney, and the ureter passed beneath the lower pole of the kidney. The uterus was approximately 1.5 cm. in width and 3 cm. in length; the remnant of the genital cord passed down as a fibrous cord to an infantile vagina. This rudimentary uterus was suspended by a very lax ligamentary support, and lay in the sac of a left inguinal hernia.

The acute symptoms were due to the character of the anomaly of the large bowel. The stomach and the first 6.5 centimeters of the duodenum were intensely injected and distended with gas. The condition terminated at a point of kinking in the duodenum at the beginning of a duodenal mesentery. The duodenum was freelly movable on this mesentery and was not covered by peritoneum, but continued in a curve to the left into the jejunum uncovered by the transverse colon.

The weight of the small bowel dragging down on the duodenum was responsible for the kink. The entire length of the small bowel was approximately 3.5 meters. The entire course of the colon was to the left of the midline, the cecum lying in the left iliac fossa.

An anastomosis was made between the jejunum and the stomach around this duodenal kink, and the abdomen was closed. Vomiting persisted, notwithstanding every effort to control it. The patient died on the third day following the operation.

1008 Hume-Mansur Building.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

OLD TUBERCULIN (See N. N. R., 1919, p. 277).

Lederle Antitoxin Laboratories, New York.

Tuberculin "O. T." (Old Tuberculin).—Marketed in packages containing a stated amount of tuberculin with sufficient diluent to make 1 cubic centimeter as follows: Dilution A containing 0.1 Cc., Dilution B containing 0.01 Cc., Dilution C containing 0.001 Cc., Dilution D containing 0.0001 Cc., Dilution E containing 0.00001 Cc., and Dilution F containing 0.000001 Cc.

NEW TUBERCULIN, B. E. (See N. N. R., 1919, p. 280, and The Journal, April 19, 1919, p. 1136).

Lederle Antitoxin Laboratories, New York.

Tuberculin "B. E." (Bacillary Emulsion).—Marketed also in packages containing a stated amount of tuberculin with sufficient diluent to make 1 cubic centimeter as follows: Dilution A containing 0.1 Cc., Dilution B containing 0.01 Cc., Dilution C containing 0.001 Cc., Dilution D containing 0.0001 Cc., Dilution E containing 0.00001 Cc., and Dilution F containing 0.000001 Cc.

TUBERCULIN DENYS, B. F. (See N. N. R., 1919, p. 280, and The Journal, April 19, 1919, p. 1136).

Lederle Antitoxin Laboratories, New York.

Tuberculin "B. F." (Bouillon Filtrate).—Marketed also in packages containing a stated amount of tuberculin with sufficient diluent to make 1 cubic centimeter as follows: Dilution A containing 0.1 Cc., Dilution B containing 0.01 Cc., Dilution C containing 0.001 Cc., Dilution D containing 0.0001 Cc., Dilution E containing 0.00001 Cc., and Dilution F containing 0.000001 Cc.

Is Your Community Fit?—Is your town adequately sewered or are there still many homes with cesspools and insanitary privies? Are you and your neighbors doing anything to check the breeding of flies and the spread of fly-borne diseases? Does your community enforce any ordinance providing for the screening of food against flies in markets, restaurants and food stores?—*Pub. Health Rep.,* April 25, 1919.

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SATURDAY, JULY 12, 1919

SIR WILLIAM OSLER AT SEVENTY—A RETROSPECT

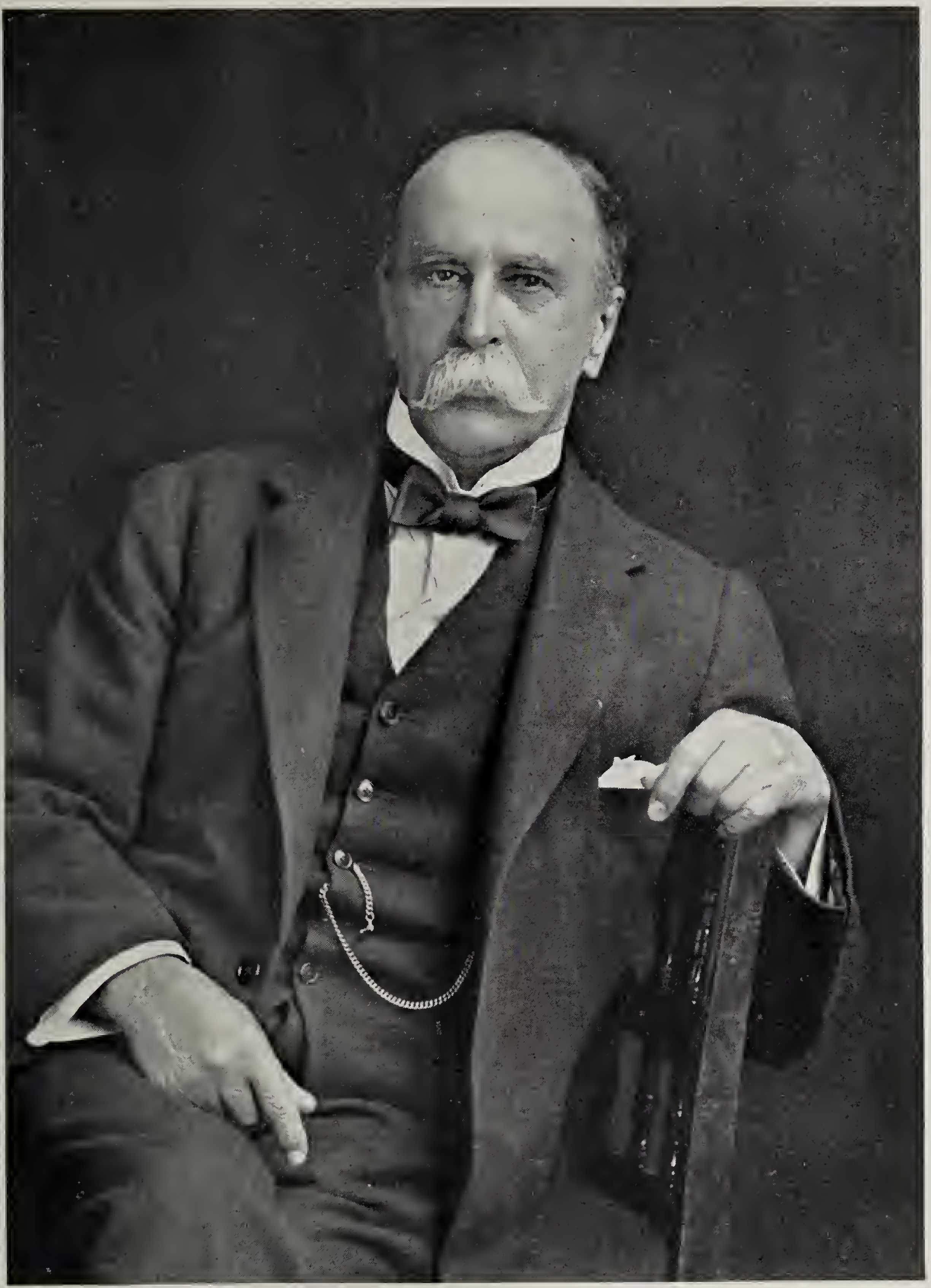
No physician occupies a higher place in the esteem and affection of the English-speaking medical profession than Sir William Osler. For many years his name and his words, written or spoken, have carried an appeal to the mind and heart of physicians as no one else's, and they do so still today. To explain fully this matchless power, this intellectual and moral force, is a far greater task than we would pretend to attempt at this time; but in the interest especially of the rising generations of physicians, the present occasion seems a suitable one on which to point out some of the chief landmarks along the road traveled by the beloved and honored septuagenarian on the way to his high place.

The friends of student days in Toronto and at McGill University in Montreal have recorded that he followed no traditional course, but worked much in the hospital and especially the postmortem room, and that unlike most of his fellow students he troubled himself apparently but little about examinations and mere book knowledge. His graduation thesis on topics in pathologic anatomy was awarded a special prize "because it was greatly distinguished for originality and research." After two years of study abroad, he began to teach pathology in Montreal. He was then 25 years old. Before long he was teaching medicine in the wards also, and he seems quickly to have given himself so completely over to teaching, anatomic and clinical observations, and literary and medical society work as to leave little time for private practice and the cultivation of opportunities to earn money, caring apparently but little about the morrow. Many papers were published these years: those on prodromal rashes in smallpox, on blood platelets, and on infectious endocarditis may be mentioned as examples of the more important. From the first he made a hit as a successful teacher who aroused enthusiasm and stimulated independent work. One more significant fact in regard to the Montreal phase of Osler's career should not be overlooked, namely, the deep and actively helpful interest in the student himself which has characterized his relations to students and young physicians throughout the succeeding years.

It is remarkable how early he attained certain fixed and dominant characteristics that have contributed alike to his usefulness and distinction. Any adequate account of just how various early influences worked together to give such a distinctive and definite bent to Osler's career from its very inception has not been made. It will be an interesting story. Palmer Howard and James Bovell, Canadian physicians of rare quality, are said to have influenced his medical work and outlook more than others. In 1884, Osler went to Philadelphia as professor of clinical medicine in the University of Pennsylvania Department of Medicine. His new colleagues were not a little astonished at first because he steadily turned aside all temptations to private practice in the usual sense but remained strictly teacher and consultant, thus securing the desired leisure for study in hospital, laboratory and library. His demonstrations in the pathologic society drew to him the younger men of the profession especially, an example of sharing the stores of observation all too little followed by leading teachers of clinical medicine and surgery, with an occasional exception like Fenger in Chicago. Many notable articles were published, and while in Philadelphia another side of Osler not yet referred to revealed itself fully, namely, his keen interest in medical history and biography and his gift for letters. In "Who's Who," bibliography is given as his sole recreation.

From this period dates the beginning of a series of addresses and essays of high literary merit: now rich with results of diligent search in medical scriptures, always hopeful and cheery, inspired by lofty ideals and an instinctive spirit of kindliness, they belong, many of them, more to the permanent "literature of power" than to the short-lived "literature of knowledge," and every physician should have them in his library. He has stimulated greatly the interest in our own medical history, and we owe to Osler vivid sketches of the lives and work of early leaders of the profession in this country—Nathan Smith, Bartlett, Jackson, Bigelow, Alonzo Clark, Gerhard and others—with whom it was his ambition to be ranked. "The chief desire of my life has been to become a clinician of the same stamp with these great men, whose names we all revere and who did so much good work for clinical medicine."

As no one before him in this country, Osler illustrated that years of hospital work and observation give better equipment for teaching clinical medicine than practice as ordinarily pursued; hence, when the Johns Hopkins Hospital was opened in 1889, he was the first choice for the head of the department of medicine. And now began the most productive and fruitful period in his professional life. His cherished ambition to build up a great clinic in this coun-



JOUR. A.M.A., JULY 12, 1919

Wm Osler

try was to be fulfilled. Under the liberal and enlightened policies of the new institution in Baltimore, he rapidly organized a model medical clinic, one of the best, and the first and long the only one of its kind in this country. Here medical students were taken into the wards as units in the working force of the hospital; young physicians were trained through graduated services for higher careers in clinical medicine, and knowledge advanced by systematic study and investigation. Beloved by colleagues, assistants, students, he inspired them, as a colleague has said, with extraordinary stimulus to high endeavors. The result was a great contribution, sorely needed at the time, to medical education and to clinical medicine, which makes one of the brightest pages in our annals.

The work done by Osler and his associates during this period is now woven into the fabric of modern American medicine. It was a wonderfully productive period. His influence as writer and speaker expanded; he preached a vigorous gospel of sanitation, particularly with reference to typhoid fever; he promoted the work of medical societies and libraries, and entered deeply into the life and interests of the profession generally. "With the general practitioner throughout the country my relations have been of a peculiarly intimate character," and few if any have enjoyed in such remarkable degree the warm personal friendship and admiration of physicians everywhere. He was the high priest of lofty ideals, harmony and friendly cooperation. Always the close, kind friend of his students and assistants, many a fumbling beginner has been gladdened unexpectedly by his generous encouragement.

CABLEGRAM

OXFORD, JULY 8, 1919.

JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION, CHICAGO:

MY BIRTHDAY GREETINGS TO COLLEAGUES AND OLD STUDENTS OF McGILL, PENNSYLVANIA, JOHNS HOPKINS AND TO MY MANY FRIENDS IN THE UNITED STATES AND CANADA.

WM. OSLER.

In 1905, Osler accepted the Regius professorship of medicine in Oxford University. While we have not been able to follow his many activities so closely as when he was here, we have had continuous evidence that his work has gone on with undiminished vigor, and that his relations to the profession at large and his interest in its welfare have undergone no other change than in the place of immediate manifestation. Neither wealth nor fame has turned him away from the calm course he laid out for himself while still a very young man. His recent utterances, in a chapter on the treatment of disease, on the exploitation through impudent advertising of pseudoscientific preparations of questionable value by powerful manufacturing pharmacists have the familiar Oslerian ring and hit the bull's eye in the center. In place of a more or less noticeable tendency to therapeutic vagaries he would place "a stern, iconoclastic spirit which leads, not to nihilism, but to an active skepticism born of a knowledge that recognizes its limitations and knows full well that only in this attitude of mind can true progress be made."

And now we must take leave again of our friend and teacher. The American Medical Association sends him its heartiest congratulations on his seventieth birthday, and warm assurances of gratitude and affection. And to our young men, coming on the scene, we would recommend careful heed of these words from Osler's response at the farewell dinner tendered him at New York, May 2, 1904:

> I have had three personal ideals: One to do the day's work well and not to bother about tomorrow. You may say that is not a satisfactory ideal. It is; and there is not one which the student can carry with him into practice with greater effect. To it more than anything else, I owe whatever success I have had—to this power of settling down to the day's work and trying to do it well to the best of my ability, and letting the future take care of itself.
>
> The second ideal has been to act the Golden Rule, as far as in me lay, toward my professional brethren and toward the patients committed to my care.
>
> And the third has been to cultivate such a measure of equanimity as would enable me to bear success with humility, the affection of my friends without pride, and to be ready when the day of sorrow and grief came to meet it with the courage befitting a man.

THE PHYSIOLOGIC COST OF CHEWING

The act of mastication has lately attained new prominence in human physiologic routine from two different circumstances: first, the vigorous advocacy of thorough mastication as the basis to hygienic well-being. It is largely owing to the propagandist energies of the late Mr. Horace Fletcher that the doctrine of deliberate mastication has been widely preached; and "fletcherism" has gained many adherents among that omnipresent group which is searching for the secret of a better existence through improved health. One of the claims made in favor of thorough mastication as advocated by Fletcher is that the extreme comminution of the food and the more effective insalivation promote the digestion and utilization of the nutrients. Despite the plausibility of this argument there is an abundance of experimental evidence to show that the nutrients in the common food products are absorbed in large measure even under ordinary habits of eating. It is exceptional to find less than 90 per cent. of the digestible nutrients utilized; and for the familiar fats and carbohydrates the records approach almost perfection. The residual fecal masses are normally devoid of more than small quantities of digestible nutrients. That which constitutes the output by the bowel comprises indigestible residues, refuse matter from alimentary secretions, and bacterial residues. These are not unutilized nutrients.

Furthermore, comparative investigations of the actual utilization of the nutrients by persons who on one occasion "bolted" and on another occasion "fletcherized" the same diets have given no experimental justification for the assumption of improved absorption as the effect of the more thorough mastication. Obviously it is a physiologic desideratum to comminute moderately at least some of the meats and carbohydrate foods that enter into the customary human dietary. In certain diseased conditions, comminution of the food is an indispensable requisite. However, so far as the faddist features and the extreme claims of unique benefits are concerned, we cannot forego quoting the remark of an extremist in the other direction. "Fletcherism," he writes, "is permissible in those easy-going lackadaisical individuals whose tastes are gently epicurean and who possess the desires of a Lucullus minus the means. Let those benighted harmless souls chew and champ to their heart's content, for they, poor beings, need some fad, and this one can harm no one unless it be themselves. But to busy men who are shouldering the cares of government, commerce and science, and whose strenuous impetuosity moves them to act quickly, whose every act is intense and every movement a flash —to such individuals, fletcherism is a thorn in the flesh."[1]

In the second place mastication has become conspicuous in this country through the widespread use of chewing gum. Some time ago a distinguished chemist[2] remarked in a public address that if the Rockefeller Institute is spending to good advantage about half a million dollars per annum for medical research, the chewing gum bill of the United States would easily support half a dozen Rockefeller Institutes. Coaxed by the insidious suggestions of advertisements and encouraged by the public example of bankers and ministers, physicians and judges, men and women from all classes have joined the ranks of the mastication army. The lasting odor of mint has begun to compete with that of onions and garlic in certain groups of our population. We shall not venture to discuss the alleged virtues of chewing gum. The reports of its help in allaying thirst for the boys in the trenches can scarcely be used in support of the use of chewing gum in the ordinary walks of life. Nor can the alleged presence of pepsin in certain brands be emphasized as a universal panacea. Amid all the uncertainty as to the physiologic effects of chewing gum one fact has been clearly demonstrated. Benedict and Carpenter[3] of the Nutrition Laboratory of the Carnegie Institution of Washington in Boston have found that as a result of chewing gum the basal metabolism may be increased more than 17 per cent.

This has a further bearing on the doctrine of "fletcherizing." If prolonged mastication can necessitate an excess heat production equivalent to nearly one fifth of the basal metabolism, it is easily seen, to quote the Boston physiologists, that any advantage gained from a possible increase in the digestibility of the food is more than compensated by the increase in heat production. The conception, they add, of an increase in the digestibility and in the utilization of the energy of foodstuffs as a result of prolonged mastication thus finds no support in fact.

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[1] Fitch, W. E.: Dietotherapy, New York 2: 83, 1918.

[2] Bakeland, L. H.: Some Aspects of Industrial Chemistry, Science, Aug. 7, 1914, p. 197.

[3] Benedict, F. G., and Carpenter, T. M.: Food Ingestion and Energy Transformations with Special Reference to the Stimulating Effects of Nutrients, Carnegie Institution of Washington, Publication 261, 1918.

NICOTIN IN CIGAR SMOKE

Nicotin, which exhibits a toxicity of high degree, is volatile. Why the tobacco which contains it does not cause greater evidences of pronounced poisoning than are observed in the ordinary smoker has been a mystery. The traditional explanation has been that nicotin is destroyed in the process of smoking, and that the combustion products, real or conjectured, are far less toxic in their character than is the tobacco akaloid itself. There can no longer be any doubt, however, that the nicotin is by no means completely burned up in smoking, for there is valid evidence that more than one third of the volatile poison can be recovered in the smoke.[1]

Various schemes have been employed or recommended to eliminate the nicotin menace of tobacco without making it necessary to give up its use. Among these are the production of so-called nicotin-free cigars. They have never attained any recognition in this country, although serious attempts have been made to introduce them in some of the European countries. One product has represented the result of extracting the tobacco to remove the alkaloid. As other valued aromatic properties of the plant are thereby likewise removed, such detoxicated tobacco has never attained popularity. Another method has consisted in "fixing" the alkaloid by a treatment which forms the insoluble nicotin tannate. Tobacco treated in this way may, on ordinary chemical analysis, show a low content of nicotin; but this does not prove that the nicotin may not be liberated into the vapors in some degree when the tobacco is smoked. Experiment shows, in fact, that it actually is. Another procedure has been to introduce iron chlorid near the butt end of the cigar with the object of making it retain some or all of the volatile nicotin that passes through this portion as the smoke proceeds into the mouth of the smoker. Here, too, critical investigation has revealed the failure to prevent the exit of nicotin, at least in such cigars of this type as have been offered for sale to date.

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[1] Lehmann, K. B.: Untersuchungen über das Tabakrauchen, München. med. Wchnschr. 55: 723, 1908. Garner, W. W.: The Relation of Nicotine to the Burning Quality of Tobacco, Bull. 141, U. S. Dept. Agric. Bureau of Plant Industry, 1909.

Storm van Leuwen[2] of Utrecht has prepared another surprise for the unsuspecting smoker. He has made an investigation of the actual nicotin content of cigar smoke collected under conditions comparable to those that prevail in the actual performance of smoking, in which some of the products of combustion are dissipated into the air without absorption and only a part is collected in the mouth. According to the observations made by the Dutch pharmacologist, not only were some of the current "harmless" sophisticated cigars obtainable in Holland quite as rich as were ordinary cigars in their yield of nicotin, but it was also brought out that no correlation between the supposed "strength" of cigars and the toxicity of their vapors could be established. The common distinction between mild and strong cigars was found to be no index of the content of nicotin that passes into the smoke; nor could the color or even the nicotin content of the leaf be depended on to foretell the outcome of the actual smoke test.

If this be correct, it follows that the current designation of tobacco as mild or otherwise probably depends in large measure on factors of flavor or aroma as well as on assumed physiologic effects that it may bring about. What constituents are responsible has not been determined. The feature for emphasis here is the seemingly well substantiated assertion that cigars are not always what they seem—so far as nicotin is concerned.

COMMERCIAL THERAPEUTICS

A report of the Council on Pharmacy and Chemistry that appears elsewhere[3] in this issue deals with another attempt to foist on our profession a series of essentially secret preparations whose therapeutic value has not been scientifically demonstrated. Grotesquely extravagant claims are advanced as to the therapeutic potency and range of action of substances of whose nature and effects we have no trustworthy information. Physicians are advised to use—and many undoubtedly are using—these alleged remedies in the treatment of diseases in which delay in the proper kind of treatment may be of the greatest danger to the patient. As stated, there is available no reliable information regarding the effects of these substances when they are introduced in the human body. They may have no effect whatever, or they may produce more or less direct injury; in either case there is the chance that damage, even irreparable to the patient, may result because rational treatment is withheld.

If we accept the statement that the preparations are largely vegetable proteins, it is a fair inference that, under certain conditions, they may cause a febrile reaction of the same general nature as that caused by other foreign proteins when injected into the body. We know that such reactions are not without danger and that the treatment of certain infections by induced reactions to foreign proteins is strictly an experimental procedure to be undertaken only under very special conditions. There is, therefore, no known valid reason why a physician should assume the responsibility for using these alleged remedies in the treatment of his patients; there is a very obvious reason why he should not—the therapeutic instructions of "the House of Merrell, always interested in the progress of plant therapy" to the contrary notwithstanding. It is the old story of exploiting physicians through commercial pseudoscience; of trading on the credulity of the profession to the detriment of the public. As Osler[4] recently protested so vigorously:

> Some time ago a pamphlet came from X and Company, characterized by brazen therapeutic impudence, and indicating a supreme indifference to anything that could be called intelligence on the part of the recipients. That these firms [manufacturing pharmacists] have the audacity to issue such trash indicates the state of thraldom in which they regard us. And I would protest against the usurpation on the part of these men of our function as teachers. Why, for example, should Y and Company write as if they were directors of large genito-urinary clinics instead of manufacturing pharmacists? It is none of their business what is the best treatment for gonorrhea—by what possibility could they ever know it, and why should their literature pretend to the combined wisdom of Neisser and Guyon? What right have Z and Company to send on a card directions for the treatment of anemia and dyspepsia, about which subjects they know as much as an unborn babe, and, if they stick to their legitimate business, about the same opportunity of getting information? For years the profession has been exploited in this way, until the evil has become unbearable, and we need as active a crusade against the pseudoscience in the profession as has been waged of late against the use of quack medicines by the public. We have been altogether too submissive, and have gradually allowed those who should be our willing helpers to dictate terms and to play the rôle of masters. FAR TOO LARGE A SECTION OF THE TREATMENT OF DISEASE IS TODAY CONTROLLED BY THE BIG MANUFACTURING PHARMACISTS, WHO HAVE ENSLAVED US IN A PLAUSIBLE PSEUDOSCIENCE.

What shall the profession do to protect itself against this humiliation—to throw off the credulity that extols pseudoscience and makes commercialized empiricism financially profitable? Osler says the remedy is obvious: "Give our students a first-hand acquaintance with disease, and give them a thorough practical knowledge of the great drugs, and we will send out independent, clear-headed, cautious practitioners who will do their own thinking and be no longer at the mercy of the meretricious literature, which has sapped our independence." Excellent! But must humanity wait a generation? Why not stop this evil at once? The American Medical Association has provided the means whereby this can be done, if physicians will only make use of it—the Council on Pharmacy and Chemistry.

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[2] Storm van Leuwen, W.: Ueber den Nikotingehalt im Rauche schwerer, leicher und "nikotinfreier" Zigarren, Arch. f. exper. Path. u. Pharmakol. 84: 282, 1918.

[3] Page 128.

[4] Advance pages, the Oxford Medicine, 1919, Vol. 1, Part 3, p. 245.

THE MEASURE OF METABOLISM

Owing to the efforts of a number of American investigators, many facts regarding metabolism in man have been convincingly demonstrated. The rôle of muscular activity in creating an extra demand for energy as derived from food fuel has long been recognized. Even some of the minor activities in which muscles are engaged transform energy in amounts that are readily measurable by the newer methods. The energy expended by an infant in crying, the work done in rising from the reclining posture, the muscular work involved in chewing gum—these and similar activities can be measured and their cost to the body expressed in terms of converted calories. Less well known is the stimulatory effect of recently ingested food on the metabolism. As Benedict[1] and his collaborators have lately reminded us, in reviewing the present state of knowledge in this field, heat production is greatly increased after eating, and the amount of increase is closely dependent on the nature of the food consumed. For example, the metabolism of a subject may be increased by 25 per cent. after a meal consisting chiefly of carbohydrates, but by as much as 45 per cent. after a heavy protein meal. Furthermore, size, age and sex also play a part in determining the chemical exchanges in the body.

Lately it has become quite customary to place emphasis on bodily dimensions, measured by the extent of body surface, in evaluating the degree of metabolic changes. Harris and Benedict[2] have insisted that the correlations between body weight and metabolism and between body surface and metabolism are of approximately the same magnitude. Body weight and body surface have, therefore, the same value in indicating the basal metabolism of the subject. Realizing that weight, stature and age all have independent significance for predicting the metabolism of a person, Harris and Benedict have succeeded in devising mathematical formulas based on numerous actual observations in calorimetry, whereby the basal metabolism of a person can be estimated with a fair degree of accuracy. Such methods, even though they involve a fund of technical biometric information such as the average physician cannot be assumed to possess, promise to furnish useful criteria for determining the existence of disturbances of metabolism in certain diseases. They thus amplify the admirable contributions to clinical calorimetry that have emanated in recent years from the Russell Sage Institute of Pathology in New York City.[3]

The Carnegie Institution contributions seem to establish clearly that there is a difference in the basal metabolism of men and women. Quoting the results ascertained, they show that the average daily basal heat production of the 136 men investigated is 1,632 calories, whereas that of the 103 women studied is 1,349 calories. Thus the daily heat production of women is about 300 calories less than that of men. But women are smaller than men. If correction for body size is made by expressing heat production in calories per kilogram of body weight, it is 25.7 calories in the men as compared with 24.5 calories, or 1.2 calories per kilogram less, in the women. The men show an average daily heat production per square meter of body surface of 925 calories as compared with 850 calories, or 75 calories less, in the women. This difference is well marked through the period of adult life. The measure of metabolism is the fundamental requisite in establishing the "standards" of food requirement in human nutrition.

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[1] Benedict, F. G., and Carpenter, T. M.: Food Ingestion and Energy Transformations with Special Reference to the Stimulating Effect of Nutrients, Carnegie Institution of Washington, Publication 261, 1918.

[2] Harris, J. A., and Benedict, F. G.: Biometric Standards for Energy Requirements in Human Nutrition, Scientific Monthly **8**: 385, 1919.

[3] The researches from this institute have been published from time to time in the Archives of Internal Medicine.

Current Comment

A NEW MEMORIAL TO PASTEUR

Soon after the conclusion of the armistice, a new and apparently very successful dramatic experiment was attempted in Paris. A dramatist well known heretofore as a specialist in "amorous psychology," M. Sacha Guitry, has had presented a play without a female character, a single-minded portrayal of a hero of humanity, Louis Pasteur;[1] in the opinion of critics, at least, it is an entire success. Pasteur is shown in a sort of aureole of hero worship as patriot, as scientist, and as passionate well wisher of mankind in general and in particular. He brooks no opposition to what he knows to be right, he fights bitterly against the conservatism which would nullify his progress, and when successively he receives all the honors which France and other countries can bestow, he is grateful and modest. The third act offers the exciting occasion of the first antirabic inoculation of the little boy, Joseph Meister, and the event is utilized with considerable effect to emphasize the sympathetic warmth of Pasteur's nature as the fitting complement of scientific ability. Pasteur's speech is full of the expression of his ideals, taken in part from actual public addresses. "Do not search for those who will give you advice; look rather for those who will set you an example." "Labor and persevere"—it is the keynote of his life, of a life in which the only element of importance is his work, which, however, is always actuated by the high purpose of improving the lot of man. The final words of the play, written in the year 1918, are the words of Pasteur himself: "And I believe absolutely that knowledge and peace will triumph over ignorance and war, and that men will work together, not to destroy, but to build." The piece is interesting, not only as an effort to present a great man of science to popular applause, but also because it has apparently met the approval of critics and theater goers. The dramatic aspects of Pasteur's life are of necessity pushed to the fore, but it does not seem that his character is distorted.

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[1] Guitry, Sacha: Pasteur, pièce en cinq actes, La Petite Illustration, n. s. No. 1 (Paris, March 1, 1919).

VITAMINS AND TRENCH FOOT

Vitamins are being referred to frequently at present in the discussion of some obscure diseases which puzzle the clinician. French observers[1] correctly point out that among the symptoms attributable to a deficiency of certain vitamins in the diet are those of scurvy and neuritis. They assert that, especially in the earlier period of the war, soldiers deprived of fresh foods rich in vitamins not infrequently exhibited symptoms that might be designated as "prescorbutic," as well as neuritic manifestations approximating some of the features of clinical beriberi. When, owing to prolonged dietary deficiencies, a latent sort of scorbutic or neuritic tendency developed, the conditions were offered for superimposing added factors which manifested themselves in such peripheral difficulties as trench foot. In other words, the primary defect was a polyneuritic and cutaneous disturbance consequent on improper nutrition. The more specific features and local injuries then developed because they found in the ill nourished tissues a suitable location. Bruntz and Spillmann attribute the decrease in trench foot and related maladies in the succeeding seasons to improved rationing as the fundamental prophylactic factor. It is an interesting speculation to place nutrition in the forefront of the causes bringing about the improved condition of the soldiers as the war progressed. However, no one can overlook the improvements in other aspects of military hygiene which also contributed to making trench life less unendurable and damaging as the lessons of experience were gradually brought to bear on the situation.

WILLIAM OSLER'S BIRTHDAY

By happy coincidence, the date of issue of this number of The Journal is the day on which the medical professions of Great Britain and the United States combine to honor Sir William Osler on his seventieth birthday. The occasion is fraught with good omens, for no other physician has done more to bring peace and concord among his fellows "where'er his stages may have been," and no living man has done more to unify the medical professions of the United States and the mother country. An impressive record of his achievement is afforded in the nineteen contributions which make up the July number of the *Bulletin* of the Johns Hopkins Hospital, each of them written by a colleague or pupil whose knowledge of Osler is intimate enough to be authoritative. Not least of these is the exhaustive and accurate bibliography of Osler's 730 contributions to the literature of medicine (1870-1919) by the librarian of the Johns Hopkins Hospital. It is significant that the two papers so far published in 1919 are both of them contributions to clinical medicine. Through his own contributions and his personal influence, Osler has given a greater stimulation to the study and investigation of medical history in this country than any other living man. Those who have seen his unrivaled collection of original texts and documents relating to epoch-making discoveries and advances in medicine predict that its catalogue, informed as it will be with Osler's big humanism, will take its place as one of the great monuments of medical bibliography. The story of Osler's life is a simple record: Canadian born (1849), the son of an Ontario clergyman, and M.D. of McGill University (1872), a graduate student in London clinics and German laboratories (1872-1874), lecturer and professor of the Institutes of Medicine at Montreal (1874-1884), and successively professor of medicine at the University of Pennsylvania (1884-1889) and the Johns Hopkins University (1889-1894), Regius Professor of Medicine at Oxford since 1904. The highest honors in the Anglo-Saxon profession have been his.

SPORTING POSTMORTEM

Thus, Jess Willard via "patent medicine" advertisements in 1916:

> "I have often taken Nuxated Iron and I have particularly advocated the free use of iron by all those who wish to obtain great physical and mental power. Without it I am sure that I should never have been able to whip Jack Johnson so completely and easily as I did, and while training for my fight with Frank Moran, I regularly took Nuxated Iron, and I am certain that it was a most important factor in my winning the fight so easily."

Has Nuxated Iron lost its strength, or did Jess lose interest in that product as soon as his testimonial became ancient history? The exploiters of the nostrum have asserted that it makes "Iron Men"; but then, recent events have shown that three rounds with a towel-waving finale is also a great "iron men" producer. 'Tis an ill wind that blows no one good. The Toledo episode has deprived the gentlemen who sell Nuxated Iron of the pulling power of one of their testimonials, but they still have others. For instance, the Hon. William E. Mason, congressman at large from Illinois, has extolled the nostrum for overcoming that "horrible tired feeling one cannot describe." There must be a lot of fight fans who need something in that line.

State Tuberculosis Work.—In Idaho a bill providing for two district sanatoriums, the only bed provision for tuberculosis in the state, has been enacted into law. In South Dakota provision has been made for county nursing and county hospital care for the tuberculosis patient. Oklahoma has enacted a law providing for two sanatoriums for white patients and one for negroes and a bureau of tuberculosis in the state department of health together with adequate provision for the care of these patients in counties. Every one of these laws is the result of organization, in New Mexico by the New Mexico Public Health Association, in Idaho by the Idaho Association for the Study and Prevention of Tuberculosis, in South Dakota by the Red Cross Seal Commission of South Dakota, in Oklahoma by the Oklahoma Tuberculosis Association.—*Journal of Outdoor Life.*

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[1] Bruntz, L., and Spillmann, L.: Le "mal des tranchées" (gelure des pieds) doit être une avitaminose, Compt. rend. Soc. de Biol. **82**: 8, 1919.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending July 3, there were 12,731 officers in the Medical Corps, a decrease of 413 from the previous week. The Medical Reserve Corps contained 2,808 officers. The total number of physicians discharged since the beginning of the war is 20,192.

Army Medical Department Appropriations

The Army Appropriation Bill as finally passed by Congress carries an appropriation of $4,500,000 for the purchase of general supplies of the Medical Department of the Army. Other items carried are: for hospital care, Canal Zone Garrisons, $50,000; for the Surgeon-General's Library, $20,000; for the preservation of specimens for the Army Medical School, Washington, $10,000. An appropriation of $350,000 for the purchase of twenty-six acres of land adjoining Walter Reed Hospital, Washington, for the final location of the Army Medical School, Surgeon-General's Library and the Army Museum, and for the improvements now on the land to be purchased, was also finally adopted. This appropriation was very greatly desired by the authorities of the Medical Department.

Award of Croix de Guerre

HERBERT D. PORTERFIELD, Major, M. C., U. S. Army, Red Oak, Iowa, assistant to the chief surgeon of the Third Army Corps, has been awarded the croix de guerre.

"A medical officer who displayed remarkable devotion to duty since the F Division joined the front. Participated in battles of Cantigny, Soissons, St. Mihiel, Argonne, Sedan. Volunteered in May 26, 1919, to be attached to a front line first aid station and showed conspicuous gallantry in rendering first aid under heavy shell fire. For the operations July 18 to 22, he distinguished himself in crossing many areas swept by violent machine gun and shell fire, in order to supply the first aid stations of the front line. During the operations, October-November, 1918, he volunteered and frequently visited the front line first aid station and inspired the medical personnel by his coolness and utter disregard for danger."

Awards of Croix de Guerre, with Palm

The following is a list of officers who, while in the military or naval service of the United States, have been awarded the French croix de guerre, with palm:

MARVIN CAPPEL, Captain, Medical Corps, Ninth Infantry, Second Division, Alexandria, La.

FREDERICK W. BLACK, Major, Medical Corps, Twenty-Eighth Infantry, First Division, Punxsutawney, Pa.

WILLIAM EARLE BOYCE, Captain, Medical Corps, Medical Detachment, Thirtieth Infantry, Third Division, Flat Woods, Tenn.

ERVIN T. DRAKE, First Lieutenant, Section 646, United States Army Ambulance Service, Franklin, N. H.

MARCEL E. DUCASSE, First Lieutenant, Section 546, United States Army Ambulance Service.

SAMUEL C. GURNEY, Lieutenant-Colonel, Medical Corps, Third Division, Detroit, Mich.

CHARLES W. COMFORT, Major, M. C., U. S. Army, New Haven, Conn., surgeon of the One Hundred and Second Infantry, for being continually present on the front line, administering first aid to the wounded under violent artillery and machine gun fire.

JAMES C. ELLIS, Captain, Ambulance Company No. 27, 3d Division.

WILLIAM J. LOSH, First Lieutenant, Section No. 583, United States Army Ambulance Service.

WILLIAM YORKE STEVENSON, First Lieutenant, Section No. 625, United States Army Ambulance Service.

Awards of French Croix de Guerre, with Bronze Star

The following is a list of persons, who, while in the military or naval service of the United States, have been awarded the French croix de guerre, with bronze star, and are authorized to wear on their Army uniforms, according to Army regulations, that decoration or a ribbon indicative thereof:

CHARLES J. COLE, Jr., Captain, Medical Corps, Field Hospital No. 23.

PHILIP CONLON, 1st Lieut. Medical Corps, 3d Battalion, 9th Inf., 2d Division.

DUDLEY T. DAWSON, Captain, Medical Corps, 146th Inf., 37th Division.

CLARENCE C. DEL MARCELLE, 1st Lieut., Medical Corps, 1st Field Hospital, 2d Division.

FRED B. EVANS, Captain, Medical Corps, 1st Field Hospital, 2d Division.

HARLOW G. FARMER, Major, Medical Corps, Field Hospital No. 15, 2d Division.

ELLIOTT LEE, 1st Lieut., Section 632 United States Army Ambulance Service.

WILLIAM F. McFEE, 1st Lieut., Medical Corps, 9th Inf., 2d Division.

WILLIAM C. MEACHAM, Captain, Medical Corps, Ambulance Company No. 1, 2d Division.

EDWARD MOORE, 1st Lieut., Section 512, United States Army Ambulance Service.

HENRY M. MOORE, Captain Medical Corps, Field Hospital No. 23, 15, 2d Division.

LUKE B. PECK, Major, Medical Corps, 7th Inf., 3d Division.

ARTHUR H. RUGGLES, Major, Medical Corps, Field Hospital No. 1, 2d Division.

Awards of Croix de Guerre, with Gilt Star

The following is a list of officers who, while in the military or naval service of the United States, have been awarded the French croix de guerre, with gilt star.

RICHARD DERBY, Lieutenant Colonel, Medical Corps, Second Division, New York.

JAMES H. ERLENBACH, Captain, Medical Department, One Hundred and Third Infantry, Twenty-Sixth Division, Boston.

OLIVER R. AUSTIN, Major, Medical Department, Twelfth Field Artillery, Second Division, Aberdeen, Wash.

STANLEY F. BERRY, Major, Three Hundred and Sixteenth Sanitary Train, Ninety-First Division, Oakland, Calif.

LOUIS H. COCKERHAM, First Lieutenant, Ambulance Company No. 15, Medical Corps, Second Division, Palestine, Texas.

LEO J. CRUM, First Lieutenant, Sanitary Detachment, One Hundred and Twenty-Sixth Infantry, Thirty-Second Division, Kalamazoo, Mich.

DWIGHT DICKINSEN, Jr., Assistant Surgeon, Fifth Regiment, United States Marine Corps, Second Division, Washington, D. C.

CHARLES MAXWELL, M. C., Major, Medical Corps, Twelfth Field Artillery, Second Division.

TRAVIS S. MORING, Assistant Surgeon, Sixth Machine Gun Battalion, Second Division, M. C., U. S. N.

REUEL A. PIERCE, First Lieutenant, Medical Detachment, One Hundred and Third Infantry, Twenty-Sixth Division, Taunton, Mass.

CARROLL P. PRICE, First Lieutenant, Medical Department, Seventeenth Field Artillery, Second Division, Harrodsburg, Ky.

ABRAHAM J. F. THOMAS, First Lieutenant, Medical Corps, Ambulance Company No. 1, Newburysport, Mass.

OLIVER E. VAN ALYEA, First Lieutenant, Medical Corps, Ambulance Company 16, Chicago.

HENRY P. GLENDENNING, Second Lieutenant, Medical Corps, Company F, 5th Regiment, United States Marine Corps, 2d Division.

DAVE W. MacCLAIN (deceased), Second Lieutenant, Medical Service, 5th Regiment, United States Marine Corps.

JOHN D. SOUTHWORTH, First Lieutenant, Medical Corps, Ambulance Company No. 15.

Awards of Croix de Guerre, with Silver Star

The following is a list of officers who, while in the military or naval service of the United States, have been awarded the French croix de guerre, with silver star, and who, under the provisions of the act of Congress approved July 9, 1918 (Bulletin No. 43, W. D., 1918), are authorized to wear on their Army uniform, according to uniform regulations, that decoration or a ribbon indicative thereof:

CHARLES ST. JOHN BUTLER, First Lieutenant, Section 638, United States Army Ambulance Service, M. C., U. S. Navy.

JOHN E. KUYKENDALL (deceased), Captain, Three Hundred and Sixteenth Train, Ninety-First Division, Eugene, Ore.

FLOYD D. LEWIS, Captain, Three Hundred and Sixteenth Sanitary Train, Ninety-First Division, Silverton, Ore.

CARL W. SHAFFER, Captain, Medical Corps, Fifteenth Field Artillery, Second Division, Woodstock, Va.

JOHN G. STROHM, Major, Division Surgeon, Ninety-First Division, Portland, Ore.

THOMAS JOHNSON SUMMEY, First Lieutenant, Medical Corps, Ambulance Company 23, Second Division, Brevard, N. C.

Award, Posthumous, of Distinguished Service Cross

By direction of the President, the distinguished service cross was awarded posthumously by the commanding general, American Expeditionary Forces, for extraordinary heroism in action in Europe, to the following named officers of the American Expeditionary Forces:

HERBERT D. RYMAN, Captain, Medical Corps, 107th Field Artillery. For extraordinary heroism in action near St. Gilles, France, August 17, 1918. While administering first aid to a wounded soldier he was himself mortally wounded. Refusing aid, he assisted in rendering first aid and directing the treatment of three other soldiers. Though weakened by loss of blood, he showed utter disregard for his personal danger, refusing to accept treatment until the other wounded had been cared for. Next of kin, Mrs. Cora Belle Ryman, wife, Mount Pulaski, Ill.

HARRISON B. WEBSTER, Major, Medical Corps, 47th Infantry. For extraordinary heroism in action near Bois de Brieulles, France, September 26 to October 12, 1918. After seeing that his personnel was functioning properly, he went fearlessly to positions in the front lines. When stretcher bearers were unable to handle the large number of casualties, he personally took a light German wagon to the front lines and gathered the wounded. His personal bravery was an inspiration to his men throughout his service. He was killed by shell fire on Oct. 12, 1918. Home address, Mrs. Harrison B. Webster (wife), 145 South Street, Northampton, Mass.

Awards of Distinguished Service Medal

By direction of the President, the distinguished service medal has been awarded by the commanding general, American Expeditionary Forces, to the following-named officers of the United States Army for exceptionally meritorious and distinguished services, as set forth after their names:

Col. DEANE C. HOWARD, United States Army. For exceptionally meritorious and conspicuous service. In organizing and administering the Division of Sanitation and the Sanitary Inspection Service of the Office of the Surgeon-General of the Army he contributed greatly to the efficiency of the military service.

Col. CARL R. DARNALL, United States Army. For exceptionally meritorious and conspicuous service. He has rendered especially meritorious and distinguished service in organizing and developing and administering the Supply Division of the Medical Department, and it is due to his foresight and ability that new sources of medical supplies were developed in this country so that adequate quantities of material were always available for use with the sick and wounded of the Army.

Col. FREDERICK F. RUSSELL, United States Army. For exceptionally meritorious and conspicuous service. He organized and directed the Division of Laboratories and Infectious Diseases of the Surgeon-General's Office during the present war and thereby contributed in great measure to the efficiency of the military forces.

Col. EDWIN P. WOLFE, United States Army. For exceptionally meritorious and conspicuous service. He systematized and controlled the distribution of medical supplies with so much foresight and good judgment that his service was able to meet promptly all the emergencies in the United States as they occurred.

Col. REUBEN B. MILLER, United States Army. For exceptionally meritorious and conspicuous service in the reorganization and administration of the personnel branch of the Office of the Surgeon-General of the Army during the present war. He thereby contributed greatly to the proper care of the sick and wounded and thus increased the efficiency of the Army.

Col. VICTOR C. VAUGHAN, United States Army. For exceptionally meritorious and conspicuous service. During his service in the office of the Surgeon-General his contributions of advice and information have been of great value to the Army in connection with the control of communicable diseases. During the recent epidemic of influenza, in particular, his work was of extreme value.

Col. WILLIAM H. WELCH, United States Army. For exceptionally meritorious and conspicuous service. From his rich experience in scientific medicine, sanitation, public health and medical education he helped materially in guiding the medical profession both in and out of the Army safely through many difficulties of war.

Lieut.-Col. GLEN I. JONES, Medical Corps, United States Army. For exceptionally meritorious and conspicuous service. While surgeon of the 10th Division during the epidemic of Spanish influenza in that command his farsightedness in providing hospital facilities and his energetic and exceptionally efficient action in directing the care of patients resulted in a large reduction of mortality. His services show a rare devotion to duty in that though himself a sufferer from the diseases, his efforts were unabated.

Col. JAY W. GRISSINGER, Medical Corps, United States Army. For exceptionally meritorious and distinguished services. As division surgeon of the 42d Division, and later as chief surgeon of the 1st Army Corps during its operations on the Marne and in the St. Mihiel and Meuse-Argonne offensives, he displayed qualities of leadership, high professional attainments, and rare judgment in energetically directing the work of the sanitary units under his control in providing front line hospitalization and evacuation facilities for our sick and wounded in the field.

Lieut.-Col. RICHARD P. STRONG, Medical Corps, United States Army. For exceptionally meritorious and distinguished services. Possessed of the highest professional qualifications and actuated by zealous devotion to duty, he has rendered services of inestimable value to the American Expeditionary Forces, notably as president of a board appointed to investigate the cause of trench fever, a disease which has caused serious losses to the effectives of the allied armies. The scientific research of this board under his skilful direction led to the discovery of the means by which trench fever is transmitted and in the establishment of effective measures for its prevention.

Major-Gen. ROBERT E. NOBLE, Medical Corps. For exceptionally meritorious and conspicuous services. He had immediate charge of the Personnel Division of the Surgeon-General's Office and solved the problem of getting medical officers into the Army during an increase from 1,500 at the beginning of the war to 30,000. He also had charge of the Hospital Division of the Surgeon-General's Office, handling both of these large responsibilities with conspicuous success.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Birmingham—Cochran, J. P. (L.)
Brantley—Gilchrist, J. G. (C.)
Fairfield—Ferguson, B. (L. C.)
Gastonburg—Vandevoort, H., Jr. (M.)
Jackson—Armistead, J. R. (M.)
Montgomery—Durden, J. D. (L.)
Salitpa—McVoy, L. (C.)
Samson—Meriwether, F. V. (C.)
Tuskegee—Howard, R. H. (L.)
Uniontown — McCorkle, F. W. (C.)
Vernon—Young, P. T. (C.)

ARKANSAS

Benton—Crawford, S. R. (C.)
Clearwater—Robinson, A. E. (C.)
Dierks—Cashin, J. E. (C.)
Jonesboro—Cothern, T. (C.)
Paragould — Castleberry, F. L. (C.)

CALIFORNIA

Alameda—Beerman, W. F. (M.)
Burlingame — Anderton, H. S. (C.)
Fresno—McConnell, A. B. (C.)
Jackson—Endicott, E. E. (C.)
La Manda Park—Harrah, O. M. (L.)
Livermore—Cary, R. J. (L.)
Los Angeles—Barnet, F. J. (L.)
  Barnhart, W. (C.)
  Collins, F. K. (C.)
  Evans, J. G. (M.)
  Lynch, J. G. (M.)
  Van Kaathoven, J. J. (L. C.)
  West, S. V. (C.)
Los Gatos—Hubbell, G. M. (L.)
Merced—Fountain, E. R. (C.)
Oakland—Curdts, C. E. (C.)
Ontario—Warmer, C. A. (C.)
Red Bluff—Doane, F. L. (C.)
San Diego—Decker, C. W. (Col.)
San Francisco — Alden, B. F. (L. C.)
  Bailly, T. E. (M.)
  Cook, O. S. (C.)
  Herzog, G. K. (M.)
  Onesti, S. J. (C.)
Santa Ana—Wehrly, J. (M.)
Trona—Evans, H. R. (L.)
Vacaville—Palmer, H. P. (C.)

COLORADO

Boulder—Harlow, W. P. (L. C.)
Delta—Cleland, W. S. (M.)
Denver—Bergtold, W. H. (M.)
  Cattermole, G. H. (C.)
  Farnsworth, H. E. (L.)
  Hudston, R. (C.)
  Packard, R. G. (M.)
Paonia—Erich, A. F. (C.)
Pueblo—Woodbridge, J. H. (C.)
Trinidad—Peirce, F. J. (L. C.)

CONNECTICUT

Lakeville—Peterson, C. K. (C.)
Willimantic—Smith, F. M. (L.)

DELAWARE

Wilmington—Barsky, J. M. (C.)

DISTRICT OF COLUMBIA

Washington—Villamil, J. R. (L.)

FLORIDA

Ocala—Crigler, W. P. (L.)
Punta Gorda—Smith, J. A., Jr. (C.)
St. Petersburg—Murphy, R. D. (L.)
Tallahassee—Gwynn, H. W. (C.)

GEORGIA

Albany—Barnett, J. M. (C.)
Atlanta—Dowman, C. E. (M.)
Columbus — Pennington, M. F. (L.)
Millen—Perkins, M. E. (C.)
Odum—Ritch, T. G. (L.)
Quitman—Wilkinson, W. L. (C.)
Savannah—Shaw, L. W. (L.)
Villa Rica—Malone, W. H. (L.)
Washington—Kelly, G. W. (L.)

IDAHO

Boise—Callard, C. B. (C.)

ILLINOIS

Bunker Hill — Bley, R. E., Jr. (C.)
Carbondale—Barrow, J. W. (M.)
  Etherton, M. (L.)
Champaign—Wise, E. D. (C.)
Chicago—Alloway, F. L. (C.)
  Bourque, W. E. (C.)
  Brosnan, J. T. (L.)
  Cameron, A. L. (L.)
  Czaja, L. M. (C.)
  Echerer, T. J. (L.)
  Frazer, J. H. (L.)
  Frisch, I. J. (C.)
  Kaczkowski, J. C. (C.)
  Koeh, H. C. (C.)
  Kozakiewics, L. P. (L.)
  Long, L. L. (C.)
  Mix, B. J. (L.)
  Roach, R. A. (C.)
  Ryan, W. S. (C.)
  Sandberg, C. F. (C.)
  Sciaretta, S. A. (L.)
  Stevenson, J. (L.)
  Supple, A. B. (L.)
  Trockey, S. N. (C.)
  Wheelock, W. O. (M.)
  Wierson, T. M. (M.)
  Wiese, M. A. (C.)
Danville—Duffy, M. M. (C.)
Decatur—Hayes, J. M. (C.)
  West, C. E. (C.)
East St. Louis—Stanton, H. G. (C.)
Humboldt—Deane, F. H. (L.)
Moline—West, A. D. (M.)
Morrison—Downs, J. M. (L.)
Nokomis—Bullington, G. C. (C.)
Oak Park—Frybarger, C. E. (L.)
Quincy—Koch, J. A. (C.)
Ridgefarm—Hubbard, S. M. (C.)
Robinson—Brooks, A. G. (C.)
Strasburg—Knowles, H. P. (L.)

INDIANA

Auburn—Hines, D. M. (C.)
Bloomington — Holland, G. F. (M.)
Gary—Watts, A. A. (C.)
Greenfield—Gibbs, C. M. (C.)
Indianapolis — Dunning, L. M. (C.)
  Langdon, H. K. (C.)
  Wayman, C. L. (M.)
Newcastle—Marsh, C. A. (L.)
Paoli—Teaford, S. F. (L.)
Richmond—Whallon, A. J. (C.)
Rockville—Connelly, J. J. (C.)
Shelbyville—Sammons, L. C. (L.)
Summitville—Moore, W. C. (L.)

IOWA

Charter Oak — Thomson, T. F. (C.)
Clarion—Brown, G. B. (L.)
Corning—Hoyt, J. E. (C.)
Des Moines — Conkling, W. S. (L. C.)
Dows—Kellogg, O. A. (L.)
Fort Atkinson — Bevins, N. S. (L.)
Fort Dodge—Martin, L. M. (C.)
Harlan—Cobb, E. C. (C.)
Iowa City—Rock, J. J. (C.)
  Willis, T. A. (L.)
Lohrville—Earwood, E. R. (M.)
Mason City—Weston, B. R. (C.)
Sioux City—Flageolle, J. W. B. (L.)
Volga City—Cahill, J. A. (L.)
Wallingford—Golden, T. V. (M.)

KANSAS

Assaria—Graf, J. E. (L.)
Cherryvale—Norman, W. G. (L.)
Garnett—Cullum, A. B. (C.)
Great Bend—Zugg, C. W. (C.)
Kansas City—Mabie, L. D. (C.)
Olathe—Jones, C. W. (M.)
Topeka—Hobert, W. K. (L.)

KENTUCKY

Ashland—Sturgell, G. M. (L.)
Augusta—Rice, C. R. (C.)
Campbellsville—Richeson, H. H. (L.)
Covington—Noble, W. A. (L.)
Cynthiana—Wyles, J. P. (L.)
Dwarf—Richie, S. M. (C.)
Fulton—Alexander, H. T. (C.)
Glasgow—Smock, S. J. (L.)
Kirkmansville—Woodson, H. H. (L.)
Louisville—Kerr, L. H. (C.)
Newport—Shannon, W. L. (L.)
Scottsville—Callis, W. A. (L.)

LOUISIANA

New Orleans — Lanford, J. A. (M.)
Lines, E. A. (C.)

MAINE

Foxcroft—Flint, E. T. (M.)
Islesboro—Phelan, G. W. (M.)
Lincoln—Gordon, I. L. (C.)
Portland—Everett, H. J. (C.)

MARYLAND

Baltimore—Finney, J. M. (B. G.)
Hohman, L. B. (L.)
Johnson, R. W. (C.)
Mauck, H. P. (C.)
Sprunt, T. P. (M.)
Stansbury, J. C. (L.)
Sweeney, H. W. (C.)
Tillet, W. S. (C.)
VonGlahn, W. C. (L.)
Walton, H. J. (C.)
Pocomoke City — Parker, A. A. (L.)
Rising Sun—Dodson, R. C. (L.)
Towson—Sargent, G. F. (M.)
Westminster — Sullivan, E. M. (L.)

MASSACHUSETTS

Boston—Curran, S. F. (C.)
Fogg, N. A. (L.)
Jackson, A. M. (C.)
Lanman, T. H. (L.)
Marble, H. C. (M.)
Morrison, W. R. (C.)
Neal, K. P. (L.)
Osgood, H. (C.)
Perry, A. P. (C.)
Sewall, C. W. (L.)
Brockton—Buckley, G. A. (L.)
Brookline—Homans, J. (M.)
Dedham—Johnson, A. E., Jr. (C.)
Fitchburg—Jones, R. C. (L.)
Holyoke—Henerson, G. D. (M.)
Lowell—Kearney, J. P. (L.)
Mahoney, M. P. (L.)
Lynn—Dolloff, E. M. (C.)
New Bedford—O'Connor, P. H. (C.)
Newton—Kirkwood, A. S. (M.)
Springfield—Radding, M. B. (L.)
Westboro—Overholser, W. (L.)
Westminster—Mossman, G. (C.)

MICHIGAN

Alpena—Williams, C. M. (M.)
Augusta—Hughes, R. W. (L.)
Byron—Fox, R. R. (C.)
Detroit—Jessup, N. J. (L.)
Kimzey, J. A. (C.)
Mayne, F. C. (C.)
Grass Lake—Lake, W. H. (L.)
Hillman—Schmaler, A. J. (C.)
Hillsdale—Miller, H. C. (M.)
Kalamazoo—Clark, O. H. (C.)
Laurium—Kerr, M. M. (M.)
Redford—Tupper, L. N. (C.)
Romeo—Sharpe, W. R. T. (M.)
St. Joseph—Merritt, C. W. (C.)

MINNESOTA

Duluth—Collins, A. N. (C.)
Faribault—Traeger, C. A. (L.)
Glenwood—Elsey, J. R. (C.)
Hibbing—Brooks, G. F. (C.)
Minneapolis—Johnson, N. T. (C.)
St. Paul—Hilger, A. W. (C.)
Waseca—Passer, W. F. (C.)
West Duluth—Forbes, R. S. (L.)
Winona—Rosenberry, B. P. (M.)
Schaffer, S. (M.)

MISSISSIPPI

Aberdeen—Paine, R. (L.)
Crystal Springs — Gibson, J. S. (L.)
Isola—Byrd, W. G. (C.)
Jackson—Graves, W. R. (L.)
Wesson—McKee, C. R. (L.)

MISSOURI

Billings—Brown, F. H. (C.)
Blodgett—Ogilvie, F. L. (C.)
Columbia—Bradford, O. F. (L.)
Kansas City—Cantrell, C. D. (C.)
Leonard, W. H. (C.)
McKee, J. W. (L.)
McPherson, O. P. (M.)
Morris, R. H. (C.)
Sanford, J. R. (L.)
Liberty—Maltby, B. (C.)
Macon—Nickell, L. O. (C.)
North Kansas City—Lienhardt, H. O. (L.)
Potosi—Blount, H. J. (L.)
Ravanna—Callaway, F. C. (L.)
Sedalia—Harvard, H. D. (L.)
McGinnis, C. S. (M.)
Shelbina—Vaughn, F. (L.)
Springfield—Knabb, A. D. (L.)
St. Joseph—Timerman, A. R. (C.)
St. Louis—Brookes, T. P. (C.)
Coffin, E. L. (C.)
Dorsett, E. L. (C.)
Flader, O. F. (L.)
Frank, A. M. (C.)
Langsdorf, H. S. (L.)
Leavy, C. A. (C.)
Mellies, W. J. (L.)
Webster Grove—Armstrong, C. L. (C.)

MONTANA

Deer Lodge—Rinder, C. O. (C.)
Forsythe—Cotton, W. (L.)

NEBRASKA

Auburn—Dillon, I. H. (M.)
Creighton—Johnson, C. C. (L. C.)
Lincoln—Crumrine, L. B. (C.)
Olson, O. (M.)
Thomson, J. E. (L.)
Williams, J. P. (C.)
Omaha—Antony, J. T. (L.)
Egen, L. F. (C.)
Scotts Bluff—Rasmusser, N. (M.)

NEW HAMPSHIRE

Manchester—Badger, M. P. (C.)
Dwinell, G. F. (C.)
Whitefield—Warden, J. B. (C.)

NEW JERSEY

Atlantic City—Clark, S. W. (C.)
Camden—McKinstry, H. S. (L.)
Hanasquan—Hood, P. G. (C.)
Hoboken—Alexander, H. (C.)
Granelli, H. A. (C.)
Newark—Mandeville, F. N. (M.)
Russell, L. C. (C.)
Soule, R. E. (M.)
Vanderhoff, I. M. (M.)

NEW MEXICO

Roswell—Haymaker, O. R. (C.)

NEW YORK

Albany—Van Loon, H. F. (L.)
Auburn—McCully, R. R. (M.)
Brooklyn—Clark, R. (M.)
Clark, S. G. (L.)
Ennis, W. M. (C.)
Fowler, R. H. (M.)
Golding, J. E. (C.)
Lubrecht, C. A. (C.)
Pearse, R. S. (C.)
Seidensticker, R. F. (C.)
Weinberger, M. (L.)
Buffalo—Driscoll, W. S. (C.)
Murphy, J. A. (L.)
Potts, F. N. (L.)
Simon, C. (L.)
Glen Cove—Bernstein, F. (L.)
Goshen—Seward, F. W., Jr. (L.)
Lincklaen—Keppel, F. D. (L.)
New York—Cabaniss, J. T. (L.)
Cornwall, H. C. (L. C.)
Dooling, A. F. A. (L.)
Eckert, M. M. (C.)
Engel, W. (C.)
Gootesman, J. (L.)
Gwathmey, J. T. (C.)
Hallock, D. H. (C.)
Highman, W. J. (C.)
James, H. M. (L. C.)
Moore, A. A. (C.)
Morris, M. L. (M.)
Noll, J. E. (L.)
Pyle, E. (L.)
Redway, L. D. (C.)
Salomon, A. V. (L.)
Snyder, R. G. (C.)
Sonneschein, H. D. (C.)
Vincent, L. M. (L.)
Wurtzel, G. L. (L.)
Nunda—Diefenbach, W. E. (C.)
Oswego—Tripler, S. (L.)
Potsdam—Brown, S. P. (M.)
Rochester—Lewis, E. R. (C.)
Syracuse—Sharkey, M. B. (L.)
Troy—McKeon, W. B. (C.)
Utica—Chase, F. T. (L.)
White Plains — Bowman, K. M. (C).
Strong, R. L. (L.)

NORTH CAROLINA

Charlotte—Brown, V. (L.)
Hamlet—Moncure, W., Jr. (L.)
Monroe—Payne, R. L. (C.)

NORTH DAKOTA

Carrington — MacKenzie, J. R. (L.)
Kenmare—McLean, N. B. (C.)

OHIO

Alliance—Scranton, H. G. (C.)
Belle Valley—Dew, F. R. (C.)
Caldwell—Kackley, E. D. (L.)
Cincinnati—Beaman, C. W. (L.)
Cusher, L. M. (C.)
Fayen, E. (C.)
Hendley, F. W. (M.)
Cleveland—Chase, C. H. (L.)
Herrick, F. C. (M.)
Moore, J. R. (C.)
Klaus, E. (C.)
Ruggles, C. L. (L.)
Columbus—Crotti, A. (M.)
Gaver, E. E. (M.)
Dalton—Deeds, C. R. (L.)
Deshler—Norris, O. L. (M.)
Fort Recovery—Watkins, C. N. (L.)
Fostoria—Hattery, H. A. (C.)
Fremont—Beach, W. H. (C.)
Hebron—Bozman, C. G. (C.)
Johnstown—Butt, G. K. (L.)
Jolly—Edwards, C. E. (C.)
McArthur—Haas, T. B. (C.)
McGuffey—Evans, R. K. (C.)
Morning Sun — Stewart, W. T. (C).
Nelsonville—Dew, C. G. (L.)
Salem—Mitchell, E. W. (L.)
Steubenville—Erskine, E. D. (C.)
Toledo—Chollett, B. G. (C.)
Foster, S. D. (C.)
McCormick, E. J. (M.)
Toronto—Ferguson, G. A. (C.)
Warrensville—Mulky, C. (C.)
Youngstown—Rosenblum, A. M. (L.)

OKLAHOMA

Alva—Simon, W. E. (L.)
Beggs—Miner, J. L. (L.)
Hinton—Hobbs, A. F. (C.)
Hobart—Hollis, J. B. (C.)
Lindsay—Wilson, S. W. (C.)
Muskogee—Morrison, E. D. (C.)
Norman—Gable, J. J. (C.)
Oklahoma City—DeMand, F. A. (L.)
Tulsa—Stroud, E. F. (C.)

OREGON

Canyon City—Chilton, L. W. (C.)
Imbler—Moore, C. S. (C.)
La Grande—Graham, J. P. (M.)
Roseburg—Stewart, E. B. (L.)

PENNSYLVANIA

Alexandria—St. Clair, J. R. (L.)
Allentown—Lanshe, H. F. (L.)
Smyth, T. L. (C.)
Archbald—Moss, J. H. (C.)
Avalon—Frey, J. W. (C.)
Bloomsburg—Brobst, J. R. (L.)
Bolivar—Hendricks, C. S. (C.)
Braddock—Bulger, A. E. (C.)
Chatham—Moore, L. C. (C.)
Connellsville—Brooks, D. D. (C.)
Crofton Station — Brant, N. D. (C.)
Ellsworth—Botkin, W. L. (C.)
Erie—Lininger, C. B. (L.)
Hamlin—Mullen, O. J. (C.)
Lansdowne—McKenna, J. A. (L. C.)
Mahoney City—Fenton, I. D. (C.)
Marianna—Cobb, F. F. (C.)
McKeesport—Rutledge, R. L. (C.)
Mechanicsburg—Smith, H. A. (C.)
Meyersdale—Lichty, B. (C.)
Monongahela—Peterson, E. O. (M.)
Mont Alto—Carskadden, H. A. (M.)
Mount Pleasant—Burkholder, J. L. (C.)
Nanty Glo—Barr, J. W. (L.)
North Girard—Miller, A. B. (C.)
Parker Ford—Dietterich, C. D. (L.)
Philadelphia—Baker, H. F. (L.)
Donnelly, J. D. (C.)
Fox, C. S. (C.)
Hartman, J. C. (L.)
Heist, G. D. (L.)
Lerman, W. W. (C.)
Linton, J. D. (C.)
Maciejewski, A. S. (C.)
Powers, M. H. (C.)
Price, G. E. (M.)
Rush, E. (L.)
Thompson, E. H. (L.)
Pittsburgh—Boyd, D. H. (C.)
Bulford, W. (C.)
Dickinson, J. J. (C.)
Dodds, W. T. (L.)
Elkin, C. W. (C.)
Felton, H. M. (C.)
Hazlett, T. L. (L. C.)
Kennedy, D. D. (C.)
Kerr, J. P. (L. C.)
King, S. V. (L. C.)
Miller, L. O. (C.)
Nelan, T. G. (M.)
Schaefer, A. P. (L. C.)
Silver, D. (L. C.)
Simpson, S. C. (L.)
Stuart, L. H. (L.)
Sayre—Lundblad, W. E. (C.)
Slippery Rock—Campbell, F. D. (L.)
Susquehanna—Denman, A. J. (C.)
Vestaburg—Smith, P. C. (L.)
Washington—Brennan, J. L. (C.)
Waynesboro—Thomas, S. B. (L.)
Wilmerding—Pollock, H. O. (C.)

RHODE ISLAND

East Providence Center—Butler, B. J. (M.)
Providence—Bigelow, F. N. (L.)
Wakefield—Jones, J. H. (L.)

SOUTH DAKOTA

Aberdeen—Devereaux, T. J. (L.)
Mitchell—Jones, E. W. (C.)
Watertown—Kriesel, W. A. (C.)

TENNESSEE

Burns—Spencer, H. P. (L.)
Elkton—Wright, J. B. (C.)
Gillises Mills—Walker, G. I. (L.)
Knoxville—Carmichael, C. J. (L.)
Memphis—Walker, O. P. (L.)
Nashville—Lewis, M. S. (C.)

TEXAS

Arlington—Spencer, R. T. (L.)
Austin—Calaway, F. O. (L.)
Dallas—Hutcheson, M. L. (L.)
Fort Worth—Brannon, H. O. (C.)
Henderson—Deason, G. A. (L.)
Moody—Kuykendall, P. M. (C.)
Quanah—Jones, C. B. (L.)

UTAH

Brigham—Merrill, L. S. (L.)

VIRGINIA

Gore—Young, C. A. (L.)
Norfolk—White, J. W. (C.)
Phenix—Moore, R. A. (L.)
Richmond—Brunk, O. C. (C.)
Hulcher, J. J. (C.)
Shawver Mill—Neel, J. T. (L.)

WASHINGTON

Hoquiam—Anderson, A. E. (C.)
Seattle—Hewitt, H. H. (C.)
Spokane—Pope, E. F. (L.)

WEST VIRGINIA

Huntington—Cronin, D. J. (L.)
Jarrolds Valley—Porter, W. F. (L.)
Morgantown—Powell, H. C. (C.)
Parkersburg—Paden, R. H. (C.)
Rowlesburg—Howard, F. C. (C.)
Spencer—Staats, C. O. (M.)
Wheeling—Copeland, H. B. (L.)

WISCONSIN

Denmark—Hager, F. J. (C.)
Lake Geneva—Cottingham, M. D. (C.)
Madison—Cooksey, R. T. (L.)
Taylor, F. B. (L.)
Milwaukee—Kenney, C. J. (M.)
Mensing, E. H. (M.)
North Prairie—Hafemeister, E. F. (L.)
Park Falls—Riley, E. A. (C.)
Wausau—Bryant, J. R. (M.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

ALABAMA

Bessemer—McEniry, E. P.

CALIFORNIA

Eureka—Wallace, C. T.
Los Angeles—Dorn, N. F.
Santa Cruz—Bush, B. H.

COLORADO

Denver—Wolf, J. A.

CONNECTICUT

Norwalk—Cram, G. F.

GEORGIA

Atlanta—Turner, J. W.

ILLINOIS

Chicago—Hickey, H. L.
Melnikoff, L. R.
Great Lakes—Duggan, J. A.
Waukegan—Taber, R. B.

IOWA

Dubuque—Traub, E. F.

KENTUCKY

Clay—Sigler, B. H.

MASSACHUSETTS

Boston—Bean, H. C.
  Brennan, J. T.
  Hammond, J. W.
Bridgewater—Whelan, E. V.

MICHIGAN

Ann Arbor—Jacoby, A. L.

MISSISSIPPI

Jackson—Collette, A.

MISSOURI

Hopkins—Robb, E. F.
Joplin—Lucas, H. R.
Kansas City—Broderick, D. E.
St. Joseph—Liberman, D. L.

NEBRASKA

Lincoln—Williams, J. B.

NEW YORK

New York—Littwin, C. B.
  Lore, J. M.
  Rosenstein, H.
Rochester—Vollertsen, B. H.

OHIO

Akron—Jones, J. L.

PENNSYLVANIA

Philadelphia—DeFoney, C. G.
  Vail, W. P.
Pittsburgh—Richey, D. G.

SOUTH DAKOTA

Cheyenne Agency—Johnson, T. S.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Meade, Md., base hospital, from Army Medical School, Capt. R. D. BROWN, Mobile.

To Hot Springs, Ark., from Camp Upton, Major J. W. WATTS, Flat Top.

To report to the commanding general, Southern Department, from Camp Dix, Major G. A. O'CONNELL, Birmingham.

Arkansas

To Fort Des Moines, Iowa, from St. Louis, Capt. A. A. BLAIR, Scranton.

To Report to the commanding general, Southern Department, from Hot Springs, Major J. E. ASH.

California

To San Francisco, Calif., Letterman General Hospital, from Camp Kearney, Lieut. H. R. KING, San Francisco; from Newport News, Capt. A. L. MUNGER, Jr., Sacramento.

The following order has been revoked: *To Fort Des Moines, Iowa,* from Camp Kearney, Lieut. H. J. WRIGHT, Jr., San Francisco.

Colorado

To Denver, Colo., from Camp Kearney, Capt. F. N. STILES, Grand Junction.

To Fort McHenry, Md., from Camp Lee, Lieut. R. L. CHARLES, Denver.

Connecticut

To New Haven, Conn., from Houston, Capt. A. F. BRIDES, New Haven.

District of Columbia

To Fort Sheridan, Ill., from Camp Dix, Lieut.-Col. R. T. MORRIS, Washington.

Florida

To report to the commanding general, Southern Department, from Camp Jackson, Major G. W. DUPREE, Blue Creek.

Georgia

To Spartanburg, S. C., from Camp Dix, Lieut. C. J. WELLBORN, Blairsville.

Illinois

To Camp Grant, Ill., from Camp Dix, Major C. L. BARNES, Chicago.

To Fort Sheridan, Ill., from Camp Dix, Capt. R. a'B. STEPHENSON, Chicago.

To Fort Snelling, Minn., from St. Louis, Major D. E. EGAN, St. Charles.

Indiana

To East View, N. Y., from Camp Dix, Major H. M. HOSMER, Gary.

To Hoboken, N. J., Capt. E. F. SOMMER, Indianapolis.

Iowa

To Fort Bayard, N. M., from Camp Pike, Capt. J. H. WHITELEY, Bonaparte.

To Fort Des Moines, Iowa, from Camp Dix, Capt. E. D. McCLEAN, Oskaloosa; from Fort Sheridan, Capt. W. D. McFAUL, Miles.

To Mineola, N. Y., Hazelhurst Field, from Fort Des Moines, Lieut. F. H. THORNE.

Kansas

To Hot Springs, Ark., from Camp Pike, Lieut. E. E. WHITE, Stockton.

Kentucky

To Washington, D. C., Surgeon-General's Office, from Camp Zachary Taylor, Col. H. F. PIPES.

Louisiana

To Fort Jay, N. Y., from Camp Dix, Capt. L. V. LOPEZ, New Orleans.

To report to the commanding general, Southern Department, from Hot Springs, Major C. H. MOSELY, Hodge.

Massachusetts

To report to the commanding general, Eastern Department, from Camp Dix, Capt. C. W. DeWOLF, Somerville. Northeastern Department, from Camp Dix, Lieut. F. S. HALE, Brookline.

To Washington, D. C., surgeon-general's office, from Camp Dix, Lieut.-Col. H. A. LANPHER, Chester.

The following orders have been revoked: *To Plattsburg Barracks, N. Y.,* from Boston, Capt. F. A. DAVIS, Boston. *To Spartanburg, S. C.,* from Camp Dix, Capt. B. A. GODVIN, Boston.

Michigan

To Fort Leavenworth, Kan., from Fort Riley, Capt. C. G. WENCKE, Battle Creek.

Mississippi

To Fort McHenry, Md., from Surgeon-General's Office, Capt. M. C. HENRY, Bentonia.

Missouri

To Camp Dodge, Iowa, from New Cumberland, Pa., Lieut. J. H. WILLIAMS, Hume.

To Camp Jackson, S. C., from Camp Dix, Lieut.-Col. H. H. SMITH, St. Joseph.

To Fort Riley, base hospital, from Hoboken, Major J. P. BEESON, South West City.

To Fort Sill, Okla., from St. Louis, Col. B. J. EDGER, Jr.

New Jersey

To Camp Gordon, Ga., as camp surgeon, from Hoboken, Col. K. NELSON.

To Fort McPherson, Ga., from Hoboken, Col. L. P. WILLIAMSON.

To Fox Hills, N. Y., from Cape May, Col. W. F. TRUBY.

To Oteen, N. C., from Hampton, Va., Lieut. W. G. SHEMELEY, Jr., Camden.

To report to the commanding general, Eastern Department, from Camp Dix, Capt. N. HELLER, Newark.

To Walter Reed General Hospital, D. C., from Camp Dix, Col. J. CASPER.

To Washington, D. C., Surgeon-General's Office, from Hoboken, Col. H. C. COBURN, Jr.

New York

To Camp Gordon, Ga., from Camp Dix, Lieut. J. F. LEWIS, New York.

To Camp Lee, Va., base hospital, from Colonia, Capt. C. W. FIELD, New York.

To Fort D. A. Russell, Wyo., from Camp Upton, Col. J. R. SHOOK.

To Fort Omaha, Neb., from Fort Crook, Lieut. A. G. COOK, Brooklyn.

To Fox Hills, N. Y., from Camp Dix, Capt. J. K. CRANDELL, New York; from Camp Upton, Capt. J. H. EVANS, Virgil.

To Hoboken, N. J., from Camp Dix, Major G. P. OLCOTT, Jr., New York.

To New Haven, Conn., from Spartanburg, S. C., Lieut. S. PERLMAN, Brooklyn.

To Otisville, N. Y., from Camp Dix, Capt. C. W. PERKINS, New York; from New Haven, Capt. E. G. WHIPPLE, Rochester.

To report to the commanding general, Eastern Department, from Camp Dix, Major C. A. KRAUSS, Watervliet.

To Spartanburg, S. C., from Camp Lee, Capt. E. W. BROWN, Mount Kisco.

To Walter Reed General Hospital, D. C., from Camp Lee, Lieut. C. W. SYMONDS, New York.

To Washington, D. C., Surgeon-General's Office, from Hoboken, Lieut.-Col. H. EMERSON, New York.

North Carolina

To Camp A. A. Humphreys, Va., from Washington, Capt. J. THAMES, Wilmington.

Ohio

To Camp Jackson, S. C., base hospital, from Boston, Capt. H. B. DORNBLASER, Springfield.

Oklahoma

To Fort Riley, base hospital, from Camp Dix, Capt. N. W. CAMPBELL, Poteau.

To Hoboken, N. J., from Kearny, N. J., Lieut. H. C. BRADLEY, Oklahoma City.

Pennsylvania

To Biltmore, N. C., from Camp Dix, Lieut.-Col. A. DARE,, Philadelphia.

To Fort McHenry, Md., from Cape May, Lieut. H. W. SCARLETT, Bryn Mawr.

To Hampton, Va., from Camp Dix, Lieut. W. M. DONOVAN, Philadelphia.

To Otisville, N. Y., from Hoboken, Capt. S. A. LEVEY, Pittsburgh.

To report to the commanding general, Eastern Department, from Camp Dix, Capt. J. R. MARTIN, Philadelphia.

Rhode Island

To Muscle Shoals, Ala., from Camp Lee, Capt. A. A. WEEDEN, Woonsocket.

To Walter Reed General Hospital, D. C., from Camp Meade, Lieut. J. E. McCABE, Providence.

South Dakota

To Fort Sheridan, Ill., from Camp Dix, Lieut.-Col. L. B. PECK, Fort Meade.

Tennessee

To Carlisle, Pa., from Camp Upton, Capt. W. A. SHELTON, Oliver Springs.

Texas

To Fort Bayard, N. M., from Camp Kearney, Capt. W. C. JOHNSON, Del Rio.

To Fort McPherson, Ga., from Fort Sam Houston, Lieut.-Col. F. C. A. KELLAM, Jr.

To Indianapolis, Ind., from Fort Sill, Lieut. G. P. RAWLS, San Augustine.

To report to the commanding general, Southeastern Department, from Camp Dix, Major, C. R. BULLOCK, Snyder.

Virginia

To Camp Lee, Va., from Camp Dix, Capt. C. M. EASTER, Chincoteaque Island.

The following order has been revoked: *To Hampton, Va.,* from Plattsburg Barracks, Capt. C. D. KELLAM, Norfolk.

West Virginia

To Fort Jay, N. Y., from Camp Dix, Capt. H. W. KEATLEY, Huntington.

To Fort McHenry, Md., from Camp Dix, Capt. J. E. HUBBARD, Hinton.

To Spartanburg, S. C., from Oteen, Capt. G. H. BARKSDALE, Charleston.

Wisconsin

To Camp Shelby, Miss., from Fort Leavenworth, Lieut. J. S. ALLEN, Norwalk.

To Fort McPherson, Ga., from Camp Dix, Major G. PERRY, Amery.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg. Gen. R. H. CREEL, proceed to Harrisburg, Pa., on duty in connection with the Pennsylvania State Quarantine.

Surg. C. H. GARDNER, relieved at San Antonio, Texas; proceed to Buffalo, N. Y., and assume charge of the Marine Hospital.

Surg. H. W. WICKES, relieved at the Marine-Hospital, Buffalo, N. Y. proceed to Evansville, Ind., and assume charge of the Marine Hospital.

Surg. J. D. LONG, detailed for duty as Supervisor of District No. 12, for the examination and care of War Risk beneficiaries, with headquarters at San Francisco, Calif.

Surg. H. McG. ROBERTS, relieved at the Cape Charles Quarantine Station, proceed to the Marcus Hook Quarantine Station, and assume charge.

Surg. GEORGE L. COLLINS, detailed as Supervisor of District No. 3, for the examination and care of beneficiaries of the War Risk Insurance Bureau, with Headquarters at Philadelphia, Pa.

Passed Asst. Surg. J. G. TOWNSEND, relieved at Little Rock, Ark. Detailed as Supervisor of District No. 4, for the examination and care of beneficiaries of the War Risk Insurance Bureau, with headquarters at Baltimore, Md.

Passed Asst. Surg. C. E. WALLER, proceed to Santa Fe, N. M., to assist in the organization and administration of the Health Department of New Mexico.

Passed Asst. Surg. C. V. AKIN, proceed to Washington, D. C., for temporary duty.

Asst. Surg. T. B. H. ANDERSON, relieved from duty in the office of the Chief Medical Advisor, Bureau of War Risk Insurance. Proceed to Ellis Island, N. Y., for duty.

Asst. Surg. J. K. FULLER, proceed to Baltimore, Md., for conference concerning care of neuropsychiatric patients.

Passed Asst. Surg. R. W. BROWNE (Reserve), relieved from duty in the Venereal Disease Division; proceed to Boston, Mass., for duty at the Marine Hospital.

Passed Asst. Surg. J. B. LAUGHLIN (Reserve), relieved at the Norwegian Hospital, Brooklyn, N. Y.; proceed to Washington, D. C., for duty in the Division of Marine Hospitals and Relief.

Passed Asst. Surg. GEORGE E. MELVIN (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service; proceed to the Marine Hospital, Stapleton, N. Y., for duty.

Asst. Surg. JOHN E. COX (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, proceed to Jacksonville, Florida, for duty in the U. S. Public Health Service Hospital.

Asst. Surg. ROBERT T. FRANKLIN (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1. Proceed to Mobile, Ala., for duty in the Marine Hospital.

Asst. Surg. B. J. LAFOND (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, proceed to Boston, Mass., for duty in the Marine Hospital.

Asst. Surg. CARL W. SMITH (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1; proceed to Jacksonville, Fla., for duty in the U. S. Public Health Service Hospital.

Asst. Surg. E. S. SUGG (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service; proceed to St. Louis, Mo., for duty in the U. S. Marine Hospital.

Asst. Surgeon JOHN F. WATKINS (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service; proceed to San Francisco, Calif., for duty in the Marine Hospital.

Act. Asst. Surg. OSWALD E. DENNEY, proceed to San Francisco, Calif., and report to the Supervisor of District No. 12 for duty.

Act. Asst. Surg. LYNNE A. FULLERTON, proceed to San Francisco, Calif., for duty in the Marine Hospital.

Act. Asst. Surg. LEO JACOBS, proceed to Greenville, S. C., for duty in the U. S. Public Health Service Hospital.

Act. Asst. Surg. MILLARD KNOWLTON, proceed to Missoula, Mont., to address a State Health Officers' Convention, July 7-8, 1919.

Act. Asst. Surg. JOHN F. LANCASTER, relieved at the Marine Hospital, Mobile, Ala., proceed to the Mobile Quarantine Station for duty.

Act. Asst. Surg. J. BALDWIN McCOMB, proceed to Washington, D. C., for conference relative to venereal disease control.

Act. Asst. Surg. W. F. REASNER, relieved at Leavenworth, Kan., proceed to Portsmouth, Va., for duty.

Act. Asst. Surg. WILLIAM H. WALSH, proceed to Markleton, Pa., to inspect the Markleton Sanatorium, to determine its desirability for the treatment of tuberculosis.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Society Visits General Hospital.—The visit of the Aux Plaines Branch of the Chicago Medical Society to U. S. General Hospital No. 28, Fort Sheridan, June 25, was participated in by more than 500. The party was welcomed by William N. Bispham, Col., M. C., U. S. Army, commander of the hospital, a surgical clinic was held in Ward 52, and then the party was conducted through the entire hospital, including the educational department.

Violators of Medical Practice Act Fined.—E. H. Madison of 3333 Calumet Avenue, Chicago, practicing medicine as a "magnetic healer," and Mrs. Anna Marfick of East St. Louis, practicing as midwife, were arrested by the Illinois Department of Registration and Education for violating the Medical Practice Act, and were each fined $50 and costs. Mrs. Anna Comfort of East St. Louis was also arrested for violating the Medical Practice Act and was fined $100 and costs.

Personal.—Dr. Florence R. Kremer has resigned as assistant physician at the Kenilworth Sanatorium, to accept an appointment with Chesapeake and Ohio Hospital, Clifton Forge, Va.——Dr. Mark Greer, Vandalia, has been awarded the Military Cross by the British government for bravery in dressing wounded men under shell fire in France, in September, 1918.——Dr. Emmett A. Garrett, Peoria, has been discharged as lieutenant-colonel, M. C., U. S. Army, after nearly a year of service abroad, and has returned home.——Dr. Henry B. Brown, Lincoln, has been appointed local surgeon of the Chicago and Alton Railroad, succeeding Dr. Frank M. Ewing, deceased.

Chicago

Dope Pedler Arrested.—Ann Scott Rusling was arrested, June 30, by Dr. William H. Sage and his agents, charged with the illegal sale of narcotic drugs, which she is said to have secured by obtaining blank prescription forms and forging the names of Chicago physicians to them.

Dispensary Clinics.—Organized and financed by the National Catholic War Council, clinics have been opened at Mercy Hospital, and at the Hospital of St. Mary of Nazareth, and a third clinic will be opened at St. Joseph's Hospital, about August 1. A social service department is operated in connection with each clinic. The clinic is open from 9 a. m. to 4 p. m., and eleven specialties are covered. The Mercy Hospital clinic is housed in the rooms of the late Dr. John B. Murphy. In the Hospital of St. Mary of Nazareth, rooms have been reconstructed for this purpose, and in St. Joseph's Hospital ten rooms in the new wing of the building have been set apart for the use of the clinic. The staff of the hospital in each case is the staff of the clinic.

Personal.—Dr. Evarts A. Graham has been appointed professor of surgery in Washington University, St. Louis, succeeding Dr. Fred. T. Murphy, resigned. Dr. Graham will be head of the department of surgery and will have charge of the surgical service in Barnes Hospital and Children's Hospital, St. Louis.——Dr. Earl V. Hill of the sanitary bureau of the department of health has been appointed acting chief sanitary inspector, succeeding Mr. Charles B. Ball, who has been given seven months' leave of absence that he may serve in the housing commission of the Y. M. C. A., in France.——Dr. Norval H. Pierce has been elected president of the American Laryngological Society.——Major Charles H. Parkes has just reached New York from overseas, after two years' service in the Medical Reserve Corps.——Dr. William G. Lee has returned from abroad and resumed his practice.

INDIANA

Personal.—Major Paul F. Martin, Indianapolis, accepted an offer of the commissioner to Europe of the American Red Cross to become consulting surgeon to Red Cross hospitals in Russia.

Sanatorium for Four Counties.—County officials of La Grange, Noble, Steuben and De Kalb held a meeting at

Rome City, June 23, looking toward the establishment of a district tuberculosis sanatorium.

Death of Mrs. Bulson.—Mrs. Eva Maude Bulson, wife of Dr. Albert E. Bulson, Fort Wayne, a woman of rare intellectual attainments, who had been ill for more than three years with heart disease, died at her home, June 27.

Venereal Disease Clinics.—Surg. William F. King, U. S. P. H. S., who is in charge of the venereal disease clinic at Indianapolis, has appealed to the city board of health and city council to appropriate $7,500 that the clinic may be kept in full operation.——Howard County council, June 24, made a special appropriation of $1,500 for the establishment of a clinic for venereal diseases.

Fresh Air School.—The report of the Theodore Potter Fresh Air School, conducted on the Technical High School grounds, Indianapolis, was made public recently by Mary A. Meyer, executive secretary of the Marion County Tuberculosis Association. The records made for the school year of 1918-1919, in the advancement of the health of the children, were considered wonderful by the officials of the tuberculosis association. The records were somewhat lower, however, than in previous years, because of the influenza epidemic and because for a part of the year the schools were closed while soldiers occupied the buildings. Fifty-four pupils were enrolled in the outdoor school during the year. Several made remarkable gains in weight and practically all made some gain. The highest gain made by a single child was 30¼ pounds.

Eight-Hour Day for Doctors.—The Vanderburg County Medical Association, Evansville, has voted to go on an eight-hour day basis, as nearly as possible, and to increase the fees about 50 per cent. A committee has been appointed to work out a scale of prices.——Lafayette and West Lafayette physicians have adopted a new schedule of fees, which is a decided advance over charges that have prevailed there for the last few years. Office calls which have been $1 are $2 under the new schedule. House calls which are now $2 have been raised to $3, and calls between 7 p. m. and 7 a. m. are raised to $4. Telephone consultation and advice calls for a fee of $1. Calls outside of the city are to be charged for at the rate of $1 a mile for the first ten miles and 50 cents for each additional mile, plus $3. Consultation will cost $15 in Lafayette and West Lafayette. Outside of these cities the charge will be $15 plus the same mileage as in the case of calls.

MARYLAND

Infantile Paralysis Appears.—Two cases of infantile paralysis and one death from the malady were reported to the health department during the past week. The death occurred in a local hospital. Officials of the health department said that there was no indication of a return of infantile paralysis this summer, although there may be some sporadic cases and an occasional fatality. The city's general death rate was higher last week than it has been for some time, 206 persons having died from all causes, compared with 203 for the corresponding period of 1918. For a month or two the weekly record of deaths has been under 200. Births for the week totaled 220.

Personal.—Drs. Hugh Hampton Young and William S. Thayer, Baltimore, are to go abroad, Dr. Young to go over with the British and French army authorities problems met with during the war as director of urology for the A. E. F. and Dr. Thayer to do some work for the National Research Council. Both expect to be away for about two months. Dr. Young, in addition to his work with the French and British authorities, will attend an international health conference to be held in Brussels the latter part of this month. During his absence, Drs. John T. Geraghty and William A. Frontz will conduct his department at the Brady Institute.——Col. Henry Page, a regular army medical officer, whose home is in Princess Anne, Md., has succeeded Lieut.-Col. Harry S. Purnell as commandant at the U. S. Army General Hospital No. 2, Fort McHenry, the appointment taking effect July 4.

Health Department Warns of Eyestrain.—The health department has issued an appeal for the cooperation on the part of parents in correcting this summer physical defects among 8,000 schoolchildren, that these schoolchildren may do more effective work when they return to their books in the autumn. These defects are serious enough to need medical attention and advice for their correction. For the most part, it is said, the children are suffering from eyestrain, making it impossible for them to see the blackboards in the schoolrooms. Fully 400 are back in their grades because of this defect. Others have bad teeth, adenoids and diseased tonsils. The officials in charge of this work are most anxious through the cooperation of the parents and the children to have these deviations from the normal corrected as far as possible during the vacation period, and to accomplish this purpose the school nurses will continue their work throughout the summer. The children deserve from their parents and from the community proper opportunity to be relieved of the handicaps. To this end, each of these children has been given a card indicating the defect or defects needing correction and advising the parents to secure medical attention. It is entirely in the hands of the parents to make their own choice of the private physicians or the dispensaries. The health department school nurses will arrange for the children's visits to a medical consultation on the request of the parents.

MASSACHUSETTS

Therapist Found Guilty.—Ernest Carreiro, a "therapist" of Boston, charged in three counts with practicing medicine without being registered, and in three others with holding himself out to be a practitioner without being registered, is said to have been found guilty and fined $100 in each of the six counts. He appealed and was held in bonds of $1,500 for the superior court.

Hospital Notes.—June 25, the base hospital at Camp Devens was virtually closed. Since the institution was opened in September, 1917, more than 40,000 patients have been admitted to this institution. One of the buildings of the hospital group is to be maintained as a cantonment hospital for the time being.——The Boston Floating Hospital has opened its twenty-fifth season. Dr. Hyman Greene, Boston, will be the resident physician, and Miss Sarah A. Eagan will continue as superintendent of nurses.——An addition is immediately to be built to the Worcester City Hospital at a cost of $70,000.

Personal.—Dr. Howard A. Streeter, Pittsfield, state health officer for the Berkshire district, was appointed, June 1, 1919, chief of the subdivision of venereal disease, state department of health.——Dr. George H. Bigelow, Framingham, has returned home from service in the Medical Corps overseas, and has been appointed temporary epidemiologist in the state health department, succeeding Dr. Bernard W. Carey, Winthrop, who has been made head of the division of communicable disease.——Dr. John S. Hitchcock, Northampton, has resigned as director of the division of communicable disease in the state department of health.——Dr. Emily C. MacLeod, Boston, has been selected as a member of a unit of women physicians to assist in the relief of Serbia.

MISSOURI

Unlicensed Practitioner Prosecuted.—Proceedings have been brought against Louis Tiemonti, Kansas City, charged with practicing medicine without a license.

Occupational Therapists Incorporated.—The Missouri Association of Occupational Therapy, recently organized in St. Louis, has been incorporated to teach occupational therapy as an aid in the reconstruction of disabled soldiers and persons injured in industrial establishments. Dr. G. Canby Robinson, St. Louis, is president of the organization.

Medical Veterans Form Association.—The Medical Veterans of the World War living in southwestern Missouri held a meeting for organization at Springfield, June 4, and elected the following temporary officers: president, Dr. William A. Delzell, and secretary, Dr. Horace A. Lowe, both of Springfield. Invitations have been sent to all physicians in the southwestern part of the state who served in the Army, Navy or Public Health Service to attend the next meeting to be held in Springfield, July 9.

Personal.—Dr. Fred T. Murphy, St. Louis, professor of surgery in Washington University since 1911, commander of Base Hospital Unit No. 21, and later on duty with the American Red Cross in France, was tendered a dinner by the faculty of the medical school of Washington University on his retirement from the faculty.——Dr. William M. Girdner, Chillicothe, has been elected president of the local board of health.——Dr. Samuel W. Chandler, Cassville, has been elected president of the Southwestern Missouri Medical Society.——Dr. John W. Good, Fordland, was operated on at the Springfield Hospital, June 14.——Dr. William B. Sisson, Kahoka, has gone to Siberia where he will be engaged in work for the American Red Cross.

NEW JERSEY

Hospital Staff Organized.—The hospital staff of the Salem County Memorial Hospital, at its meeting for organization, elected Dr. Clifford M. Sherron, Salem, president, and Dr. William H. James, Pennsville, secretary.

War Surgeons Organize.—A New Jersey society of Medical Veterans of the World War was organized at Spring Lake, June 27. Dr. Henry B. Costill, Trenton, medical aid to the governor in selective service work, was chosen president; Dr. W. Blair Stewart, Atlantic City, secretary and treasurer; and Drs. John C. McCoy, Paterson; Alexander Marcy, Jr., Riverton, and Britton D. Evans, Morris Plains, vice presidents. There are 2,028 physicians eligible for membership out of 3,100 in the state, as follows: 814 from the Army, 28 from the Navy and 1,164 from selective service boards.

NEW MEXICO

Personal.—Mrs. Nina Otero-Warren, Santa Fe, has been appointed chairman of the New Mexico State Board of Health, succeeding Holm O. Bursum, resigned.——Dr. Oliver T. Hyde, Albuquerque, has been appointed a member of the board in place of Dr. John F. Pearce.

Medical Examiners Organize.—At the annual meeting of the state board of medical examiners, held in Santa Fe, Dr. James A. Massie, Santa Fe, was elected president; Dr. Creighton H. Ferguson, Tucumcari, vice president, and Dr. Robert E. McBride, Roswell, secretary-treasurer.

NEW YORK

Personal.—Dr. G. Herbert Carter, Huntington, has been elected president; Dr. Irving F. Barnes, Oyster Bay, vice president, and Dr. James H. Shawe, Huntington, secretary-treaturer of the North Shore Medical Association.——Dr. William A. Bing, Canandaigua, has been appointed superintendent of the Ontario County Tuberculosis Sanatorium, Oakmount, succeding Dr. Stoughton R. Wheeler, East Bloomfield.

Alumni Election.—At the annual meeting of the Alumni Association of the Medical Department of the University of Buffalo, held in Buffalo, June 19 to 21, under the presidency of Dr. William F. Jacobs, '08, Buffalo, the following officers were elected: president, Dr. John A. Stapleton, '91, Rochester; secretary, Dr. Abraham H. Aaron, '12, Buffalo (reelected); treasurer, Dr. Harry N. Feltes, '04, Buffalo, and trustee, Dr. William F. Jacobs, '08, Buffalo.

Health Conference.—The health conference held at Saratoga Springs, June 24 to 26, showed a registration of more than 1,000 health officers, physicians, nurses and public health workers besides many officials and staff members of the state health department and interested visitors. All phases of public health work were discussed by experts of international reputation. Much information was given regarding the work contemplated by the health department. A model health center occupied a suite of six rooms at the Grand Union Hotel. Here was conducted a public tuberculosis clinic, a clinic for the examination and treatment of persons afflicted with venereal disease, exhibits of child welfare work, a laboratory and a health officers' office. The healthmobile, an automobile built specially for the health department in carrying on public health education, was exhibited. This car is equipped with a stereopticon and moving picture machine run by power developed by the automobile and contains a number of exhibits showing the value of maintaining health and the prevention of infection. It is planned to send this automobile with a lecturer into sparsely settled communities.

Results of Health Survey.—The May issue of *Health News* is entitled the "Health Administration Number" and gives the results of the recently completed survey of health administration in the cities of New York state. This survey has served to call the attention of municipalities to the excellencies and deficiencies of their health departments. Certain defects were found to be nearly universal. "Among these were the inclusion under the health department of plumbing inspection, garbage collection, and similar activities, a vicious substitute, since a community was thereby led to believe it was spending a dollar per capita for health, whereas it might be spending but a fraction of that amount for proper health functions." The second defect was found in the lack of coordinated effort between public and private agencies, leading to a waste of public funds through failure to pursue a sound and sensible policy. Another defect and one that had a marked influence on the general efficiency of the health department, was the lack of adequate records and the failure to make adequate use of them when they existed. It is pointed out that to secure appropriations the health department should be able to show its need, and the best way to do this is to show the amount, character, and desirability of its work.

New York City

Incorporate Rheims Hospital.—Supreme Court Justice Donnelly has approved the incorporation of the American Memorial Hospital which is to be erected at Rheims, France, under the auspices of the American Fund for French Wounded. Three hundred thousand dollars has already been raised toward the $450,000 required for the first wing of the hospital.

Dr. Ward Liable for Fraud.—Dr. Francis R. Ward, director of the so-called "Electro-Medical Scientists," with offices in Brooklyn and New York, is said to have been held liable by Justice Marks, in the Sixth District Municipal Court, in an action for fraud and deceit brought by Julius B. Grond, a former patient. Judgment was awarded Mr. Grond for $100 and costs.

Registration of Drug Addicts Goes into Effect.—Beginning July 7, every drug addict in this city must register with the state department of narcotic drug control at 128 Prince Street, and must obtain a dosage card before he can have any drug prescribed for him. This card bears the name, address and description of the addict, and the name of his or her occupation and employer. The addicts will be known by number. It is believed that this card system will make it impossible for the addict to obtain a prescription from one physician and to go to another physician and get another prescription. Physicians are obliged, when an incorrect dosage card is presented to them, to keep it, report the holder and return the card to the department office in this city. A new set of rules issued by the department of narcotic drug control sets forth in detail the system to be followed.

Personal.—Dr. William E. Studdiford has resigned the professorship of gynecology and obstetrics at the University and Bellevue Hospital Medical College in order to succeed Dr. Edwin Bradford Cragin, deceased, as head of the Sloane Hospital for Women.——Dr. Frederic C. Holden, Brooklyn, has been appointed professor of obstetrics and gynecology at the University and Bellevue Medical College and head of the gynecologic service at Bellevue Hospital to succeed Dr. Studdiford.——Dr. Walter T. Dannreuther has been appointed assistant professor of gynecology in the New York Post-Graduate Medical School and Hospital.——Dr. and Mrs. Howard Canning Taylor have sailed for Cuba.——Dr. Edward S. Godfrey, Jr., Albany, N. Y., epidemiologist to the division of communicable disease of the state department of health, has returned from France, where he has been connected with the American Red Cross in the capacity of chief of the health inspection service.——Dr. Angelo L. Soresi has returned to New York after four years' service in the Italian army.

NORTH DAKOTA

New Officers.—The twenty-third annual meeting of the North Dakota State Medical Association was held at Grand Forks, June 23 to 25, under the presidency of Dr. Edgar A. Pray, Valley City, and the following officers were elected: president, Dr. William P. Baldwin, Casselton; president-elect, Dr. Fred E. Ewing, Kenmare; vice presidents, Drs. Harley E. French, University, and Eric P. Quain, Bismarck; secretary, Dr. Hezekiah J. Rowe, Lisbon (reelected); treasurer, Dr. William F. Sihler, Devils Lake; delegate to the American Medical Association, Dr. Edgar A. Pray, Valley City; alternate, Dr. Alexander J. McCannel, Minot, and councilors, Drs. George F. Drew, Devils Lake; Lee B. Greene, Edgeley, and Ole A. Knutson, Buxton, for three years; Drs. Edward M. Ranson, Minot; Frederick L. Wicks, Valley City; LeRoy G. Smith, Medina, and Charles MacLachlan, New Rockford, for two years, and Paul H. Burton, Fargo, Francis R. Smyth, Bismarck, and John E. Countryman, Grafton, for one year. The society also recommended to the governor the following names for appointment to the state board of medical examiners: Drs. Gustavus J. McIntosh, Devils Lake; Victor J. LaRose, Bismarck, and Frank W. MacManus, Williston.

OHIO

District Supervisors Needed.—Eight physicians experienced in public health work are being sought by the state department of health to fill vacancies of district health supervisors at salaries of $2,500 a year.

Public Health Stations Established.—The American Red Cross has established thirteen public health stations in Cincinnati under the supervision of the board of health at which any person may consult a physician and have a thorough physical examination made without expense.

Personal.—Dr. John R. McDowell, Columbus, director of the division of tuberculosis of the state department of health, who has been on leave of absence for military service for two years, has returned to his work in the state health department.——Dr. Robert J. Jones, Greenfield, has been appointed division surgeon of the Baltimore and Ohio system.——Dr. William S. Baldwin, Lorain, who has been engaged in child welfare work for the American Red Cross in Jerusalem, reached New York on his return, July 2.——Dr. William H. White, Cleveland, lost his fight for reinstatement as chief medical examiner for the state industrial commission, when the supreme court reversed the decision of the Franklin County court, June 24.——Dr. Leroy B. Humphrey, Akron, has been appointed captain, M. C., Ohio, N. G., and assigned to the 146th Infantry.——J. C. Eberts, health officer of Chillicothe, has resigned.——Dr. Harry H. Myers, Shelby, has been appointed medical and welfare director of the plant of the Ohio Brass Company, Mansfield.

PENNSYLVANIA

Philadelphia

Money Raised for Italian Hospital.—Approximately $80,000 was raised at the Forrest Theater, June 29, in a campaign for $500,000 for the construction of a hospital and orphanage for Italians, in this city. The location of the hospital has not been decided.

Movies to Aid Tuberculosis Fight.—To bring forcibly before the people the menace of tuberculosis and to educate them in the best methods of combating the disease, the Philadelphia Tuberculosis Committee will stage a moving picture educational campaign during the summer.

Red Cross Supplies to Hospital.—More than 100 packing cases filled with bedding and surgical supplies left over at the end of the war, have been turned over to thirteen hospitals in this city and one in Chester, by the Southeastern Chapter of the American Red Cross. Hospitals receiving the supplies are: Lying-In Charity, Preston Retreat, Woman's Hospital, Woman's Homeopathic, Gynecean, Salvation Army, Philadelphia General, Jefferson, Chestnut Hill, Rush, St. Vincent, Jewish Maternity, City Maternity and Chester.

Health Department Training Camp.—Dr. Edward Martin, state health commissioner, has planned a state-wide organization of the 6,000 who are in the employ of the state health department and the first summer camp established by that department for intensive training was opened at Mount Alto, June 22. The first course terminated, July 2, and, July 6, a second group began its course of training. The plan of operation is to ask each of the 6,000 members of the health department in the state to secure ten additional volunteers from those who until recently were identified with welfare work during the war period. Each of these groups of ten will be instructed by a graduate of the course at Mount Alto.

WASHINGTON

Personal.—Dr. Harry Vanderbilt Wurdemann, Seattle, recently chief of the eye, ear, nose and throat section of the base hospital at Camp Lewis, Wash., has been commissioned major, M. R. C., U. S. Army.

Discourage Contract Service.—The Spokane County Medical Society, at its meeting, June 12, adopted an amendment to the rules providing for discontinuance of contract service excepting with interstate railway companies.

Graduate Medical Lectureship.—The University Extension Service of the University of Seattle announces the third annual graduate medical lectureship to be held in Seattle, July 14 and 18. Dr. Dean D. Lewis, Chicago, will give five lectures on surgery and Dr. Charles Lyman Greene, St. Paul, will give five lectures on medical diagnosis. Both of these lecturers have been on duty for a long time at important military posts. A series of clinics and laboratory demonstrations will be given during the same period. For this course there is a fee of $10.

WISCONSIN

Personal.—Dr. Bruno L. Schuster, Albany, N. Y., has resigned as full-time health officer of Wausau.

New County Officers.—At the last meeting of the Manitowoc County Medical Association, held in Manitowoc, Dr. John M. Kelley, Cato, was elected president, and Dr. Erwin C. C. Cary, Reedsville, secretary-treasurer.

CANADA

Dominion Physicians Meet.—The fiftieth annual meeting of the Canadian Medical Association took place in Quebec City, June 25 to 27. Dr. Jasper Halpenny, Winnepeg, delivered the address in surgery, and Dr. William S. Thayer, Baltimore, the address in medicine. Dr. Robert E. McKechnie, Vancouver, was elected president, and the next annual meeting will take place in that city in 1920.

Licenses Revoked.—A number of Ontario physicians have been suspended by the Ontario Medical Council and their licenses to practice revoked from three months to a year for writing too many prescriptions under the Ontario Temperance Act. Several others have been summoned before the Ontario License Board and warned that their prescriptions will not be filled if they persist in abusing their privilege under the Act.

Personal.—Dr. Ezra H. Adams, Toronto, has been appointed medical health officer to the American Border District recently created by special act of the Ontario legislature.——Prof. T. Brailsford Robertson has resigned as head of the department of biochemistry of the University of Toronto. He is returning to the University of Sydney, Australia, his alma mater, where he succeeds his father-in-law as head of the department of physiology.——Major Hutton, R. A. M. C., will soon return to Canada and will accept the appointment of medical officer of health for Brantford.——Col. Francis A. C. Scrimger, V. C., Montreal, was recently given a case of cutlery by the governors of the Royal Victoria Hospital.

GENERAL

Personal.—Charles W. Richardson, Col., M. C., U. S. Army, gave a dinner at his suburban home near Washington, D. C., June 20, in honor of the British and French delegates to the American Medical Association.——Richard P. Strong, Col., M. C., U. S. Army, Cambridge, Mass., has been appointed acting director of the bureau of hygiene and public health of the League of Red Cross Societies.

Meeting of Examining and Licensing Boards.—At the twentieth annual meeting of the New England Federation of Examining and Licensing Boards, under the presidency of W. Scott Nay, Underhill, Vt., as the guests of the Rhode Island State Board of Health, in Providence, June 27, the advisability of annual registration of physicians was discussed at length, the consensus of opinion being in favor of the plan. Dr. R. Morton Smith, River Point, was elected president of the federation, and Samuel H. Colwell, Boston, secretary-treasurer.

Surgeons Elect Officers.—At the annual meeting of the American Surgical Association held at Atlantic City, N. J., June 16 to 18, under the presidency of Dr. Lewis S. Pilcher, Brooklyn, the following officers were elected: president, Dr. George E. Brewer, New York; vice presidents, Drs. John Fairbairn Binnie, Kansas City, Mo., and Alexis Carrel, New York; secretary, Dr. John H. Gibbon, Philadelphia; treasurer, Dr. Charles Howard Peck, New York; recorder, John H. Jopson, Philadelphia, and councilor, Dr. Lewis S. Pilcher, Brooklyn. St. Louis was selected as the next place of meeting.

Federation of Labor Supports Scientific Research.—At the recent meeting of the American Federation of Labor, the following resolution was adopted:

> *Resolved,* By the American Federation of Labor in convention assembled that a broad program of scientific and technical research is of major importance to the national welfare and should be fostered in every way by the federal government, and that the activities of the government itself in such research should be adequately and generously supported in order that the work may be greatly strengthened and extended; and the secretary of the federation is instructed to transmit copies of this resolution to the President of the United States, to the president pro tempore of the Senate, and to the speaker of the House of Representatives.

Medical Museum Association Meeting.—The twelfth annual meeting of the American and Canadian sections of the International Association of Medical Museums was held at Atlantic City, June 14, under the presidency of Prof. Oskar Klotz, Pittsburgh, and the following officers were elected: president, Prof. Oskar Klotz, Pittsburgh; vice presidents, Drs. William M. Late Copelin, Philadelphia; Harold E. Robertson, Minneapolis, and Howard T. Karsner, Cleveland; secretary-treasurer, Dr. Maud E. S. Abbott, Montreal (reelected), and assistant secretaries, Louis Gross and E. Shanley, Montreal. A report was presented on the standardization of the American made supply of square glass museum jars, and symposiums on war museums and influenza and pneumonia followed.

Red Cross Items.—Lieuts. Jack Butterfield, Evanston, Ill., W. A. Fox, Buffalo, and Major E. A. Fish, Minneapolis, members of the Ambulance Section, American Red Cross, in France, have been decorated with the Croix de Guerre for bravery under fire.——Miss Alice Fitzgerald, formerly of New York and Boston, has been appointed chief nurse of the American Red Cross Forces overseas.——Shipment to Siberia of ambulance bodies, and surgical supplies valued at $348,850 has been authorized by the Red Cross on recommendation of Major Kendall Emerson, Worcester, Mass., who reported that the commission in Siberia is in urgent need of gauze, nonabsorbent cotton, absorbent cotton and cellu cotton.——Fifty carloads of surgical dressings have been sent from Red Cross headquarters in Paris to Roumania.

Air Service Officers Organize.—Medical officers of the Air Service, U. S. Army, held a meeting for organization in Atlantic City at the time of the session of the American Medical Association, and organized the Air Service Medical Association of the United States, electing the following officers: president, John O. McReynolds, Col., M. C., U. S. Army, Dallas, Texas; vice presidents, Theodore C. Lyster, Col., M. C., U. S. Army, Rockefeller Institute, New York; Eugene R. Lewis Col., M. C., U. S. Army, Dubuque, Iowa; Isaac H. Jones, Col., M. C., U. S. Army, Philadelphia; William H. Wilmer, Col., M. C., U. S. Army, Washington, D. C., and Albert E. Truby, Col., M. C., U. S. Army, Washington, D. C.; secretary, John P. Gallagher, Major M. C., U. S. Army, Philadelphia; treasurer. Robert S McCombs, Major, M. C., U. S. Army, Philadelphia, and historian, E. C. Schneider, Major, M. C., U. S. Army, Mineola, L. I., N. Y.

Bequests and Donations.—The following bequests and donations have recently been announced:

Medical Department of the University of Louisville, Ky., $5,000, payable at the rate of $500 annually, for the equipment of a research laboratory at the hospital, a donation by a member of the medical faculty.

Washington University School of Medicine, St. Louis, a grant of $5,000 for investigation of hypertrichiasis, from an anonymous donor. The committee in charge of the grant consists of Dr. G. Canby Robinson, dean, Dr. Martin F. Engman of the department of dermatology, and Dr. Charles H. Danforth, of the department of anatomy.

Federation of Jewish Charities and Pennsylvania Hospital, Philadelphia, each $1,000 by the will of Rose Strauss.

Bryn Mawr, Pa., Hospital, $5,000 by the will of Mrs. Emma C. A. Simpson, Philadelphia.

Jewish Hospital, Philadelphia, an income of an estate of $30,000 for the maintenance of three beds, by the will of Moses J. Blitz.

Abbington, Pa., Memorial Hospital more than $7,000, the proceeds of a Rainbow fete held recently at the Huntington Valley Country Club.

Harvard University $100,000 for the study of methods to reform and cure criminals and mental defectives by surgery, by the will of J. Ewing Mears.

Army Medical Museum Wishes Material for Study of Pathology of Toxic Gases.—The acute lesions caused by the toxic gases used in the late war have been exhaustively studied, both in man and in animals. Very little definite information is available in regard to the permanent changes caused in the respiratory tract and elsewhere, and this can only be obtained by the study of cases dying either as a late result of the gassing or from some incidental disease. The Surgeon-General requests the cooperation of pathologists in civilian hospitals, who may have occasion to perform necropsies on discharged soldiers giving a definite history of previous gassing. Protocols, clinical histories, gross and microscopic tissues will be gratefully received. Blocks should be taken from trachea, large bronchi, and other portions of the respiratory tract; from all scarred and pigmented skin lesions; and from all the principal viscera. Fixation in Zenker's without acetic acid or in neutral formalin is preferred. The material will be used in the comprehensive study of the "Pathology of the Toxic Gases" which is now under way. Due acknowledgment will be made as to the source of the material, which should be addressed to the Army Medical Museum, Washington, D. C.

Bills for a National Department of Health.—Two bills have been introduced in Congress providing for a national department of health. S. 814, introduced by Senator Owen, closely resembles the last "Owen bill." It provides for a department and a secretary of health; for an assistant known as the commissioner of health, both to be appointed by the President; for the transfer to the Department of Health of the Public Health Service from the Treasury Department; the Bureau of Chemistry from the Department of Agriculture so far as it is charged with the investigation of adulteration and the enforcement of the pure food law; and of the Division of Vital Statistics of the Bureau of the Census from the Department of Commerce. The President is also authorized to transfer by executive order any bureau, division or branch of the government engaged in public health work except the Medical Department of the Army and the Bureau of Medicine and Surgery of the Navy. The following bureaus are provided: Sanitary Research, Child Hygiene, Vital Statistics, Foods and Drugs, Quarantine, Sanitary Engineering, Government Hospitals, Personnel and Accounts. An advisory board of seven expert consultants and an official conference of state and territorial health authorities are also authorized. H. R. 5724, introduced by Mr. MacDuffie of Alabama, is similar to S. 814 in its general provisions. It does not specify the bureaus that are to be transferred but leaves this subject to executive order. Instead of a general appropriation, section 10 of this bill appropriates ten million dollars annually; one million for cooperation with the states in establishing a homogeneous sytem of health administration and for the organization of permanent health agencies in each county; two million for cooperation with the states in sanitation, each state to be allotted an amount proportionate to its area and population; five million for cooperation with the states in control of communicable diseases, and two million for scientific study of the causes and nature of transmission of disease, laboratory research and other investigations. S. 814 has been referred to the Senate Committee on Public Health and National Quarantine, H. R. 5724 to the Committee on Interstate and Foreign Commerce.

National Information Bureau to Pass on Charities.—An organization intended to become the national center of all responsible charities; to cooperate with and, in some sense, to direct them, and to protect the public from imposition has been evolved from the National Investigation Bureau, organized during the war to obtain information regarding war charities. It is called the National Information Bureau, and its aims are to assist in the conservation and proper distribution of the charitable resources of the country and to serve as an endorsement agency for philanthropic organizations, as well as to protect the giving public. Part of its work will be to adapt the programs of the separate organizations to each other and to the communities in which they are engaged, in order to promote the highest efficiency and avoid duplication of effort.

To receive the endorsement of the national agency, charitable organizations must conform to rather rigid standards which it sets up. The agency will be composed of social workers representing the organizations which meet the standards, some of which are:

There must be

1. An active and responsible governing body holding regular meetings, or other satisfactory form of administrative control.
2. A necessary purpose with no avoidable duplication of the work of another efficiently managed organization.
3. Complete annual audited accounts prepared by a certified public accountant, showing receipts and disbursements classified and itemized in detail.
4. No solicitors on commission or other commission methods of raising money.
5. Ethical methods of publicity, promotion and solicitation of funds.

There are five other similar standards and additional ones are being devised.

Allen T. Burns, New York, secretary, and Barry C. Smith, New York, director. Gustavus D. Pope, Detroit, has been chosen president. Among the social agencies represented in the organization are: American Red Cross, War Camp Community Service, American Civic Association, National Child Welfare Association, The Charity Organization Society of New York, National Tuberculosis Association, American Social Hygiene Association, New York School of Social Work, National Child Labor Committee, National Association for the Advancement of Colored People, American Society for the Control of Cancer, Cincinnati Council of Social Agencies, Detroit Patriotic Fund, National Municipal League, Cleveland War Council, American Association for Organizing Family Social Work, and the Young Men's Christian Association.

Appropriations for the U. S. Public Health Service.—The Public Health Service has been granted the following appropriations in the Sundry Civil Bill which has passed Congress: for pay, allowance and quarters of commissioned medical officers, $850,000; for pay of noncommissioned medical officers, $300,000; for pay of all other employees, $700,000; for traveling expenses of officers officially detailed to attend meetings to promote public health, $40,000; for light, fuel and water, $125,000; for furniture and repairs, $8,000; for medical and hospital supplies, $85,000; for maintaining the Hygienic Laboratory, $27,000; for the maintenance of Marine hospitals, $625,000; for medical examination of all persons so entitled, $220,000; for shipment of bodies $5,000; for scientific books, $500; for medical, surgical and hospital services for all persons entitled to treatment under the provisions of the War Risk Insurance Act, $4,000,000; for the maintenance of quarantine service, $20,000; for the prevention of epidemics of cholera, typhus fever, yellow fever, smallpox, bubonic plague, Chinese plague, trachoma, influenza or infantile paralysis to be spent in the discretion of the President, in any threatened or actual emergency, $400,000; for field investigation of the propagation and spread of disease, $300,000; for interstate quarantine service, $25,000; for special study and demonstration in rural sanitation, $50,000; for special study in pellagra, $30,000; to regulate the sale of biologic products, $35,000; for the maintenance of the bureau of venereal disease, $200,000; for the improvement of the Hygienic Laboratory, $20,000. Regarding the consolidation of the public health bureaus of the government the bill, as finally enacted, contained the following provision: "The heads of the several executive departments and other government establishments are authorized and directed to submit to Congress not later than the first Monday in December, 1919, a statement showing for the fiscal year of 1919 the activities of their respective establishments pertaining to the public health and the amount expended on account of each of the said activities." This language was agreed to after much discussion and is believed to be the first step on the part of Congress toward the eventual establishment of a department of health of the federal government similar in scope to the other executive bureaus of the government. Improvements for Marine hospitals are included, as follows: at Chicago, $121,000; at Cincinnati, $10,000; at Mobile, Ala., $60,000; at Savannah, Ga., $10,000. The medical department of the Army was granted the following appropriations: for artificial limbs, $50,000; for appliances for disabled soldiers not entitled to artificial limbs or trusses, $1,000; for trusses for disabled soldiers, $1,500; for improvement of the Providence Hospital, Washington, D. C., $2,000. An effort on the part of the Senate to appropriate about $2,500,000 for use by the Interdepartmental Hygiene Board to protect citizens against venereal disease failed. The money appropriated at the last session of Congress for this and which remains unexpended was reappropriated for this purpose.

The Physician Under Prohibition.—The inauguration of prohibition throughout the United States affects the physician not only as a citizen, but also as a professional man. Necessarily, the law provides some exceptions, in the use of alcohol and various liquors containing alcohol for medicinal purposes. In a circular of instruction to internal revenue collectors and agents the Commissioner of Internal Revenue states that Section 1 of the Act of Nov. 21, 1918 (War Prohibition Law), provides that after June 30, 1919, until demobilization is proclaimed by the President, no distilled spirits, beer, wine or other intoxicating or vinous liquors shall be sold for beverage purposes. It also provides that the commissioner shall prescribe regulations for the sale of distilled spirits for sacramental, medicinal and other than beverage purposes. The commissioner directs that physicians may prescribe wines and liquors for internal use or alcohol for external use as stated last week. Such prescriptions must be in duplicate, both copies signed in the physician's handwriting. Not more than 1 quart of any liquor may be prescribed for a single patient at a given time and in no case shall a physician prescribe alcoholic liquor unless the patient is under his constant personal supervision. Prescriptions must show the name and address of the patient, including the street or apartment number, if any, the date when the prescription was written, the condition or illness for which prescribed and the name of the pharmacist to whom the prescription is to be presented for filling. Physicians should note carefully this provision: The prescription must designate a certain pharmacist and no other pharmacist can fill the prescription than the one designated. The physician must keep a record in which a separate page is allotted to each patient for whom alcoholic liquors are prescribed and must enter thereon, under the patient's name and address, the date of each prescription, the amount and kind of liquors dispensed by such prescription and the name of the pharmacist filling it. Licensed pharmacists or druggists may fill such prescriptions, provided the druggist's name appears on the prescription in the physician's handwriting and provided the druggist has received a permit (Form 737), and provided he has qualified as a retail liquor dealer by the payment of a special tax. No prescriptions for alcohol or alcoholic liquors may be refilled. Druggists filling such prescriptions must preserve, in a separate file, one copy of each prescription filled and once a month must send to the collector of internal revenue in the district in which they are located a list showing the names of physicians prescribing alcohol or alcoholic liquors, the names of the patients and the total quality dispensed to each patient during the month. If these reports show that a physician is prescribing more than normal quantity or that any patient, through the prescriptions of one or more physicians, is procuring more than the normal quantity, the facts shall be reported to the Commissioner of Internal Revenue and the United States Attorney. Pharmacists are instructed to refuse to fill prescriptions if they have reason to believe that physicians are dispensing for other than strictly legitimate medicinal uses or that a patient is securing, through one or more physicians, quantities in excess of the amount required for legitimate purposes. If the prescription is medicated or denatured so as to be unfit for internal use, nonbeverage alcohol tax paid at the rate of $2.20 per gallon may be used in filling the prescription, but if it is not so medicated or denatured, liquor tax paid at the rate of $6.40 per gallon must be used. Physicians preparing or dispensing their own medicines or desiring alcohol for strictly scientific and medicinal purposes must file an application for a permit with the collector of internal revenue of the district in which they live. This application must be accompanied by a bond furnished by a surety company or signed by two individuals as sureties. Both the application and the bond must be in duplicate. On receipt of the application and bond, the collector of internal revenue will issue a permit to the physician authorizing him to have on hand or in transit a certain amount of alcohol or alcoholic liquors, the amount depending on the size of the bond. A bond for $100 allows the physician to have on hand or in transit 20 gallons of alcohol or liquors. The physician must keep an account of all alcohol or alcoholic liquors purchased and on hand and must be ready at any time to produce his records and satisfy the internal revenue inspectors that any amount used has been for legitimate, medicinal, scientific and nonbeverage purposes. Alcohol or alcoholic liquors purchased by a physician under these circumstances cannot be used for his own consumption. The instructions of the Commissioner of Internal Revenue to all government officers is that the law and the regulations regarding alcohol and alcoholic beverages must be strictly enforced. Physicians should familiarize themselves with the instructions under the law and should carefully and rigidly comply with all requirements. In case of doubt, it is best to secure a ruling or an opinion from the collector of internal revenue rather than to take any risk of violating the law.

FOREIGN

Rabies in Spain.—The *Medicina Ibera* states that an actual epidemic of rabies is prevailing at Seville, and the authorities have started a vigorous campaign against it.

Hospital Train Attacked.—A band of seventy bandits attacked a train, which included American hospital and mail cars, north of Vladivostok, June 11. None of the Americans was injured.

Deaths from Influenza.—According to reports issued by Major Norton Which, sanitary commissioner of India, six million deaths from influenza occurred last year in that country. The deaths from influenza reached a higher proportion in the British troops than in the natives.

Honors for Ruggi.—Prof. G. Ruggi, having reached the age limit of 70 and concluding his forty-fifth year in the chair of surgery at the University of Bologna, has retired. His final lecture is said to have been the scene of an impressive demonstration of affection from his aids and pupils.

Carnegie Medal to Italian Physician.—The *Policlinico* mentions that a Carnegie silver medal for civilian heroism has been conferred on Dr. O. Calamita for his rescue of a soldier from drowning in a canal. He is a member of the medical corps of the army, but the rescue was under circumstances that placed it in the civilian class.

Italian Physician Penalized.—A special *Tribunal militare* has been held at Rome to pass judgment on Dr. Pro who was accused of aiding in the multilation of certain soldiers to escape military duty. The prosecutor asked a sentence of fifteen years in the penitentiary but partial mental unsound-ness was accepted as extenuating the guilt of Dr. Pro, and the sentence of six years' imprisonment was imposed. The soldiers involved were given sentences of from ten months to three years.

Central Control Office for Drugs, Etc., in France.—Under the auspices of the ministère du Commerce, a national commission has been founded at Paris, avenue Constant-Coquelin 6, to centralize the control of the supplies of drugs, pharmaceuticals and perfumery. This body plans to study the technical and economic aspect, encourage national production, organize missions, give subsidies to laboratories, and found technical institutes. It has been organized for a five-year period, and the *Paris Médical* says that its budget will not be less than 200,000 francs.

Typhus in Italy.—The *Riforma Medica* states that a few foci of typhus developed last April in Tuscany, Veneto and Campania, and vigorous measures have been taken to prevent the spread of the disease to civilians. The Public Health Service has organized a course of graduate lectures on typhus to train physicians to recognize and treat it. The course is in charge of Professor Lustig of the University of Rome, assisted by three physicians from Trieste who have had much experience with typhus in the various Austrian, Russian, Serbian and Roumanian sectors.

Deaths in the Profession Abroad.—Dr. **E. A. Tscherning,** professor of surgery at the University of Copenhagen, aged 67. ——The *Nederlandsch Tijdschrift* mentions the death of Dr. **H. Oppenheim,** professor of neurology at the University of Berlin, aged 61. Also the death of Dr. **Adolph,** professor of obstetrics at the University of Dorpat, Russia, who committed suicide at Königsberg recently.——The *Paris Médical* reports the death of Dr. **Duguey** of Lorient who was at the head of a volunteer French hospital unit that had gone to Roumania. He was killed by the bolsheviki.

Prize Awarded Schiøtz and Holth.—At the recent annual meeting of the Norwegian Association for the Advancement of Science, the Videnskabsselskab, it was announced that the Fridthjof Nansen prize had been awarded conjointly to Professor Schiøtz and Dr. Holth for their work on cataract. In commenting on this, the *Hospitalstidende* expatiates on the importance of the research of these scientists, saying that Schiøtz' tonometer is used now by ophthalmologists almost everywhere for the diagnosis and control of treatment of cataract. Holth also was the first to use the filtering area method, iridocleisis, in treatment of glaucoma.

Prize Awarded in Memory of Bang.—The Glückstadt prize was founded in 1918 for the most important contribution to the medical sciences by some Scandinavian scientists, and more particularly in the line of diabetes mellitus. It was universally recognized that the most suitable recipient for its first award was Prof. Ivar Bang, of the University of Lund, for his research on the micromethod of determination of the sugar content of the blood. He died, however, just before the date of the awarding of the prize. Not willing to give up this tribute to Professor Bang, the committee in charge of the prize offered it to the University of Lund to give to those who stood closest to Professor Bang in his research. The university has therefore divided the prize between Profs. Karl Petrén and Klercker.

Prophylaxis of Venereal Disease in Germany.—The *Nederlandsch Tijdschrift* states that the new German legislation on the prophylaxis of venereal diseases requires the physician to inform the patient or the parent or guardian, if a minor, of the nature and dangers of the transmissible venereal disease which he may discover even when examining or being consulted by the patient for other reasons. A German legal authority is cited to the effect that this is not merely a moral obligation for the physician but he is liable for damages in case the person with the venereal disease is not informed of its dangers and thus omits proper treatment or transmits the disease to others. However, he adds, there is no legal obligation on the physician if there is only presumption of a venereal disease.

Reception to Visiting American Commission at Bordeaux.—The *Journal de Médecine de Bordeaux* reports the reception of the Mission américaine de rapprochement économique, intellectuel et artistique at the Medical Faculty. The rector of the University of Bordeaux presided, and expressed his surprise and gratification to see that so many university professors formed part of a partially commercial commission of the kind. Prof. H. W. Tow of the chair of romance languages at the University of Columbia replied that he had had "among his pupils, at Princeton, President Wilson as well as Baker, the chief of the war department, and Hoover, the present international food commissioner." A *champagne d'honneur* was served, and the party inspected the Colonial Museum, the pride of the Medical Faculty.

Belgian Society for Gynecology and Obstetrics.—After an intermission of nearly five years, the Société belge de gynécologie et d'obstétrique held a meeting recently at Brussels. Professor Keiffer recalled that at the twenty-fifth anniversary meeting of the society, March 7, 1914, a number of honorary members were elected, nineteen from Germany or Austria, and seven corresponding members—all names prominent in gynecology and obstetrics. The society at the recent meeting voted unanimously to drop the German and Austrian members, as also a few Belgian members of the society who have compromised themselves by unjustified relations with the enemy. Professor Keiffer said of the latter: "We will exclude them from our ranks and nail them to the pillory." The officers elected by the society for the coming two years are Dr. M. Brouha, president; Dr. J. Godart, vice president, and Dr. M. Cheval, secretary.

Official Visiting Nurses in Bavaria.—The *Nederlandsch Tijdschrift* describes a system of visiting nurses now installed in twenty districts in Bavaria. The women wear a uniform and are bound to professional secrecy, and travel over their district doing welfare work in general, with supervision over pregnant women, midwives, infants, young children and the tuberculous. They have official authority to enforce their advice and to provide ways and means. They are in touch with physicians, clergymen, teachers and state officials in general, aiming at concerted and official welfare work for the public health. They are paid by the district authorities, through the district health officer, to whom they report. Instead of the families seeking advice for their children, tuberculous, etc., in different quarters, the advice is brought to them and there is official supervision to see that they follow it. Our exchange credits the original description of this innovation to the *Wiener klinische Wochenschrift.*

LATIN AMERICA

Hospital Burns.—June 10, a hospital adjacent to the Peter Second docks, Rio de Janeiro was burned. There were several fatalities.

Yellow Fever Spreads.—Dispatches received from Rio de Janeiro tell of the serious situation as regards yellow fever in the vicinity of Bahia.

Hookworm Disease in Panama.—According to the report of Dr. F. A. Miller, the representative of the Rockefeller Foundation in Panama, since the study and treatment of hookworm disease was begun in that country up to last December, there have been examined 86,525 persons, of whom 68,768 received treatment.

Death of Dr. Zayas.—Dr. Francisco Zayas y Jiménez, one of the most prominent Cuban physicians of last century, died, last May, at his home at El Vedado, Cuba, at the age of 93 years. Dr. Zayas practiced his profession for more than fifty years at Havana. He was a well known writer and a poet of note. He also took an active part in politics, being one of the members of the cabinet which was organized by Spain in the last days of its rule in Cuba. He also devoted much attention to the progress of agriculture, and his studies on tobacco and sugar planting attracted much attention.

University Interchanges.—The *Crónica Médico-Quirúrgica* of Havana for March relates that Dr. Schofield, professor of comparative literature at Harvard University, has been visiting Cuba in the interests of university interchanges of professors and students between Harvard University and the University of Havana. The Cuban educational authority, the secretario de instrucción pública y bellas artes, has accepted the plan and has made arrangements for the proposed interchange of both professors and students. Our exchange adds: "Es de aplaudir esta actitud en pro del intercambio cultural norteamericano con nuestra clase universitaria."

Prize Awarded to Arteaga.—At the recent anniversary meeting of the Academia de Ciencias de la Habana, the Gordon y Acosta prize was awarded to Dr. J. F. Arteaga for his work on the physiology of hunger and thirst. Dr. Arteaga is the editor in chief of the *Revista de Medicina y Cirugia* of Havana. Three prizes are offered for the coming year for the best works on the glands with an internal secretion, a plan for a campaign against malaria in Cuba, and the third prize for any theme the writer may select. The competing works must be unpublished, written in Spanish, English or French, with name in sealed envelop, and they must reach the secretary of the Academy, calle de Cuba 84 A, before March 31, 1920.

Maternity Prizes in Cuba.—The *Crónica Médico-Quirúrgica* of Havana states that the work initiated by the late Dr. E. Nuñez in providing prizes for motherhood has taken a firm foothold in Cuba. This year forty-one of the total 112 municipalities of the island are now offering prizes of the kind in the campaign for better babies. The movement is widespread through the island, each of the six provinces having a representative proportion of prizes to be awarded. The total amount thus available in the different towns ranges from $25 to $305, except at Havana where the total of the prizes to be awarded reaches $1,500. In addition to these local prizes, a number are to be awarded by the public health authorities and by private philanthropists.

Personal.—Dr. Justo F. González of Uruguay has just arrived in this country, having been commissioned by his government to study the etiology and serotherapy of influenza and to purchase some apparatus for the disinfection of water and the disinfection of ships. Dr. González expects to visit the cities of New York, Washington, Boston, Philadelphia and Rochester, Minn. Mrs. Gonzáles, who accompanies him, is the president of the National Public Health Association of Uruguay. Dr. de Paolo Sousa, São Paulo, Brazil, professor of hygiene and public health of the University of Brazil, and head of the public health department of São Paulo, arrived in Norfolk, Va., June 22, to make a study of the methods of health departments of American cities.

Monument to Medical Patriots in Colombia.—The *Repertorio de Medicina y Cirugía* of Bogotá publishes a circular inaugurating a movement in favor of a memorial for the members of the profession "who left their homes and practices a hundred years ago to aid in the campaign for the independence of the country, so gloriously won at the battle of Boyacá, the centennial celebration of which is at hand." The circular is signed by the presiding officer of the Academia Nacional de Medicina, of the Facultad de Medicina de Bogotá, the Sociedad de Cirugía de Bogotá, the Club Médico de Bogotá, the Sociedad de Pediatría de Bogotá and the Sociedad de Medicina de Bogotá. There is a general movement throughout the country to honor the memory of the patriots who founded the republic, and the medical profession is planning a monument to be erected in the principal court of the Bogotá Medical School. The circular adds, "The monument will be modest and materially small, but it will be grandiose in the ideas which it incarnates and symbolizes. It is to be constructed with funds contributed by the physicians of Colombia in tribute to the devotion, the self-abnegation and the patriotism of those physicians who gave their science and best services to maintain the health of the troops who fought on the glorious fields of Boyacá, Carabobo and a thousand others, establishing the independence of the five Bolivian republics."

LONDON LETTER

London, June 18, 1919.

British-American Discussion on Pediatrics

The presence of a large number of medical officers from the United States and the British dominions in this country has been turned to account by holding various conferences in which these countries have been represented. The latest is an informal conference on pediatrics held by the Local Government Board and presided over by the chief medical officer, Sir George Newman. The members of the conference consisted entirely of experts: Col. J. G. Adami, F.R.S., F.R.C.P. (professor of pathology, McGill University, Montreal); Capt. Richard A. Bolt (chief, Bureau of Child Hygiene, Cleveland); Hector C. Cameron (physician in charge of the Children's Department, Guy's Hospital); Miss Janet Mary Campbell, M.D., M.S. (medical officer in charge of maternity and child welfare, Local Government Board); John S. Fairbairn (obstetric physician to St. Thomas' Hospital and General Lying-In Hospital; lecturer in midwifery and diseases of women, St. Thomas' Hospital Medical School); Eardley Holland (assistant obstetric physician to the London Hospital); F. Truby King (general President, Royal New Zealand Society for the Health of Women and Children); Miss Janet E. Lane-Claypon (dean and lecturer in hygiene, Household and Social Science Department, King's College for Women, London); G. F. C. Pritchard (physician, Queen's Hospital for Children; physician, City of London Hospital for Diseases of the Chest); W. R. Ramsey (associate professor of diseases of children, University of Minnesota Medical School); Lieut.-Col. G. S. Strathy (assistant physician, Hospital for Sick Children, Toronto), and S. W. Wheaton (assistant medical officer, Local Government Board).

Prof. W. R. Ramsey said that since there had been a special department of pediatrics at the University of Minnesota Medical School, progress had been rapid. Intensive teaching of pediatrics in close cooperation with obstetrics was necessary and was there carried out. The average physician approached the child from the pathologic standpoint. He was interested whether the child had pneumonia, a dilated heart, a big liver, or some other abnormal condition. But the normal infant was the most important thing to teach the student. The welfare of the race depended fundamentally on prenatal care, breast feeding, and the technic brought to bear in the first years of life. Nothing in the whole field of medicine required more judgment, more experience, and a more thorough analysis than the feeding of infants. A few years ago they had got down in America to such a position that probably not more than 30 or 40 per cent. of the women were nursing their children. Now the percentage was between 75 and 80. The improvement was brought about by propaganda and the proper education of the physician and nurse. But a great deal more remained to be done. The average physician of today thought that the baby must be bathed immediately after birth. The result was exposure for half an hour or more in a room of low temperature, with many deaths as the result of loss of heat. It was a common practice to wash or swab out the baby's mouth daily, producing stomatitis. The epithelium was brushed off and thrush followed. A large percentage of the dyspepsia in young infants was due to the classic dose of castor oil on the third day. He advocated four-hourly feeding and only five feedings in the twenty-four hours. This gave much better results than more frequent feeding. The frequent feeding of young babies and the waking of the mothers at night was the reason a great many infants were not breast fed; the mother became nervous, lost her sleep, and her milk gradually disappeared. At Minnesota they found that Rubner's and Heubner's allowance of 100 calories per kilogram was not applicable to the first two weeks. Infants gained most satisfactorily on from 45 to 70 calories per kilogram.

Dr. Truby King said that the common mistake was irregularity and undue frequency in feeding. The main damage to the baby often originated in the first fortnight in life. He agreed with Dr. Ramsey's conclusion that the average quantity of mother's milk on which the baby thrived at 10 days of age was only about 13 ounces and not the German standard of 18 ounces so largely followed. The former figure was also arrived at in Paris by Professor Marfan.

Dr. H. C. Cameron said that the curriculum of the medical student was overcrowded, but that three months' study should be given to pediatrics, which was not a narrow speciality but formed the formation of almost all that the student learned elsewhere. Too much time was given to the study of anatomy, which was soon forgotten, and to surgical procedures which were really objects for postgraduate study and were a narrow specialty. Few students—only the best with the keenest intellects—threw themselves heart and soul into the study of the individual child. It was much easier for the student to be keen on the removal of adenoids than to understand how they came and could be prevented.

The conference unanimously adopted these conclusions: 1. Every effort should be made to impress on the whole community the supreme importance of breast-feeding, for the sake of both mother and child; at present overfeeding of the baby, especially in the first fortnight of life, is one of the commonest and most serious mistakes of nursing mothers, often upsetting the child and leading to the early abandonment of suckling. 2. This tendency can be best counteracted by a general recognition of the benefit of greater regularity and lessened frequency of feeding than is customary. 3. With very few exceptions, nursing only every four hours from birth is best for mother and child, though in a few cases more frequent feeding may be desirable. 4. In general, there should be an interval of seven or eight hours between the last feeding at night and the first feeding in the morning. 5. Every medical student preparing for a registrable qualification shall receive adequate teaching in the subjects of infancy and childhood in health and disease; attendance in a department where instruction is given in these subjects should be compulsory for a period of not less than three months; some special part of the final examination in medicine should be devoted to these subjects. 6. So far as practicable, this study shall follow on, and be coordinated with, a satisfactory course in obstetrics and gynecology, and should be made available for postgraduate students; the present training in obstetrics leaves much to be desired, especially in regard to the lack of facilities for bedside teaching in midwifery. 7. Great advantage would result from a larger measure of uniformity in the advice given by public authorities and others in respect of maternity, infant and child welfare. The only way in which this can be secured is by obtaining a written statement from a body of experts. 8. Both practical and theoretical instruction in infant hygiene should form a part of the training of midwives and of all persons engaged by public authorities in infant welfare work. 9. Maternity nursing should be undertaken only by competent and adequately trained persons, preferably by qualified midwives.

Infant Mortality and Fresh Air

At the National Birth Rate Commission, Prof. Leonard Hill gave evidence which consisted largely in the application of his well known views on ventilation and fresh air to infant mortality. He said that the high mortality of children was due to excess of respiratory and alimentary diseases, particularly of the latter. The cooling and evaporating powers of the air were closely connected with the causes of high infant mortality, these acting both on the skin and on the respiratory membrane. Cool morning air was the natural stimulus to activity and appetite, to deep breathing, active circulation, thorough oxygenation, and good digestion. Physiologic research had proved that, apart from the spread of infection by "carriers," it was not the chemical impurity, but the physical conditions of close air which made for discomfort and impoverished health. It was not excess of carbon dioxid, or lack of oxygen, or organic impurities which affected people in a crowded room, but the heat and moisture of the air. The cooling and evaporative powers in rooms commonly approximated to those in tropical humid climates, so admittedly enervating to man. This was due chiefly to the stillness of the atmosphere. Exposure to wind had a most potent influence on the cooling and evaporative powers. Open-air workers and agriculturists, fishermen, and the like, were exposed to a greater cooling and evaporative power than citizens who dwelt in tenements, traveled in crowded conveyances, worked in schoolrooms or factories, ate in canteens, and sought amusement in cinemas. It was the lack of windage which largely explained the correlation between density of population and high morbidity and mortality. The tenement baby, overclothed and confined indoors by the mother—for fear of its catching cold and to save trouble under the difficulties of tenement life—died from digestive, nutritive and respiratory troubles, brought on largely by lack of adequate cooling and evaporative powers of air. It was surrounded with a tropical, still, humid atmosphere.

The depression of metabolism and the want of fresh natural foods, grass-fed milk and butter, succulent fresh young garden produce, alike resulted from the present city conditions, and these together were the causes of "deficiency" diseases, such as scurvy and rickets, with the decay of teeth, and an enormous amount of ill health, which was not actually identified as disease. Garden cities should be built and big towns not added to. The government should choose new sites with beautiful surroundings and with all the conditions that favor a happy and healthy life. The whole question should be gone into as boldly and as thoroughly as the war had been faced. That was the only way to get better conditions, and it was the one way to escape the perils which had overtaken Russia. An immediate and pressing demand should be made for garden cities and the bringing up of the young in the discipline of taking pride in and keeping perfect bodily health. The present system of national education weakened the vigor and lessened the happiness of the nation. All children should receive the education that public school boys obtain on the playing field.

The Chronicity of Dysentery Infection

An important investigation of chronicity in dysentery carriers has been made for the Medical Research Committee by Capt. W. Fletcher and Dr. Doris Mackinnon. Advantage has been taken of the large number of cases in soldiers returning from foreign service suffering or convalescent from the disease who have been collected together in special hospitals. In regard to amebic dysentery the well known chronicity was confirmed by cases which date back fifteen or twenty years. But it is with regard to bacillary dysentery, the chronicity of which has been little recognized, that the research is more important. During the examination of 1,782 men convalescent from dysentery, seventy-four bacillus carriers and 122 carriers of *Endameba histolytica* were found. Further, forty-two convalescents whose examinations proved negative showed a history of chronic disease (diarrhea, and melena from time to time) similar to that obtaining among those with positive examinations. An important clinical differentiation between the carriers of the Flexner and Shiga bacilli was established. "The average Flexner carrier is in good health; his stools are formed and free from blood and mucus if his intestine has not been damaged by inflammation due to amebas or some other cause. He is fit to carry on his work unless he is subjected to very adverse conditions of feeding, temperature or labor, which may induce attacks of diarrhea. The Shiga carrier, on the other hand, is generally an invalid; his stools usually contain blood and mucus, and he has frequent attacks of diarrhea. But this is not all: for in addition to his bodily ailments he often becomes a mental wreck. The weakening effect of the constant diarrhea, the straining and tenesmus, the dragging sensation in the abdomen, the concentration of the attention on the presence or absence of blood and slime in the stools, and the frequent disappointment, due to repeated relapses, tell on the patient's mind and reduce his mental state to one of misery and dejection." Infections with Shiga's bacillus are found to be contracted in the East; are liable to last months or even years, defying every effort at cure, and are prone to relapse on any departure from a quiet semiinvalid life or plain light diet. Cases are quoted giving an estimated duration of infection over periods varying from two to ten years. The intermittence of the Flexner infection, comparatively good health of the subject, and normal appearance of the stools render the carrier a dangerous source of the disease. Captain Fletcher and Dr. Mackinnon recommend that the examination of dysentery convalescents should be carried out in laboratories attached to the hospitals so that the laboratory worker can deal directly with the patient and direct the medical attendant. Chronic Flexner bacillus carriers should be employed for six months in light occupations, not concerned in the handling of food, and then sent to the hospital for two weeks, during which their stools should be examined at least six times. Chronic Shiga bacillus carriers should after discharge from the army be placed under the supervision of the health authorities. A permanent depot should be established for those chronic cases which resist all treatment.

Trade Unionism in the Profession

The fifth annual meeting of the Medicopolitical Union has been held. It was stated that 367 new members have joined during the last month. The report of the general secretary regretted the hostility which had sprung up between the British Medical Association and the union. The report proceeded: "The association had for many years, while decrying trade unionism, been employing trade-union methods with impunity, until the Coventry case (previously reported in The Journal) shattered their claims and left us as the only body adequately equipped to carry on a fight on behalf of the profession. I am pleased to say that the association, or certain of its members, recognize facts, and an attempt is now being made to reconcile differences." As to the formation of a ministry of health, the report stated that it foreshadowed drastic changes in the medical services at an early date. Those changes would benefit neither the community nor the profession, unless the latter had a large voice in shaping them. It was the duty of that union to impress on the government departments the importance of the general practitioner as the backbone in the medical profession, and the fact that he was better equipped to give advice than those occupying a more exalted position.

The Law and Professional Secrecy

In this country the law has never recognized the inviolability of professional secrets in the keeping of the medical profession, as it does on the European continent. Curiously, there is no question as to the inviolability of the secrets of the Roman Catholic confessional. However, the rule on the point is somewhat obscure, and is contested, as the following case shows: A girl was charged with concealment of birth. A physician was called when she was prostrate after she had placed the body of the baby under the mattress. The judge remarked that in his depositions the physician stated that though he knew a child had been born he did not think it his duty to inform the police, as that would have been a breach of professional confidence. The judge remarked that there was no professional confidence in criminal cases, and it was the physician's duty to inform the police. He did not blame the physician for his view, but he thought that he should know that his view was wrong. The physician said that he was informed by the British Medical Association that he was correct. The judge said that the British Medical Association was wrong. If a patient cut another person's throat it would be his duty to inform the police. There was no difference between these cases.

PARIS LETTER

Paris, June 20, 1919.

The Compulsory Reporting of Tuberculosis

At the session held, June 3, by the Academy of Medicine, the permanent commission on tuberculosis adopted unanimously the following conclusions in regard to making tuberculosis a reportable disease, in addition to those reported in The Journal, June 14, 1919, p. 1781: The academy congratulates the government on its intention of giving new impulse to the antituberculosis campaign, which has made so much progress in the last few years. The academy indorses the measures now in force and hopes that they will be multiplied so that they may be extended to the whole country. In the opinion of the academy it seems necessary to coordinate all these measures by placing them under some sort of central office. In order to supplement the means now employed, as represented by dispensaries, sanatoriums, special hospitals and farm colonies, the academy requests that the measures for the conservation of infants now in force in the département of the Seine be extended to the different départements of France. The academy invites the attention of the government to the importance of public health regulations relating to abattoirs, stables and the protection of food against street dust and insects. The conduct of antituberculosis work, and in a general way the enforcement of laws on social hygiene, will require the employment of many physicians with public health training. As the teaching of hygiene is inadequate in France, the academy reiterates the recommendation it made when the question of depopulation was discussed in 1917. It desires the creation of one or more national institutions of public health having for their purpose the promotion of this important science and the formation of sanitarians. In order to hasten the carrying out of the measures for relief and prophylaxis, the academy insists on the importance of encouraging by all means the conduct of antituberculosis work by private initiative, in addition to the measures taken by the different governmental agencies.

Work of a Society for the Assistance of War Cripples

The Aide immédiate aux invalides et reformés de la guerre, the object of which is to insure the permanent care of the war cripples by assisting them by means of reeducation, hospitalization and finding them new positions, has just taken possession of its new offices. On this occasion some inaugural ceremonies took place, presided over by M. Colliard, minister of labor and social prevention, assisted by M. Paul Deschanel, president of the chamber of deputies, who is also honorary president of the above mentioned organization. The latter described the results of the work accomplished by the Aide immédiate, which is at prevent reeducating 1,854 cripples; 1,654 wounded have in addition placed themselves in communication with the association; 9,998 have been assisted; 9,201 have been found employment; 2,992 were referred to the official schools of rehabilitation; 587 tuberculosis cases have been treated at the society sanatorium; 626 families have received some form of permanent assistance; there has been organized a system for placing with families the children of wounded soldiers; in addition there has been formed a club where those rehabilitated can meet together.

At present the Aide immédiate is spending 74,000 francs every month (nearly $15,000); it is training 281 war disabled to whom it is granting an allowance of 5 francs a day; it is caring for thirty tuberculosis patients at its sanatorium; it is distributing each day milk and meat to 528 war disabled; it is giving some form of monthly assistance to 615 cripples and their families, and it is finding employment for more than 300 cripples every month.

The French Hospital at Athens

M. de Billy, the French minister at Athens, presided recently at the inauguration of the French hospital which has been founded by the French government. There were present members of the Greek government, many professors of the university, members of the French military missions and representatives of the Athenian scientific societies. The French minister delivered an address indicating the purpose of the French government in founding the hospital.

Congratulations to the Red Cross

The president of France has just addressed a letter to Mr. H. P. Davison, the chairman of the governing board of the league of societies of the Red Cross in which he says: "At this moment when your persevering efforts have met with success I want to congratulate you. The statutes adopted by the Red Cross League constitute a deserved tribute to the efforts already made by the international council of the Red Cross in the new field of effort where the governing board desires to engage and making the admission into the league of all Red Cross societies depend on the unanimous decision of the board. I have noted this event with interest and I have no doubt that the organization which you have initiated will perform in the future the generous task assumed by it for the benefit of the people."

Attitude of Paris Medical Society

The syndicat médical de Paris, at its general assembly held under the presidency of Dr. Henry Barbier, one of the hospital physicians, adopted three important resolutions: The first pleads for the obligatory presentation of college diplomas before students are allowed to begin medical studies. The second urges that no license be granted to practice medicine in France to foreign physicians, save under exceptional circumstances and only if they have served in the French army during the war. The third resolution protests against the veiled attacks on the medical profession because of the compulsory reporting of tuberculosis: the medical society of Paris asserts its unchangeable opposition in regard to making tuberculosis a reportable disease while the government does not put into effect a program aiming at the limitation of the consumption of liquor, the strict enforcement of the law on drunkenness, the sanitation of insanitary dwellings, the improvement of the services of public health and disinfection, the construction of numerous sanatoriums, and the passage of laws for compulsory insurance against sickness, and declares itself ready to take up actively all measures that will promote the interests of the patients and of the country as a whole.

Franco-American Celebration

An imposing ceremony took place, May 29, at Beaune, at the commencement exercises at the university, in which 10,000 students belonging to the American army have been taking for the last few months courses organized by the staff of the American army. The French government was represented by M. Lafferre, the minister of education, M. Claveille, minister of public works, and M. André Tardieu, high commissioner for French-American war affairs. A large number of French professors and staff officers were also present. At the end of the celebration, M. Lafferre presented a number of Legion of Honor crosses to those Americans who have contributed most to this work of education in the army.

Delegation from English Universities

A delegation from the English universities, which was invited by the national office of the universities of France to visit French universities, arrived, May 30. After being received at the University of Paris, the delegates will leave for an inspection trip of the provincial universities. Some conferences will be held at the office of the university between the English and the French professors in order to reach an agreement as to an exchange of professors and students between the universities of the two countries.

Personal

At one of its last sessions, the Academy of Medicine elected five national corresponding members for the division of surgical pathology and obstetrics. Those elected were Dr. Berard, professor of clinical surgery at the school of medicine of Lyons; Dr. Crivelli of Melbourne; Dr. Fabre, professor of clinical obstetrics at the school of medicine of Lyons; Dr. Sencert, professor of clinical surgery at the school of medicine at Strasbourg, and Dr. Vanverts, associate professor of the school of medicine of Lille.

Surgical Treatment of the Scars from War Wounds

At a recent meeting of the Academy of Medicine, Dr. Walther, hospital surgeon and associate professor at the Faculté de médecine de Paris, contributed an interesting communication on the subject of the surgical treatment of the scars from war wounds. Since the beginning of the war, Dr. Walther was in charge of a service especially equipped for the treatment of scars of the soft parts and of nerve lesions. Before the society he gave a general survey of the conditions which he thinks should obtain in the operative treatment of scars of the limbs. He first emphasized the importance of preoperative treatment by means of gymnastics and special muscle training, which should always be adapted in accordance with the indications and followed out under the supervision of the surgeon. Certain points of the operative technic were brought out, such as very wide resection without excision of the scars; resection of all the deep scars, including the fibrous clumps which surround the muscles, the nerves and the vessels; together with as complete reparation as possible of the muscles and aponeuroses. He recommends the use, during the whole course of the operation, of a bath of physiologic sodium chlorid solution which prevents the desiccation and alteration of the tissues and through its very powerful hemostatic action facilitates dissection. It is also indicated to proceed, after the operation, to the absolute immobilization of the limb by means of a plaster cast, which should be left in place for at least two weeks, and for four or five weeks when it is a question of repairing the muscles and tendons; nor should a change of dressing be necessary, if the skin sutures have been made with fine catgut. The postoperative treatment by means of gymnastic exercise should be directed and controlled by the surgeon.

The results obtained encourage one to extend the indications for surgical intervention. Walther called attention to the various and numerous troubles which may arise from the presence of deep scars, even though only slightly painful, and to the functional improvement that can be secured even in the case of large scars, with deep and extensive laceration of the tissues, such as are often regarded as inoperable and entail permanent disability. Many men with wounds of long standing are still suffering from disability and from marked functional inferiority who would benefit from surgical intervention. At the present time, the fact that all the auxiliary hospitals were being discontinued made it difficult to provide hospitalization, and the fear was expressed that many wounded men would remain permanently disabled who might otherwise be benefited. It seemed a matter of urgent necessity to organize surgical centers for the treatment of scars, as has been done for the treatment of face wounds, osteitis, pseudarthrosis, etc. Such centers should be provided with all the equipment needed for preoperative and postoperative treatment.

Dr. Babinski, hospital surgeon in Paris, endorsed the observations made by Walther. Some patients with deep scars were regarded as neuropaths, psychopaths or malingerers and sent as such to the neurologic service; whereas the resection of deep scars has always been followed by the cure, or at least the improvement, of such patients.

Drs. Schwartz and Tuffier, associate professors at the Faculté de médecine de Paris, likewise emphasized the necessity of establishing special centers for men with vicious scars who are in need of operative treatment. Such centers should admit not only the wounded who are still in the service but also those who have been discharged.

A Maternity Dispensary and a Children's Hospital

At one of the recent meetings of the Pediatric Society, Dr. Ramsay, of the University of Minnesota, gave an account of the work done at Rouen and in the department of the Seine-Inférieure by the American Red Cross in collaboration with the prefect of the department.

Dr. Ramsay expressed his opinion to the effect that in each department there should be a central bureau, directed by the state, whose duty it should be to coordinate all welfare endeavors, both public and private. This bureau, which should be at the same time a social center from the standpoint of propaganda and organization, would comprise a dispensary type, a nursery, a children's hospital, etc. It would be directed by a medical committee at the head of which would be the medical director of the bureau of hygiene, who would be assisted by pediatricians and obstetricians. An important rôle would devolve on the visiting nurses, aided by the attending nurses and such as have made a specialty of infant hygiene.

A central dispensary conceived according to this plan is in operation at Rouen, with annexes at Dieppe and at Elbeuf. These dispensaries at present are receiving financial aid from the department authorities, who are desirous of continuing the work undertaken by the American Red Cross.

Concessions to Medical Students

In order that students of medicine and pharmacy belonging to combat units may benefit by the measures that have been taken in favor of their comrades in the medical department of the army, as regards permission to continue their studies, the minister of war has just issued an order in accordance with which all students of medicine and pharmacy (with the exception of certain classes actively engaged) who are at the present time mobilized in combat units, who are holders of the P. C. N. diploma (that is to say, who have had one year's training in the premedical subjects of physics, chemistry and general science) and are entitled to two credits in medicine shall be allowed to return to their colleges or universities, July 15, 1919, to complete their studies.

Statistics of Charitable Work

The Office central des oeuvres de bienfaisance recently held its general meeting under the chairmanship of M. Vallery-Radot, president of the administrative council. In the last quarter of a century, the organization has ministered, in one form and another, to the wants of 1,123,932 people. It has distributed either directly or through other organizations the sum of $3,327,329. Sums that have been recently available have amounted to $520,000.

Closing of the Franco-Uruguayan Hospital

June 11, the ceremonies in connection with the closing of the Franco-Uruguayan hospital were held in Paris. This hospital was founded and directed by Mme. Gaston Thomson. Dr. Louis Mourier, undersecretary of state for the medical department of the army, presided at the ceremonies, and after thanking Mme. Gaston Thomson and her co-workers for their indefatigable devotion, he presented the insignia of an officer of the Legion of Honor to Dr. Blanco Acevedo, chief surgeon of the hospital.

It may be well to add that this hospital will not actually cease to exist, for all the equipment is to be transported to South America, where it will serve to found a French hospital at Montevideo, which will be under the direction of Dr. Blanco Acevedo.

Decoration of a Nurse with the Legion of Honor

Mme. Guérin de Belleit, a nurse, has just received the cross of an officer of the Legion of Honor with the following citation:

Mme. Guérin, an army nurse of the highest moral worth, since the beginning of the war, has given proof of the most admirable devotion. She was wounded by a shell fragment, March 20, 1918, at the field hospital of Châlons-sur-Vesles; a second time by an aerial bomb, June 2, 1918, at Coulommiers; also gassed, May 28 and 29, during the bombardment of Gueux. Furthermore, she offered herself as a donor of blood for a transfusion. She has already been cited in an army order.

Cultivation and Preparation of Medicinal Plants

In April, 1918, there was created, under the ministry of commerce, a committee whose duty it should be to organize and intensify in France the cultivation, the harvesting and the preparation of medicinal plants (The Journal, July 13, 1918, p. 136). This committee endeavored to offset, as far as possible, the shortage in France and to supply, with the aid of the resources drawn from the capital, the immediate needs of the French pharmacists. The return to a normal economic state imposes new duties on the committee. It now proposes, in particular, to direct its efforts toward the cultivation and harvesting of plants that are valuable to the perfume industry on account of their essential oils. It desires, at the same time, to study ways and means of reestablishing in France the drug market which the central empires had monopolized. It will also endeavor to develop in our colonial domain the cultivation of medicinal plants which France is at present obliged to secure from foreign countries.

Personal

Dr. Lapeyre, professor of external pathology at the Ecole préparatoire de médecine et de pharmacie de Tours, has been appointed professor of clinical surgery in the same school. Dr. Tillaye, acting professor of pathology, clinical surgery and clinical obstetrics at the same school, has been appointed professor of external pathology.

Dr. Theodore Tuffier, hospital surgeon and agrégé professor at the Faculté de médecine de Paris, has recently received, in an army order, the following citation:

Dr. Theodore Tuffier, a surgeon of the highest distinction, although not drafted and although exempt from all military obligations, has brought to the army, from October, 1914, up to the last day of the war, the cooperation of his medical skill, especially during the great military operations of Champagne, Verdun, the Somme, Flanders, the Aisne and the Marne.

Marriages

Walter Francis Stillger, Capt., M. C., U. S. Army, New York City, on duty with Base Hospital No. 65, Kerhuon, France, to Mlle. Jeanne Bourgeaud of Doulaincourt, Haute Marne, France, May 27.

Ira Vernon Grissom, Lillybrook, W. Va., to Miss Amy Eleanor Hines of Princeton, W. Va., June 25.

Mathias Aloysius McGarty to Miss Mary Germaine O'Connell, both of La Crosse, Wis., June 16.

Sarah Adams Bond to Mr. Frederick A. Fraiser, both of Jamaica Plain, Boston, June 20.

James Louis Ransom, Topeka, Kan., to Miss Jennie Roswell of Salina, Kan., June 30.

James E. Callaway to Mrs. Ethel Kalkins, both of Chillicothe, Mo., June 20.

Charles Sixtus Rehfeldt to Miss Emma Fehl, both of St. Louis, June 14.

Deaths

Frederick Gillette Harris ⊕ Chicago; University of Illinois, Chicago, 1899; aged 44; died suddenly at his home, July 2, from meningitis. Dr. Harris, who was a native of Chicago, was one of the best known dermatologists of the Northwest. He studied abroad in 1903, 1904, 1907 and 1908, and then became a member of the teaching force of his alma mater, which he served as professor of physical diagnosis, instructor in medicine and associate professor of dermatology until 1912. He was also professor of dermatology and syphilology in the Illinois Post Graduate Medical School and later in the Northwestern University Medical School, Chicago. The latter position he held up to the time of his death.

William Cavan Woolsey ⊕ Brooklyn; College of Physicians and Surgeons in the City of New York, 1898; aged 43; surgeon to St. Christopher's and of Kings County hospitals; adjunct in gynecology in the Polhemus Medical Clinic, and consulting anesthetist to the Bushwick Central Hospital; who was honorably discharged, February 13, as major, M. C., U. S. Army, after service with the American Expeditionary Forces in France; died in his apartments in Brooklyn, June 23, from the effects of a gunshot wound, believed to have been self-inflicted, with suicidal intent.

Sarah Adams Bond Fraiser ⊕ Boston; Woman's Medical College of Pennsylvania, Philadelphia, 1891; aged 60; for many years a member and senior medical officer of the staff of the New England Hospital for Women; president of the New England Women's Medical Society; died at her home in Jamaica Plain, Boston, June 27, from pneumonia.

John Holmes Smith, Baltimore; University of Pennsylvania, Philadelphia, 1880; aged 62; a member of the Medical and Chirurgical Faculty of Maryland; lecturer on clinical surgery and professor of anatomy in the University of Maryland; died at his home, near Kingsville, Baltimore County, June 21, from cerebral hemorrhage.

George Henry Houghton, Albany, N. Y.; Albany (N. Y.) Medical College, 1882; aged 66; a member of the Medical Society of the State of New York; who entered the Champlain Valley Hospital, Plattsburg, N. Y., about five weeks before, to undergo operation; died in that institution, June 15, from carcinoma of the stomach.

James Herman Betz, Jamaica, N. Y.; Pennsylvania Medical College, Philadelphia; aged 63; also a graduate in pharmacy; for twenty-two years an attaché of the New York Department of Health and for a long time chief sanitary inspector of Queen's Borough; died at his home, April 17.

Andrew V. Cherbonnier, Baltimore; Capt., M. C., U. S. Army (retired); aged 92; who was commissioned captain in the Medical Corps, July 28, 1866, and was retired by operation of law, Oct. 12, 1890, on attaining the age of 64 years; died at his home, June 25, from senile debility.

Silas Murray Dinsmoor ⊕ Keene, N. H.; Columbian University, Washington, D. C., 1860; aged 83; a member of the staff of the Elliott City Hospital, Keene, and a member of the local school board for twenty-six years; died at his home, May 14, from middle ear infection.

Charles English Henderson, Easton, Md.; University of Pennsylvania, Philadelphia, 1858; aged 74; who entered the railway service in 1870; serving in various capacities, and was for the last thirty years general manager and receiver of railways; died at his home, April 8.

Robert Meade Smith, Norristown, Pa.; University of Pennsylvania, Philadelphia, 1876; aged 65; formerly an instructor in his alma mater; died at his home, June 22, from the effects of a gunshot wound, self-inflicted, it is believed, while despondent on account of ill health.

William Augustus Seymour, Rosebud, Mont.; Northwestern University Medical School, Chicago, 1910; aged 39; a member of the Montana Medical Association; was accidentally drowned, May 14, at Vananda, Mont., as the result of an automobile accident.

Robert Wood Fort, Atlanta, Ga.; Emory University, Atlanta, 1886; surgeon of U. S. Volunteers during the Spanish-American War, with service in the Philippine Islands; died suddenly in New York City, June 15.

Robert Eliel Chaffin ⊕ Nevada, Iowa; Miami Medical College, Cincinnati, 1893; aged 59; died at his home, May 3, from visceral paralysis following gastro-enterostomy for the relief of hemorrhage from duodenal ulcer.

William Shermon Robinson, Holland, Mo.; Barnes Medical College, St. Louis, 1895; aged 54; a member of the Missouri State Medical Association; died in a hospital near Nashville, Tenn., June 16, from pellagra.

Lionel Maximillian Archambault, Arctic, R. I.; College of Physicians and Surgeons, Baltimore, 1909; aged 32; a member of the Rhode Island Medical Society; died at his former home in Haverhill, Mass., June 5.

Melvin J. Bellinger ⊕ Council Bluffs, Iowa; Drake University, Des Moines, Iowa, 1886; aged 55; died in the Jennie Edmundson Memorial Hospital, Council Bluffs, June 24, from carcinoma of the liver.

Joel V. Bastin, Fillmore, Ind.; Kentucky School of Medicine, Louisville, 1887; aged 60; a member of the Indiana State Medical Association; died at his home, June 23, from pneumonia.

Martha Marill Crofut ⊕ La Grange, Ill., formerly of Denton, Texas; University of Illinois, Chicago, 1907; aged 59; died in the Ravenswood Hospital, Chicago, July 4, from carcinoma.

Maria Morrison Dean ⊕ Helena, Mont.; Boston University, 1883; aged 62; prominent in child welfare activities and the suffrage campaign; died at the home of her sister in Helena, May 23.

John Warren Trimble, Chillicothe, Mo. (license, Missouri, 1883); aged 65; a practitioner since 1872; also a graduate in pharmacy; died at his home, June 6, from carcinoma of the liver.

Thomas Ray Morrison, Churubusco, Ind.; Fort Wayne (Ind.) College of Medicine, 1884; aged 81; a veteran of the Civil War; died at his home, June 21, from uremia.

David S. Speer ⊕ Sourlake, Texas; Northwestern Medical College, St. Joseph, Mo., 1894; aged 57; died in Huntington, Pa., June 19, from cerebral hemorrhage.

Charles Allen Moore, Fremont, Ind.; Medical College of Ohio, Cincinnati, 1900; aged 48; also a pharmacist; died at his home, June 1, from carcinoma.

Joseph Gardner, Bedford, Ind.; University of Louisville, Ky., 1861; aged 86; died at his home, near Bedford, March 3, from senile debility.

Edward McGrath, Peterborough, Ont.; Queens University, Kingston, Ont., 1888; aged 68; died at his home in March from gastric ulcer.

John M. H. Lennon, Kearsarge, N. H.; Tufts Medical School, Boston, 1911; aged 34; died at his home, June 3, from tuberculosis.

T. Preston Wiseman, Santa Ana, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1875; aged 74; died at his home, May 5.

William H. Schrader, Chicago; Hahnemann Medical College, Chicago, 1887; aged 61; died at his home, June 23, from heart disease.

Herman Wilkomir Katz, Elizabeth, N. J.; Albany (N. Y.) Medical College, 1897; aged 47; died at his home, June 19.

Annie Davis, Hamilton, Ont.; Trinity University, Toronto, 1902; aged 45; died at her home, March 5, from anemia.

Thomas A. Smith, Marshall, Mo.; Washington University, St. Louis, 1880; aged 60; died at his home, May 20.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

PROTEOGENS OF THE WM. S. MERRELL COMPANY

Report of the Council on Pharmacy and Chemistry

The Council has adopted and authorized publication of the statement which appears below, declaring Proteogen No. 1 (Plantex) for Cancer, Proteogen No. 2 for Rheumatism, Proteogen No. 3 for Tuberculosis, Proteogen No. 4 for Hay Fever and Bronchial Asthma, Proteogen No. 5 for Dermatoses, Proteogen No. 6 for Chlorosis, Proteogen No. 7 for Secondary Anemia, Proteogen No. 8 for Pernicious Anemia, Proteogen No. 9 for Goitre, Proteogen No. 10 for Syphilis, Proteogen No. 11 for Gonorrhea, and Proteogen No. 12 for Influenza and Pneumonia inadmissible to New and Nonofficial Remedies because their composition is secret; because the therapeutic claims made for them are unwarranted; and because the secrecy and complexity of their composition makes the use of these preparations irrational.

The Council took up the consideration of the Merrell Proteogens because of inquiries received, and on January 27 invited the Merrell Company to aid in the proposed investigation by submitting information in regard to the composition of the preparations, submitting the current advertising, and presenting evidence for the claims that were made for the preparations. While the Merrell Company agreed to submit the requested information, this had not been received at the time the report of the referee to whom the products had been assigned (Referee 1), was adopted. This report was sent to the company on April 4. In reply the Merrell Company protested against the conclusions of the report and submitted considerable material in an attempt to support the claims made for the products. This material was examined by the first referee and then transmitted to a second referee (Referee 2) for consideration. The second referee concluded that the matter submitted offered no evidence that would justify the Council in modifying the report first adopted, and hence recommended that its publication be authorized.

In accordance with this recommendation (report of Referee 2), the Council authorized the publication of the reports of both the first and second referees.

W. A. Puckner, Secretary.

Report of First Referee on Proteogens

"Proteogens," according to the William S. Merrell Co., are "Polyvalent Proteins of Non-Toxic Plant Origin." The subject of Proteogens can best be approached by recalling the history of "Autolysin," an alleged remedy for cancer, originated by A. S. Horowitz, Ph.D. This was exploited some years ago, and was finally shown to be worthless. Proteogens are said to be prepared "under the personal supervision of the originator, Dr. A. S. Horowitz." The composition of the different Proteogens is essentially secret. The assertion was made at one time, but is not found in the present advertising matter, that Plantex—now called "Proteogen No. 1"—is similar to Autolysin. Now the Proteogens are said to be "prepared by a special process employing various combinations of plants." Further:

> "The biologic principles present are chlorophyll, chromoplast, lipoids and vitamines; these are ferments or enzymes. The vegetable acids, metalloids and metals present in all plants in colloid form act biochemically. Among the metalloids are hydrogen, carbon, manganese, oxygen, sulphur, phosphorus and chlorine; the heavy metals are iron, potassium, sodium, magnesium and copper. These biochemic principles are always present in plants as colloids."

It is claimed by the Merrell Company that:

> "Proteogens stimulate the cytogenic mechanism to higher activity; therefore, indirectly cleave the invading microorganism and eliminate their special toxins. Proteogens swing the disturbed metabolism back to normal and, by natural processes, build up effective defenses against recurrent bacterial attacks."

Proteogen No. 1 was first introduced as "Plantex," and at that time the Merrell Company referred to a preparation that was the result of "a series of studies" carried out by a "noted biologist" with a view of "evolving a Cancer remedy" that was "to be autolytic in character," and announced:

> "The House of Merrell always interested in the progress of plant therapy, began pharmacological experimentations to reproduce this same substance. The qualitative and quantitative analysis of the substance as used in New York having been published simplified matters. A somewhat similar remedy has now been prepared. It consists of the following substances — Menyanthes trifoliata [Buckbean], Melilotus officinalis [Yellow sweet clover], Mentha crispa [Curled mint], Brassica alba [White mustard], Anemone hepatica [Liver leaf], Viola tricolor [Pansy], Anthemis [Roman chamomile], Fructus colocynthidis [Colocynth], Lignum quassiæ [Quassia] Urtica dioica [Nettle], Radix rhei [Rhubarb root], Hedge hyssop. These substances are in approximately equal proportions with the exception of the mustard which forms 20 per cent. of the mixture, and the colocynth fruit which is 5 per cent."

With respect also to the other Proteogens listed above, study of medical literature revealed no evidence establishing their therapeutic value; in fact, no evidence was found other than that appearing in the advertising matter of the manufacturer. The range of diseases in which Proteogens are recommended is so wide as to make obvious the lack of scientific judgment which characterizes their exploitation. A circular letter, received January, 1919, reminded the physician that about a year ago his attention had been directed to Proteogen No. 1 for cancer, that later developments enabled the firm to recommend for his consideration "a series of Proteogens (Nos. 2 to 9)," and that now "In response to an insistent demand, Dr. A. S. Horowitz has prepared two new Proteogens—No. 10 for Syphilis and No. 11 for Gonorrhea." A postscript to this circular letter announced another preparation, "Proteogen No. 12 for Influenza and Pneumonia," a "development out of the present influenza epidemic," and admitted that "It has not had the clinical experimentation that precedes our introduction of a new product."

The introduction of No. 12 was effected by means of a special bulletin which consists exclusively of clinical reports from seven physicians, all from Chicago save one, and all purporting to show most favorable results from No. 12. They describe cases which any physician with experience with influenza can duplicate without any special treatment.

It is difficult to give serious consideration to a set of alleged remedies when the only evidence is that furnished by the proponents of the alleged remedies. This is particularly true when the alleged remedy does not make a sufficient appeal to one's sense of the rational in therapeutics to lead one to feel justified in asking a trial at the hands of careful clinical observers. Considering the grave nature of the diseases for which Proteogens are recommended, particularly cancer, tuberculosis, and pernicious anemia, the want of a rational basis for the method of treatment and the general tenor of the advertising matter, it appears safe to conclude that these agents do not represent any definite advance in therapeutics.

As the use of preparations, secret in composition, and of no established value, is contrary to rational therapy, it is recommended that the Proteogen preparations be declared in conflict with Rules 1, 6 and 10.

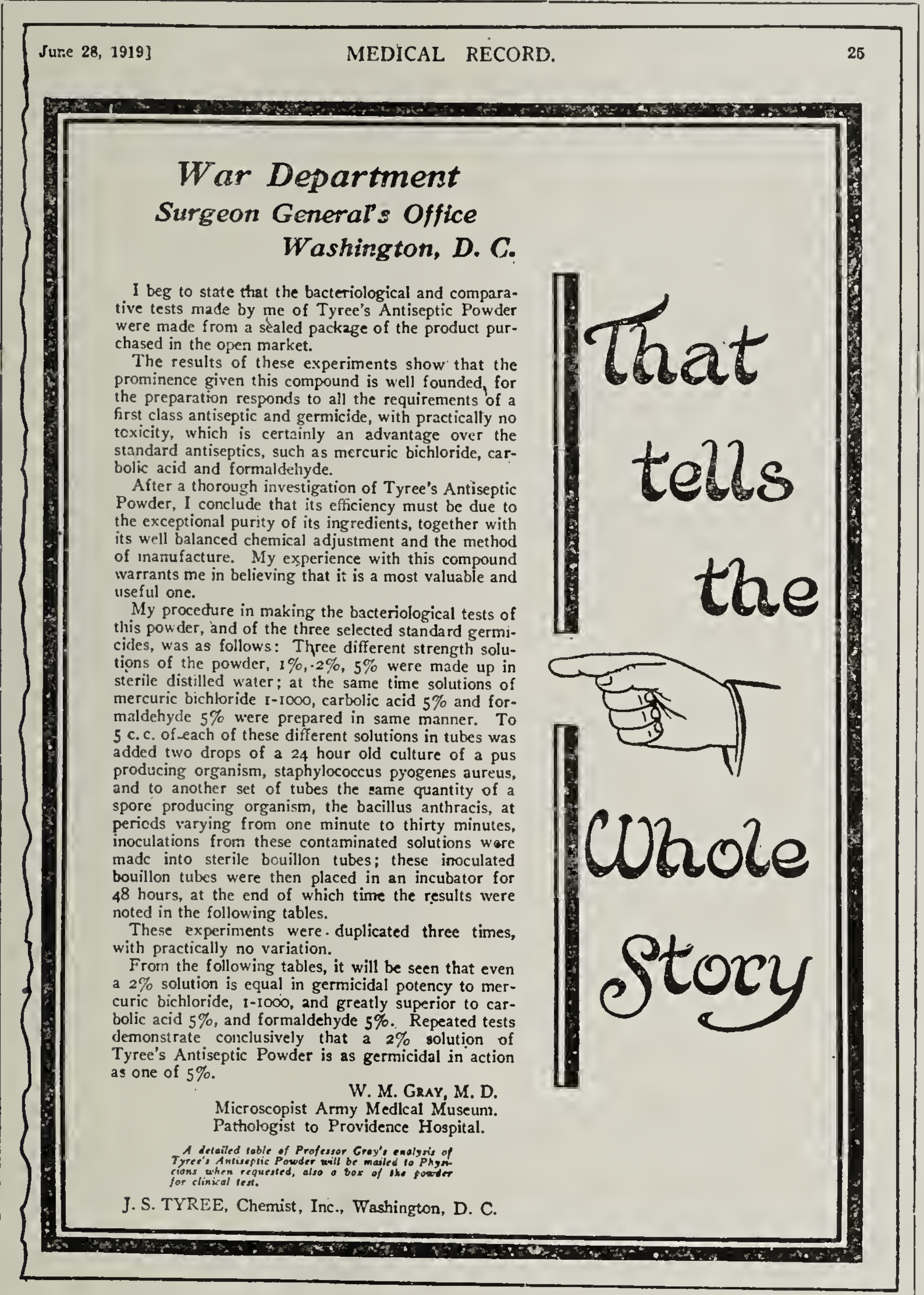
Report of Second Referee Reviewing Manufacturers' Reply

The report declaring the Proteogens of the William S. Merrell Company inadmissible to New and Nonofficial Remedies was adopted by the Council, but before publication it was sent to the Merrell Company for such comments as it might desire to make. In due time the reply of the firm was received. It consisted of two volumes bound in limp morocco, each stamped in gold: "Report Proteogen Therapy Requested by the American Medical Association, 1919; The Wm. S. Merrell Company." The first volume contained 79 pages of typewritten material; the second volume contained 76 pages of typewritten material and a number of advertising booklets put out by the Wm. S. Merrell Company, exploiting the Proteogens.

Among the typewritten material was a 14-page report on "Proteogen Therapy" by its originator, A. S. Horowitz. Following this there are several pages devoted to what is termed "a short qualitative description of the ingredients of major importance in Proteogens." Then follows a page describing the advertising of Proteogens, and the remainder of the two books is devoted to testimonials, lauding the benefit of Proteogens in diseases such as cancer, tuberculosis, rheumatism, asthma, influenza, enlarged prostate, rheumatic endocarditis, syphilis, eczema, psoriasis, diabetes, secondary anemia, gonococcic infections etc. Finally, there are attached samples of advertising pamphlets.

The dissertation by A. S. Horowitz contains little actual information concerning these substances, but is concerned principally with discussion of foreign proteins, "antiferments," "non-specific proteins," "anti-virolins" and speculations on their hypothetical actions and interactions on each other and on the organs of the body and on bacteria. The report contains many questionable statements.

One finds in this report but few definite statements of facts which are known to be accurate or which could be accepted without question. The qualitative description of the proteins and their components is as vague as the previous discussion. The differentiation between the various Proteogens is extremely indefinite,; that for Tuberculosis, No. 3 is described as "polyvalent, non-specific protein which rapidly attacks the acid-fast, encapsulated tubercle bacilli"; Proteogen No. 10 for syphilis is said to be a combination of "non-specific plant proteins and different chemicals which has the power to paralyze and destroy living spirochete." It is stated that Proteogens are scientific preparations based on standard ingredients and that the standardization is more accurate than in serums, vaccines or toxins, etc. The report gives no proof of such statements.



June 28, 1919] MEDICAL RECORD. 25

War Department
Surgeon General's Office
Washington, D. C.

I beg to state that the bacteriological and comparative tests made by me of Tyree's Antiseptic Powder were made from a sealed package of the product purchased in the open market.

The results of these experiments show that the prominence given this compound is well founded, for the preparation responds to all the requirements of a first class antiseptic and germicide, with practically no toxicity, which is certainly an advantage over the standard antiseptics, such as mercuric bichloride, carbolic acid and formaldehyde.

After a thorough investigation of Tyree's Antiseptic Powder, I conclude that its efficiency must be due to the exceptional purity of its ingredients, together with its well balanced chemical adjustment and the method of manufacture. My experience with this compound warrants me in believing that it is a most valuable and useful one.

My procedure in making the bacteriological tests of this powder, and of the three selected standard germicides, was as follows: Three different strength solutions of the powder, 1%, 2%, 5% were made up in sterile distilled water; at the same time solutions of mercuric bichloride 1-1000, carbolic acid 5% and formaldehyde 5% were prepared in same manner. To 5 c.c. of each of these different solutions in tubes was added two drops of a 24 hour old culture of a pus producing organism, staphylococcus pyogenes aureus, and to another set of tubes the same quantity of a spore producing organism, the bacillus anthracis, at periods varying from one minute to thirty minutes, inoculations from these contaminated solutions were made into sterile bouillon tubes; these inoculated bouillon tubes were then placed in an incubator for 48 hours, at the end of which time the results were noted in the following tables.

These experiments were duplicated three times, with practically no variation.

From the following tables, it will be seen that even a 2% solution is equal in germicidal potency to mercuric bichloride, 1-1000, and greatly superior to carbolic acid 5%, and formaldehyde 5%. Repeated tests demonstrate conclusively that a 2% solution of Tyree's Antiseptic Powder is as germicidal in action as one of 5%.

W. M. Gray, M. D.
Microscopist Army Medical Museum.
Pathologist to Providence Hospital.

A detailed table of Professor Grey's analysis of Tyree's Antiseptic Powder will be mailed to Physicians when requested, also a box of the powder for clinical test.

J. S. TYREE, Chemist, Inc., Washington, D. C.

That tells the Whole Story

Above is a greatly reduced photographic reproduction of a full page advertisement of Tyree's Antiseptic Powder. It has been appearing for some weeks in the New York *Medical Record*. Every person who sees this advertisement and is not familiar with the facts, must naturally suppose that the report of Dr. W. M. Gray, made on the stationery of the Surgeon-General's Office, War Department, is a recent report, dealing with Tyree's Antiseptic Powder. As a matter of fact, the report was issued January 3, 1890, nearly thirty years ago and Dr. Gray, who made it, has been dead several years. Furthermore, the product that Dr. Gray analyzed *was a different substance from the present* Tyree's Antiseptic Powder. All these facts were brought out in The Journal A. M. A., May 17, 1919, yet the *Medical Record* persists in publishing this advertisement without explanations or apology. "That Tells the Whole Story."

The testimonials that are submitted are typical of "reports" that manufacturers are able to obtain from some physicians, to prove the efficacy of almost any preparation in any disease. Each consists, practically, of the opinion of the individual who has employed the Proteogens or the opinion of the patient who has been treated. Few data are given in these reports from which an impartial conclusion might be drawn. A few of the testimonials presented by the William S. Merrell Company follow. The valuelessness of such material as scientific evidence is obvious:

Rheumatism:—*Proteogen No. 2.*—The Doctor has one case being treated with No. 2. She has improved so rapidly she cannot express her pleasure, and will continue for some time on the treatments. She is a patient who was confined during the time she suffered from a rheumatic illness, and it seemed to affect her mental condition. This condition is clearing up also, very much to the pleasure of both patient and doctor.—November 27, 1918.

Influenza:—*Proteogen No. 12.*—First day, temperature 102, gave 1 c.c. Proteogen No. 12; second day, temperature 100, gave 1 c.c. Proteogen No. 12; third day, temperature 98.8, gave 1 c.c. Proteogen No. 12, and then discharged the case as recovered.—October 31, 1918.

Asthma:—*Proteogen No. 4.*—Splendid results obtained from a sample of Proteogen No. 4. Three ampoules affected [effected?] complete recovery.—October 9, 1918.

Cancer:—*Proteogen No. 1.*—Mrs. B. pronounced recovered from Cancer by Dr. O. W. A., of Catlin, after having injections of Proteogen No. 1 for some time.—October 4, 1918.

Eczema:—*Proteogen No. 5.*—Tried No. 5 on a patient with eczema, and with happy results. Have not done anything for him for about five months—and he is now at his business. Proteogen No. 5 also RELIEVED HIM OF CONSTIPATION AND WHAT HE CLAIMED A TRAUMATIC STRICTURE OF THE LOWER PORTION OF SIGMOID FLEXURE. He is sure pleased and recommending them to his friends. (Proteogens).—February 17, 1919.

Syphilis:—*Proteogen No. 10.*—I am getting such excellent results with the No. 10 Proteogen for Syphilis that I am badly in need of more, as I am treating so many cases. Please send me four dozen C. O. D.—October 9, 1918.

Enlarged Prostate:—*Proteogen No. 1.*—Have used Plantex in enlarged prostate in four cases, with good results in each case. One of them his father, an elderly man.—April 25, 1918.

Lobar Pneumonia:—*Proteogen No. 12.*—The only case I have used Proteogen No. 12, was a man who had Lobar Pneumonia of left lung following Influenza. After crisis came, patient continued to have slight rise in temperature, cough, and after using 10 doses of your Proteogen No. 12, temperature was normal, cough very much better, patient began to take on flesh and is still improving. — December 26, 1918.

Tuberculosis:—*Proteogen No. 3.*—The Doctor writes: The Proteogen No. 3 sent me worked wonders in my patient. The case came under my care when he was too far gone for anything to benefit him a great deal, but the Proteogen did for him more than anyone could have expected, yet he died leaving me with a few ampoules to try on the next patient.—September 20, 1918.

Gonorrheal Cystitis: — *Proteogen No 11.*—My patient has taken two boxes of your Proteogen No. 11 given for gonorrheal cystitis of probably two years' standing and at this writing I consider her almost, if not entirely, cured which I think speaks very highly of your remedy. I expect to use more of your preparations in the future.—April 12, 1919. [This testimonial, either by clerical error, or because the results were considered remarkable, was repeated elsewhere in the material submitted by the Merrell Company.]

Acute Gonorrhea: — *Proteogen No. 11.* — Mr. A. E. R., age 65, weight 140 pounds. First attack. Had had no previous treatment. Came to me January 2, 1919. Had discharge, all acute symptoms, burning, etc. Gave seventeen injections of Proteogen No. 11, also mild antiseptic urethral wash. Discharged on February 15, 1919, clinically cured. —April 11, 1919.

Epithelioma of Buttock:—*Proteogen No. 1.*—I used Proteogen No. 1 on an epithelioma of buttock some six months ago with favorable results and no return of symptoms as yet.—April 13, 1919.

It is obvious that the Proteogen preparations are in conflict with Rules 1, 6 and 10, and should not be admitted to "New and Nonofficial Remedies." It is recommended that the previous action of the Council be allowed to stand and that publication of both reports be authorized.

Correspondence

"THE ADMINISTRATION OF ARSPHENAMIN"

To the Editor:—Several criticisms of my letter (The Journal, May 10, p. 1386) on the administration of arsphenamin have appeared and seem to demand the following comments:

Dr. Goldenberg (The Journal, May 31, p. 1634) uses only 20 c.c. of distilled water for 0.1 gm. of drug, two thirds of the amount for dilution that was suggested in my letter, and employs about half of the time I mentioned. Dr. Pusey (The Journal, June 14, p. 1786) approves from 20 to 25 c.c. per decigram, and Dr. Nelken (The Journal, June 7, p. 1695) uses a solution as concentrated as 0.6 gm. of the drug in 20 c.c. of water, and gives the dose in from 20 to 30 seconds.

No one knows how far concentration of drug and rapidity of administration may be carried without undue risk to the patient, and it is possible that the limits Dr. Goldenberg and Dr. Pusey set may be sufficient; though what is to be gained by using the 25 c.c. per 0.1 gm. mentioned by Dr. Pusey, or even the 20 c.c. mentioned by Dr. Goldenberg instead of the 30 c.c. mentioned by myself is not clear, as the difference is relatively small. The drug as used by Dr. Nelken is six times as concentrated as that employed by Dr. Goldenberg, and nine times as concentrated as that noted in my letter, and he gives it about twelve times as rapidly as does Dr. Goldenberg, and twenty-four times as rapidly as indicated in my letter. I suspect that if Dr. Nelken found himself facing responsibility for unfavorable results, following the use of arsphenamin given in the way he advocates, he would get little more comfort from the evidence that Dr. Goldenberg or Dr. Pusey has contributed than from my own.

Perhaps Dr. Goldenberg or Dr. Pusey could suggest what they consider the safe minimum of dilution, which presumably lies between the amounts of fluid they use and that advocated by Dr. Nelken, and perhaps they could supplement this with the safe minimum of time of administration which might be required for the injection, which also presumably lies somewhere between the time used by themselves and that advocated by Dr. Nelken.

It is possible that the administration of arsphenamin in somewhat more concentrated solution, and more rapidly injected than that recommended may be satisfactory; but the collected experience available at the Hygienic Laboratory shows that a very large proportion of the instances of severe or fatal reactions have been associated with high concentrations of this potent drug and rapid administrations, and that therefore it seems unwise to approve of a technic which varies materially from that indicated by me. Moreover, it is illogical and unscientific to charge unfavorable reactions to a preparation when in its administration the explicit directions of the manufacturer have been grossly deviated from. Not only can the preparation not be blamed under such circumstances, but indeed the physician himself might fairly be held responsible for any untoward results when the directions on the package have been materially deviated from.

Dr. Pusey appears to be of the opinion that the toxic reactions following the use of arsphenamin are due to specimens of the drug that are "grossly contaminated." The fact, of course, is that even the purest arsphenamin is a very toxic substance, and samples of what are, judged by all evidence at hand, of high quality may, in rare instances, give serious or fatal reactions. The earlier standards for the drug made in this country were made to accord as nearly as possible with those of the German product, which had been imported previously; but even this drug had a large margin of safety, and, given well diluted and slowly, was a safe product.

Dr. Pusey calls attention to the fact that animal experiments show that arsphenamin is less toxic when well diluted. While the Hygienic Laboratory has considered evidence from many sources, the purely experimental work on arsphenamin had no part in formulating the suggestions made; the latter were based exclusively on clinical reports.

The records collected by the Hygienic Laboratory cover the experience of a large number of physicians who administer arsphenamin. Our data were secured in response to a circular letter, published in the medical journals, requesting that reports be sent to us on all unfavorable results from the use of arsphenamin, and from reports made on results in venereal disease clinics under state and federal direction (the latter reports being made in accordance with the instructions of the Surgeon-General of the U. S. Public Health Service). These data embraced many thousands of administrations of the drug.

This experience of the Hygienic Laboratory may be, as Dr. Pusey intimates, inadequate; but the indications it afforded were so clear that it was felt proper to make them the basis of the suggestions published in The Journal. Practically all of the fatalities and the severe reactions that have been reported to us were in cases in which the drug had been given in a concentrated form and given rapidly, or was mishandled in some other manner; though, almost invariably, the attempt was made to place responsibility on the arsphenamin. The most striking examples are briefly recorded here:

(*a*) A product which enjoys a particularly high reputation was held responsible by the physician for one fatal result and several severe reactions, though the same batch of the drug had been used by many others without unfavorable results, and in spite of the fact that in the cases in which he secured unfavorable results the drug was given in very concentrated form. The time of injection was too short, and there was doubt as to whether the proper amount of sodium hydroxid solution had been used.

(*b*) Another product was likewise misused by a physician, under almost the same circumstances as are related in the preceding paragraph. Here also there was one fatality and several severe reactions. The physician in this case was most emphatic in placing the responsibility on the particular brand of arsphenamin, and insisted on the satisfactory nature of the technic of administration. He has since reported severe reactions from two other brands of arsphenamin, both used in too concentrated form and given too rapidly.

(*c*) In a third case, several patients were injected and all gave "unusual and severe reactions," although the preparation was one which was highly satisfactory according to the animal test and which gave, so far as we know, no other unfavorable reactions. In reviewing the technic, the physicians responsible absolve the distilled water used, although it was old and contaminated with living micro-organisms, which they believed were killed by heating. They absolve the mode of administration, although the concentration given was a dose of approximately 0.45 gm. in 18 to 20 c.c. of water, and hold the drug itself responsible, stating: "By excluding all other factors, it would seem that this drug was responsible for the reactions."

(*d*) In another report bearing on a lot of the drug which proved satisfactory in the laboratory tests and which is not reported to have given any other unfavorable results, the physician himself noted that he got reactions only when the drug had been dissolved in warm water, and that reactions were absent when water at room temperature was used; he candidly remarks that the manufacturer's instructions carried a caution against dissolving the drug in hot water.

These are examples of the clinical reports, on the basis of which I felt justified in publishing the letter which has given rise to the controversy. There is no desire on my part, as Dr. Pusey puts it, to "saddle all arsphenamin accidents on the technic," as I am sure these may occasionally occur when the technic is satisfactory; but I do object to saddling accidents on the drug when it has been used in a grossly improper fashion, and directly in conflict with the instructions of the manufacturer.

Arsphenamin is made in batches which go into anywhere from several hundred to several thousand ampules. Practically any batch of a product is likely to go into the hands of a number of physicians, and when only one of these registers complaint as to the quality of the drug, and the others use it with satisfaction, there seems to be no other conclusion than that the mode of administration in the exceptional case was at fault.

The study of the laboratory and clinical data we have at the Hygienic Laboratory indicates that the arsphenamin now produced by the various manufacturers varies but little, and all is of as high quality as the imported German product. Reports of serious or fatal reactions have been received covering the product of every licensed manufacturer, though the number of reactions in relation to the output of each plant is unknown.

How any physician can justify himself in administering a potent and toxic drug in high concentration, when every package carries a circular with explicit instructions to give it well diluted, is difficult to understand. Certainly, when the manufacturer's own instructions as to preparation for use are grossly violated, the producer has good grounds for claiming that unless the technic of administration was in accord with the instructions the drug should not be held to be at fault, without clear proof that it was to blame.

Physicians should recognize that by using a high concentration of the drug and giving it rapidly they afford the producer of even a poor batch a very satisfactory defense, as the methods many physicians employ introduce the very factors that make for the maximum of unfavorable reaction of even a good preparation, and make it impossible to prove that any preparation is poor. On the other hand, if the drug is used in accordance with the producer's instructions and unfavorable results follow, the case against the drug is strengthened. G. W. McCoy, M.D., Washington, D. C.
Director, Hygienic Laboratory, U. S. P. H. S.

To the Editor:—In recent issues of The Journal there has been some discussion as to the propriety of giving neo-arsphenamin in concentrated solutions. While serving as urologist to the American Army Schools at Langres, I had considerable experience with this drug, and my observations may be of interest to your readers. It was the custom in the American Expeditionary Forces to give the French novarsenobenzol brand of neo-arsphenamin in 2 c.c. of sterile distilled water. This technic was approved and adopted by the men in charge of the Urological Section of Medical and Surgical Consultants, and was described in the Manual of Military Urology, published for use by all urologists in the A. E. F.

The technic is simple. The neck of the ampule is filled and the tip broken off. An ampule containing 2 c.c. of sterile distilled water is then broken at both ends and the water allowed to flow into the ampule containing the neo-arsphenamin. Slight agitation effects solution very promptly, and the clear fluid is then drawn up in a hypodermic syringe of Lüer type. By this technic the neo-arsphenamin is subjected to the minimum amount of transference from one receptacle to another, and the danger of contamination is reduced to a minimum.

During nine and a half months I employed this technic constantly, and must have given in the neighborhood of 600 to 700 injections personally. At the same time it was being administered in the area at various camps and dispensaries under my supervision, so that I think it safe to estimate that at least 2,000 injections were given during the period of my residence at Langres. I did not hear of a single case of any severe reaction. One patient used to vomit in the office after receiving his injection, but this was the utmost that ever happened. Two patients developed mild dermatitis.

It is a question whether a similar series of cases in support of any other technic could be adduced; the results, as far as severe reactions are concerned, were as good as could be obtained by any technic.

But apart from the question of severe reactions, there is another aspect which I think ought to be considered; that is, the cost of adequate treatment to the patient. Speaking recently with a physician who employs old arsphenamin, I learned that he sterilizes all apparatus in an autoclave in order to avoid possible contamination from boiling in water which may contain mineral salts. It is exceedingly difficult to get a chemically pure sodium hydroxid, and sodium chlorid may also contain impurities that are capable of reducing the arsphenamin. If filtered, one more transfer of the liquid becomes necessary with its accompanying chance of contamination.

The most rigid technic possible cannot exclude every possibility of contamination, reduction and consequent poisoning of our patient, but it can and does make the procedure a very expensive one, and this expense must be borne ultimately by the patient, unless the people are to be pauperized. The simple technic which I have described not only necessitates less exposure of our chemical to contamination and reduction, but also eliminates the labored technic formerly employed, and renders it possible for the physician to administer treatment at about the cost of an ordinary office visit, plus the actual cost of the chemicals employed.

As we wish to bring relief to the greatest number of people possible, it seems to me that this is a point worthy of the most careful consideration.

Severe reactions after giving neo-arsphenamin are almost certainly due to some fault in technic, avoidable or unavoidable, whereby the arsenical preparation undergoes some sort of reduction before administration, and I think we have ample evidence that the giving of the drug in concentrated solution is not, in itself, objectionable, and that it may even reduce the danger of decomposition, favored necessarily by excessive handling, transferring from one vessel to another, passage through filter papers, etc.

H. McClure Young, M.D., St. Louis.

DIPHTHERIC WOUND INFECTIONS

To the Editor:—In The Journal, Sept. 8, 1917, p. 791, we described an outbreak of wound diphtheria. This communication stimulated interest in the subject, and led to the publication of the results of several investigations notably those of Janes and Thomas (*Canadian Medical Association Journal,* May, 1919) and that of Adami and his collaborators (*Bulletin of the Canadian Army Medical Corps,* June, 1918).

We investigated carefully a considerable number of cases of diphtheric wound infections in the spring of 1917, and carried out virulence tests and protection experiments on several of the strains of *B. diphtheriae* isolated at that time. No endeavor was made to determine the virulence of every strain isolated, nor was any attempt made to ascertain precisely the proportion of wound infections which were due to *B. diphtheriae* in all of the cases studied. We contented ourselves with pointing out that we had observed an epidemic outbreak of wound diphtheria, and that "it was extremely probable that patients with diphtheric wound infections were being returned to Canada from overseas"; we suggested that a routine bacteriologic examination of all suppurating wounds be made, in order that wound infections due to *B. diphtheriae* might be discovered and appropriately dealt with, and, finally, we recommended that diphtheria antitoxin be used in the general treatment of the condition, in addition to any local treatment that might be tried.

The expansion of the literature dealing with this subject has been such that a brief summary of the present situation is probably desirable. Adami and his co-workers in their paper reported that in an investigation of 306 cases of infection of open wounds, they found only two which were caused by *B. diphtheriae,* and were therefore led to the conclusion that "there is a large body of evidence showing that even isolated cases of diphtheria infection of wounds are distinctly uncommon among the wounded overseas and complete absence of any evidence in Great Britain that these isolated cases have acted as foci for the spread of the infection to other wounded men. No evidence of a widespread infection of open wound by diphtheria bacilli has been discovered in Canadian hospitals overseas, in Great Britain."

We were not in a position to comment on the foregoing, nor indeed were we able to furnish conclusive evidence in our first communication as to the source of some of the diphtheric wound infections seen by us. That we observed an epidemic of diphtheric wound infections in military hospitals in Toronto, during the spring of 1917, has been definitely established and is one of the very few reports of actual epidemic outbreaks of this condition that has appeared in the literature. No evidence was brought forward by Adami to controvert our observations in regard to this outbreak.

The conclusion expressed in the paragraph quoted above, however, was very definitely opposed to the view that diphtheric wound infections contracted in England were being seen in men returned to Canada. It should be mentioned that the wounds observed by us were very largely in men who were returned to Canada from special military orthopedic hospitals in the United Kingdom.

Complete confirmation of the opinion expressed by us has just been furnished by Janes and Thomas. These observers, working as pathologists to the Granville Canadian Special Hospital, Buxton, England, have found that "from those cases in which pure cultures were obtained, 6.4 per cent. of open wounds in this hospital show infection with *Bacillus diphtheriae*." We may safely infer, therefore, that the conclusions here arrived at entirely substantiate the inferences drawn by us as a result of our original observations.

The routine swabbing of suppurating open wounds practically eliminates the danger of an epidemic of diphtheric wound infection. That secondary cases of nose and throat diphtheria may arise from cases of diphtheric wound infections has been reported by Hartsell and Morris (The Journal, May 10, 1919, p. 1351), who describe an outbreak of throat diphtheria which occurred in a military base hospital in France. Infection remained a mystery until cases of wound diphtheria were discovered; then, with the establishment of strict quarantine and the adoption of "most careful wound technic," the outbreak was brought under control.

We would again recommend that both in civil and military hospitals a careful bacteriologic examination be made of all suppurating open wounds. We have pointed out that clinically the diagnosis between diphtheroid or other aerobic, and true diphtheric, wound infections cannot be made. It is necessary, if the diagnosis of wound diphtheria is to be definitely established, that a careful bacteriologic examination be undertaken which will include virulence tests and protection experiments.

It may not be feasible to undertake virulence and protection experiments in every case, especially early in an epidemic outbreak; but the true character of the infecting microorganism should be definitely determined in at least a few cases at first, and if the outbreak is not almost at once controlled, routine virulence and protection tests made. This was the procedure adopted by us in our work done in the spring of 1917 in military hospitals in Military District No. 2, Toronto.

J. G. Fitzgerald, M.B.,
D. E. Robertson, M.B., Toronto.

ANDREAS CAESALPINUS: AN ANSWER

To the Editor:—In The Journal of June 21 is a current comment headed, "Andreas Caesalpinus," in which the writer in view of the fact that the present year marks the four hundredth anniversary of the birth of Caesalpinus, detracts somewhat from the claim that Caesalpinus had any great part or merit in the discovery of the circulation of the blood. The conclusions seem to be that Harvey was the real discoverer of the circulation of the blood, and that to him all honors are due.

Andreas Caesalpinus, whom the writer characterizes as a "botanist and writer on medical topics," was recognized in his day as the most learned man of his age, and his contemporaries called him "papa philosophorum" (father of philosophers). Aside from his contribution to the discovery of the circulation of the blood, he published a book, "De Plantis," which gives the best classification of plants up to his time, and won for him undying fame as the forerunner of Linnaeus. In his book "Quaestiones Peripateticae," published in 1593, Caesalpinus assumes a constant and physiologic transit of the blood from the arteries to the veins, through the anastomosis, which he termed the "Vasa in capillamenta resoluta," to every part of the body. This perpetual forward movement of the blood from the venae cavae to the right heart, thence to the lungs, from the lungs to the left heart, and from the left heart to the arteries, was termed by him "circulatio." He was the first to recognize the arterial structure of the pulsating vessels. He also recognized that the blood in the arteries stands at far higher pressure than that in the veins, and that in its passage from the one to the other, the capillary anastomosis offers greater or less resistance according to the degree of its contraction or dilatation. Again, in his work "De Plantis" Caesalpinus affirmed that the blood "per venas duci ad cor, et per arterias in universum corpus distribui (the blood is carried through the veins to the heart and through the arteries it is distributed through the whole body). In the same year (1593), Caesalpinus published his "Quaestionum Medicarum Libri II," giving the experimental evidence of his theories. These experiments, which would be too long to enumerate and describe in an article of this kind, give the proof that his conclusion was based on rigid scientific studies.

I am not going into the controversy as to whom belongs the credit of the discovery of the pulmonary circulation—whether to Servetus or to Realdus Columbus. I wish, however, to call attention to the fact that Realdus Columbus was professor of anatomy at the University of Padua from 1542 to 1546, that he was the teacher of Caesalpinus, and that Servetus was also a student at the University of Padua. The Padua school was the real hotbed, at that time, for the overthrow of the Galenian doctrines, and the establishment of the new theories that led to the discovery of the circulation of the blood. Harvey arrived in Italy in the year 1598 and departed in 1603. In the meantime, he studied medicine at Padua, where he obtained his diploma in 1602. There can be no doubt that he was thoroughly acquainted with the work of Caesalpinus and Realdus Columbus. In fact, the works of Caesalpinus were so renowned that they had received the honor of four editions, one of which was edited in Padua. Caesalpinus' work "De Plantis" and the appendices to the "Quaestiones Peripateticae" and to his "De Plantis," in which his theory of the circulation of the blood was repeated, were all published in 1603, the same year that Harvey left Padua. Harvey, while he was studying in Padua, no doubt attended the lectures of Eustachio Rudio, professor of the practice of medicine, in the university; therefore he must have been well acquainted with the bitter criticisms directed against Rudio, who wrote a book, "De naturali ac morbosa sanguinis constitutione," in which he collected all the good and best of the doctrines of Caesalpinus and Columbus. Harvey has evidently made use of this work, reproducing even some of its errors, as has been demonstrated by Zecchinelli. Harvey in his work does not even mention the name of Columbus or Caesalpinus. He failed to mention and give proper credit to Cannani and Fabricius for the discovery of the valves in the veins. Also he failed to give proper credit to Paulus Sarpi for the demonstration of the function of the valves in favoring the centripetal flow of the blood in the veins, although in his demonstration of the circulation of the blood he made use of Sarpi's discovery.

His silence, when accused of plagiarism by his contemporaries, Micanzio, Vesling, Walaeus, Riolan, Bartholin and others, indicates that he prudently avoided a dispute in which he had much to lose and nothing to gain.

If a discovery is the act of finding out and bringing to public notice something unknown before, I cannot agree that to Harvey belongs the credit of the discovery of the circulation of the blood. Nevertheless, I recognize that Harvey's small book, which was published at Frankfurt in 1628, "Exercitatio anatomica de motu cordis et sanguinis in animalibus" is unmistakably the masterpiece of a man of genius. His many and original experiments on this subject and his coordinate arrangement of all knowledge pertaining to the circulation of the blood, are the real pillars to his glory.

Most of the data given in this article, have been taken (some verbatim), from Luciani's "Human Physiology," Vol. I, chapter on circulation of the blood, and from the annotations of Professor Antonelli to the anatomy of Hyrtl.

C. Volini, M.D., Chicago.

QUESTIONABLE LONGEVITY OF THE BULGARIANS

To the Editor:—Isn't it curious that generation after generation of medical men should continue apparently without question to accept Metchnikoff's statement about the longevity of the Bulgarians? I have heard his deductions questioned, but never his facts. Yet it should not require great acumen to infer that it would be extremely difficult to verify the ages of individuals among primitive peoples like those of eastern Europe.

My father was a missionary in Bulgaria for many years. He toured the country thoroughly and of course talked with any number of peasants. He has told me that one striking thing about peasant life in Bulgaria was the scarcity of old persons. People generally did not know their ages. But by inquiring about events they remembered, he was often able to make a good approximation. It was very rare that he found a person as old as 70. Men and women alike would look to be in the late seventies or eighties when they were in the fifties. The extremely hard life, and the absence of modern sanitation and knowledge of hygiene made them prematurely old and left them an easy prey to disease.

Metchnikoff, I presume, simply repeated another of the old wives' tales that make up so large a part of the supposed information on diet. His statement seems to have been taken as seriously as the Third George's inquiry why hot water froze sooner than cold.

H. J. Haskell, Kansas City *Star*, Kansas City, Mo.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF GONORRHEA

To the Editor:—In The Journal (April 26, 1919, p. 1255) there appears an abstract of an article by Pineo and Baillie on the treatment of gonorrhea by pus vaccines. Will you please give me your opinion as to this treatment; and if favorable, the place where they may be obtained.

Enrique Orañanos, M.D., Torreón, Coah, Mexico.

Answer.—The vaccine mentioned above is not available for sale, as it was manufactured by the authors themselves for their own use. The treatment must be considered as being still in the experimental stage. It must also be noted that in this experiment there were no control cases treated with other vaccines. The authors, themselves, while claiming for it "incomparably better results" than with any vaccine previously used by them, recognize that only certain types of cases are benefited and that dangerous effects may result unless care is shown in selecting the cases and in the dosage. There is also the danger of inoculating the patient with "other bodies besides active gonococcal antigen, such as spores, etc." Until more evidence is available as to the merits of pus vaccine, the standard treatment of gonorrhea, such as described, for instance, in the Manual of Treatment of Venereal Diseases, should be depended on by the average physician.

PROTEOGEN

To the Editor:—Is there available information concerning a product exploited by William S. Merrill Company under the title "Proteogen"? They market "proteogens" for twelve distinct conditions. Their claims are extravagant. I wish to know whether the Council has investigated the product and what has been the verdict.

F. J. Bomberger, M.D., Mapleton, Minn.

Answer.—Yes. See pages 109 and 128, this issue.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

New Mexico: Santa Fe, July 14. Sec., Dr. R. E. McBride, Las Cruces.

Convention of the Catholic Hospital Association

The Catholic Hospital Association of United States and Canada held its fourth annual convention at St. Francis Xavier's Academy, Chicago, June 25-27, Rev. Charles B. Moulinier presiding. The main discussions were in regard to the organization of the staff with frequent regular meetings, laboratory in charge of a properly trained person to cooperate in all diagnoses, and case records from physical examination to end-results, in charge of a trained historian backed by the management. A most effective means of conducting the general discussion was a questionnaire pamphlet containing numerous questions sent in before the convention and answered on the floor by committees of specialists previously appointed by the chair. No uncertainty was allowed to prevail concerning the catholic adherence to the moral law and principles of the Catholic Church relating to hospital practice. Over 250 of the 652 Catholic hospitals in the United States and Canada and over 500, or one-fifth, of the doctors practicing in Catholic hospitals were reported as having joined the association. In the near future district or state branches of the association sufficiently small to comprehend local conditions will be organized and the work of these local units will be in charge of Rev. M. F. Griffin of Youngstown, Ohio. A monthly bulletin will be issued beginning in October, 1919. A committee will be appointed to plan for a Catholic training school for supervisors of nurses and superintendents of hospitals. Rev. Charles B. Moulinier of Milwaukee was reelected president, and Dr. Bernard F. McGrath, secretary-treasurer. The next convention will be held in St. Paul, June 23, 24 and 25, 1920.

Arizona January and April Examination

Dr. Allen H. Williams, secretary of the Board of Medical Examiners of Arizona, reports the oral and written examination held at Phoenix, Jan. 7-8, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 16 passed, and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Little Rock	(1908)	75.3
Chicago College of Medicine and Surgery	(1917)	84.6, 90
Hahnemann Med. Coll. and Hosp., Chicago	(1913)	86.9
Jenner Medical College	(1904)	76
College of Physicians and Surgeons, Keokuk	(1890)	80.7
Hospital College of Medicine, Louisville	(1896)	80*
Kentucky School of Medicine	(1893)	81.7
Homeopathic Medical College of Missouri	(1890)	96
New York Homeopathic Medical College and Hospital	(1899)	82.3
Eclectic Medical College	(1918)	87.3
Ohio State University College of Medicine	(1918)	75.3
Chattanooga Medical College	(1905)	75.6
Universities of Nashville and Tennessee	(1911)	85.6
Southwestern University Medical College	(1907)	87.3
National School of Homeo. Med., Mexico	(1910)	†
FAILED		
John A. Creighton Medical College	(1906)	56.3

* The official records of the college named do not contain the name of this applicant.

† No grade given.

The examination held at Phoenix, April 1-2, 1919, covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Ten candidates were examined, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1900)	85
Illinois Medical College	(1901)	76
College of Physicians and Surgeons, Chicago	(1904)	77.3
Tulane University	(1893)	80
University of Michigan	(1901)	85
St. Louis College of Physicians and Surgeons	(1909)	80.9
University Medical College of Kansas City	(1912)	87
Cincinnati College of Medicine and Surgery	(1875)	75
University of Nashville and Tennessee	(1911)	77
School of Medicine of Nuevo Leon, Monterey	(1891)	85.7

Hawaii January Examination

Dr. J. R. Judd, secretary of the Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, Jan. 13, 14, 15 and 16, 1919. The examination covered 8 subjects and included 64 questions. An average of 75 per cent. was required to pass. Of the six candidates examined, 1 passed and 5 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1914)	83.5

FAILED

College	Year Grad.	Per Cent.
University of Louisville Medical Department	(1910)	72.6
Bennett College of Eclectic Medicine and Surgery	(1908)	74.7
Chiba Special Medical School, Japan	(1908)	56.6
Tokyo Charity Hospital Special Medical School	(1916)	62.2
Tokyo Imperial University	(1917)	57.1

Oklahoma January Report

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, January 7-8, 1919. The examination covered 11 subjects and included 110 questions. An average of 70 per cent. was required to pass. Two candidates were examined, and passed. Thirteen candidates, including one osteopath, were licensed through reciprocity, and 8 candidates were granted reregistration certificates. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1915)	84
New York University	(1887)	81

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas (1913)	(1917)	Arkansas
Medical College of Indiana	(1892)	Missouri
Louisville Medical College	(1907)	Kansas
University of Louisville	(1894)	Texas
American Medical College	(1890)	Missouri
Beaumont Hospital Medical College	(1887)	Missouri
Kansas City Homeo. Medical College	(1896)	Missouri
Western Homeopathic College	(1868)	Kansas
Chattanooga Medical College	(1892)	Missouri
University of Tennessee (1913) Tennessee;	(1917)	Mississippi

Massachusetts March Examination

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, March 11, 12 and 13, 1919. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 116 candidates examined, 98, including 4 osteopaths, passed and 18, including 5 osteopaths failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University	(1888)	77.7
Chicago Hospital College of Medicine	(1918)	76.8
Jenner Medical College	(1917)	76*
Loyola University, Chicago	(1916)	75.5
Johns Hopkins University	(1917)	78.4
University of Maryland	(1917)	83.7
Coll. of Physicians and Surgeons, Boston (1918) 84.7;	(1919)	76.6
Harvard University (1917) 82.5, 83.5; (1918) 78.9, 82.1, 84.5; (1919) 80.1, 82.7, 84.7.		
Middlesex College of Medicine and Surgery	(1918)	76.5
Tufts College (1916) 78; (1919) 75, 75, 75, 75, 75.1, 75.1, 75.1, 75.2, 75.2, 75.2, 75.5, 75.5, 75.5, 76.2, 76.6, 76.7, 76.7, 77.1, 77.2, 77.3, 77.3, 77.7, 77.7, 77.9, 78, 78.2, 78.2, 78.2, 78.4, 78.5, 78.7, 78.8, 79, 79.1, 79.2, 79.2, 79.2, 79.2, 79.2, 79.2, 79.2, 79.5, 79.7, 79.8, 79.9, 79.9, 80.2, 80.3, 80.3, 80.3, 80.4, 80.5, 80.6, 80.7, 81, 81, 81.2, 81.2, 81.5, 81.5, 81.7, 82.1, 82.1, 82.8, 83.2, 83.5, 83.7, 84, 84.7.		
College of Physicians and Surgeons, New York	(1881)	76.2
Columbia University	(1919)	81.1, 83.2
Jefferson Medical College	(1894)	77.2
University of Vermont (1896) 77.6;	(1915)	81.4
McGill University	(1913)	82.8

FAILED

College	Year Grad.	Per Cent.
Chicago Hospital College of Medicine (1917) 71.7; (1918) 63.5, 71, 72.2.		
Baltimore Medical College	(1905)	65.5
Maryland College of Eclectic Med. and Surg.	(1902)	47.1†
College of Physicians and Surgeons, Boston	(1914)	68.5
(1915) 67.2;	(1916)	72.6
Middlesex College of Medicine and Surgery	(1918)	69.9
Tufts College	(1917)	71.5
Laval University	(1917)	71.3
Montreal School of Medicine and Surgery	(1910)	60.9

*Graduation not verified.

† The year of graduation is evidently not correct, as the college was not known by the name given until in 1914. The institution, according to report, was not recognized by the Maryland Board of Medical Examiners.

Social Medicine, Medical Economics and Miscellany

Official Report on the Practice of Medicine by Unqualified Practitioners

As was mentioned in The Journal at the time, July, 1917, a commission was appointed by the public health authorities in the Netherlands, in response to considerable agitation and discussion on behalf of unqualified practitioners of medicine. The commission was given the task of settling the question as to the *doeltreffenheid* of the unqualified practitioners, that is, to investigate their claims, their methods of treatment and the results attained. The commission was composed of twelve of the leading physicians and surgeons of the country, including Treub, Hijmans, van den Bergh, Pekelharing, Laméris and Winkler. After nearly two years of research, their report has been published. It forms a quarto of sixty pages, and the main points have been summarized in the *Nederlandsch Tijdschrift*. Conditions were made extraordinarily favorable by the commission for the unqualified practitioners to present their patients for examination and control of the treatments and the results. They were universally invited, and when necessary the hospital, hotel and traveling expenses for both the unqualified and their patients were paid by the state. The members of the commission in nearly two years of work made a point of investigating only cases which they were able to examine beforehand themselves, not paying any attention to cases that dated from previous periods. It was found that the number of sick persons who were willing to submit to treatment by the unqualified was small, and only thirty unqualified practitioners were willing to submit patients to the commission's consideration, a total of ninety-six patients besides fifteen who were taking a course of treatment in a magnetic institute. The whole report is written from the objective standpoint with full details of the various cases.

The conclusions on the side of a favorable influence from the treatment by unqualified practitioners are: "The influence from suggestion exerted by certain unqualified 'healers' and probably also by the practitioners of Christian science may have a favorable action on sick persons. 2. Moreover, there are some among the unqualified persons who have become very skilful at massage. 3. It is also quite possible that the knowledge of the nature of a salve or mixture of herbs, the composition of which is kept secret, might prove of advantage in the treatment of certain definite affections."

The conclusions on the reverse side are: "The agitation and discussion during the last few years which resulted in the appointment of our commission make it incumbent on us to point out the great dangers to the public health which the results of the commission's investigations have established as inherent in allowing unqualified persons to practice medicine, dangers not only for the sick themselves but for the community at large. Our investigations have confirmed that in some cases, especially in the easily influenced or those with a leaning to mysticism, benefit may be realized from their complaints under treatment by magnetizers or other unqualified practitioners. When one is suffering from pains or does not feel well enough to attend to business, it is certainly an advantage for him if he does not feel the pain any more or if he is able to return blithely to work. But this is no proof that in reality he has been freed from his ailment. The unqualified, even the patients themselves, heed only the subjective complaints; the causes of the disturbances are hidden from them. Hence the numerous disappointments when after a period of transient improvement, the complaints return again and become accompanied by others on account of the progress of the malady, which with skilful examination and appropriate treatment in an earlier period might perhaps have been cured. Not one of the unqualified practitioners who submitted to examination displayed any knowledge of scientific medicine (ziektekunde). They use the names of diseases which they have heard from others, or words such as 'glands,' without any meaning in the sense in which they are used. They undertake to treat the sick without any conception of the malady from which they are suffering, paying heed only to certain obvious and easily noted phenomena. In treating the sick with internal disease they are unable to determine whether the individual is suffering from an infectious disease, with danger of its spreading, and in this respect unqualified practitioners are a distinct menace to the public health. They have no means of knowing whether an internal affection may not require surgical help, and thus they are a menace to the health and even the life of the individual who has trusted himself to their care. When they take external diseases under treatment then they are dangerous on account of their lack of knowledge of the theory of infection."

School Health Work for the Small City

Recognizing the urgent demand for thorough and constructive health work in the public schools of its own state, and appreciating the difficulties of providing for this work in the manner of the larger cities where greater appropriations are available, the University of Oregon, through its extension division, in Leaflet Series 4, No. 8, Part 2, sets forth a plan for the organization of health work in the small city of from 5,000 to 15,000, prepared by W. R. Rutherford, superintendent of the schools of Eugene, Ore., after a study of the plans of such cities in forty-seven states. The nucleus of the plan is the health director, not necessarily a woman, but more likely to be, in the smaller city, who shall be in charge of all branches of health work in the schools. The health director should be a graduate, preferably, of one of the broad physical education courses now being conducted in some of the colleges, in view of the impossibility of employing on a full-time basis a competent physician, and should have available the paid or voluntary assistance of a good physician for help in diagnosis. Larger towns may afford a director, a nurse and a school physician. In this plan teachers should have a good knowledge of health matters as relates to the pupils and should participate in the work, coming in contact frequently with the director, whose enthusiasm should enlist their hearty cooperation. The chief features of the work have relation to the inspection of the pupils, and include the prompt recognition and handling of the contagious diseases; the establishment of health records and the elimination of physical defects; physical training; mental tests; health lessons, etc., including the hygiene and sanitation of the surroundings of the pupils. The pamphlet giving the details of the plan and a bibliography on school administration and health activities may be had from the extension department of the university at Eugene.

Fall from a Cliff 320 Feet High Without Fatal Injuries

An almost incredible case in which a soldier fell from a cliff 320 feet high without fatal injury is reported in the *Guy's Hospital Gazette* of Great Britain by Mr. Philip Turner. This accident occurred near a hospital camp situated on a level stretch of ground at the top of a chalk cliff between 300 and 350 feet high on the French coast. As is commonly the case with a chalk cliff, the face is practically perpendicular but decidedly irregular, there being a series of small bays and promontories. At 9 a. m., Dec. 9, 1916, Mr. Turner was informed that a man had fallen over the cliff and was being brought to the hospital. When first seen he was not unconscious, but was restless and delirious, and could not answer questions. His head and face were covered with blood, chalk and gravel, and his clothes, including a service great coat, were soaked with water and soiled with the same materials. He was soon identified as a private in a Canadian regiment who had been admitted into a neighboring hospital with a slight wound of the arm. This had healed, and he had been discharged to the convalescent depot in the same camp, where he had last been seen at 5: 30 p. m. on the previous day. There were about ten scalp wounds, four of which extended down to the bone, and in one of these in the right frontal region a fissured fracture of the skull of uncertain extent could be made out. There was no depressed fracture nor paralysis, the pupils were normal, and though there was bleeding from the nose, there was no hemorrhage from either external auditory meatus. There was a large wound of the right knee where a flap of superficial tissues was torn, opening up the popliteal space. There were a number of superficial cuts and contusions, but no fractures of any of the limb bones. It was thought that there was probably an extensive fracture of the base of the skull, and little hope was entertained of the man's recovery. After three days the delirium had diminished, but he was still unable to answer questions. The knee joint was found to have been opened and was washed out, the damaged portion of the capsule and the synovial membrane was excised, and the rent was sutured. The only sign of intracranial trouble was noticed, December 17, when there was slight left facial paralysis with inequality of pupils, the right being larger. A roentgenographic examination of the skull detected no definite injury. The man recovered with an ankylosed knee, but he had no recollection of leaving the camp or what he did on the night of December 8, or how he was injured. Some French laborers were at work on the beach at the time of the accident, and two of them noticed a falling object against the white surface of the cliff which struck and bounced from a ledge and fell on the beach. Mr. Turner thinks that the amnesia was due to some unrecognized mental or hysterical disturbance resulting from his having been under fire, which caused him to spend an inclement winter's night straying about and to wander on the cliff. He suggests that a possible explanation of this tremendous fall with so little injury was a strong wind that was blowing in from the sea, causing an up draft, especially at the cliff base of the bay. This might have got beneath the man's great coat, breaking the fall by producing a parachute effect.

The only comparable case on record occurred at Lulworth Cove on the Dorset coast. It is thus described by Sir Frederick Treves in "Highways and Byways in Dorset":

> The cliffs that shut in the cove on the land side are steep and terrible. On the beach at the foot of the highest precipice is a board with this inscription on it: "This marks the spot whereon E. H. L., aged 11 years, fell from the summit of the cliff, a descent of 380 feet, Sept. 7, 1892. She miraculously escaped without sustaining lifelong injury." Any who look up from this spot to the fringe of grass which crowns this appalling wall will never credit that a child can have fallen from a height greater than that of St. Paul's Cathedral without having been mangled to death. I was on the beach when she was brought to the coastguard boathouse. She came down with her back to the cliff. Her clothes were torn into strings, and it would appear that the catching of her garments on the rough face of the precipice, together with the circumstances that certain slopes and ledges were encountered in her descent, help to explain the incredible fact that she escaped without permanent ill effect.

Education of the Organic Functions in Infancy

Sir Eric Pritchard (*Medical Press and Circular,* March 19, 1919) says it is too common a belief that the organic functions unfold themselves automatically on correct normal lines apart from the influence of the environment. In most cases they do, but they are largely under the control of human intelligence, and if directed unwisely give bad results, even permanently bad results. This applies especially to feeding habits. The neuromuscular mechanism by means of which food is swallowed, churned in the stomach and conveyed through the entire length of the intestines depends for its smooth working on accurate coordination of a vast number of involuntary muscles, some of which are specialized to constitute regular sphincters, while others carry out peristaltic functions. Overaction, perverted action or incoordinated action of these mechanisms is likely to result if the wrong sort of stimulus is provided in the first instance. It is important to set the mechanism in motion in the right way at the beginning of life. An infant who in the first days of life swallows its food in a perfectly coordinated manner is not likely to develop any symptoms of dysphagia afterward. But if on account of food unsuited in either quality or quantity an infant acquires a faulty habit of swallowing, the perverted function may remain permanently established no matter what steps may be taken to correct it. A form of this perverted function is called "rumination," which is a spasmodic closure of the cardiac sphincter, which leads to the retention of food in a dilated esophagus and the subsequent regurgitation of food which has never really entered the stomach. The motor mechanisms of the stomach are far more liable to be wrongly developed than those of the esophagus. Under normal conditions breast feeding induces normal evolution of gastric function, colostrum being especially perfectly adapted, by reason of its small quantity and stimulating qualities, to elicit the required motor response in the stomach, but causing no violent motor response of the pyloric sphincter or of the stomach. It gradually changes in a few days into ordinary milk and so calls the normal functions of the stomach into play. Cases of pyloric spasm constantly arise in young infants because of giving unduly large amounts of diluted cow's milk during the first few days of life. So-called wind in infants is generally caused by dysperistalsis or spasm of some section of the musculature of the intestine, generally of the transverse colon, and is usually due to faulty education or overstimulation by excess of food, or by food of indigestible character. The spasm becomes habitual and tends to recur every day at the same time. Constipation or looseness of the bowels is also largely a matter of education. Interference with the functions of the rectum and anus by the favorite dose of castor oil is likely to cause the establishment of faulty and incoordinated reactions, by clearing the bowel at one fell swoop of the beneficent meconium which is intended to educate the rectum in the functions of defecation.

New York's Health Record for 1918

The report on vital statistics for 1918 has been made public by Dr. William H. Guilfoy, registrar of records of the department of health. Up to the time of the outbreak of the influenza epidemic, New York was on the way to establish a new low mortality record. Unfortunately, this was not realized, and owing to the many deaths from influenza the annual death rate was 17.30, almost four points above the annual death rate for several recent years. The influenza epidemic increased not only the adult death rate, but also that of children under 5 years of age, there being 21,019 deaths in this group, or 2,754 more than in 1917. The large increase in the death rate was almost entirely due to influenza, there being only 196 deaths from typhoid fever, as against 229 for 1917, and only eight deaths from malaria, as against 250 in other recent years. There was no death from smallpox. There was a slight increase in the number of deaths from measles and scarlet fever, but a decrease in the number of deaths from diphtheria. There were 665 deaths from whooping cough during 1918, as against 489 in 1917. The number of deaths from pulmonary tuberculosis was 8,779, as against 8,825 for 1917. The report states that 4,139 persons died from cancer, with a rate of 84 per hundred thousand of the population, as against 4,867, and a rate of 85 during 1917. This is considered encouraging, as the trend of mortality from this cause has been steadily upward for twenty years. The statistics show that influenza had no effect on organic heart and kidney diseases. The general infant mortality table showed that 12,637 infants under 1 year of age died, with a rate of 92 for each thousand births, as against a rate of 89 in each thousand births in 1917. From Sept. 14, 1918, to March 10, 1919, there were 15,000 deaths reported from influenza, 6,600 from bronchopneumonia, and 10,775 from lobar pneumonia, 32,785 deaths all told from these causes. The annual death rate from these causes for the quinquennium 1913-1917 averaged 10,996. The number of births reported was 138,046, as compared with 141,564 in 1917. The birth rate was 23.51 per thousand of the population, the lowest the city has experienced since records have been kept. The number of marriages reported was 56,733, with a rate of 9.66 per hundred thousand of the population, as against 59,212 during the year 1917.

Medicolegal

Proof of Other Dates of Holding Out as Practitioner

(Commonwealth v. Runge (Mass.), 121 N. E. R. 449)

The Supreme Judicial Court of Massachusetts says that the defendant was charged with having unlawfully held himself out "as a practitioner of medicine" (in violation of Revised Laws, Chapter 76, Section 8), between March 3, 1915, and Aug. 3, 1915. At the trial the government did not put in evidence any such act between the dates named. But it did introduce evidence of one such act on Feb. 21, 1914, and of another on Feb. 12, 1915. The presiding judge instructed the jury that, if the defendant held himself out as a practitioner of medicine on any occasion preceding the date alleged in the complaint and within a period of six years next before that date, they could find the defendant guilty. To this ruling the defendant took an exception, and the exception must be sustained, and a new trial had. The offense created by said Section 8 may be committed by a single act or by a series of continuous acts; that is to say, it may consist of a single offense or of a continuing offense. In this case the government elected to charge the defendant with a series of acts committed between March 3, 1915, and Aug. 3, 1915, which constituted the continuing offense of illegally holding himself out as a practitioner of medicine. When a defendant is charged with a series of acts as a continuing offense, the offense charged in a single indivisible offense and a part of the description of the offense charged is the duration of time mentioned during which it is charged in the indictment the series of acts took place. It is for this reason that evidence of acts committed outside the time specified are not permissible in evidence. The district attorney argued that this had been changed by Section 10 of the act for the simplification of criminal pleading, but that section does not apply where time is an essential element of the crime.

Evidence in Action for Services Opposed by Claim of Malpractice

(MacCoy v. Gage (Calif.), 177 Pac. R. 296)

The District Court of Appeal of California, Second District, affirms a judgment in favor of the plaintiff, a licensed physician and surgeon, for $1,000, the full amount sued for and alleged to be the reasonable value of professional services rendered to the defendant, who filed a cross-complaint, seeking to recover damages which he alleged he had sustained by reason of unskilful treatment which he had received at the hands of the plaintiff. The court says it appeared that the plaintiff had been called on to attend the defendant, who had suffered a fracture of the neck of the femur. At his first visit the plaintiff adjusted the broken part and applied a weight to the limb. A trained nurse was called to attend the case, and the plaintiff continued his ministrations during several months, and until the defendant was able to move about on crutches. It was shown that the patient later became able to walk, even without the aid of a cane, at least for short distances. The plaintiff made eighty-five visits to the defendant. During the time he attended him he was called on to prescribe for other conditions than the broken bone, namely, pneumonia and rheumatism. From all of the medical testimony, even that produced by the defendant, it appeared that so far as the fracture was concerned, the results obtained by the plaintiff were better than the average. Under the evidence as presented, it was very clear that the matter of the value to be placed on the services rendered to the defendant was one exclusively for the jury.

A medical witness having stated his opinion as to the value of the services rendered by the plaintiff, what these services had been being detailed in the question, objection was properly sustained to a question asked on cross-examination, whether the witness would alter his opinion as to the value of the services, when this question assumed other matters not shown in evidence. And when the same witness was asked, on cross-examination, as to whether it was not customary, in cases of the character involved, to take a roentgenogram, the court cannot see how any prejudice resulted to the defendant by the sustaining of an objection to the question, even if it were to be conceded that the trial judge should have allowed the question to be answered. Concededly, the taking of a roentgenogram was valuable only for purposes of diagnosis, and it seemed very clear that the diagnosis made by the plaintiff without the aid of the roentgen ray was the correct one. More than this, the matter of the advisability and value of roentgenograms was fully gone into in the testimony introduced later in the case. The court thinks also that a refusal to permit counsel for the defendant to require the same witness to give in detail what he considered proper treatment to a patient under the circumstances shown was without error prejudicial to the defendant. The court did not debar the defendant from cross-examining on all matters contained in the hypothetic question on which the witness had answered in giving his opinion as to the value of the services, and it was within the court's discretion to refuse to allow the witness to enter on a discussion, possibly lengthy, as to a course of treatment not included within the facts as shown and on which he based his opinion as to the value of the services rendered.

Nor was there error in sustaining objections to questions asked the trained nurse who had attended the defendant under the direction of the plaintiff. The questions all went to the point as to what the witness had observed other physicians do in like cases, or what she considered good or customary treatment. The court does not think that the opinion of the trained nurse was competent evidence to show that the treatment administered by the plaintiff was improper.

Purchaser of Good Will Injured as Oculist

(Ferris v. Pett (R. I.), 105 Atl. R. 369)

The Supreme Court of Rhode Island says that, after the death of a Dr. Jewett, who had specialized in matters pertaining to the eye, ear, nose and throat, with practice as an oculist, the plaintiff, as administrator of his estate, contracted for the sale of his business, good will, surgical instruments, and furniture for $1,000, to the defendant, another specialist in the same lines. After making payments aggregating $500, the defendant refused to make further payments under the contract, on the ground that the plaintiff, who was an optician, had broken the contract on his part by interfering with the defendant's rights and impairing and injuring the good will, by solicitations addressed to the former patients of Dr. Jewett and designed to divert them from the defendant and secure to himself their future patronage. This action was then brought by the plaintiff, as administrator, to recover the balance which he claimed to be due under the contract. He recovered judgment for $500 and interest, but the supreme court thinks that the solicitations of the plaintiff, as evidenced by his letters to former patients of Dr. Jewett, amounted to a violation of the contract on his part, and that he was not entitled to recover that portion of the contract price which appertained to the good will, and suggested that he show cause, if any he had, why this case should not be remitted to the lower court with direction to enter judgment for the defendant. It appeared that the plaintiff, as an optician, had copies of prescriptions that had emanated from Dr. Jewett, and had written letters to the effect that, in going over his files, he found the name of the person addressed and prescription for glasses as made by Dr. Jewett some little time before; that in most cases like that of the person addressed, a change of lenses was advisable after such a period, and so he was writing to inquire if the party would like to make appointment with him for a reexamination. The court says that there is no conflict of interest between the oculist and the optician, so long as the one prescribes the lenses, and the other prepares and adjusts them to suitable frames, in which they become practically effective. In this case the plaintiff went farther, as his letters of solicitation clearly indicated. In these letters he not only suggested that the party addressed should obtain new glasses from him, but that he or she should undergo, at his hands, a reexamination of the eyes, with a view to adapting future glasses to such changed conditions as might have resulted from the lapse of time. The court cannot see how the kind or degree of skill required in determining what lenses were suited to the changed conditions would differ from that demanded in prescribing glasses in the first instance. The defendant testified that he received practically no advantage from the purchase of the good will of the business which had been carried on by Dr. Jewett. That fact would not in itself have any important bearing on his liability to pay the balance due under the contract. His mere failure to realize his expectations as to future business, in the absence of any fraud or interference on the part of the person from whom he made the purchase, would not establish a failure of consideration. But in this case there was something more to be considered than a failure of the defendant's expectations. The testimony disclosed that the plaintiff, after disposing of the good will of the business carried on by Dr. Jewett, interfered with the defendant's rights, and sought to divert the business from the defendant, for his own benefit, which clearly amounted to a violation of the contract on his part.

Scope of Review of Action of Board Revoking License

(State Board of Medical Examiners v. Noble (Colo.), 177 Pac. R. 141)

The Supreme Court of Colorado reverses a judgment of the district court entered on a writ of certiorari to the state board of medical examiners, which judgment reversed the action of the board in revoking the license of Noble to practice medicine in the state. The supreme court says that the board, on a hearing, had on a complaint charging Noble with having committed an abortion found him guilty as charged, and revoked his license. In the trial court it was contended that a judgment of acquittal in the criminal court, on a charge of having committed an abortion, was a determination of his innocence which the state board was bound to accept, and it was so contended here. But that went to the merits of the cause, which was not involved in this proceeding. The medical board had jurisdiction of the subject and of the person, and clearly did not exceed jurisdiction, or abuse its discretion. On a review of its action by writ of certiorari, those were the only questions to be considered. Whether its decision on the merits was right or wrong was not within the issue. No complaint was made that Noble did not have a fair hearing before the board, and that body's action was within the authority granted it by law. The judgment of the district court was unauthorized.

Compensation for Both Injuries and Malpractice

(Smith v. Battjes Fuel & Building Material Co. et al. (Mich.), 169 N. W. R. 943)

The Supreme Court of Michigan affirms an order of the industrial accident board denying the petitions of the company, Smith's one-time employer, and of the state accident fund, insurer, for the right to cease further payments to Smith as compensation under the workmen's compensation act, because he had received $2,125 from the physician who had treated him, on account of alleged malpractice in connection with the injury for which he claimed compensation, and for the reason that he had refused to submit to an operation. The court says that Smith had received an accidental injury in which his right arm was broken in at least two places, accompanied by a partial dislocation of the elbow joint. Thereafter a written agreement was entered into between him and the commissioner of insurance (the risk being carried by the state accident fund), by the terms of which he was to receive $6.49 per week during disability. Some months later, becoming convinced that the then condition of his arm, which was entirely useless, was due to malpractice on the part of the attending physician, he sued him therefor, and was paid $2,125 in settlement. The industrial accident board found that Smith's condition, which was one of total disability, was due to the original accident, and not to any malpractice; that his refusal to submit to proposed surgical operations on his arm, under the testimony in the case, was not unreasonable; that his receipt of the money from the physician did not constitute an election, within the meaning of the workmen's compensation act; and that the allegations in his declaration filed against the physician were not binding and conclusive on him, but might be considered as evidence only. The court does not think that the fact that Smith started suit against the physician by declaration in which he averred that his condition of total disability was the result of malpractice, and not of the original accident, precluded him from asserting here that such condition was due to the original injury. The court is of the opinion that the board was correct in holding that the averments of the declaration were not conclusive as admissions against him, but might be considered by the board as evidence in connection with all the other evidence in the case. Nor does the court think that the state accident fund should have credit for the $2,125 received by Smith from the physician, in reduction of the amount due from it to him under the terms of the statute. The Michigan law makes no provision for the application of sums received by a claimant from a third party, not connected with the original accident, in reduction of the master's liability under the act. If such application should be made, it is a matter for legislative action, rather than judicial interpretation.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirty-First Annual Meeting, held in Atlantic City, N. J., June 16-18, 1919

The President, Dr. Edwin E. Graham, Philadelphia, in the Chair

Foreign Bodies in the Air and Food Passages

Dr. Edwin E. Graham, Philadelphia: From a study of a comparatively large number of cases of foreign body in the air passages and a much smaller number of cases of foreign body in the food passages, it seems reasonable to conclude that foreign bodies in the air and food passages in children are much more common than has been supposed. Statistics tend to show that about 66 per cent. of the cases of foreign body in the air passages occurred in children. The period of latency of symptoms which follows the violent dyspnea and choking attack, and later the gradual onset and chronic character of the symptoms, may lead to failure to suspect the presence of a foreign body. Some foreign bodies do not cast a shadow on the roentgenogram. The physical signs and symptoms vary according to the composition, form, shape and size of the foreign body. A foreign body should be expected if the following conditions are present: an unexplained leukocytosis; localized symptoms in one lung that do not clear up under treatment; absence of tubercle bacilli in the sputum, and a gradual failure in weight and strength. There are no contraindications to bronchoscopy except weakness in the patient, and if this is present the individual should be given time to rally. Bronchoscopy should be performed as soon as possible after the entrance of the foreign body. Children do not require the administration of an anesthetic for the performing of bronchoscopy. The asthmatoid wheeze is a symptom of considerable importance.

Lactose, Fat and Protein Content of Woman's Milk

Dr. Fritz B. Talbot, Boston: Investigations on the composition of woman's milk at different stages of lactation, accurately quantitated by newer chemical methods, show that the average amount of lactose in sixty samples of breast milk was 7.19 per cent., with the general tendency for the strength of the lactose to increase throughout the period of lactation. The percentage of fat in the milk of different women varied within wide limits, the lowest mixed milk being 1.5 per cent. and the highest 9.9 per cent. The average amount in the mixed samples was 3 per cent. The average amount of fat in thirty-five samples taken only from wet-nurses was 4.18. The percentage of fat depends more on how completely the breasts are drained and the amount of the late milk which gets into the sample than on the stage of lactation. There is a general tendency for the amount of protein to diminish as lactation progresses. The variation in the percentage of lactose from the beginning to the end of nursing rarely exceeded 1 per cent. The variation in the percentage of fat was greater, but, as a rule, it was less than 4 per cent. The percentage of protein rarely varied more than a few tenths of 1 per cent. and was sometimes lower after nursing and sometimes higher. The milk from the right and left breast of the same woman taken at about the same time tends to have about the same composition, but occasionally a wide variation is found. Milk taken at three hour periods during the day showed that as the day went on the volume of milk had a tendency to diminish. The percentage of fat was found to be higher after midday as a rule. The variation in the amount of lactose and protein, however, was very slight.

DISCUSSION

Dr. L. Emmett Holt, New York: The figures Dr. Talbot has given for lactose are about what we have found in our laboratory. Many disturbances of digestion attributed to fat are in reality due to sugar. A baby may be gaining in weight and yet have a diarrhea due to the volatile fatty acids caused by sugar. Clinically the way to handle these cases is to dilute the milk and change the frequency of feeding. In such cases, examination of the stools may reveal the presence of fat; this leads to the erroneous assumption that it is the fat in the diet that is responsible for the trouble, whereas the stools contain fat because the fermentation of the sugar causes diarrhea and interferes with the digestion and absorption of fat. We must get away from the idea that breast milk always contains 7 per cent. of sugar or less, and we must learn that many disturbances of digestion may be attributed to sugar.

Dr. De Witt H. Sherman, Buffalo: If the protein content of the milk bears no relation to the high carbohydrate content, would it not be possible to overcome the conditions caused by a high percentage of sugar by the addition of some powdered protein preparation, thus changing the ratio of the food elements?

Dr. Fritz B. Talbot, Boston: Children in the later stages of lactation who were getting 8 per cent. lactose were without watery stools, and we have fed this amount of sugar in the form of lactose and glucose without causing disturbance; so we have concluded that this is a normal ratio for this period of lactation. As to Dr. Sherman's question, we feel that the way to deal with sugar fermentation is to reduce the amount of sugar and that will stop the diarrhea.

Pathogenesis of Certain Nutritional Disorders

Dr. W. McKim Marriott, St. Louis: In the severe and acute toxic state observed in infants who have suffered from a severe watery diarrhea, the trouble has been attributed to "alimentary intoxication" because the administration of food resulted in an increase of all the symptoms. A more rational view is that the giving of food, especially easily fermentable carbohydrate, leads to increased water loss from the body by way of the bowel, and that the symptoms may be referred entirely to water loss. The blood plasma of infants suffering from this condition was invariably concentrated. The protein of the blood serum of normal infants averaged 6 per cent.; in those desiccated as the result of diarrhea, it might rise as high as 9 or 10 per cent. This desiccation explains the great loss in weight in these children. Decrease in blood volume diminishes volume flow and results in acidosis, and in addition there is a retention of acids in the body through failure of excretion by the kidneys, since renal activity is greatly decreased by concentration of the blood and poor volume flow. Dehydration of the blood results in a disturbance of the heat regulatory mechanism, and fever occurs. The term "anhydremia" or "anhydremic intoxication" is accurately descriptive of the condition, and is preferable to the undesirable term of Finkelstein, "alimentary intoxication." Anhydremia occurs from other causes than diarrhea, as diminished fluid intake, or vomiting, fever or high external temperatures. Whatever the cause, the treatment is the same. Fluid in large amounts must be administered. The usual methods are often ineffective, and the intraperitoneal injections have to be given. A small infant may receive as much as 2,400 c.c. of fluid in twenty-four hours. The intravenous injection of 10 per cent. glucose solution at frequent intervals is often a valuable adjunct to the saline injections. Marasmus is analogous to anhydremia, but is the result of insufficient food, whereas anhydremia is the result of insufficient water. In this condition there is a diminution in the blood protein, and the volume flow is also decreased, but not to such an extent as in anhydremia. The obvious treatment of these athreptic infants is the administration of considerable amounts of food. The best results in feeding in this type of cases has been obtained with whole lactic acid milk to which a mixture of carbohydrates is added, the most suitable carbohydrates being dextrin and glucose; maltose also is serviceable. "Corn syrup" is such a mixture and has proved most effective in our hands. Acacia injections are an adjunct but not a substitute for food.

DISCUSSION

Dr. Oscar M. Schloss, New York: Pediatric literature contains many references to the digestibility of fat, protein and carbohydrate, but very little is said about water. A proper proportion of water is most important, as Dr. Marriott has shown. These children said to be suffering from alimentary intoxication are always in a state of dehydration. I have in a number of instances seen a marked acidosis disappear with the administration of a sufficient amount of water, without the use of sodium bicarbonate. The explanation is that given by Dr. Marriott.

Dr. I. A. Abt, Chicago: Many attempts have been made to classify intestinal disorders, both by clinicians and by bacteriologists, and we all know how futile such attempts have been. Now the chemists and the pathologists are trying their hand and I hope they will be successful. The most valuable classification we have is based on food disturbance. It seems that by noting the effects of certain foods in health and disease, the most important basis for the classification of nutritional disturbances would be furnished. Dr. Marriott has not referred to this side of the question; and while he has made an important contribution to the chemistry and pathology of these conditions, the important question is how to prevent the occurrence of a pathologic condition.

Dr. McKim Marriott, St. Louis: I made no attempt to discuss the etiology of diarrhea. I feel that the prophylaxis of these underlying conditions is the prophylaxis of diarrhea, which we consider as a local condition in the intestinal tract, and merely the end-result produced by any cause at all.

Study of Relationship of Convulsions in Infancy and Childhood to Epilepsy

Dr. John Lovett Morse, Boston: One hundred and seven persons whose primary complaint was convulsions were studied. No cases were included in which there were any evidences of acute or chronic cerebral disease. The objects of the study were to determine what proportion of the children, otherwise perfectly normal, having convulsions had epilepsy or developed it later, and to find out if there was anything in the history or in the manner of the development of convulsions to show whether or not they were manifestations of epilepsy, or whether they would be followed by or develop epilepsy later. Ten of the children showed spasmophilia. In all these the convulsions ceased, but one of the babies became feebleminded. It would seem that convulsions which occurred in babies with spasmophilia and which were presumably manifestations of spasmophilia were not likely to lead to the development of epilepsy later. In three instances the convulsions occurred in the course of whooping cough, and one of these children developed epilepsy later. Convulsions occurring in the course of whooping cough must, therefore, be regarded seriously. There were thirty-nine cases in which there was a single convulsion at the onset of some acute disease or with an attack of acute indigestion. Two of these children became epileptic and feebleminded; a third had petit mal, and a fourth might or might not be epileptic. There were fifty-five cases in which there had been repeated convulsions during a considerable period, and in which there had been repeated attacks suggestive of petit mal. Taking seven years as an arbitrary standard, only twenty-one of these could be considered normal at present. It has been impossible to tell from the nature of the early attacks as to the nature of the attacks when epilepsy develops later.

Epilepsy is far more likely to develop when the cause of the attacks is apparently an injury or severe labor, than when the apparent cause is a disturbance in the digestive tract. The longer the attacks have persisted, the more probable is the diagnosis of epilepsy. There is no way to determine immediately when a baby or child has a convulsion, or repeated convulsions, or repeated attacks suggesting petit mal, whether or not it has epilepsy or will develop it later.

DISCUSSION

Dr. Henry Koplik, New York: In the main I agree with Dr. Morse. Usually the application of the electrical test will determine whether or not a baby is a true spasmophiliac. In the vast majority of spasmophiliacs, epilepsy does not occur later in life. One must be very cautious in making a diagnosis of epilepsy simply because a child has a few convulsions if the child is otherwise normal. It is well to remember that spasmophilia may occur later in childhood. Unless there is a family history of epilepsy, one should be very careful about making a diagnosis of epilepsy during the early years of a child's life.

Dr. L. R. De Buys, New Orleans: Would you group children who have spells of "holding the breath" as spasmophiliacs? Have you met any children of that sort who have developed epilepsy later?

Dr. J. P. Crozer Griffith, Philadelphia: It is practically impossible early in life to make the diagnosis of epilepsy. In the new-born, convulsions may be due to birth trauma and this may result in epilepsy later. Convulsions due to indigestion are not likely to result in epilepsy.

Dr. Henry Heiman, New York: I have seen children develop spasms, coma and convulsions five or six days after birth. In such cases there may be a venous apoplexy due to injury at the time of birth, which has resulted in the blood oozing from the cortical area. In such a condition the results will depend on how much of the blood clot is absorbed and how much organizes. The early treatment of spasmophilia may have an influence in the prevention of epilepsy.

Dr. L. Emmett Holt, New York: Dr. Morse's conclusions are borne out by my experiences, namely, that a large number of children whom we expect to have epilepsy do not have it. The general practitioner and the neurologist are more likely to regard these children as prone to have epilepsy than is the pediatrician, because the pediatrician sees convulsions so often, and the great majority of the children who have had convulsions do not have epilepsy later. Recurring convulsions, with a sharp rise of temperature even if there is not much indigestion present, are not serious in relation to epilepsy; but when babies develop convulsions without a rise of temperature and withuot assignable cause, they should be regarded with suspicion. Dr. Morse's statement in regard to the relation of the convulsions of whooping cough to epilepsy were based on insufficient data. Unless there is some underlying peculiarity of the nervous system, epilepsy is not likely to follow the convulsions of whooping cough. One should be guarded in making a prognosis of epilepsy.

Dr. Samuel S. Adams, Washington, D. C.: My conclusions on this subject are about the same as those of Dr. Morse. The most important point is to avoid casting the stigma of epilepsy on a child. In cases of convulsions during whooping cough, one should be cautious in making a diagnosis of epilepsy. Many of these cases of convulsions in childhood have some of the appearances of epilepsy; but I have always made it a point to teach my students to be very careful about calling them epilepsy. In some children the onset of an infectious disease is ushered in by convulsions; but after they have passed the period of infectious diseases, these children have no more convulsions.

Dr. Henry L. K. Shaw, Albany, N. Y.: There is a tendency among the laity to take the position: "Once an epileptic, always an epileptic." I have had several children with undoubted epilepsy who to all intents and purposes have recovered.

Dr. Henry F. Helmholz, Chicago: I would like to suggest the possibility that certain acute conditions, particularly gastro-intestinal disturbances, may be a factor in changing a latent spasmophilia into an active one. It seems to me that the main point to be emphasized is that if there is a rise of temperature at the onset of illness, convulsions associated with it are not of great importance so far as the diagnosis of epilepsy is concerned.

Dr. Fritz B. Talbot, Boston: In considering this whole question the point should be emphasized that we are dealing with symptoms and not with a disease. If this symptom is due to spasmophilia, we would expect to find some change in the blood calcium. We have determined the blood calcium in a small number of spasmophiliacs and have found it lowered.

Dr. J. L. Morse, Boston: I have never considered breath holding as a symptom of spasmophilia. As to the birth hemorrhages, I have omitted all cases in which there were signs of injury to the brain. In a number of cases in which we have been asked to make a diagnosis as to whether or not epilepsy is present, if the convulsions have been present over a long period we make a lumbar puncture, a Wassermann test, examine the feces and urine, and give the child a thorough physical examination. We then follow up the cases in which we find nothing to account for the convulsions.

(To be continued)

AMERICAN GYNECOLOGICAL SOCIETY

Forty-Fourth Annual Meeting, held at Atlantic City, N. J., June 14-17, 1919

The President, Dr. Franklin H. Martin, Chicago, in the Chair

Toxic Effect of Fibroid Tumors of Uterus

Dr. R. R. Huggins, Pittsburgh: In the absence of other symptoms, it has been suggested that the absorption of toxins incident to the growth of fibroid tumors may account for certain changes in the heart muscles, which occur in many cases. The frequency of nervous symptoms, the relatively large number of cases of infection of the kidney secondary even to small fibroids, all point strongly in favor of such a theory. It is the consensus of opinion that heart changes are present in from 40 to 50 per cent. of the cases.

Complications of Uterine Myomas

Dr. Edward E. Montgomery, Philadelphia: Among the complications are nutritive disturbances. The enlarged and irregularly developed uterus, to accommodate itself to the contour of the pelvis, rotates on its vertical axis obstructing the return of blood through the veins, while the more rigid arteries continue to deliver the current. Edema and partial or complete necrosis may follow. Pregnancy may lead to such rapid growth of the tumor as to necessitate immediate resort to surgery. A subserous growth with pregnancy may be pressed between the developing uterus and the bony or parietal wall, arresting its circulation. On the right side, it simulates appendicitis. In one case it caused abortion and subsequently necessitated hysterectomy. Myomas encroaching on the uterine canal increase the danger of infection. Tubal infection, ovarian hematoma, pyuria and sacculated kidney are sometimes complications.

Study of Frozen Sections of Pelvis, with Description of an Operation for Pelvic Prolapse

Dr. Alfred Baker Spalding, San Francisco: The pelvis of a woman 32 years of age, a nullipara, was cut by frozen section into four segments. The surfaces of the segments were photographed and the pelvic fascia outlined. The uterus can be seen hung as in a swing by the paracervical tissue which is intimately attached to the pelvic fascia, the arcus tendineus of which gives strong support to the bladder, vagina and rectum. The levator ani muscles and fascia give support from below and bring the lower part of the vagina and rectum toward the symphysis. The operation I perform consists in dissecting free the fascia in the anterior vaginal wall to the arcus tendineus and overlapping, as described by Rawls. Amputation of the cervix is done, together with placing on either side of the cervix two deep sutures to control hemorrhage. The peritoneum is opened below the bladder and a subtotal vaginal hysterectomy is done, attaching the cervical stump to the sacro-uterine and severed broad ligaments. The round ligaments are drawn through the cervical canal and sutured on the vaginal surface. With rectal prolapse the rectum is supported by operations described by Ward, Studdiford and others.

Unique Diffuse Uterine Tumor: Adenomyoma with Stroma But No Glands

Dr. DeWitt B. Casler, Baltimore: A panhysterectomy and a right salpingo-oophorectomy were done on a woman 39 years of age for a supposed myoma of the uterus, and a metrorrhagia present for one year. The gross specimen was found to have a large, reddish polyp filling the cavity, while the walls of the uterus presented small, comedo-like masses, standing out prominently above the cut surface on pressure. Sections showed an almost total absence of uterine glands; but finger-like masses of interglandular stroma, dividing the uterine muscle into a fine meshwork, were seen extending as far as the peritoneal surface. Following this operation, the patient gave a history of regular menstruation, lasting one day each month for four years. At a second operation a cystic tumor of the left ovary was removed. This was found to contain many reddish polypi resembling in appearance the uterine specimen previously removed and made up almost entirely of uterine tissue, glands, stroma and apparently normal uterine mucous membrane.

Elective Cesarean Section

Dr. Edward P. Davis, Philadelphia: Elective operation is justifiable only when the conditions present are such that any other procedure would be much more dangerous for mother and child. Elective section cannot be a frequent operation. It is justified in physiologic incompetence for labor, in some abnormal positions and presentations, in cases of repeated overgrowth of the child, and in cases in which previous labors have been dangerous.

Conservative Treatment in Certain Cases of Placenta Praevia

Dr. George W. Kosmak, New York: In the case of a primipara presenting a rigid and only slightly dilated cervix and the probability of a central placenta praevia, with the child at or near term and still in good condition, the amount of bleeding not having been extreme, there is no question that abdominal cesarean section offers the best method of delivery for both mother and fetus. The large majority of cases are outside of this group, however; only a portion of the placenta impinges on the region of the internal os or the lower uterine segment, so that hemorrhage of any extent results only after the cervix has become thoroughly softened and is dilated. Nevertheless, even in this group the amount of bleeding may be sudden and excessive, especially as the lower uterine segment in multiparas, in whom we most often find this abnormality, is thoroughly softened and separated easily from the placenta.

Control of the hemorrhage during the process of dilatation remains the important indication, and this can be made most effectively by the extra-ovular introduction of the bag, a method described and adopted by Dr. E. B. Cragin. As an emergency measure, it is much superior to the intra-ovular introduction of the bag because less harm is done by hospital interns, for example, than if the perforation of the placenta with a Braxton-Hicks version or intra-ovular introduction of the bag is carried out.

Premature Separation of Normally Implanted Placenta

Dr. Arthur H. Morse, New Haven, Conn.: Ligation of the uterine veins in pregnant rabbits reproduces lesions in the uterus identical with those in women suffering from premature separation of the placenta. Similar lesions in rabbits result from constriction of the vessels when the uterine horn is rotated. Premature separation of the placenta in women also probably depends on an acute disturbance of the uterine circulation.

Nutrition of Fetus

Dr. J. Morris Slemons, New Haven, Conn.: No diet is specifically adapted to the state of pregnancy; the prospective mother may exercise the same freedom in the selection of food as any one else. She should select what will agree with her and avoid that which she cannot digest and assimilate. In the main, personal experience must guide every one as to what to eat, and most women follow the dictates of appetite as safely after they become pregnant as they did before.

Value of Repeated Small Blood Transfusions in Blood Stream Infections

Dr. John Osborn Polak, Brooklyn: After the bacteria have gained entrance to the blood stream, the cellular elements of the blood are rapidly destroyed. The heart, liver, spleen and kidneys show definite pathology, and acidosis develops. Small repeated blood transfusions increase the cellular elements, stimulate resistance and raise the blood pressure, hence adding to the natural defense.

Age Distribution and Age Incidence in Cancer of Uterus

Dr. Reuben Peterson, Ann Arbor, Mich.: Between the ages of 35 and 65 occurs 82 per cent. of uterine cancer. Uterine carcinoma below the age of 20 is exceedingly rare, but it does occur in an appreciable percentage of persons between 20 and 25. Adenocarcinoma of the fundus is not a disease of early life, there being in my series only three women out of ninety-four below the age of 35. From 10 to 15 per cent. of uterine carcinomas are located in the fundus. In contradistinction to carcinoma of the fundus, 23.5 per cent. of squamous cell carcinoma of the cervix is found in patients under 40. Practically 50 per cent. of 369 cases of squamous cell carcinoma of the cervix occurred between the ages of 40 and 55. The maximum age incidence for carcinoma of the uterus is at age period 55 to 60; it declines rapidly from this age period to the period 70 to 75. After each age period of greatest carcinoma incidence is reached there is a sharp decrease in incidence, demonstrating the incorrectness of the statement that the age incidence of carcinoma increases with the age period.

Radium Treatment of Uterine Cancer

Dr. Harold Bailey, New York: Practically all cases that have a complete radiation of the local lesion and the lymphatic and other involved tissue in the parametrium, pass through a period of improvement. In all but the more advanced conditions this improvement consists of a disappearance of the ulceration, a lessening or entire disappearance of the discharge, a gain in weight, and general improvement of health.

After a longer or shorter time of well-being following the treatment, many patients have further development of cancerous tissue behind the vault of the vagina. In the effect to save these patients that have a retrogression after six or eight months, I have pushed the radium treatment of the parametrium, both by vaginal and by surface radiation, to the highest limits of safety, and have thereby caused in many who now appear to be free from cancer various types of pelvic sclerosis, both mild and severe. I have felt that it was wise to recede somewhat from the massive dose given by the bomb applicator. This dose now is actually in the neighborhood of three fourths of the maximum. The method in use permits of the entire treatment being given in a forty-eight-hour period, and with only moderate discomfort to the patient. The local slough and signs of irritation in the vault of the vagina, seen so frequently in using the older method, are now lacking in most of the cases. From our results in the uterine body cancers, it would appear to be necessary to remove the uterus after a preliminary radiation, or when this is inadvisable to radiate the entire pelvis as completely as is done with a cervical tumor. The results in cases of recurrent cancer following a hysterectomy are very promising. It should be understood that it is as important to radiate these cases immediately after operation as it is to operate early in the course of the disease. So great has been the palliation from the radium that it may be said that no uterine cancer case receives proper treatment without thorough radiation of the tissues of the pelvis.

Tumors of Bladder in Women: Diagnosis and Treatment

Dr. Howard A. Kelly, Baltimore: It is very important to utilize the natural landmarks as well as an artificial division into hemispheres. Using the end of the speculum as a measure and these landmarks, the first step is to plot out all areas of disease and note them on a simple chart. Malignancy in bladder tumors is not always to be determined from the microscopic standpoint. Some tumors which are classified as malignant by the pathologist are clinically benign and vice versa. An ulcerated and infiltrated base is the clinical test of malignancy. The treatment is occasionally by excision, but, as a rule, by fulguration and radium. Many patients have apparently been cured, even those who have tumors which are malignant and infiltrative.

Are the Operative Procedures Done for Dysmenorrhea and Sterility Justifiable in the Light of Developmental Study?

Dr. Frederick C. Holden, Brooklyn: Operative procedures alone give a small percentage of successes and sometimes add a troublesome pathologic condition of the genital organs to the syndrome of dysmenorrhea and sterility. The only intelligent method of studying the activity of the spermatozoa is in their relation to the female secretions. Further experience with endocrines will tend to clarify our present position in regard to the treatment of dysmenorrhea and sterility.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

Eleventh Triennial Session, held at Atlantic City, N. J., June 16 and 17, 1919

The President, Dr. Simon Flexner, New York, in the Chair

The Surgical Aspects of Reconstruction

Dr. John M. T. Finney, Baltimore: Surgical reconstruction comes under three main heads: (1) prophylaxis, (2) plastic and reconstructional measures, and (3) prosthesis. Two classes of cases will in future be noted, the unfortunate class, the "unpreventable deformities," the irreducible minimum, that, owing to nature of injury, loss of substance, etc., will remain as an unavoidable consequence of war; and the "preventable deformities." Such cases include deformities and disabilities from malunited fractures, osteomyelitis from neglected infections, paralyses from divided nerves (possibly due to unwise débridement), contractures from scar tissue, etc. In modern warfare a small percentage of fatal casualties must result; a much larger number of cases of complete recoveries will be found, and the balance of injuries will result in more or less permanent disability, these latter varying with the circumstances under which they were received and the treatment administered.

A point of great importance is the part played by transportation in modern warfare. If the ambulance can deliver the patients promptly and in good condition to the stations in the rear, the surgeon has to deal only with the trauma presented; if, however, delay occurs in receiving the wounded, the problem then is primarily one of infection and is infinitely more serious.

In Lyons, in 1914, the first actual training school for invalid soldiers was established, although sporadic attempts had previously been made in Belgium, Russia, Great Britain and France. This idea gained favor rapidly and has developed to such an extent that now the disabled soldier has the opportunity to again become an independent, self-supporting member of society. Prevention is better than cure. The military surgeon has two very distinct duties: (1) to minimize, or prevent, if possible, deformity and disability; (2) to return the disabled soldier to the line in the shortest possible time. In the early days of the war attention to proper shoeing and the building up of men so as to overcome minor ailments were important points in relieving the hospitals of many cases; and much material was thus early reconstructed and added to the man power of the army. Proper standardization and application of splints was found also to be an enormous factor in saving loss of life and preventing disability.

The venereal disease problem, which at first bid fair to be a very large factor in loss of man power, was dealt with in characteristic American fashion, in spite of opposition of the French (and, to some extent, the British). The prevention of waste of efficiency was an end to which all strove, and the establishment of surgical laboratories, where courses in life saving, blood transfusion, and the physiology and treatment of shock were offered, was a powerful means to this end. Shock teams, composed of physicians and even dentists, were used to economize the services of surgeons.

The number of incapacitated from the war have been great, but they are small compared with the constant stream of injured constantly pouring forth from the myriad of industrial establishments throughout the world, and methods to make the experiences of the war apply to the salvage of civilians are already being considered. The early inauguration of reeducational measures, the maintenance of a stimulating environment, the determination of the man's fitness for any given vocation must be given due consideration. The economic value of not over filling certain trades, and the limited demand for certain kinds of labor should be taken into account. The training of our disabled is simply a means to an end, the end being to equip men for their whole future, to make them self-supporting, self-respecting citizens, capable of rendering continuous service for the rest of their lives. Society is under a moral obligation to provide suitable employment of a permanent character. Reeducation courses may be given in a variety of ways and places, in hospital centers and convalescent homes, technical schools and colleges, agricultural institutions, private workshops and factories.

The Neurologic Aspects of Reconstruction

Dr. Harvey Cushing, Boston: Reconstruction, like conservation, is a useful word, but it may be greatly overworked and it should include later treatment. The question of reconstruction is involved in what our hospitals are attempting to do for their patients. We see the same defects in civilian hospital results, especially in regard to the difficult by-paths of medicine which deal with psychology. Less is known of the disorders of the nervous system than of any other part of the body. The mental hygienist and the neurologist have raised a small voice which has been lost in the general uproar of reconstruction. The stress of life falls heaviest on the central nervous system, and in times of war this strain is increased; yet we must remember that in war time sane minds are even more necessary than sound bodies. An effort was made during the draft to comb out the neuropathics, but in spite of this many were left who developed neuroses in the camps, and later in the field the numbers were added to, by means of subjection to the strain of high explosives. It was recognized that nervous disorders would represent the final sediment of war injuries, and those most difficult to treat. Thus, in 1918, a neurologic force was organized with a neurosurgical consultant. No figures are ready as yet, except comparative ones compiled by the French who compute that 25 per cent. of war disabilities represent neurologic problems. Cranial injuries represent 16 per cent. of battle wounds, being caused in the early days of the war by high explosives, and later by machine gun injuries. Patients with craniocerebral injuries did not stand transportation well, and special centers for their treatment had to be devised near the combat area.

In time of war the registration and evacuation of the wounded are paramount problems; research does not thrive within the sound of battle and follow up studies were difficult. If notes were sent on, they rarely reached their destination. Just as there were men in the lines who had never fired a rifle, there were surgeons in the service who had never seen a war wound, but an effort was made to secure for each hospital one neurosurgical team. Although some attempts at proper distribution of cases have been made, on the whole, there has been a distinct failure to place special cases where ability to treat them is available. Organization in this respect is falling lamentably short of its opportunities.

The Work of Physical Reconstruction as it Concerns Orthopedic Surgery

Dr. Joel E. Goldthwaite, Boston: Orthopedic surgery stands primarily for preservation of function in injured or diseased parts, or for restoration of function in parts which have been previously injured or diseased. In England Sir Robert Jones was assigned to the care of these cases. It was found necessary that the functional reconstruction work should be carried far forward, in fact right up to the trenches. Thus responsibility was assumed for the care of the individual as soon as the injury was received. Orthopedic surgery was developed in conjunction with general surgery to avoid overlapping of effort. The work of the orthopedic surgeon in the early months of the war consisted largely in training recruits so that elements of weakness and strain would be eliminated. Careful training and principles of posture were instilled, with training by squad drill, bayonet drill, route marching and rest or play periods interposed. Men with painful feet were taught to stand straighter, to carry themselves more springily, and in extreme flatfoot cases the raising of the heel of the shoe and the use of the figure of eight ankle strap was used with great success. Foot plates were not used at all in the A. E. F.

The treatment of actual disease and injury was planned from the beginning with the ultimate result in mind, so that as little as possible of loss of tissue, and as much of ultimate function should ensue. Many times the original injury caused little general shock, and as long as the man lay on the battle field he was in good general condition and could easily have stood operation. The jar of removing him 2 or 3 miles to a dressing station was often so great that shock occurred, and even death, before the station was reached. If, therefore, the man could be splinted properly before he was moved at all, he could be transported without shock or harm. Splints were standardized by a special board in the summer of 1917, and eight selected types were chosen in regard to their simplicity and efficiency. Medical officers and stretcher bearers were instructed in the use of these splints so as to apply them with the greatest possible advantage. The mortality previous to the battle of Arras in getting the wounded to the rear was sometimes as high as 80 per cent. With nothing more than the proper standardization and application of splinting, this figure was brought down to 30 per cent. So efficient did the stretcher bearers become in the application of splints that many of them were able to apply the Thomas traction splint in two minutes.

Transportation thus became a satisfactory procedure and in many cases of long sluggish infection, the vibration of the train stimulated circulation and improved the general condition, aided perhaps by the psychic stimulus to the soldier of being directed towards home. Splinting has not only been of use in transportation, but in the preservation of position while early attempts at movement of the part were started. This was especially true in the difficult cases of gun shot wounds of the hand. Proper splinting of the parts has enabled these men to get at work, either in the wards or workshop, so that not only has healing of the wound been hastened, but atrophy prevented and functional restoration been obtained in a minimum of time. The great increase in the number of wounded and consequent overcrowding of hospitals in France, made it essential that many men be transported overseas to be cared for in this country. Few, if any, men have been harmed by transportation, and many are living today because of the stimulus of the thought of homecoming. There is no doubt that the trained orthopedic surgeon found an important place in the army organization. The ultimate test put by the army was that of function. The corrective workshop, the employment of bedside occupations have all had their places in functional development. The employment of reconstruction aides, not only in remote rear hospitals, but with the army at the front, shows the development of the idea of functional reconstruction. Occupational therapy has come to be recognized as of as much importance in certain stages of the individual's recovery, as nursing, or any other detail of medical or surgical care.

DISCUSSION

Dr. Dean D. Lewis, Chicago: At the beginning of the war we were accustomed to regard these different units as separate and distinct. The evacuation hospital did the gross surgery and then sent the man back to the base; then he could either be sent further back, or else be returned to his division. Reconstructive surgery was thought of as reserved for the general hospitals at home. That was a false idea; reconstructive surgery should begin as far forward as possible and the place for the consultant is at the evacuation hospital. His services must not be wasted as those of a transportation agent, but he must be an operating surgeon with a staff under his absolute control. The war has taught us much about the treatment of injuries in civil life; osteomyelitis could often have been avoided if débridement had been done more widely. Another point is that we must have sufficient soft parts to fill the gaps. How long shall these men stay in hospital? They must stay there until they have received their maximal degree of improvement, and until they are fitted to make a living for themselves.

Dr. Nathaniel Allison, St. Louis: The surgery of the forward area of the army gave us several very useful lessons for civil surgery. If it is possible to prevent shock by proper splinting of fractures, this is one of the lessons we have to carry to civil life. We soon realized that there was less shock in the ordinary fracture if the man was splinted where he was injured. Men were apt to die from shock in the front area, and this was especially true in cases of fractured femur. We found that by pushing the Thomas splint as far to the front area as possible we did more to prevent shock than by any other means. Damage done to muscles and vessels by fragments of bone, and also pain, were very much lessened. We used to teach the stretcher bearers three things: proper splinting to fix the part; the use of dressings to stop loss of blood, and the necessity of a blanket to keep the patient warm. We very rarely used the tourniquet to stop hemorrhage. We can apply these principles to civil life with great advantage. Another interesting observation was that shock was lessened by reassurance. The wounded man when he was picked up was either frightened, or he was very angry, usually the latter. The mental state was improved and quieted by reassurance. We gave the man a hot drink, the proper splint was applied, the hemorrhage was controlled, and a warm cover given. Under these conditions shock usually did not manifest itself.

Dr. George E. Brewer, New York: In regard to the prevention of shock: There is absolutely no question but that the proper and timely application of splints, as soon as possible after the wound is received, is essential, particularly so in cases of fractures of the long bones and compound fractures associated with laceration. This one factor did more to prevent shock than anything else. It is to the everlasting credit of the American Army corps that it was insisted on from the very beginning that the Sanitary Corps men should be trained to apply splints to give the maximal amount of protection.

The Medical Aspects of Reconstruction

Dr. J. W. S. Thayer, Baltimore: Apart from the fundamental question of diagnosis the medical man finds himself confronted with two problems: (1) that of prophylaxis and (2) his duty to the patient during convalescence. In war time the value of convalescent care is put on its proper basis, in the reconstruction program. Most of the men treated medically clamored to be sent back to their organization; once hospitalized the men quickly lost morale, discipline and physical vigor, and many, especially the gassed cases, even developed psychoneuroses in the war hospitals, therefore it was found necessary to keep them as near the front as possible, to keep them from falling under the influence and surroundings of hospitalization.

The treatment of convalescents was carried on in camps, under expert training and physical supervision. A modified physical régime was adopted for the men under military status. Work, play, rest, recreation and amusements were all put into use as part of the general scheme. It was found that the psychic element was of importance, for those men who tired soon at drilling, could endure much more exertion in games. Classes were graded as to exercise and drill and the men supervised by an officer who had special cardiovascular training. This work was especially adapted to that class of cases known as effort syndrome. Often as many as 99 per cent. of these men were returned to duty. An endeavor was made in these camps to determine the average time needed for complete convalescence from infectious diseases.

Many of the men who were gassed or exhausted were sent to rest camps and replacement depots, where they recuperated and were returned to their divisions. Measures for the treatment of tuberculous soldiers were necessarily carried out in this country, where large sanatoriums have been established in suitable localities and the disease can be combated under the best possible conditions, with necessary hygienic and dietetic régime. War statistics in regard to the duration of convalescence have shown the need of convalescent departments in connection with large hospitals, in which every arrangement for the well-considered rehabilitation, mental and physical, of the convalescent, may be carried out. In this country the admirable arrangements in effect at General Hospital No. 9 at Lakewood, N. J., have demonstrated what systematic physical and mental training can do for that large body of individuals who are slightly below par.

Cardiac Phase of the War Neuroses

Dr. A. E. Cohn, New York: In 1871, Da Costa of Philadelphia described what he termed irritable heart of soldiers, which is identical with what has been observed in the present war. Da Costa included heavy accoutrements as a contributing factor. All observers have agreed as to the large numbers of these cases, called D. A. H. (disordered action of the heart) by the British. The circulatory derangement, however, provides opportunity for differences in interpretation of the phenomena. The latter may be observed in varying states, such as, for example, chronic cardiac disease, acute infectious diseases, hyperthyroidism or associated with the neuroses. Before the present war, owing largely to the influence of Da Costa, these cases were considered as being related to cardiovascular disease. There is no organic functional disease, however, and it remains to establish a connection between these symptoms and the neuroses. Patients usually present those states classed as anxiety neuroses and psychiatrists have interpreted them as cardiac manifestations of neurotic character. The relation of "anxiety states" to war is abundantly clear. Anticipation of its terrors was awakened in every recruit. The sights and sounds of actual warfare wore down the resistance of the most enduring. The constitutionally predisposed fell out here first. Those with slightly better endurance fell out in France. On the whole, those who reached France were superior. Another important point, indicating a neurotic origin, was that these symptoms were unknown in the severely wounded—those whose faces were turned away from the front. This was true of severely gassed and of prisoners of war. These men had done with war.

The prognosis of these conditions depends on their origin. If they are thyroid in nature, or dependent on cardiac abnormality, they will be identified with these conditions. If they are neurotic, suitable treatment will reestablish them. They may, however, if returned to the front, retard the work of their organization.

Treatment also depends on diagnosis. Da Costa put them to bed and treated them with drugs. This was not found beneficial in the present war. The system of Lewis—graduated exercise—was of signal benefit. Exercises by the drill sergeant, however, did not meet the needs of the situation, strength, in these cases, being a neurologic and not muscular function. The experience of the British in the treatment of these cases was made use of by the A. E. F. It was found that the convalescent camps should be separated from hospitals, by several miles. The camp atmosphere had to be attractive, with well designed and landscaped grounds. The soldiers were kept on modified but strict discipline. They were instructed and taught to amuse themselves. This experience has an important application to civil life, where large numbers of these subnormal persons are to be met.

Reconstruction in Nervous and Mental Disease

Dr. Pearce Bailey, New York: This question of the control of nervous and mental disease has an important bearing on the health of the whole community. The war has taught us that these patients will be constantly returning to us unless necessary steps are taken to handle their cases. There is no machinery at present in this country which undertakes to provide for their care; very many of them no doubt have become adjusted to their original environment and are pretty much as they were before, but a very large number need special treatment. It is a problem of civil, rather than of military reconstruction. At least 72,000 young men of this type were rejected for service. Thus there is an enormous field in preventive medicine awaiting the neuropsychiatrist. The fact that such a vast number of young men have been found unfit to carry out their duties as social units, has a very serious social significance.

The army has done harm to this large proportion of people by taking them out of the adjustment they had formed for themselves in civil life. Army life does not build up neurotics and the potentially insane are apt to go insane all the quicker when subjected to its stress. Psychoneurotic states formed a higher percentage in army than in civil life. Perhaps among the causes that contributed most to the breakdown of the nervously unstable, separation from home was the chief factor. It was also somewhat of a paradox that cases that would have been considered most serious at home recovered more rapidly under military life. Restraint with these persons was found to be entirely unnecessary.

The care of the insane is really a civil problem. We must extend our system of state hospital mental clinics. These constitute a real prophylactic measure and they will be of use to the discharged soldiers who still need some mental help and supervision. The treatment of chronic or inveterate military cases was a distinct reconstructive problem.

The starting point in civil life in regard to reconstruction is without doubt in the schools. We can reclaim the school child, but the adult inmates of institutions we cannot reclaim. The educational departments of our states and municipalities are the most promising basis for a system of control of the menace of nervous and mental disease and criminality. They cannot be so constituted, however, unless the medical profession supervises their problems and supplies competent advisers and workers. We shall never get anywhere unless the medical profession stands behind this movement more heartily than it has done. We must be better represented in the neurologic work in our hospitals and a separate research institute is an essential need. The establishment of an independent foundation seems to be more or less a sine qua non for the firmer, broader and more scientific grasp of these subjects.

DISCUSSION

Dr. Francis W. Peabody, Boston: Dr. Cohn gave us a very clear account of the "irritable heart of soldiers." We used the results of his observation in France and combined them with our experience in General Hospital No. 9, in Lakewood, N. J., where there were excellent facilities for clinical investigation. We were interested to find that a large percentage of these men, apparently highly neurotic, were particularly sensitive to small doses of epinephrin. This would point to a hypersensitiveness of the sympathetic autonomic nervous system, but we do not know what the relation of cause and effect may be between this and the neurotic constitution. Two types of individuals were seen at Lakewood: (1) the normal individual who had broken down under the military stress; (2) constitutionally inferior individuals, in whom the symptoms were latent over a very long period of years, often dating back to childhood. This constituted the most important group. These men were not really a product of the war, but they became prominent when they entered into army life. There was an inherited nervous taint. Most of them were apt to regard themselves as being "not strong" or as having a "weak heart." In the army they broke down with the signs and symptoms of physical invalidism, partly from physical strain, but chiefly because they were unable to adapt themselves to the conditions of army life. In this particular group we noticed an actual decrease in strength of the skeletal muscles. Fifty per cent. were below normal. Graded physical exercise was important and it was found possible to double the actual physical strength of these men while there was also a considerable psychologic effect. Many of these men have gone back into civil life and are able to take their place as useful economic units, whether they were good soldiers or not.

The Physical and Mental Rehabilitation of Disabled Soldiers of the United States Army

Dr. Frank Billings, Chicago: The policy of physical reconstruction of disabled soldiers, later extended to disabled sailors and marines, was formulated in the office of the Surgeon-General in August, 1917. It was applied in seven hospitals early in 1918, and finally was approved by the War Department, July 29, 1918. This work is defined as continued treatment, carried to the fullest degree of maximum physical and functional restoration, consistent with the nature of the disability. To this end all known measures of modern medical and surgical management are applied. The educational program was important and comprehensive, embracing courses in technical, agricultural and commercial subjects. Many disabled soldiers who were qualified aided in the training of their fellow patients. Civilian women worked as reconstruction aides in giving courses in the arts and crafts and commercial studies. A director of sports, games, gymnastics and military drill supervised these branches, in cooperation with the American Red Cross, Y. M. C. A., K. of C., Jewish Welfare Board and Salavation Army. Special buildings, gardens and fields have been utilized for the purpose of training convalescents in workshop and academic courses and in agricultural pursuits. Equipment for shops, schools, physiotherapy, and gymnasiums has been supplied. Needful books have been furnished by the American Library Association.

Before the armistice was signed, approximately 10,000 disabled soldiers were returned from the A. E. F. to the United States. Following the armistice, the return of sick and injured was expedited, and from Nov. 11, 1918, to June 1, 1919, approximately 140,000 disabled soldiers have been returned to America. This naturally required additional hospitalization, and at the height of the influx, forty-seven reconstruction hospitals were functioning. At the present time forty-four general and base hospitals are carrying on this type of treatment. After July 1, 1919, the work of physical reconstruction will be concentrated in nineteen centers. The work of the educational personnel has been increased to meet the need. Since the armistice has been signed convalescent camps have been established in various parts of the countries and soldiers have been sent to the centers nearest their homes. Here they have received the final hardening and curative processes by means of setting-up exercise and military drill. The number of men so trained since the signing of the armistice totals 47,858 to the present date.

In spite of almost insurmountable difficulties it is believed that physical reconstruction of the soldier has been of the greatest value in maintaining discipline; promotion of morale; the diversion of the soldier's mind from his disability; the arousing of his interest in education which would overcome his handicap; and the physical and functional restoration of the patient. Often the patients have been enabled to take up a more lucrative profession than that which they held formerly and the men have been stimulated to take further training with the federal vocational board, after discharge from the army. This board has been actively cooperating all along in giving the necessary vocational guidance. The establishment of the measures of physical reconstruction in the treatment of disabled soldiers has been so beneficial that it will create a demand for the application of like measures in the treatment of patients in civilian hospitals in the country.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

May, 1919, **157**: No. 566

*Digitalis Therapy: Satisfactory Effects in Cardiac Cases with Regular Pulse Rate. H. A. Christian, Boston.—p. 593.
Mesothelioma of Both Suprarenals and Both Lungs, with Hemothorax. W. H. Harris, New Orleans.—p. 602.
*Epidemic of Typhoid at Hot Springs, N. C., Prison Barracks: 186 Cases. J. D. Dunham, Columbus, Ohio.—p. 608.
Some Medical Impressions of War. G. W. Norris, Philadelphia.—p. 628.
*Tests of Functional Capacity of Circulation. M. H. Kahn, New York.—p. 634.
*Left Apical Impairment in Mitral Stenosis. E. H. Goodman, Philadelphia and S. L. Cash, New York.—p. 652.
Biologic Conception of Neoplasms; Terminology and Clinical Significance. W. C. MacCarty, Rochester, Minn.—p. 657.
*Prognostic Value of Creatinine of Blood in Nephritis. V. C. Myers and J. A. Killian, New York.—p. 674.
Oculogyration and Lesion Causing Complete Bilateral Ophthalmoplegia. W. G. Spiller, Philadelphia.—p. 695.
Case of Diabetes Mellitus with Syphilis. J. W. Mitchell, Lakewood, N. J.—p. 700.

Digitalis Therapy.—A great deal of nonsense, in Christian's opinion, is written about digitalis that does not upset the stomach, and much effort appears to be used by pharmaceutical houses to prepare such forms of digitalis. Most of them do not cause nausea, he says, because they are weak forms of digitalis. The fad of fat-free digitalis is an excellent example of this wasted energy. Were this effort directed toward securing a potent active leaf, without which no good digitalis preparation is possible, far better results would obtain. The powdered leaf made freshly into pills is as satisfactory a form of digitalis as either tincture or infusion, and if the leaf is good, it is just as effective as digipuratum and digifolin, and far less expensive. Digitalis should be prescribed in weighed or measured amount, not by drops, and enough should be given of a reliable preparation (that means a good leaf as the starting point of the preparation) to produce a definite effect at least within four days; usually an effect is noted to begin in half this time. In Christian's experience in chronic myocarditis, most excellent results follow an adequate digitalis therapeusis, and there are no contraindications to its use, for even in those cases advanced beyond the bound of a therapeutic response no bad effects follow digitalis. Aortic insufficiency does not contraindicate digitalis and very excellent results follow the use of digitalis in hearts that are not fibrillating. Christian's observations confirm the findings of Mackenzie and Cohn and Fraser that the drug rarely slows the pulse, except in auricular fibrillation, until toxic symptoms are produced. He has frequently seen good results in chronic cardiac cases with edema in which there was no irregularity of the pulse or only an occasional extrasystole. Cases are cited.

Epidemic of Typhoid at Hot Springs, N. C.—A very complete analysis of these cases was made by Dunham. Four of the fifteen deaths (8.06 per cent. mortality) were caused by perforation. Pulmonary involvement was the terminal process in six cases. Incontinence of stool and urine occurred in thirty-five patients. Intestinal hemorrhage occurred to a marked degree in twenty-five patients, though blood was present in the stools in many more instances. The most interesting feature in the study of this epidemic arose in the diagnosis of six perforations. Not one case presented the classical symptom of sudden paroxysmal abdominal pain. Vomiting did not occur in any of the cases. One case presented the only incidence of appendicitis. Cholecystitis was a complication in three cases. Bronchitis was observed so frequently that this phenomenon may not be considered a complication but a most frequent symptom. Typhoid vaccination was given in many cases during the incubation period of the disease. The medical attendants were unable to observe any amelioration of the symptoms among such patients.

Tests of Functional Capacity of Circulation.—Comparative functional tests of the circulation were made at Camp Zachary Taylor in 233 cases, including the normal, the various tachycardias, sinus bradycardia, thyrotoxic conditions, neurocirculatory asthenia, etc. The characteristic finding in simple tachycardia, in compensated mitral regurgitation and in sinus bradycardia, was the absence of any effect on or only very slight increase of the pulse rate after exercise. In thyrotoxic heart the characteristic effects were marked instability of the pulse rate, with great increase after exercise, associated with an instability of the diastolic blood pressure. A similar effect, but less marked, was found in neurocirculatory asthenia. In the latter condition it was noted that the thrill disappears when the relationship of apex beat to chest wall is disturbed or distorted on auscultation. The tremogram is recorded as a differential point between neurocirculatory asthenia and thyrotoxic conditions. Hypertonicity of the heart muscle is the physiologic basis of the cardiac signs in neurocirculatory asthenia. Thyrotoxic conditions and nephritic hypertension lessen the functional circulatory capacity. Aortic regurgitation and congenital heart lesions gave fairly distinct features, but further studies along the lines indicated are suggested to establish the results in congenital heart.

Impairment in Mitral Stenosis.—The association of pulmonary signs in mitral stenosis, Goodman says, occurs frequently. Snappy quality of the first sound and systolic tap or shock on palpation, absence of hypertrophy of the left ventricle in the cases uncomplicated with insufficiency, presystolic thrill, presystolic murmur and accentuation of the second pulmonic sound establish the diagnosis. The history of rheumatic fever, chorea, tonsillitis and growing pains, when authentic, is an added evidence. Goodman urges that examination for these features should be made with the patient erect, recumbent (not omitting the examination with the patient lying on the abdomen) and before and after exercise test. Murmurs may be missed when the patient is erect and with the heart at rest, and may be very clearly heard when recumbent and with the heart beating more forcefully, as after exertion. Twenty-seven cases are cited by the author.

Blood Creatinin in Nephritis.—Observations on 100 cases of nephritis showing creatinin retention are recorded by Myers and Killian. Of these 100 patients, eighty-five had a creatinin content of over 5 mg. per hundred c.c. of blood, the figures ranging from 5.1 to 33.3 mg.; eighty of these eighty-five patients have died. Of the five remaining the condition of three is essentially unchanged, while two have recovered. These two patients showed only a temporary elevation of the blood creatinin. A considerable number of the eighty-five patients were able to be up and about and some showed decided clinical improvement. According to the authors the creatinin gave a better prognostic insight into these cases than either the blood urea or phenolsulphonephthalein tests, which were made simultaneously. It is their opinion that in advanced cases of nephritis the blood creatinin furnishes a more reliable prognosis than any other test.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, 1919, **79**, No. 498

Method for Demonstrating with the Hands the Mechanism of Labor and Various Types of Pelves. J. F. Moran, Washington.—p. 701.
*To What Extent Must we Depend on Microscopic Examination to Support Clinical Diagnosis of Ectopic Pregnancy? M. Caturani, New York.—p. 716.
*Analysis of 309 Cases of Ectopic Gestation in New York State Woman's Hospital. L. K. P. Farrar, New York.—p. 733.
Standardization of Surgery. J. W. Kennedy, Philadelphia.—p. 759.
Menopause: Analysis of Two Hundred Cases. C. C. Norris, Philadelphia.—p. 767.
Cesarean Section for Unusual Conditions. W. P. Conaway, Atlantic City.—p. 778.
Two Cases of Abdominal (Ectopic) Pregnancy Operated Near Term with Living Children. F. A. Dorman, New York.—p. 782.
Case of Sympus Apus. S. Chelliah, Colombo, Ceylon.—p. 786.

Clinical Diagnosis of Ectopic Pregnancy.—Out of 100 cases of specimens of tubes or adnexa removed after a clinical diagnosis of ectopic pregnancy and examined microscopically by Caturani, only fifteen failed to produce positive microscopic evidence. The rupture of the tubes, ragged in appearance, typical of the erosion of the chorionic cells, is almost pathognomonic of ectopic pregnancy. In forty-two cases of rutpure, only one was negative.

Analysis of Ectopic Gestation.—From Farrar's study of these cases it appears that infection or mechanical alteration due to adhesions of the fallopian tube predisposes to ectopic gestation. The onset of symptoms or an acute attack occurs equally as often at the time of an expected period, or just after a normal period as it does when a period is overdue. Pain with, or without, bleeding is present in every case of ectopic gestation unless unruptured. Tearing, lancinating pain is not as common in ectopic gestation as pain of a cramplike or bearing-down character. Unusual, one sided pelvic pain when associated with evidences of peritoneal irritation and fainting warrant the diagnosis of ectopic gestation.

Boston Medical and Surgical Journal

June 26, 1919, **180**, No. 26

Medicolegal Phases, with Particular Reference to Tort Cases, Compensation and Malpractice Suits. H. H. Hartung, Boston.—p. 707.
Premature Separation of Placenta. P. Appleton, Providence, R. I. —p. 718.

Canadian Medical Association Journal, Toronto

June, 1919, **9**, No. 6

*Differentiation of Early Tuberculosis and Hyperthyroidism by Means of Epinephrin Test. N. C. Nicholson and E. Goetsch.—p. 481.
Typhoid Spine. W. Osler.—p. 490.
Functional Conception of Pathology as Basis for Diagnosis and Treatment of Heart Disease. W. S. Morrow.—p. 497.
*Use of Vaccine in Recent Epidemic of Influenza. F. T. Cadham. —p. 519.
Protein Milk Powder. A. Brown and I. F. MacLachlan.—p. 528.
Intestinal Obstruction and Its Relation to General Practitioner. W. A. Lewis.—p. 538.
Arthrodesis of Hip Joint and Indications. J. A. Nutter.—p. 548.

Differentiation of Early Tuberculosis and Hyperthyroidism by Epinephrin Test.—To support their contention, which is, that hyperthyroidism is responsible for the general symptoms usually attributed to tuberculosis in most of the cases where the presence of clinical tuberculosis is questionable and also where the tuberculous lesion is thought to be insufficiently active to account for the severity of the symptoms, Nicholson and Goetsch applied the epinephrin test, at first, to those patients in whom the diagnosis of tuberculosis was questionable, and later as a routine measure to all patients entering the Trudeau Sanatorium. Positive results in support of this view have been obtained. Of the eighteen cases belonging to the "clinical tuberculosis questionable" group, there were ten which reacted positively to the test, and eight which showed an entirely negative reaction. Out of sixteen "clinical tuberculosis inactive" cases, nine showed a positive response to the test. Of six cases in which there was a definitely but moderately active clinical tuberculosis, the reaction was negative in all.

Vaccine in Influenza.—Abstracted in The Journal, May 24, 1919, p. 1874.

Colorado Medicine, Denver

June, 1919, **16**, No. 6

Fractures of Tibia. W. Senger, Pueblo.—p. 133.
Dermatitis Seborrheica. G. P. Lingenfelter, Denver.—p. 142.
Use of Cautery. F. C. Buchtel, Denver.—p. 144.
Mesenteric Thrombosis; Review of Literature. L. I. Miller, Denver. —p. 148.

Indiana State Medical Association Journal, Fort Wayne

June 15, 1919, **12**, No. 6

Bacteriology and Pathology of Epidemic of Influenza. V. H. Moon. Indianapolis.—p. 149.
*Medical Treatment of Duodenal Ulcer: Special Reference to Treatment of Hemorrhage. F. W. Foxworthy, Indianapolis.—p. 152.
Focal Infections. C. C. Cotton, Elwood, Ind.—p. 158.
Headache as Symptom. J. G. Jones, Vincennes.—p. 160.

Treatment of Duodenal Ulcer.—The dietary treatment of duodenal ulcer is divided into five periods by Foxworthy: 1. The nutrient enema period, lasting from four to seven days. This should be begun at once, following diagnosis, or following hemorrhage. 2. The liquid, or albumin water period, from one to two weeks, commencing with the whites of two eggs in water, every three hours, and increasing gradually. Cream is used when eggs do not agree. 3. The semiliquid period, one week, in which the regular feedings of albumin water are kept up, substituting for certain feedings such food as creamed toast, potato soup, or purees. 4. The semisolid period, lasting one week, which is a prolongation of the semiliquid period, during which oatmeal, mashed potatoes, tapioca, custards, soft boiled or soft poached eggs are added to the dietary. During this period, the albumin water may be withdrawn safely, although at any indication of recurrence, the diet should drop back to the diet of the second period—albumin water only. 5. The solid food period, broiled meat patties, the meat ground very fine, and lean meat only, squab, breast of chicken, minced, following which the patient should be able to take the ordinary prescribed diet for ambulatory ulcer patients, which is a maximum of albumins and a minimum of starches and sugars.

Iowa State Medical Society Journal, Des Moines

June 15, 1919, **9**, No. 6

Medical Education in Iowa. D. S. Fairchild, Clinton.—p. 180.
Susceptibility and Resistance; A Medical Problem. K. Hansen, U. S. Army.—p. 187.
Syphilis. C. L. Barewald, Davenport.—p. 190.

Journal of Experimental Medicine, Baltimore

July, 1919, **30**, No. 1

*Etiology of Yellow Fever. IV. Acquired Immunity of Guinea-Pigs Against Leptospira Icteroides after Inoculation of Blood of Yellow Fever Patients. H. Noguchi, New York.—p. 1.
*Id. V. Properties of Blood Serum of Yellow Fever Patients in Relation to Leptospira Icteroides. H. Noguchi, New York.—p. 9.
*Id. VI. Cultivation, Morphology, Virulence and Biologic Properties of Leptospira Icteroides. H. Noguchi, New York.—p. 13.
*Growth Accessory Substances for Pathogenic Bacteria in Animal Tissues. I. J. Kligler, New York.—p. 31.
*Studies on Organ Transplantation. I. Transplantation of Thyroid with Intact Blood Supply. K. Kawamura, Rochester, Minn.—p. 45.
*Id. II. Transplantation of Spleen with Intact Blood Supply. K. Kawamura, Rochester, Minn.—p. 65.
Experimental Production in Dogs of Emphysema with Associated Asthmatic Syndrome by Means of Intratracheal Ball Valve. W. H. Harris and F. P. Chillingworth, New Orleans.—p. 75.

Etiology of Yellow Fever. IV.—The majority of guinea-pigs inoculated by Noguchi with the blood of yellow fever patients escaped a fatal infection. There were a number of instances in which the inoculation of yellow fever blood induced in these animals a temporary febrile reaction on the fourth or fifth day, followed in some cases by slight jaundice, but with a rapid return to normal. Most of these guinea-pigs when later inoculated with an organ emulsion of a passage strain of *Leptospira icteroides* resisted the infection. On the other hand, the animals which had previously been inoculated with the blood of malaria patients or normal guinea-pigs died of the typical experimental infection after being inoculated with the infectious organ emulsion.

Etiology of Yellow Fever. V.—The serum from a number of persons recovering from yellow fever in Guayaquil was studied by Noguchi with a strain of *Leptospira icteroides* derived from one of the yellow fever patients with a view to establishing its possible immunologic relationship. For this purpose the serum of convalescents was mixed either with an organ emulsion of a passage strain, or with a culture of the organism, and inoculated intraperitoneally into guinea-pigs. The Pfeiffer reaction was first studied, and then the animals were allowed to live until the controls, inoculated with the same emulsion or culture of *Leptospira icteroides* but without the serum, or with serum from patients suffering from other diseases than yellow fever, had died of the experimental infection with typical symptoms. A positive Pfeiffer phenomenon was observed in fifteen of the eighteen convalescent cases studied, or approximately 83 per cent. Serums from ten nonimmune soldiers and from two malaria patients gave uniformly negative results. Protection from an ultimate fatal infection was afforded some of the guinea-pigs which received the serum of yellow fever convalescents, while the control animals succumbed to the infection with typical symptoms. In one instance, in which the serum was tested on the second and the tenth days of disease, a Pfeiffer reaction was demonstrated, as well as protective property against the infection, in the specimen from the tenth but not in that from the second day. From these observations of immunity reactions Noguchi concludes that it appears highly probable that *Leptospira icteroides* is etiologically related to yellow fever.

Etiology of Yellow Fever. VI.—On three occasions, that is, from three out of eleven cases of yellow fever, the *Leptospira icteroides* was directly cultivated by Noguchi. These three strains were found to induce the characteristic symptoms and lesions when tested on guinea-pigs. *Leptospira icteroides* was also obtained in pure culture from the blood of guinea-pigs which succumbed to infection after being inoculated with the blood or organ emulsions from patients suffering from yellow fever. These cultures also proved to be virulent when tested on susceptible animals. The morphologic characteristics and biologic properties of the organism are described in detail.

Growth Accessory Substances for Bacteria.—Kligler reports experiments bearing on (*a*) the effect of vitamins on the growth of a number of organisms pathogenic for man; (*b*) the distribution of these substances in animal tissues; and (*c*) the relative significance of the fat soluble A and water soluble B in the cultivation of these micro-organisms. At present there are few data bearing on these questions in relation to bacteria. Beef heart, goat's blood, rabbit and cat tissues, and human secretions were used. The effect of these extracts was tested by adding graded amounts to nutrient broth or agar, or to phosphate peptone agar and inoculating with small amounts of culture suspensions. The following organisms were tested: gonococcus, meningococcus (one para, one regular), pneumococcus Type I, *Streptococcus hemolyticus, B. diphtheriae, B. pertussis, B. influenzae.* The extracts, with few exceptions, influenced favorably the growth of all the bacteria studied, and the effect varied with the amount of extract added. Kligler expresses the belief that the substances in question belong to the class of so-called vitamins.

Organ Transplantation: Thyroid.—Kawamura transplanted the thyroid through blood vessel sutures because of the favorable restoration of the circulation of the gland by this method. The experiments on dogs showed that the thyroid which was autoplastically transplanted, by means of various methods of blood vessel anastomosis, could live in good condition and functionate favorably several months after the operation, even after the interruption of the circulation for one and one-half hours. They further showed that the circulation through the transplanted blood vessels as well as glands was as good as normal, and that permanent successful results of the homoplastic transplantation of the gland are as yet not possible.

Organ Transplantation: Spleen.—There are usually two trunks of both artery and vein to the spleen from the gastrosplenic vessels. One pair enters the spleen in its lesser (left) end and another almost in the middle. In these experiments the spleen was divided in two parts, corresponding to the stream district of these large branches, after the mattress sutures had been applied transversely on it. The half of the spleen which is nourished by the larger branches was used for the transplantation. The attached omentum was cut off after ligation. The splenic artery, vein and nerves were dissected and divided. The spleen was then removed, and wrapped up in a salt sponge. After a few minutes the spleen was replaced into the abdominal cavity, and its vessels were united as before, by end to end anastomosis. In one case an attempt was made to transplant the spleen into the neck. After the thyroid had been removed, the peripheral end of the splenic artery was united to the central end of the superior thyroid artery and the peripheral end of the splenic vein to the central end of the external jugular vein. In another case the spleen was transplanted into the renal vessels after nephrectomy. Most of the experiments were performed autoplastically, but in one instance the spleen from one animal was transplanted to another. The circulation in the spleen was reestablished between one and two hours after its extirpation. The dissected omentum was reunited, and in a few cases the nerves also were sutured. Several days after the operation the condition of the transplanted spleen was ascertained by laparotomy. When the transplantation was successful, the other intact half of the spleen was removed and immersed in a jar filled with 10 per cent. liquor formaldehydi for microscopic examination, and the animal was observed further. The results of the experiments immediately after operation were in all cases satisfactory. In spite of the interruption of the circulation from one to two hours after extirpation, the immediate circulation of blood through the transplanted spleen and blood vessels was favorable, but most of the spleen became necrotic or was entirely absorbed. The cause of this was the obstruction in the transplanted vessels, due to thrombosis. Seven autoplastic transplantations and one homoplastic transplantation of the spleen of dogs were made. One autotransplantation was successful, the gland being normal at the end of eighty-eight days.

Journal of Infectious Diseases, Chicago

July, 1919, **25**, No. 1

- *Complement Fixation in Influenza. K. Howell and R. Anderson, Chicago.—p. 1.
- *Bacteriology of Influenza and Bronchopneumonia. G. H. Dick and E. Murray, Chicago.—p. 6.
- *Blood, Urine and Blood Pressure in Influenza. A. Levinson, Chicago.—p. 18.
- *Bacteriology of Influenza. E. O. Jordan, Chicago.—p. 28.
- Influenza of Surface Tension of Culture Medium on Growth of Bacteria. W. P. Larson, W. F. Cantwell and T. B. Hartzell, St. Paul.—p. 41.
- Classification of Streptococci Based on Correlation of Results of Hemolytic, Fermentative and Precipitin Tests. W. H. Barnes, Berkeley.—p. 47.
- Diphtheria at Hospital Center. M. Barron and G. H. Bigelow. Allerey, France.—p. 58.
- Influenza in Three Chicago Groups. E. O. Jordan, D. B. Reed and E. B. Fink.—p. 74.

Complement Fixation in Influenza.—The outstanding feature of the work done by Howell and Anderson on complement fixation with influenza serum is the large number of positive results with certain strains of the viridans group of streptococci isolated from cases of influenza at Camp Meade and in Chicago. The evidence indicates that such organisms probably played an important part in the morbid process even in other places.

Bacteriology of Influenza.—This report is based on a study of cases admitted to hospital with a diagnosis of influenza or pneumonia. Direct smears and cultures from 150 cases were studied by Dick and Murray. Influenza bacilli were found in eighty-seven (63.2 per cent.) of 138 cases in which specimens of sputum or nasopharyngeal secretion were obtained. In the direct smear of the sputum, the influenza bacilli were of varied morphology, appearing in most cases as minute, gram-negative bacilli with rounded ends, usually short, sometimes in pairs like a pneumococcus, but much smaller. In some smears they were so small as to be overlooked easily. In other specimens they appeared as short threads. In sputum which gave a pure culture, they were astonishingly numerous, some being within the leukocytes. Not much difficulty was found in growing the influenza bacillus in pure culture. Pneumococci of all four types were found in thirty-five (25.4 per cent.) of 138 cases in which sputum or nasopharyngeal secretion was obtained. The leukocyte count in the cases of pure influenza bacillus infection was low, corresponding to the leukopenia regarded as characteristic of epidemic influenza.

Blood and Blood Pressure in Influenza.—In fifty-five cases of influenza an exhaustive daily study was made by Levinson of blood, urine and blood pressure. The blood, described usually as showing a neutrophilia, in these cases gave a lymphocytosis at certain stages of the disease, with leukocytosis and neutrophilia on recovery. The blood pressure gave a regular downward curve. Levinson is of the opinion that a diagnosis of influenza may be made from the sudden onset, headache, backache, pain in the limbs, fever, leukopenia, lymphocytosis, slow pulse and low blood pressure.

These symptoms should be sufficient to differentiate influenza from the ordinary respiratory infections with conjunctivitis, sore throat, coryza and leukocytosis. From a study of the blood the suggestion arises that two types of pneumonia may complicate influenza; one associated with leukopenia, and hence possibly caused by the same organism that produces the original influenza, and the other with a leukocytosis and due in all probability to secondary infection by better known organisms.

Bacteriology of Influenza.—Daily examinations made by Jordan of a number of selected typical cases, mild and severe, have shown no one organism constantly demonstrable in large numbers by the methods employed. The two organisms most commonly and abundantly present in this series were the Pfeiffer bacillus and the diplococcus or streptococcus found by Mathers at Camp Meade. The Pfeiffer bacillus was found in 64 per cent. of the cases. The Mathers coccus was found about as frequently and abundantly as the Pfeiffer bacillus, although its occurrence was quite independent of that of the latter. The pneumococcus was found in about 20 per cent. of the cases. *M. catarrhalis*, the Friedländer bacillus and an unidentified gram-negative diplococcus were found at times in large numbers in the throat, nose and nasopharynx of influenza cases. Staphylococci were also sometimes present in great abundance. Two observations on suspected cases of "recurrence" or "second attack" have shown the presence in the throat of organisms (hemolytic streptococci) not found during the original attack. Both recurrences presented some of the clinical symptoms of influenza, but had a moderate leukocytosis. A third case of suspected "recurrence" likewise showed hemolytic streptococci in the throat and slight leukocytosis, but this patient had not been under observation during the primary attack. It seems probable to Jordan that an alleged "second attack" of influenza occurring within a few weeks of the original attack is at least in some cases a new infection with another organism. The observations carried out by the aerobic blood agar plate method and recorded in this paper have not shown the predominance or constant presence of any one organism in the upper respiratory tract of influenza patients. The Pfeiffer bacillus, however, has been more conspicuous than any other organism, particularly in comparison with its relative infrequency in cases of rhinitis and tonsillitis examined during the same epidemic period.

Journal of Parasitology, Urbana, Ill.

June, 1919, **5**, No. 4

*Fasciolopsis Buski. Parasite of Man Seen in Shaohing, China. F. W. Goddard, Boston.—p. 141.
South African Cercariae. E. C. Faust, Urbana.—p. 164.
Tetradonema Plicans (Nov. Gen. et Spec.), Representing New Family. N. A. Cobb, Washington.—p. 176.
Biologic Notes on Tetradonema Plicans, Cobb, Nematode Parasite of Sciara Coprophila Lintner. H. B. Hungerford, Lawrence, Kan. —p. 186.
Longevity of Fish Tapeworm of Man, Dibothriocephalus Latus. W. A. Riley, St. Paul.—p. 193.

Fasciolopsis Buski Infection.—Infestation with *Fasciolopsis buski* in Goddard's opinion is to be regarded as a serious disease; and where local conditions favor it becomes of considerable importance from the standpoint of public health. The most notable symptoms are general weakness, diarrhea, anemia and edema. The rapid accumulation of fluid in the body may be accompanied by a pronounced suppression of urine without evidence of renal involvement. Contrary to certain authorities, fever is not noted, except in complicated cases. The parasite shows great variation in morphology, but with all such gradation in variation as to justify including the forms now described as *F. rathouisi* and *F. goddardi* in the species *F. buski*.

Journal of Roentgenology, Iowa City, Iowa

March, 1919, **11**, No. 1

Chest Inconsistencies. A. Williams, Grand Rapids, Mich.—p. 9.
Roentgenology of Chest. W. W. Wasson, Denver.—p. 24.
Report of Department of Roentgenology, U. S. Army Base Hospital, Camp Lewis, Wash. F. E. Diemer, U. S. Army.—p. 34.
Roentgen Ray of Bureau of Standards Protective Materials. N. Earnest Dorsey, Washington, D. C.—p. 42.
Self-Rectifying, Gas Type, Roentgen-Ray Tube. F. J. Farrelly, Hartford, Conn.—p. 50.
Roentgen Diagnosis in Relation to Clinical Teamwork. V. L. Schrager, Chicago.—p. 58.
Roentgen-Ray Apparatus. M. Morrison, Chicago.—p. 66.
Relation of Roentgenology to Preventive Dentistry. H. O. Hansen, Chicago.—p. 73.
Diaghragmatic Hernia. O. H. McCandless, Kansas City, Mo.—p. 82.
Simple Slide Rule for Computing Roentgen-Ray Exposure. M. H. Hodgson, Rochester, N. Y.—p. 88.
New Goggle for use in Fluoroscopy. I. S. Trostler, Chicago.—p. 92.
Diagnosis and Clinical Manifestations of Cardiospasm Associated with Diffuse Dilation of Esophagus. F. Smithies, Chicago.—p. 94.

Kansas Medical Society Journal, Topeka

June, 1919, **19**, No. 6

Perforated Lung following Bronchopneumonia. F. A. Trump, Ottawa. —p. 123.
Treatment of Infected Wounds. J. S. Sutcliffe, Iola.—p. 124.

Laryngoscope, St. Louis

May, 1919, **29**, No. 5

Types of Orbital Abscess and Exophthalmos Due to Intranasal Suppurative Processes. D. T. Vail, Cleveland.—p. 263.
Reconstruction of Mastoid Wound Cavity by Use of Bone Grafts and Chips. W. P. Eagleton, Newark, N. J.—p. 272.
Case of Tuberculosis of Sphenoid Sinuses. J. D. Kernan, New York. —p. 276.
Technic of Tonsillectomy with LaForce Hemostat Tonsillectomes, Models A. and B. B. D. LaForce, Ottumwa, Iowa.—p. 280.
Simple, Safe and Rapid Tonsil Enucleation Technic for Local or General Anaesthesia. L. Gatewood, New York.—p. 283.
Report of Etyloid Processes Appearing in Throat with Symptoms. W. O. LaMotte, Wilmington, Del.—p. 288.
A Modification of Beck-Sluder Tonsillectome. E. L. Myers, St. Louis. —p. 290.
Two Unusual Cases of Foreign Body Lodged in Upper Respiratory Tract. J. F. Culp, Harrisburg, Pa.--p. 293.
Modern Commentaries on Hippocrates. Physiology and Pathology of Nose and Throat. J. Wright, New York.—p. 295.

Maine Medical Association Journal, Portland

June, 1919, **9**, No. 11

Conservation of Vision. J. A. Spalding, Portland.—p. 301.

Medical Record, New York

June 28, 1919, **95**, No. 26

Radium, Its Present Status as Surgery's Adjunct. C. E. Field, New York.—p. 1081.
Fibromyositis or "Rheumatic Conditions." J. M. Taylor, Philadelphia. —p. 1083.
Treatment of Infections of Uterus and Cervic. F. W. Langstroth, New York.—p. 1$086.
Conditions Which Affect Occurrence of Rectal Diseases in Infancy and Childhood. A. A. Landsman, New York.—p. 1089.
Irritable Heart in Soldiers and Recruits. J. Meakins, Montreal, Canada.—p. 1091.

New York Medical Journal

June 21, 1919, **109**, No. 24

Modern Commentaries on Hippocrates. J. Wright, Pleasantville, N. Y. —p. 1065.
*Modified Homocomplement Fixation Test for Syphilis. B. K. Thomas, Philadelphia.—p. 1069.
Treatment of Acute Gonorrheal Urethritis at Home and in Camp. S. W. Schapira, New York and J. Wittenberg, Brooklyn.—p. 1073.
Diagnosis of Earache. H. B. Blackwell, New York.Jp. 1076.
Surface Temperature in Diagnosis of Surgical Abdominal Conditions. M. E. Alexander, Waterbury, Conn.—p. 1077.
Renal Infections Associated with Pregnancy. F. J. Parmeter, Buffalo. —p. 1080.

June 28, 1919, **109**, No. 26

Facts and Fancies in Psychonalytical Treatment. A. A. Brill, New York.—p. 1117.
Bacteriology of Summer Diarrhea of Infants. R. C. Rosenberger, Philadelphia.—p. 1120.
Occurrence of Syphilis as Evidenced by Admisions to City Hospital. J. B. Cross, Buffalo.—p. 1123.
*Infectious Arthritis of Urogenital Focal Origin. L. M. Michel, New York.—p. 1124.
Modified Sluder Vs. Snare or Dissection Operation in Tonsillectomy. H. Rodman, New York.—p. 1127.
Functional Aphonia. P. V. Winslow, New York.—p. 1129.
Paresthetic Meralgia. C. G. Cumston, Geneva, Switzerland.—p. 1130.

Complement Fixation Test for Syphilis.—Thomas points out that valuable modifications to the hemolytic system of the homocomplement method are pooling serum for the determination of the hemolytic unit, the use of a light cell suspension, and finally taking as the hemolytic unit that amount of amboceptor which completes hemolysis in fifteen minutes rather than in twenty-five minutes. In the test itself, the use of pooled acetone insoluble antigens is of paramount importance, because the antigen is the keystone reagent in this as in every other complement fixation test. The most valuable change in the technic of the test is the substitution of cold for heat fixation. This has not been the experience of some other workers, but this difference may be explained by the increased period of fixation adopted by Thomas. The use of serum with a complement content of variable quantity is theoretically not a part of an ideal system, but practically the influence of this variation is of little importance, because active serum in moderately large amounts are used. In the great majority of instances with such amounts more than enough specific antibody is present to deviate all of the complement with the routine antigen excess. Noguchi has shown that unheated syphilitic serum from an active syphilitic patient contains one antibody fixing unit to every 0.008 c.c. of serum. Therefore, 0.2 c.c. of this patient's serum would contain twelve antibody fixing units. In addition, although syphilitic serum in the majority of instances contains active complement, there are fewer specimens from syphilitic with a hypercomplementary activity than from nonsyphilitics. These two properties of specific serum reduce the possibility of error from hypercomplementosis.

Infectious Arthritis Complicating Urethritis.—Of more than 15,000 cases of urethral infection analyzed by Michel, less than one half of 1 per cent. presented joint complications. This is at great variance with the report of most authorities who report the arthritic complications to be from 2 to 10 per cent. of the urethral infections. The author ascribes these fortunate results to the early care and attention given to venereal infections. A collection of thirty cases of exostosis of the os calci present the following etiologic factors with reference to the gonococci. Four cases of the thirty presented evidence of gonorrheal infection, and of these four cases one had a syphilitic history with a four plus Wassermann. One patient presented a tuberculous testis, but no other cause for the exostosis was discoverable. Speaking of the general treatment, Michel says that the intramuscular injections of specific vaccines, which at times gave brilliant results were on the whole disappointing in infectious arthritis of gonorrheal origin. He has discarded the intramuscular for the intravenous route in the introduction of these vaccines. While the reactions were severe (chills, vomiting, intense aches in muscles and bones), the end results were vastly better; however, there were many cases in which they could not control the acute pains without the use of opiates. Using the nonspecific proteins the results were practically specific in cases of infectious arthritis. There was not a single failure. The severe pain is controlled within three to twelve hours. The reactions are severe and the utmost care is required in the introduction of these agents. However, the results are in direct proportion to the reaction, the more severe the reaction the better the result, when the bounds of safety are not overstepped.

Northwest Medicine, Seattle, Wash.

April, 1919, **18**, No. 4

Today's Surgical Problem. M. G. Sturgis, Seattle.—p. 57.
Surgical Treatment of Cancer of Pyloric End of Stomach. J. T. Mason, Seattle.—p. 63.
Aplastic Anemia; Report of Case. R. A. Glenn and C. L. McVey, Oakland, Calif.—p. 65.
Ectopic Pregnancy. E. I. Rich, Ogden, Utah.—p. 67.

May, 1919, **18**, No. 5

Medicine and Humanity. E. P. Geary, Portland, Ore.—p. 79.
Arguments Against Compulsory Health Insurance. O. M. Rott, Spokane.—p. 81.
Radical Operation for Genital Tuberculosis. G. S. Whiteside, Portland, Ore.—p. 83.
Tonsil Surgery. T. W. Kelsey, Spokane, Wash.—p. 85.
Unusual Case of Severe Injury to Elbow Followed by Little Nerve Envolvement. H. H. Skinner, U. S. Army.—p. 89.
Bacteria of Ten Years Duration Associated with Intense Urticaria and Rheumatoid State. E. O. Houda, Tacoma.—p. 90.

June, 1919, **18**, No. 6

Carrel Dakin Treatment of Empyema at Camp Custer, Mich. J. M. Henderson, Seattle.—p. 101.
Operative Treatment of Fractures. O. F. Lamson, Seattle.—p. 106.
Survey of Thyroid Enlargement Among Students of Puyallup Indian School, Tacoma, Wash., May, 1918. W. J. Kerr, U. S. Army.—p. 110.
Postgraduate Medical School at Camp Lewis. H. V. Würdemann, Seattle.—p. 112.

Public Health Journal, Toronto

June, 1919, **10**, No. 6

*Necessity of Legislation to Prevent Marriage of Physical and Mental Defectives and Those Having Communicable Diseases. J. A. Hutchinson.—p. 249.
Management of Venereal Diseases by U. S. War Department During 1917 and 1918. E. L. Keys, Jr.—p. 253.
Federal Department of Health. M. Steele.—p. 262.
Sickness and Poverty. E. Dyke.—p. 287.

Legislation to Prevent Marriage of Physical and Mental Defectives, Etc.—Hutchinson emphasizes the fact that any reform and especially one which limits individual freedom must have the support of a very considerable majority of the people if it is to produce any satisfactory results. In his judgment, the proper course to adopt would be to obtain and publish statistics indicating the extent and seriousness of the evil to be combated, so as to awaken a public demand for the legislation in question. When that has been done, although there will be obstacles to surmount, there can be no doubt that at least a moderately satisfactory plan for carrying into effect the proposed legislation can be developed.

South Carolina Medical Association Journal, Greenville

June, 1919, **15**, No. 6

Influenzal Pneumonia. T. L. W. Bailey, Clinton, S. C.&p. 469.
Antityphoid Vaccine; Precautions to be Observed in Administration. C. V. Akin, Washington.—p. 470.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

June, 1919, **27**, No. 6

Present Status of Etiology and Treatment of Malignant Growths. E. S. Lain, Oklahoma City.—p. 117.
Nervous and Mental Strain. T. L. Moody, San Antonio.—p. 125.

Southwestern Medicine, El Paso

May, 1919, **2**, No. 17

Interdependent Relationship of Uveal Tract Inflammations and Certain General or Focal Infections. D. F. Harbridge, Pheonix, Ariz.—p. 1.
Operative Treatment of Empyema. B. E. Stevens, U. S. Army.—p. 5.
Medical Inspection of Alien Immigrants at El Paso. J. W. Tappan, El Paso.—p. 7.

Virginia Medical Monthly, Richmond

June, 1919, **46**, No. 3

Experiences at Evacuation Hospital in France. S. McGuire, Richmond.—p. 51.
Uniovular Twin with Congenital Absence of Right Femur. V. Harrison, Richmond.—p. 54.
Infections of Nose and Throat as Primary Foci for Secondary Infections. K. S. Blackwell, Richmond.—p. 55.
Syphilis at U. S. Army Base Hospital, Camp Greene, Charlotte, N. C. C. F. Ross, Richmond and W. A. DeFoe, Detroit.—p. 57.
Retroversion of Uterus with Special Reference to Surgical Treatment. A. S. Brinkley, Richmond.—p. 61.
Intussusception. O. K. Phlegar, Graham, Va.—p. 63.

Washington Medical Annals, Washington

May, 1919, **18**, No. 2

Intravenous Vaccine Therapy. J. B. Nichols, Washington.—p. 35.
Cause of Tetanus. D. P. Hickling, Washington.—p. 43.
Medical Studies in Aviation. E. G. Seibert, Washington.—p. 46.

Wisconsin Medical Journal, Milwaukee

June, 1919, **18**, No 1

Mesenteric Embolism and Thrombosis. J. F. Smith, Wausau.—p. 1.
Training of Medical Speech Specialist. W. B. Swift, Milwaukee.—p. 5.
Common Gynecologic Errors. C. M. Echols, Milwaukee.—p. 5.
Some Unusual Foreign Body Cases. V. A. Chapman, Milwaukee.—p. 9.
Action of Digitalis on Heart, Clinically and Experimentally. O. A. Stienson, Green Bay.—p. 15.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

May 12, 1919, **13**, No. 2

*Number of Races in Species Endameba Dysenteriae (Histolytica). A. M. Smith.—p. 1.
Course and Duration of Infection with Endameba Coli. J. R. Matthews.—p. 17.
Two Parasites of Naja Nigricollis. J. W. S. Macfie.—p. 23.
Genital Armature of Female Tsetse Flies (Glossina). A. M Evans —p. 31.
Strongylidae in Horses VII. Cylicostomum Pateratum, sp. n. W. Yorke and J. W. S. Macfie.—p. 57.
*Treatment of Malaria. XXII. Intramuscular Injections of Quinin Bihydrochlorid on Two Consecutive Days. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. F. Cooper and H. G Carter.—p. 63.
*Id. XXIII. Oral Administration of Quinin Sulphate on Consecutive Days Weekly, for Five Weeks. J. W. W. Stephens, etc.—p. 69.
*Id. XXIV. Disappearance of Crescents under Quinin Treatment. J. W. W. Stephens, etc.—p. 73.
*Id. XXV. Arsenic. J. W. W. Stephens, etc.—p. 75.
Intestinal Protozoal Infections Among Convalescent Dysenterics. J. R. Matthews and A. M. Smith.—p. 83.
Spread and Incidence of Intestinal Protozoal Infections in Great Britain. J. R. Matthews and A. M. Smith.—p. 91.

Number of Races in Species Endameba Dysenteriae.—Evidence is given by Smith that not all infections of *Endameba dysenteriae* remain constant from one day to another in the average size of their cysts. While the species *E. dysenteriae* can undoubtedly be divided into two races characterized by smaller and larger cysts, respectively, the existence of further races is not confirmed. Infections with *E. dysenteriae* in healthy carriers who have not been out of this country are characterized by a smaller proportion of the "small" race, and also by a reduced proportion of the larger cysts of the "ordinary" race, as compared with infections from convalescent dysenterics from abroad.

Treatment of Malaria. Intramuscular Injections of Quinin Bihydrochlorid.—The authors claim that an intramuscular injection of 15 grains of quinin bihydrochlorid in 2 c.c. of water on each of two consecutive days only, causes the cessation of febrile paroxysms and effects the disappearance of trophozoites from the cutaneous blood in malignant tertian malaria. The action, however, is only temporary, a relapse occurring within three weeks, occasionally within a few days.

Id. Oral Administration of Quinin Sulphate.—Stephens and his associates found that as a palliative, 30 grains of quinin sulphate on each of two consecutive days weekly, over a period of five weeks, suffices to keep the blood free from trophozoites and to prevent relapses in the great majority of cases. It is noteworthy that the percentage of cases having crescents in the peripheral blood diminished each week, viz., from 50 per cent. in the first week to 6 per cent. in the fifth week of treatment.

Id. Disappearance of Crescents Under Quinin Treatment.—Under 30 or 40 grains of quinin daily, crescents do not persist in the cutaneous blood in the majority of cases for more than three weeks.

Id. Arsenic.—The authors found that the novarsenobillon brand of arsphenamin in doses of from 0.45 to 0.9 gm. is of no value in the treatment of malignant tertian malaria. A combination of arsenic with quinin is not more effective than quinin alone.

Archives of Radiology and Electrotherapy, London

May, 1919, **23**, No. 226

Gunshot Wounds of Chest. P. T. Crymble.—p. 369.
Electrotherapeutics in Great Britain; Treatment of Disabled Soldier. W. J. Turrell.—p. 387.

British Medical Journal, London

May 31, 1919, **2**. No. 3048

*Acute Encephalomyelitis in Australia. J. B. Cleland and A. W. Campbell.—p. 663.
*Two Outbreaks of Mild Dysentery Associated with Schmitz Bacillus (B. Ambiguus Andrewes). W. Broughton-Alcock.—p. 666.
Anesthetics in British Hospital with Serbian Army. J. P. Good.—p. 667.
Antimalaria Measures in England. A. MacDonald.—p. 669.
Electrical Changes in Active Tissues. W. M. Bayliss.—p. 670.
Jaundice: Types Occurring During War. W. H. Willcox.—p. 671.
*Traumatic Rupture of Heart Without Fracture or External Lesions. A. C. L. Bilderbeck.—p. 675.

Acute Encephalomyelitis.—An abstract of this article was published in The Journal, May 17, 1919, p. 1496.

Two Outbreaks of Mild Dysentery.—Clinically the cases described by Broughton-Alcock presented signs and symptoms which resembled those seen in mild cases due to the Flexner-Hiss bacillus. The more severe form of dysentery and the associated toxicity so generally found when the infective micro-organism is the Shiga bacillus were not observed in any case. The first outbreak was among troops belonging to one camp. Those in an adjoining camp remained free from infection. The troops in the camp affected had recently arrived from a distant allied country, while in the other they were British, and had been in Italy for several months. Within the period of one week twelve officers and 350 men, out of a total of 3,000 troops, fell ill with a comparatively mild form of dysentery associated with vomiting and abdominal pain. The onset was sudden and acute. In many there was collapse, and the temperature rose to around 102 F. The duration of the attack averaged three to four days, when the patient was practically able to return to his duties and the stools were normal in consistency and character. There were no deaths. The stools were numerous during the first twenty-four to forty-eight hours, and frequency persisted exceptionally to five or six days. The stools consisted mainly of mucus and bile stained watery fecal matter; some contained blood flakes or cells only, but no clots. The mucus in a few was clear and in plaques, while in others it was more opaque and occurred as fine flakes, of color and consistency varying between clear and white according as the pus and epithelial cells therein were few or numerous. It appears that these outbreaks were due to an intestinal intoxication dependent on the proliferation and mild toxicity of the Schmitz bacillus.

Traumatic Rupture of Heart Without Fracture or External Lesions.—While engaged in fire practice in the regimental lines a soldier was pulling the wheeled fire pump when, coming downhill, it ran away with him, and he was crushed between a stone wall and the cross-bar handle of the pulling shaft, which apparently caught him across the middle of the chest. He was seen to fall dead at once. Externally there was some congestion of the right eye, and a small cut and contusion on the right side of the forehead. No other contusions or lesions were found anywhere and no fractures or hemorrhages, though the saliva was tinged with blood, possibly from some undiscovered cut in the mouth. The base of the skull was not fractured; there was marked pachymeningitis along the superior longitudinal sinus. The abdomen was natural; the ribs were unfractured, but were very pliable, so that the chest could be compressed easily. The lungs were natural. The pericardium was full of blood but undamaged. The heart was very small, being only about 3½ inches long and 3 inches broad. The valves and heart muscle were apparently natural, and there was no trace of aneurysm or old disease. In the wall of the right auricle, between the right coronary artery and the entry of the inferior vena cava, was a small rent measuring about three-fourths by one-half inches. Bilderbeck suggests as cause of this curious accident that at the moment of impact the man may have taken a deep inspiration, engorging the right auricle, which then burst on sudden compression through the costal wall by the cross bar of the shaft of the fire pump.

June 7, 1919, **2**, No. 3049

*Brachial "Neuritis" and Its Treatment. R. T. Williamson.—p. 699.
*Febrile Urticaria. R. D. Lawrence.—p. 701.
*Intravenous Injections of Antimonium Tartaratum in Kala-Azar G. C. Low.—p. 702.
Tendon Transplantation in Drop-Wrist Due to Nervous Injury. V. Pennell.—p. 704.
Influenza in Base Hospital in Italy. J. O. W. Barratt.—p. 705.
Chronic Trench Fever. G. Ward.—p. 706.
Jaundice: Types Occurring During War. W. H. Willcox.—p. 706.

Brachial "Neuritis" and Treatment.—Attention is directed by Williamson to the etiology of the affection, and especially to pressure on the nerve trunks of the brachial plexus in the posterior triangle of the neck as one exciting cause; and to the value of supporting the arm in a suitably arranged sling. He cites cases to show how various kinds of pressure on the nerve roots such as from the suspenders, a shoulder strap, a fall, a blow, carrying a heavy weight on the shoulder, etc., may cause this trouble. He has treated these cases of brachial neuritis by placing the affected arm in a sling. The sling should pass over the shoulder of the normal arm, and it should be so arranged that it passes under the elbow of the affected arm and slightly raises it. The shoulder and the clavicle are thus slightly raised, and pressure on the nerve roots at the lower part of the posterior triangle of the neck (near the first rib) is prevented; also the weight of the arm is supported and dragging on these nerve trunks prevented. All tight braces or shoulder straps should be removed at once. The arm should not be allowed to hang by the side. Most of Williamson's patients, but not all, recovered promptly or improved markedly by the use of the sling, with a pyrazolon derivative given internally.

Febrile Urticaria.—The symptoms in the two cases cited by Lawrence were practically identical, and were characterized by five days' pyrexia, by a diffuse eruption partly resembling urticaria and partly angioneurotic edema, and by intolerable itch. They both occurred in the same hospital within a week of each other. None of the known causes of urticaria were present, and the questions arise whether it was not more than coincidence that these two uncommon cases appeared so close together in time and place, and whether there might not be some unknown specific infective agent to account for them both.

Antimony Tartrate in Kala-Azar.—In the case cited by Low antimony tartrate evidently acted as a specific against Leishmania donovani, and sterilized the patient of his infection. Low cautions, however, that antimony in large doses, given over prolonged periods of time, produces fatty changes in the liver and kidneys, which may seriously damage the resisting powers of the patient, and may even cause death. Therefore, antimony should not be given for longer periods than necessary, and it is important that some definite test should be evolved which will indicate when the infection of kala-azar has disappeared and the patient is cured. If antimony is finally proved to destroy the *Schistosoma hematobium*, then a similar test to determine when this destruction has taken place is required. In all cases where antimony tartrate is given intravenously the patient should be confined to bed on the day of the injection and kept there till the day after, and should be watched carefully throughout the course, any indications of gastric or constitutional disturbances at once contraindicating further injections. Not more than two injections a week should be given, and the salt should not be given in too concentrated a form.

Japan Medical World, Tokyo

May 25, 1919

*Biologic Nature of Virus of Typhus Fever and Prophylactic and Therapeutic Study of Reconvalescent Serum. S. Kusama.

June 1, 1919

*Treatment of Malignant Tumor with Emulsion of Autogenous Tumor Tissue. K. Oba.

Biologic Nature of Virus of Typhus Fever.—Kusama is convinced that the virus of typhus is present in the platelets. The Japanese monkey was infected with the virus and the blood was withdrawn in from 5 to 63 days from the subsidence of the fever and the serum was prepared. With this serum, Kusama tried both prophylactic and therapeutic experiments. Two monkeys were injected hypodermically with 2.0 gm. of the serum per kilogram body weight, and on the next day, the virus was injected into the vein. No symptoms developed. These two monkeys were given the virus after some score of days and the typical symptoms developed in them, thus proving that they had not any a priori immunity against the disease, but that they were protected from the infection by the prophylactic power of the reconvalescent serum that had been given them. Monkeys were infected with the disease and the reconvalescent monkey's serum was administered hypodermically at various stages of the disease in doses of from 0.5 to 2.0 gm. per kilogram of body weight. Each time a remarkable improvement in fever, besires the shortening of the duration of the symptoms was effected. But the latter seems yet to be proved by further experiences.

Treatment of Malignant Tumor with Emulsion of Autogenous Tumor Tissue.—Oba cites the case of a woman, aged 36 years, who had a typical medullar carcinoma of the breast. For two months she was injected with a saline emulsion of her tumor cells. The result was an improvement in the local and general symptoms; microscopic evidence of a change in the tumor cells, the tissue taking on the appearance of chronic inflammatory tissue. There was no evidence of further growth of the tumor. The patient died of pulmonary tuberculosis. At the necropsy carcinoma metastases were found in the liver.

Journal of State Medicine, London

June, 1919, **27**, No. 6

Future of Tuberculosis Problem. P. C. Varrier-Jones.—p. 161.

Social Aspect of Problem of Consumptive in Relation to a Comprehensive Scheme. N. D. Bardswell.—p. 179.

Journal of Tropical Medicine and Hygiene, London

June 2, 1919, **22**, No. 11

Sudanese Examples of Pityriasis Rubra Pilaris. A. J. Chalmers and A. Innes.—p. 97.

Lancet, London

June 11, 1919, **2**, No. 4998

Mental Disorders Associated with Old Age. G. H. Savage.—p. 1013.

Bilharziasis. N. H. Fairley.—p. 1016.

*Antimony Tartrate for Bilharziasis: Specific Cure. J. B. Christopherson.—p. 1021.

*Atypical Strain of B. Paratyphosus B. W. Broughton-Alcock.—p. 1023.

*Case of Medullary Symptom Complex. S. A. Owen and P. A. Leighton. —p. 1024.

*Perforating Wound of Heart. F. C. Pybus.—p. 1026.

*Case of Teratoma of Testicular Relic, Throwing Light on Origin of Peptic Ulcer. J. Taylor.—p. 1027.

Antimony Tartrate for Bilharziasis.—Christopherson claims that the intravenous injection of antimony tartrate not only kills first the parasite (*Schistosoma hematobium*) in situ but later it kills the embryos in the ova deposited in the terminal vessels, and sterilizes the ova so deposited, and that the patient is cured not only of his bilharzia parasites but that he ceases to be a bilharzia carrier and cannot propagate the disease.

Atypical Strain of B. Paratyphosus.—The atypical characters found in a micro-organism temporarily classified as a strain of *B. paratyphosus* B isolated by Broughton-Alcock and his associate, Lagane, from the blood of an enterica patient, who showed characteristic clinical symptoms of such an infection, appear to be an example of the marked variation that exists among strains within a group of micro-organisms.

Medullary Symptom Complex.—The following is a summary of the symptoms in the case cited by Owen and Leighton. A woman, aged 47, stated that left sided occipital headache was the only premonitory symptom. Acute onset, without loss of consciousness or convulsion, but with vomiting (once), persistent uncontrolable hiccup, tinnitus (left ear), and intense giddiness; forced movements toward left, left sided cerebellar hypotonia and ataxia (slight), with nystagmus on looking to left; inability to swallow, with paralysis of left vocal cord, dysarthria and paralysis of palate; left pseudoptosis, enophthalmos and small pupil; paresis of left sternomastoid and trapezius; analgesia and thermo-anesthesia of right side of body and face, and left face. Tactile sensibility, joint sense, vibration sense, all normal. Hypertrophied heart; high systolic and diastolic blood pressure, no albuminuria; Wassermann reaction negative. A tentative diagnosis of a lesion of the left posterior inferior cerebellar artery, was made. A second more detailed examination confirmed this diagnosis.

Perforating Wound of Heart.—Pybus' patient was stabbed in the neck and back and four times in the thorax. Pneumothorax was produced on each side. Three of the four thoracic wounds were over the heart; one of these produced pneumothorax, opened the pericardium, and penetrated the left ventricle, which was sutured about two hours later. Nevertheless the patient survived for five days, then dying from septic infection of the pleurae and pericardium.

Teratoma of Testicular Relic.—Taylor cites the case of a man who complained of irregular attacks of severe pain in the epigastrium of two years' duration and recently becoming worse. This pain, which shot through to the back, did not seem to have any definite relation to the taking of food; it frequently came on in the night. It was accompanied by nausea but no vomiting. The bowels were constipated; no melena. The patient had lost in weight. Laparotomy was performed and a large ulcer found on the lesser curvature close to the cardiac orifice, but actual organic constriction was not present. The duodenum was much dilated; it was somewhat congested; no evidence of ulceration. Behind the peritoneum at the duodenojejunal junction, and partly obstructing it, was a rounded cystic swelling about the size of a duck's egg. It was closely applied to the front of the aorta and had a communicated pulsation from it. This obstructing tumor was carefully separated from the aorta and removed and the ulcer excised. The tumor was a teratoma of a testicular relic. Taylor thinks that the case demonstrates very clearly the fact that obstruction at the duodenojejunal junction, which, according to the theory advanced by Lane, is usually produced by chronic intestinal stasis, and which was brought about here by the pressure of a tumor, may be directly responsible for the development of peptic ulceration.

Medical Journal of South Africa, Johannesburg

March, 1919, **14**, No. 8

Maternal and Antenatal Pathology. A. S. Wells.—p. 388.
*Effort Syndrome. G. D. Maynard.—p. 395.
*Use of Salt Water in Preventing Influenza. W. Watkins-Pitchford.—p. 398.
South African Cercariae. F. G. Cawston.—p. 401.

Effort Syndrome.—Maynard prefers this appellation to the terms, soldier's heart, the irritable heart of the soldier, disordered action of the heart or D. A. H., and neurocirculatory asthenia. He analyzes 121 cases. The characteristic symptoms of this condition are those common to myocardial weakness from many causes. The frequency with which Maynard found them in his cases is as follows: dyspnea, 92 per cent.; palpitation, 80 per cent.; precordial pain, 54 per cent.; weakness, 86 per cent. The average systolic pressure was 129 mm., the diastolic, 74, and pulse pressure, 55. Some apparently definite dilatation of the heart was noted in 46 per cent. of the cases. Systolic murmurs were observed in the following order of frequency: tricuspid, 35 per cent.; mitral, 30 per cent.; pulmonary, 9 per cent., and aortic, 6 per cent. The sinus arrythmiae were observed in 50 per cent. of the cases. Extra systoles were noted in 15 per cent.

Use of Salt Water in Preventing Influenza.—In the early days of the recent epidemic of influenza in Cape Town, the public were advised, through the medium of the daily press, of the possible preventive value of systematically douching the nasal cavities and gargling with warm salt water. In order to ascertain, if possible, the experiences of those who had employed salt water in the manner recommended, the South African Institute for Medical Research appealed, through the medium of the public press of the Cape Province, for personal reports from all those who had adopted this measure. Reports concerning 786 individuals were received, and the information thus provided enables us to arrive at, at least, a tentative conclusion as to the influence of this procedure on the development and course of the disease. The general conclusion which Watkins-Pitchford says all the facts appear to warrant is that the frequent and regular douching of the nasal and nasopharyngeal cavities with salt water was definitely beneficial. The evidence shows that the procedure, when systematically carried out, was capable "of diminishing the probability of such lodgment (of the virus of influenza) becoming permanent, or of modifying at any rate the dose of poison so received."

Practitioner, London

June, 1919, **102**, No. 6

Importance of Immediate Specific Treatment in Influenzal Pneumonia and Other Acute Infections. W. H. Wynn.—p. 288.
The 1918 Influenza Epidemic. C. J. C. Faill and J. A. Fairer—p. 295.
Prevention of Influenza and Pneumonia by Maintenance of Uniform Room Temperature. S. L. Burton.—p. 301.
Cause of Influenza; The Weather; A Suggestion. M. D. O'Connell.—p. 302.
Early Bone Grafting in Wounds. R. A. Stoney.—p. 310.
Conditions That May Simulate Referred Pains of Visceral Disease. E. F. Cyriax.—p. 314.
Fatal Tetanus Following Subcutaneous Injection of Gelatin. F. P. Weber.—p. 323.
Treatment of Some Minor Injuries of Foot, with Special Reference to Workmen's Compensation. R. K. Howat.—p. 325.

Archives de Médecine des Enfants, Paris

June, 1919, **22**, No. 6

*Infantile Scurvy. J. Comby.—p. 281: Conc'n.
Necessity for Organizing a System of School Nurses. L. Guinon.—p. 299.
*Measurements of Children. A. Bleyer.—p. 311.

Infantile Scurvy.—Comby states that the sexes were equally divided in his sixty cases of scurvy in infants, but none of the children was less than 6 months old; one was over 3, two were 8 years old, and one 9. The previous instalment of his article was reviewed in these columns, page 1875. He reiterates in conclusion that orange juice should be given systematically as a preventive to all children being fed sterilized milk.

Measurements of Children.—Bleyer compares the figures as to height and weight in 2,000 schoolchildren at Vienne, a manufacturing town in France, with similar data from Paris and from the United States. The weight of both boys and girls was higher at Vienne than at Paris and in the United States, except that the United States figures for the ages 12 to 14 were a little the highest. The same superiority of the Vienne children was also apparent in the weight, surpassing the weight of the Paris and United States children except that boys of 13 and 14 and girls from 12 to 14 weighed a little more in the United States figures. Bleyer's research was done under the auspices of the American Red Cross Children's Bureau.

Bulletin de l'Académie de Médecine, Paris

May 27, 1919, **81**, No. 21

*Origin of Cancer. A. Robin.—p. 699.
*Hygiene of Elderly Men. Armaingaud.—p. 711.
*Radiology in the War. G. Haret.—p. 718.
*Crisigenous Treatment of Influenza. M. Renaud.—p. 720.
*The Finger Prints of the Blinded. Ferrier.—p. 723.
*Doses in Roentgen Work. H. Guilleminot.—p. 726.

Etiology of Cancer.—Robin presents what he says is a new conception of the origin of cancer. It is based on his noticing that cancer tissues and the tissues around the focus contain much more water than other tissues. They share this tendency to hydratation with all very rapidly growing tissues, only that they have it in an exceptional degree. The cancer tissue has less total residue than normal tissue. The reverse is observed in tuberculous lung lesions, the content in organic and inorganic matters being much above normal especially in the region around the focus. He regards this as an aid in the defense, nothing of the kind being observed with cancer. He gives further figures in detail from a number of cases of cancer of the liver, pancreas, etc., and from healthy corresponding organs, "all testifying to a double or almost triple proteolytic ferment action in the tissues around the cancer, not in the cancer itself. The dissociating action of this proteolytic ferment may by some reversive action incorporate some of the dissociated amino-acids in some of the cells of the organ, thus imprinting on these cells a tendency to rapid growth and anarchistic multiplication, the rapidity of their growth not leaving them time for differentiated evolution. Contrary to the way the tubercle grows, the cancer builds itself up out of the products of dissociation of the proteic substances of the organ on which it is developing, selecting preferentially those among the amino-acids which Osborne and Mendel regard as the growth elements (hexonic bases)."

Hygiene for the Elderly.—Armaingaud expatiates on the importance to the community of men of 60 and 70 or more who have retired from active business and are able to advise in civic and other matters from their ability and experience. To preserve them hale and hearty for their families and the community has been his special study for many years, and his experience in 38 cases is very instructive, as he describes. He quotes an Arab proverb to the effect that the things most to be feared for an elderly man are a good cook and a young wife. His article is entitled "Les Amours des Vieillards," and he relates that of the 19 whom he persuaded to follow his advice, 16 lived to far beyond their life expectancy, while 12 who could not be persuaded to do this all died on an average of four years short of their life expectancy. They averaged thus thirteen years less of life than those of the other group. Their last years also had been embittered by irritability, fatigues, jealousy and discontent. "Men do not wear out at 65 or 70 from normal wear of the organs but from the way they use and abuse life." Armaingaud is very proud of the 16 elderly men whom he was able to persuade to his views. This group of cheery, energetic, placid grandfathers formed almost a professional scientific experiment. A further group of 7 elderly men, all extremely wealthy, heeded his advice for a time but finally returned to their former habits, and died with eleven years less of life, on an average, than the first group. Armaingaud outlines the arguments he used. Every community and history can furnish "examples to deter."

Military Radiology.—Summarized in the Paris Letter, page 1929.

Treatment of Influenza.—Renaud seeks to bring on artificially the natural crisis in pneumonia, and calls this "crisigenous treatment." He applied it in 26 severe cases of grave influenzal pneumonia and all terminated in recovery. Since then he has applied it in 120 other cases of grave influenza, including 5 or 6 patients who had seemed doomed, and all recovered. He first gives an intravenous injection of epinephrin, 0.25 mg., and follows this in twenty minutes with injection of 20 to 40 c.c. of antipneumococcus serum. The reaction within an hour is sometimes impressive, with chills, small pulse, up to 140, temperature up to 104 F., or even more, but this phase is transient and ends in sweating and the patient feels great relief and enters on convalescence by night time. The vasomotor stimulus from the epinephrin seems to favor the action of the antiserum.

Finger Prints of the Blinded.—Ferrier suggests that a finger print to identify the signature of the blinded might prove useful in certain circumstances.

Doses in Radiotherapy.—Guilleminot discusses the laws of the action of pure, simple radiation, the application of these laws to ordinary rays, and the practical means to ensure the proper doses deduced from these laws.

Bulletin de la Société Médicale des Hôpitaux, París

April 11, 1919, **43,** No. 14

Lung Abscesses in Gassed Soldiers. A. Clerc and others.—p. 339.
*The Oscillometer Index of the Blood Pressure. E. May.—p. 344.
Agglutination of Proteus by Typhus Serum. R. J. Weissenbach.—p. 348.
*The Leukocyte Count in Typhus. R. J. Weissenbach.—p. 353.
Influenza at Fez. P. Nicaud.—p. 356.

The Oscillometer Index of the Blood Pressure.—May divides the difference between the maximal and minimal oscillometer findings by the differential pressure, the quotient forming the oscillometer index which gives a good idea of the conditions in the circulation, as he explains in detail. The oscillometer used is Pachon's model.

The Leukocyte Count in Typhus.—Weissenbach states that the leukocyte count was never up to 20,000, and averaged 15,000, with moderate neutrophil polynucleosis, with disappearance of the eosinophil and basophil polynuclears in all his typhus patients who recovered. On the other hand, in the fatal cases he found a neutrophil polynucleosis of 95 per cent. and hyperleukocytosis of 30,000; at the time the blood count was made the symptoms did not indicate that the disease was especially grave.

Presse Médicale, Paris

May 22, 1919, **27.** No 29

*Lichen Planus of the Mucosa and Leukoplakia. A. J. L. Brocq.—p. 277.
Subcutaneous Salicylic Treatment of Rheumatism and Gout. J. Séjournet.—p. 280.
The Normal Food Ration. L. Binet.—p. 281.
Lumbar Puncture after Trauma of the Skull. R. Dubois and A. Hanns.—p. 283.

June 5, 1919, **27.** No. 31

The Masters of Physiology: Claude Bernard and Pasteur. C. Richet.—p. 297.
Pituitary Treatment in Obstetrics. Schwaab.—p. 299.

Lichen Planus on Mucous Membranes.—Brocq warns general practitioners against assuming that every permanent white patch on the mucosa is inevitably leukoplakia, as lichen planus may deceptively simulate it. He has had three patients with lichen planus of the tongue which other physicians had been treating for leukoplasia, that is, with mercury, etc., for the assumed underlying syphilis. Even with true leukoplakia, syphilis is not invariably the cause; trauma from smoking, from a jagged tooth, etc., may be responsible for it. If there are signs of a malignant tendency, the practitioner should advise consulting a surgeon. In some cases extensive resection, done early, has cured the patient apparently completely, but in the majority of cases the operation has seemed to hasten the fatal ending.

Revue de Chirurgie, Paris

September-December, 1918, **37.** No. 9-12. Pub'd May, 1919

*Treatment of Supracondyle Fracture with Nail Extension. H. Fresson and R. Toupet.—p. 161
*Traumatic Shock from War Wounds E. Quénu.—p. 204.
*Loose Bodies in Joints. P. Coudray.—p. 341.
Thoraco-Abdominal Wounds. A. Martin.—p. 367.

Nail Extension for Fracture.—Fresson and Toupet report excellent results from nail extension in 32 supracondyle war fractures, all compound but 6. Amputation was not required in any case, and with 3 exceptions, including the 2 men who succumbed to their multiple wounds, consolidation was soon complete. It was perfect in 18, the men using the leg when discharged, but 11 were still wearing the cast although consolidation was complete. One case warns that the decalcification which may develop after a war wound is liable to involve even the healed fracture. Traction by nail extension seems to be superior to all other methods when the traction has to be applied to the flexed knee, and powerful traction is desired. Other things being equal, he declares it is borne best by the tissues. In his 47 cases there was no mishap of any kind except hydrarthrosis in one instance. His fifteen roentgenograms confirm the perfect end-to-end healing, and his twelve other illustrations show the various points in the technic. The nail is preferred by the patients to traction with adhesive plaster, but the main advantage is that the knee can be exercised. He kept up the traction in this way for six weeks on an average. The nail is a single steel skewer, 3 mm. in diameter, the point four sided. The traction is done with a U-shaped strip of iron, 25 mm. by 2 mm., with a ring to hold the cord, and a notched adjustable crossbar to hold the sides apart. The skewer is driven in at the intersection of the vertical line prolonging the axis of the femur and the horizontal line passing by the upper margin of the condyles.

Traumatic Shock.—Quénu refers to the traumatic toxemia with its set of symptoms indicating depression of the vital processes while the mind is not impaired. He devotes 236 pages to analysis of the literature on the subject published by the Allies, thus compiling for future investigators the data on the subject accumulated during the war. The number of clinical observations published was comparatively small, but they brought about the revolution in the conception and treatment of shock. In the surgical posts at the front, traumatic shock sometimes was responsible for the death of more than half of those that could not be moved. He adds that when for special reasons it is impossible to remove the focus, instead of mere expectancy, we might temporarily fasten the toxins in situ, as Heitz-Boyer did in one case in intense traumatic shock, filling the largest of the three large wounds with a solution of formaldehyd and methylene blue and giving copious hypochlorite irrigation.

Loose Bodies in Joints.—Coudray gives the details of six personal cases and reviews those published by others. The distinction between a traumatic loose body and one that is due to arthritis without effusion has seldom been made with precision. The arthritis may be explained by rheumatism, by a trauma, or by some nervous affection. The loose bodies cast off by a subchondral tuberculous osteitis seem to occur more frequently than is generally recognized. They have sometimes been mistaken for traumatic bodies. There is no evidence of the existence of a dissecting osteochondritis. Coudray's article is a sequel to one on the same subject published in 1905 reporting considerable experimental research in this line on dogs. Time and experience have only corroborated his earlier statements.

Revue Mens. de Gynécologie et d'Obstétrique, Paris

April, 1919, **14**, No. 4

*Breech Presentation. S. Remy.—p. 125.
*Decapsulation of Kidney in Puerperal Eclampsia. Jullien.—p. 131.
*Roentgen Treatment of Uterine Fibroma. R. Karhausen.—p. 136.

Breech Presentation.—Remy reviews his experience with 24 cases of breech presentation. It shows that when the uterus is contracting energetically the pelvis and the trunk of the child are delivered easily and rapidly, bringing down the arms and delivering the head by the classical means. Cases of this kind cannot be classed as fetal dystocia. But unfortunately this smooth delivery does not invariably occur. In his 24 cases intervention was required in 11, including 4 in the group of 17 in which pelvic presentation was discovered early. In the other cases Remy was summoned on account of serious dystocia from breech presentation. Intervention was usually required in the first group because the expulsive forces were too weak. Two died of the 9 children in the cases of intervention and 2 other fetuses were dead when the case was first seen. The mothers were primiparas in the two cases that proved fatal for the children, and in both the arrest was at the pelvic inlet. In such cases, if the Pinard-Mantel procedure does not prove successful, he would apply Olivier's porte-lacs to pass a fillet around the neck of the fetus. He thinks this would have succeeded in one of these cases if the whalebone had not broken just at the critical moment. The child was successfully extracted but it died during the intervention. In his 9 cases of breech presentation ending in normal delivery, 7 of the women were primiparas but the normally vigorous labor contractions insured comparatively easy delivery. Intervention was required in 3 cases as the labor contractions were too weak with arrest at pelvic floor, but delivery by classic methods proceeded smoothly in 2 cases, one a primipara. The other fetus had died before the intervention.

Decapsulation of the Kidney in Puerperal Eclampsia.—Jullien reports the case of a woman of 25 in eclampsia which had persisted after delivery, the woman still in profound coma with almost complete anuria. The pregnancy was at seven and a half months and the fetus had been spontaneously delivered. In eighteen hours thereafter she had voided only 130 c.c. of urine, and it contained 12 gm. of albumin. Decapsulation of both kidneys was then done and the coma gradually passed off and the woman recovered. Jullien warns that this success must not mislead us to demand more of decapsulation than it is capable of yielding. It has no appreciable action on changes in the liver or brain, but it is the sovereign remedy for derangement of the secretion of urine. Statistics show that the secretion of urine is reestablished in fully 80 per cent. of the cases, although the mortality in eclampsia, notwithstanding surgical treatment, is 39.66 per cent. Of course the operative cases are only those of exception gravity. Tisserand has recently pointed out that while decapsulation starts the secretion of urine anew in cases of mercuric chlorid poisoning, yet the patients die just the same. Decapsulation should be considered in eclampsia only in the cases with anuria. He performed the simple bilateral operation without special assistance, under brief ether anesthesia, the whole complete in less than twenty minutes.

Roentgen Treatment of Uterine Fibroma.—Karhausen emphasizes the fine result obtained in this case. The patient was a woman seven years past the menopause. There had been disturbances from the fibroma for fifteen years, but no permanent benefit had been obtained from prolonged medical measures. Eight exposures of the tumor were given at three to six weeks' interval and the fibroma, which had reached to 9 cm. above the pubis, gradually subsided, but adhesions were painful and subhysterectomy was finally done.

Revue Neurologique, Paris

July-August, 1918, **34**, No. 7-8

Diagnostic Importance of Reflex Action from the Vestibule and Equilibration. G. A. Weill.—p. 1.
Symptoms from Traumatic Injury of the Thalamus. M. Faure-Beaulieu and G. Aymès.—p. 10.
Abolition of Tendon Reflexes with Recent Injury of the Skull. R. Gauducheau and H. Bouttier.—p. 15.
Etiology of Tuberous Sclerosis. L. Babonneix.—p. 17.
Amnesia by Persuasion in a Dement. Legrain.—p. 21.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 10, 1919, **49**, No. 19

*Psychanalysis for Children. L. Frank.—p. 641.
*Mosquitoes in Switzerland. B. Galli-Valerio.—p. 652.

May 17, 1919, **49**, No. 20

*Chronic and Duodenal Ulcer. E. Kummer; Id. E. Bircher.—p. 673.

Psychanalysis for Children.—Frank illustrates by a number of concrete examples the imperative necessity for seeking out the cause when children change to be irritable and display anger and hatred for the ones they really love best. Psychanalysis may give the clue, and change of scene to a sympathetic environment may ward off irreparable injury, and save the child from a criminal career. The question is, where can such children be sent where they will get the patience and affection they require, in wholesome surroundings, with other children? A temporary change from the paternal roof is so indispensable that Frank declines to take any such case unless this is arranged. In conclusion he emphasizes the internal conflicts to which illegitimate children are so often exposed. The more intelligent the child, the more keenly he feels his ostracism and resents the prejudices of society. It is not a casual coincidence that so many professional criminals are of illegitimate birth. Frank says further that the psychobiologic phase of the subject of the declining birth rate never gets mentioned in scientific discussions. Even physicians are not qualified to discuss it as their university training leaves out of account altogether the important normal and pathologic psychic manifestations of the reproductive functions. And yet, he asks, "Are not these psychic processes the axis on which our entire human life revolves, its happiness and its unhappiness? Are these forces actually imponderables for the physician? A correct understanding of human biology leads inevitably to the conclusion that man can live a healthy and happy life only when he is not fighting like a Don Quixote against the forces working in him, the gregarious instinct and the longing to love and be loved. . . ." "The university courses in medicine, law, theology and pedagogy, although the professions they teach have to deal always with man and his relations with his environment, yet pass over entirely the normal or pathologic life of sentiment and sex relations in general."

Mosquitoes in Switzerland.—Galli-Valerio was delegated by the Public Health Service to collect data on this subject. He found anophelines up to altitudes of 1,143 meters and the culex to 2,390 meters (over 7,170 feet). He noticed an unusually long larval stage in some of the mosquitoes, especially the nigripes; some of the larvae of the latter were 6 to 8 months old before they changed to the pupal stage. He found mosquitoes in every canton, and describes their biology. One town had no standing water and hence no mosquitoes except in the cisterns for fighting fires.

Chronic Gastric and Duodenal Ulcers.—Kummer discusses the pathology and the statistics while Bircher discusses the operative technic. These two comprehensive articles formed the leading addresses at the fifth Swiss Surgical Congress. According to Kummer's statistics, gastro-enterostomy offers two or three times less vital danger than resection and excision, while the functional results are equally as good, irrespective of the site of the ulcer. Nothing is more difficult, he says, than to cure a peptic ulcer, and this should be borne in mind before doing any operation of the kind. Cancer developed after gastro-enterostomy in 2 per cent. between 1890 and 1910, but only in 0.13 per cent. in 1910 to 1917, in a total of 1,152 operations of the kind by twenty-three Swiss surgeons, including 252 duodenal ulcer cases.

Bircher deplores that gastro-enterostomy has not answered all anticipations, and he ascribes this to the neurotic factors involved in the ulcer. The ulcer seems to be the outcome of a vagotonic vicious circle formed by hypersecretion, retarded evacuation and pylorospasm. The gastro-enterostomy breaks up this circle as thyroidectomy breaks up the vicious circle in exophthalmic goiter. The pylorospasm is arrested; this improves evacuation conditions, and the pains may disappear completely at once. The question is whether it may not be possible to arrest the pylorospasm in some simpler way, possibly by severing the vagus or the contracting muscle. He reiterates that at present resection of a transverse segment of the stomach is superior to gastro-enterostomy in every respect, and it takes no more time than the latter. He declares that this technic should be applied without exception for ulcers that are not near the pylorus, also for all hard, boring ulcers, as well as with the slightest suspicion of cancer. Excision of the ulcer alone deforms the stomach and may compel another operation later. He declares that a bleeding ulcer should not be operated on. The best way to prevent dangerous hemorrhage is by early resection. Albert Kocher said in the discussion which followed that gastro-enterostomy is still as ever the preferable operation for gastric and duodenal ulcer. He emphasized the rarity of malignant degeneration, saying that the wide divergence in the figures of different surgeons, from 0.5 to 70 per cent. is undoubtedly due to errors in interpretation. He related that he had personally examined the Mayos' specimens, and was convinced that much of what they labeled cancerous degeneration of ulcers was in reality merely atypical proliferation of epithelium. Regenerative processes in the gastric glands assume most peculiar shapes, and we have no means to date to differentiate them except by the outcome.

De Quervain made a plea for refraining from gastro-enterostomy if the expected ulcer is not found. Peptic ulceration occurs oftener than is generally recognized. It may escape detection or the patient may apply to another surgeon and the first never hear of the peptic ulcer. Even if he does learn of the symptoms, he is very apt to ascribe them to the primary ulcer. De Quervain found in three cases a scrap of silk thread in the depths of the peptic ulcer, and since then has used exclusively a special, very slowly absorbed catgut. Other material is used only for closing the slit in the transverse mesocolon, taking the button sutures 1 cm. apart, through stomach, mesocolon and jejunum. Kopp reported a case of recurring hematemesis and melena in which the symptoms pointed solely to the stomach or duodenum except for two weeks of jaundice, but necropsy in less than three months revealed a round ulcer in the gall-bladder and one in the cystic duct

Gazzetta degli Ospedali e delle Cliniche, Milan

April 24, 1919, **40**, No. 33

*Symptomatology of Epidemic Meningitis. L. Nelli.—p. 307.

April 27, 1919, **40**, No. 34

Therapeutic Pneumothorax for War Wounds of Chest. G. Pisanò. —p. 317.

Symptomatology of Epidemic Meningitis.—Nelli states that in his 100 cases of epidemic meningitis, headache, vomiting and herpes were observed in every case and the pulse was always very slow, down to 35 and 40 in some cases. As the prognosis grew graver the pulse became accelerated. There were manifestations in the skin only in about 10 per cent. of the cases. In one patient there was actual purpura with swelling of the joints. In two cases that terminated fatally the course was apyretic throughout, and in all the fever was seldom above 38 or 38.5 C.

Policlinico, Rome

May 18, 1919, **26**, No. 20

*Orthodiagraphy. F. Perussia.—p. 609.

Convalescents' Serotherapy of Tuberculosis; One Case. A. Miliani. —p. 624.

Orthodiagraphy.—Perussia expatiates on the advantages of this method of outlining the heart, "although it is not a method of precision at the best." He discusses the preferable technic.

Riforma Medica, Naples

May 10, 1919, **35**, No. 19

*Influence of Mercurial Treatment on the Coaguloreaction. S. Scigliano. —p. 374.

*Roseola Simulating Syphilids. L. Martinotti.—p. 377.

*Fracture of Petrous Bone. E. Aievoli.—p. 380.

Influence of Mercurial Treatment on the Coaguloreaction.—Scigliano refers to the coaguloreaction of Hirschfeld and Klinger, proposed as a serodiagnostic test for syphilis. It was applied by him systematically in a large number of cases parallel with the Wassermann test, applied by the original and by several modifications of the original technic, repeating the tests at a year's interval while 45 patients were being given vigorous treatment. The results show that mercury does not affect the findings of the coagulo-reaction as it affects the Wassermann reaction. That is, recent mercurial treatment does not modify the serum of syphilitics so as to deprive it of the properties which induce the coagulo-reaction. This reaction is less sensitive to mercury than the Wassermann, and consequently may prove decisive in dubious cases.

Roseola Simulating Syphilis.—Martinotti reports six cases in which the skin presented roseolar, apparently typical syphilids, but there was nothing at the time or later to suggest this disease. He explains them as probably due to autointoxication or some infection, possibly influenza.

Fracture of the Petrous Bone.—Aievoli comments on the difficulty of diagnosing fracture of the petrous bone as the symptoms may suggest constitutional disease, coma from diabetes, sunstroke, uricemia or cerebral hemorrhage. Treatment usually has to be expectant, combating shock, intracranial hemorrhage, infection, hypertension and compression, unless surgical measures are indicated from the first.

Rivista Critica di Clinica Medica, Florence

May 3, 1919, **20**, No. 18

*Effusion with Induced Pneumothorax. G. Breccia.—p. 205. Commenced in No. 16, p. 181.

Effusion with Induced Pneumothorax.—Breccia ascribes to the compression on the vessels in the hilum of the lung the disturbance in the circulation which is the main cause of the pleural effusion with therapeutic pneumothorax for pulmonary tuberculosis. This is also the cause for the effusion with heart disease, the enlarged heart pressing on the hilum and compressing its vessels. This explanation is a guide to treatment, as the presence of fluid in the pleura may push down the diaphragm or displace the mediastinum, and thus mislead one as to the absolute pressure in the pleura in inducing the pneumothorax. The effusion is liable to be rapidly resorbed, modifying completely pressure conditions with the pneumothorax, unless measures are taken at once to maintain the curative pressure on the lungs which abates as the fluid is absorbed. If the effusion shows a tendency to remain stable, he advises to respect it, as also when the effusion displays a progressive tendency unless it becomes excessive, when it requires treatment as for any pleural effusion. He emphasizes that the pleural effusion alone may exert the desired pressure on the lung, and in connection with the pneumothorax may regulate automatically the hydropneumothorax. He discusses further the indications when the effusion is purulent, mentioning parenthetically that the 12,000 soldiers passing through his service in the last two years amply demonstrated that the lung is able to expand and recuperate function almost always after a war wound of the chest affecting a sound lung. In the tuberculous lung, however, conditions are different, and time alone will show what share the pleuritic changes have in the final outcome of recovery under induced pneumothorax.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

April, 1919, **2**, No. 4

*Rational Dietaries. J. G. Ocaña.—p. 193. Cont'n.
*Operative Cure of Plastic Linitis. L. Urrutia.—p. 201.
*Tabetic Crises. J. Vilató.—p. 207.
*Electric Treatment of Hyperchlorhydria. C. M. Colmenarejo.—p. 217.

Rational Dietaries.—This is the seventh in a course of popular scientific lectures on this subject.

Chronic Inflammation of the Cellular Tissue of the Stomach.—Urrutia gives a number of illustrations of the case of Brinton's plastic linitis in which he resected all but a long narrow horizontal segment, including the cardia. This was sutured to the side of the jejunum. Urrutia discusses the nature of this "leather bottle stomach," inclining to accept a malignant origin. In this case the man was restored to apparent clinical health for over half a year but then abdominal pain and cachexia developed and death ensued eight months after the operation, twenty months after the first vomiting and loss of weight had attracted attention.

Tabetic Crises.—Vilató reiterates that tabetic crises in stomach, intestine, pharynx or esophagus may be the first manifestation of tabes, and hence the practitioner should be on the alert to suspect it in every possible manifestation of the kind. To aid in this he describes in minute detail the forms which these crises may assume.

Electric Treatment of Hyperchlorhydria and Gastric Ulcer.—Colmenarejo applies the continuous current in treatment of these conditions, keeping up the daily sittings for about two months. He begins with 5 ma., gradually increasing to 30 ma. by the end of the month. The felt-protected positive electrode of about 15 square cm. is placed on the epigastrium, the negative in the dorsolumbar region. The second month he supplements this with brief exposures to a weak faradic current to combat the atony and dilatation. If there has been much hemorrhage from the ulcer, he waits for two or four weeks before beginning the electric treatment. The results have been most gratifying in nearly all his cases.

Archivos de Ginecopatía, Obstetricia y Pediatría, Barcelona

April, 1919, **32**, No. 4

*Blunder in Sex Determination. D. Casadevall.—p. 73.
Chronic Nephritis in Boy of Eleven. P. P. de F. Garriga.—p. 77.
Pulmonary Tuberculosis in Children. Borobio.—p. 85.

Pseudohermaphrodite.—Casadevall reports the case of a girl, 2 years old, brought to the clinic on account of inguinal hernia, and the "hernia" proved to be testicles. The amazed parents left the clinic with a son instead of a daughter. The case reaffirms the importance of being wary in classifying the sex when there is the slightest anomaly in the genital organs. The labia were somewhat overdeveloped in this case, and on one side the skin was somewhat corrugated and shrunk with cremaster retraction. The supposed vagina was the outlet merely of the bladder. Several illustrations of the case are given.

Archivos Latino-Americanos de Pediatría, Buenos Aires

March-April, 1919, **13**, No. 2

*Child Welfare Work. J. A. Bauzá.—p. 97.
Paradoxic Alimentary Reaction. A. Mola.—p. 104.
*Chronic Hemorrhagic Purpura. J. Bonaba.—p. 110.
*Tumor of Pineal Gland. L. Morquio.—p. 119.
Astasia Basophobia in Boy of Three. J. C. M. Fournier.—p. 127.
*Meningeal Reaction in Mumps. J. Bonaba.—p. 130.
*Echinococcus Cyst in Lung. V. Zerbino.—p. 137.

Child Welfare Work at Montevideo.—Bauzá describes the aims of the child welfare stations, and insists that the work should include training in the care of children, prenatal consulting station, well-baby station and a children's clinic for children of all ages.

Case of Chronic Purpura.—Bonaba relates that the child of 6 subject to recurring epistaxis for four or five years had developed in the last few months a purpuric eruption with vomiting of blood and bleeding from the gums until the anemia was intense. The reds numbered only 950,000; the hemoglobin only 15 per cent. As a last resource to arrest the recurring epistaxis, the nasopharynx was cauterized. It accomplished this, and the hemorrhagic tendency seemed to subside, the blood regenerated and the present condition has been very satisfactory during the nine months since. He is convinced that the cauterization was responsible for this, as all other known measures had proved ineffectual, and the child was dying from the repeated losses of blood, especially the recurring epistaxis.

Tumor of Pineal Gland.—Morquio's patient was a boy of 12, previously healthy until he began to complain of headache and the clinical picture of tuberculous meningitis became installed, quite typical, except that the spinal fluid seemed to be normal. The child died at the end of a month, and necropsy revealed sarcomatous changes in a tumor in the pineal gland, probably of congenital origin.

Meningeal Reaction in Mumps.—Bonaba emphasizes the danger of mistaking the meningeal reaction in the course of mumps for actual meningitis, expecially in cases in which the mumps was abortive or so mild that it was overlooked. The meningeal reaction is generally mild and transient, but Morquio has reported a case of total permanent deafness as a sequela, and others have published cases of encephalitis, optic neuritis, zona or polyneuritis following mumps. The meningeal syndrome may persist for some time, up to two months in Massary's case. Lymphocytosis is the rule in these cases, but it is not invariably present. Repeated lumbar puncture showed no trace of it in three children with typical mumps. Massary found it constant in examining 635 soldiers with mumps; it was equally pronounced in those without any definite meningeal reaction. But the lumbar puncture may have to be repeated several times before it becomes evident. Massary calls it the lymphocytic meningitis; bradycardia and white demography are common.

Echinococcus Cysts in Lungs.—Zerbino reports two cases of hydatid disease of the lung in which the hydatidiform cyst in the lung ruptured spontaneously and the contents were coughed up by the children. The cure was soon complete in both cases as is the rule in children with small and young cysts, the contents of which are often sterile. If the membrane has been expelled, treatment should be only symptomatic. The position of the cyst does not affect the outcome as the contents are expelled by coughing.

Brazil-Medico, Rio de Janeiro

May 3, 1919, **33**, No. 18

*Leprosy in Northern Brazil. J. A. Atar.—p. 137.
Bifurcated Claw Thumb. A. F. de Magalhães.—p. 139.

Leprosy in Northern Brazil.—Atar relates that a leper asylum was founded in 1816 in the state of Pará, the disease having probably been imported from Europe. In 1900 there were twenty-five admissions and in 1917, 112, the authorities having recently made declaration of the disease compulsory. Of the total 882 new cases since 1899, 600 were males. Only 8.50 per cent. were under 10 years of age; 27.21 per cent. were between 10 and 20; 20.29 per cent., 20 to 30; 21.54 per cent., 30 to 40; 12.47 per cent., 40 to 50; and from 5 to 0.22 per cent. in a declining scale in the following decades of life. Atar does not know of any other statistics classified by ages. He says that the new cases now in Pará are nearly all in subjects under 20, and argues that the immunity of the older adults is probably due to an autovaccination from repeated small inoculations of the virus. This assumption would explain the relatively small percentage of children that develop leprosy in a leper's family. He mentions further that the distribution of leprosy in Pará does not coincide with that of malaria. In the Gurupa malarial zone there has been scarcely one new case of leprosy in the last twenty years, and he queries whether this may not be the direct consequence of the ravages of the malaria among the children. Leprosy has been growing less frequent at Pará since malaria has been making greater headway there.

Gaceta Medica de Caracas

March 15, 1919, **26**, No. 5

The Slow Pulse in Influenza. Machado and others.—p. 47.
*Resection of Ileocecal Segment for Cancer. S. Córdoba.—p. 49.
Cancers of Large Intestine. J. C. R. Morales.—p. 54.

Cancer of Ileocecal Segment.—Córdoba states that the clinical recovery has been perfect in the case described, the man of 45 six months later having gained much in weight and regained almost the whole of his strength. The case is illustrated. Córdoba believes that it is the first operation of the kind followed by entero-anastomosis on record in Venezuela.

Progresos de la Clinica, Madrid

March, 1919, **7**, No. 75

*Reconstruction of the Face. A. Cortés Lladó.—p. 97.
*Extraction of Cataract in the Capsule. F. P. del Fresno.—p. 117.
*Postinfluenzal Thyroid Insufficiency. W. L. Albo.—p. 122.
*Ossification from the Periosteum. A. H. Carmona.—p. 129.
Spanish Mineral Waters in Treatment of Disease of Digestive Apparatus. B. B. Campos.—p. 135.

Reconstruction of the Face.—Lladó's second article on this subject is also profusely illustrated, discussing how to avoid disfiguring scars from the suture, and prevent associated movement resulting from anastomosis of muscles or nerves. In one of Chutro's cases the deformity of the mouth had been corrected perfectly but, as the man laughed, the shoulder on the other side was lifted up. Lladó has been making a special study of plastic facial surgery in France and compares the methods of different surgeons and the indications for the different types of interventions.

Cataract Operations.—Del Fresno describes with two colored plates his modification of von Graefe's operation for extraction of cataract in the capsule. The loss of vitreous humor is much less, he says, when a movement of extraction is combined with pressure, as he explains.

Postinfluenzal Thyroid Insufficiency.—Albo gives the details of two cases in which, following an attack of influenza, girls of 11 and 10 developed somnolency and headache, and became forgetful. These were the only cases of unmistakable hypothyroidism he encountered although he had many cases of postinfluenzal nervous and mental disturbances, neuritis, meningitis and meningeal reactions, chorea, mild or paralytic, and psychoses. In one of the hypothyroidism cases, under thyroid treatment the somnolency improved at once, the headache disappeared by the third day and the memory returned to normal the fourth or fifth day. In the second case the headache yielded to the thyroid treatment but the somnolency and the impairment of the memory persisted for over three weeks when last seen; the ultimate outcome is not known. In conclusion Albo remarks that influenza may sometimes have the opposite effect, exaggerating the functioning of the thyroid and entailing symptoms of exophthalmic goiter, especially in persons with simple goiter or otherwise predisposed.

Periosteum Implants.—Carmona has continued his experiments with auto-implants of periosteum in dogs, and reports that microscopic sections later confirmed the positive results. The auto-implants of bone alone showed no signs of ossification. It is evident that bone deprived of its periosteum cannot be expected to regenerate, while the periosteum alone can be depended on for this unless the tissues are too old.

Revista Cubana de Obstetricia y Ginecologia, Havana

March, 1919, **1**, No. 3

*Missed Abortion. S. García Marruz.—p. 137.

Missed Abortion.—Marruz explains the case he reports saying that the fetus had committed suicide in a loop of its own umbilical cord. The uterus, after an ineffectual attempt to expel it, continued to tolerate the dead fetus. The size of the uterus persisted the same for three months, and investigation then revealed the entire ovum of about ten weeks' development loose in the vagina. He warns of the extreme discretion which circumstances may require in these cases of missed or delayed abortion, citing the Playfair case in which a verdict of $50,000 was rendered against the physician who mistook an old missed abortion for a comparatively recent process and told his wife of it.

Revista de Medicina y Cirugía, Havana

April 10, 1919, **24**, No. 7

*Case of Protracted Fever. M. de Villiers.—p. 183.
*Military Anthropometrics. A. MacDonald.—p. 191.

Protracted Fever.—De Villiers ascribes to influenza the stormy onset of the fever in the otherwise healthy girl of 12. Associated infections were probably responsible for the seven weeks' duration.

Military Anthropometry.—MacDonald's article deals with the measurements in the military of different countries, as affording especially data for identifying the dead.

April 25, 1919, **24**, No. 8

*Treatment of Urethrovesicovaginal Fistula. J. C. Pineda.—p. 211.
Transfusion of Blood. G. E. Aróstegui.—p. 213.

Urethrovesicovaginal Fistula.—Pineda reports the successful cure of a case with considerable destruction of the urethra. He reconstructed it out of a flap from the vagina, using the Duboue and the Ferguson-Braquehaye technic. He kept the retention catheter in place for twelve days.

Revista de Medicina y Cirugía Prácticas, Madrid

March 14, 1919, **122**, No. 1546

*The Celiac Plexus Reflex. M. Bañuelos.—p. 289.

The Celiac Plexus Reflex.—Bañuelos has continued his research on what he calls the celiocardiac reflex, and now states that pressure on the celiac plexus not only modifies the rhythm of the heart beat but influences the arterial pressure. The respiration rate and the pupils also feel the influence of this stimulation and likewise the tone of the peripheral vessels. The respiration is increased by five or ten inspirations per minute and the pupils dilate. The latter occurs more strikingly in persons of the sympathicotony type; with vagotony there is no appreciable dilatation. There is also a tendency to vasoconstriction of the capillaries in the face. Experiments on three dogs with the carotid or femoral artery exposed for the purpose confirmed the clinical findings. The diagnostic significance of this reflex is most marked in the abnormal response to the stimulation of the celiac plexus in hyperchlorhydria, pylorospasm and gastric ulcer, and other affections in which vagotony is a factor. His experience with hundreds of subjects examined has demonstrated that this seems to be the most constant of the reflexes, throwing light on the functioning of the vegetative system and on pathologic states in the more important viscera.

May 7, 1919, **123**, No. 1553

Enormous Genital Papillomas. A. Ledo.—p. 149.
*Lumbar Puncture in Rural Practice. J. C. Jiménez.—p. 151.
*Pathologic Relations Between the Genital and the Urinary Apparatus in Women. M. Barragan.—p. 153. Com'd No. 1545, p. 257.

Lumbar Puncture in Rural Practice.—Jiménez deplores the way in which country physicians shrink from lumbar puncture, thus depriving themselves of this powerful aid in both diagnosis and treatment.

Pathologic Relations Between the Genital and the Urinary Apparatus in Women.—In this long article Barragan discusses the reflex action, the mechanical action and the influence of infection in one of these apparatus on the other. He warns in particular against the danger of injuring the bladder in laparotomies, especially when confronted with a tumor of vague outline. The bladder may be twisted and adherent to the tumor, and injection of a fluid into the bladder, to throw it into stronger relief, may be the only means to differentiate this organ. He says that he frequently is consulted by patients on account of bladder disturbances after hysterectomy, some of mechanical and some of infectious origin. In two cases described in detail the disturbances were due to concretions developing on scraps of silk suture material. One woman of 50 required lithotrity twice. In another case a concretion developed on a silk scrap and was removed three years after the adherent bladder had been injured in removing an ovarian cyst. Normally there is a harmonious homogeneous symbiosis between mother and fetus —the toxins generated by the fetal metabolism being neutralized by the maternal defensive reactions. When this harmony is disturbed from any reason, pregnancy reactions follow from nausea to eclampsia, and the physician should be on the alert to detect this at the earliest possible moment so as to be able to reenforce the maternal defenses. Ambard's formula is a valuable guide for this. In a typical case mentioned, the coefficient was 0.128 but as the patient was put on a milk and vegetable diet for a month it dropped to 0.067, and all the symptoms of pregnancy toxemia subsided. In two apparently normal pregnant women at the third and fifth month the Ambard coefficient was 0.062 and 0.074.

Revista Medica del Uruguay, Montevideo

May, 1919, **21**, No. 5

•False Brain Tumor. L. Morquio.—p. 349.
Cervical Ribs; Two Cases. C. Pelfort.—p. 381.
•Origin of Asthma. J. A. Rampini.—p. 389.
False Migraine from Brain Tumor in Child. C. Stajano.—p. 407.

False Brain Tumor.—Summarized when practically the same article appeared elsewhere (The Journal, April 26, 1919, p. 1261).

Origin of Asthma.—Rampini read an article on this subject, "A New Conception of Asthma," at the Pan-American Congress of 1916. He here brings the subject down to date, citing additional testimony for the multiple causes of asthma, toxic, infectious or reflex. Each case has to be studied to learn the special factors involved. Treatment may require measures addressed to lesions remote from the air passages, as he describes in detail, enumerating among others cases of asthma for which lesions in the stomach, liver or bowel were responsible, or the heart, kidney or uterus. In conclusion he emphasizes the importance of tuberculosis in the etiology of asthma. He regards it as the most common cause, and Soca insists that tuberculosis is almost always to be incriminated. The old theory that tuberculosis and asthma are antagonistic is due to the fact that certain asthmatics seem to be refractory to tuberculosis because they have long been infected with it.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

March 29, 1919, **1**, No. 13

The Language of Medical Writings. II. A. Kluyver.—p. 969.
•What Do Unqualified Practitioners Accomplish? G. Van Rijnberk. —p. 973.
•Deficiencies in Public Health Service. C. H. Hermanides.—p. 990.
The Specialists and the National Medical Association. H. G. Hamaker. —p. 997.

What Do Unqualified Practitioners Actually Accomplish? —This official committee report is to be summarized elsewhere.

Deficiencies in Public Health Service. — Hermanides remarks that no one can inspect the reports of the Public Health Service without being amazed at the immensity of the work done, specialist work and consulting work. The laboratories, library and other equipment are at the free service of physicians in general, but few indeed ever think of applying to them, and the service loses a great deal by not keeping in closer touch with the practitioners throughout the country. He continues, "Typhus is appearing at various points, 350 victims at Rotterdam, for instance. The local authorities provided an emergency hospital, but there is no central organization or plan to rid the country of typhus which is now threatening disaster. Two weeks ago, by private initiative, I had the chance to see twenty-five typhus patients at a Rotterdam hospital. Why does not the Public Health Service make it possible for other physicians to get a chance to see this disease so they can recognize it when they encounter it? In dubious cases a consultant should be sent on demand, and physicians at large should be urged to make the demand promptly." . . . "No inspiration or encouragement is given to physicians or local authorities to start at once a delousing campaign, without waiting for typhus to get a foothold. The thousands of war prisoners released from Germany in such neglected conditions (*in verwaarloosden toestand*), passing through the Netherlands, are a constant menace which is not systematically combated."

Hospitalstidende, Copenhagen

April 30, 1919, **62**, No. 18

*Transient Myopia. K. K. K. Lungsgaard.—p. 545.
*Lateral Ventral Hernia. H. Møller.—p. 553.

Transient Myopia.—Lundsgaard reported in 1907 a case of suddenly developing myopia in a man of 40, previously and at the time apparently perfectly healthy. In three days vision returned to nearly normal, the increase of 8.5 diopteries having been corrected down to 0.5 D. Schieck reported not long after a similar but less pronounced case. No others were encountered until recently when Lundsgaard in rapid succession had five patients who presented myopia for the first time and only for a few days. Three of these patients had just or some time before recovered from influenza; two had a rather high sugar content in the blood, but there was no glycosuria. He has also encountered a case in which myopia developed in a man of 50 with high blood sugar content, but in this case the myopia seems to be permanent. In one of the cases astigmatism developed, with myopia in one eye after a contusion. Some change in the curve of the lens is probably responsible for the sudden and brief myopia, and he theorizes to explain the mechanism of this.

Lateral Ventral Hernia.—Møller reports two cases in adults. Fully 50 per cent. of the ventral hernias on record became incarcerated.

Hygiea, Stockholm

April 30, 1919, **81**, No. 8

*Incarcerated Diaphragm Hernia; Operation. E. Landelius.—p. 369.
Technic for Roentgen Treatment of Pruritus Ani. T. Sjögren.—p. 380. —p. 380.

Diaphragmatic Hernia.—Landelius reports the recovery of the youth under roentgen treatment. The hernia occurred during a vaulting contest. As he landed on his feet he experienced intense pain in the left lower chest, later involving the stomach region. The transpleural operation followed thirty-six hours after the incarceration. The defect in the diaphragm was evidently congenital.

Ugeskrift for Læger, Copenhagen

May 29, 1919, **81**, No. 22

Case of True Infantilism. J. Klein.—p. 899.
*Diphtheria in Children's Ward. A. H. Meyer.—p. 908.

June 5, 1919, **81**, No. 23

Can Rupture of a Corpus Luteum Entail Extensive Hemorrhage? C. D. Bartels.—p. 935.

Prophylaxis of Diphtheria in Children's Ward.—Meyer's remarks opened the discussion on this subject at a joint meeting of the Danish Pediatric and the Danish Epidemiologic societies. His tables show that there have been 28 cases of diphtheria develop in the children's ward at the Rigshospital since 1904 in a total of 2,400 child patients, and 4 cases among the attendants. During this period 14 bacilli carriers among the children were detected and isolated, and 13 among the attendants. Among 1,700 new arrivals he found and isolated 21 bacilli carriers. He takes smears from the throats of all new arrivals, and to the routine has recently added smears from the nose. He repeats the tests a week after admittance. His tables show a grouping of cases in some of the years that might easily have run into an epidemic, but this was checked at once. He keeps all new arrivals in a separate room with one or two beds for a few days before admitting them to the general room. He also makes a point of inspecting the throat and mouth, and recently includes the nose, inspecting each child thus daily, and regards this as very important for the detection of acute infectious diseases in their incipiency. During the last nine years he has refrained systematically from preventive injections of antitoxin in the service, fearing phenomena of anaphylaxis later; but he makes a point of taking smears from all the patients and attendants when a sporadic case of diphtheria develops. This general smear taking is repeated and the ward kept closed until it is free of carriers again.

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THE GRADUATE TEACHING OF OTOLARYNGOLOGY *

L. W. DEAN, M.D.
IOWA CITY

To the members of this section, I wish first to express my sincere gratitude for the honor conferred on me in making me your chairman. I know full well the greatness of the otolaryngologists who have preceded me. While I cannot equal them in ability, I can excel them in estimating the honor bestowed on me. I shall do everything within my power to continue the excellent work of this section.

This session is the Victory Meeting of the American Medical Association. It would be impossible in the brief time allotted even to mention the salient features of the work of members of this section which helped to secure this victory. No other branch of medicine was better administered than otolaryngology; no other was more efficacious in saving the lives of our soldiers; certainly no other did better work in helping in the prevention of contagious diseases. At no time in the history of medicine have the infections of the respiratory tract played such an important part in connection with epidemics. We can well be proud of the work done along these lines by the members of this section. Never shall we cease to honor those of us who gave up everything, and whose work has resulted in such a great credit to us. This work has not been done without the greatest sacrifice. Because of the loss of those who have made the supreme sacrifice, the scientific work of the section will suffer. More than this, the profession of otolaryngology lost some of its leaders who always stood for what was righteous. To me it has seemed impossible that the morale of our specialty should not be affected by the death of these men. It is our duty to remember what they stood for, and see that the ideas which they exemplified in their daily life shall be continued. This is the least we can do to show our appreciation of their sacrifice. Unconsciously we shall honor them forever.

Because of the loss to us of one whose life work has been the development of graduate teaching of the head specialties, I am inclined to make this the subject of this brief address. The work of the late Col. Frank C. Todd had more to do with the advance of the graduate teaching of the head specialties along proper lines than that of any other man in our profession. The work which he began we should not allow to cease. Let us honor him by continuing this great work.

The reconstruction work of the medical service of the army and navy along the lines of otolaryngology will be carried out with all thoroughness by the members of this section.

EDUCATION OF THE OTOLARYNGOLOGIST

The next most important thing to us during the period of readjustment is the question of education of the otolaryngologist.

The undergraduate teaching of otolaryngology can be dismissed with a few words. Its function is to make the medical student conversant with otolaryngology to such an extent that he will know those things that are essential for general diagnosis and therapy.

A second no less important function is to convince the student that work in the otolaryngologic field is so specialized that it should be attempted only by those specially prepared.

The time allowed for undergraduate teaching of otolaryngology is barely sufficient to accomplish these two things. This matter, however, has been taken out of our hands by the Association of American Medical Colleges.

The teaching of graduate otolaryngology, however, is at this time in your hands. The Association of American Colleges is now considering this question of the graduate teaching of this and other branches, and I believe it wise for you to make definite recommendations soon regarding our specialty. I believe any definite recommendations that are made will help materially in solving the problem.

The experiences during the war indicate the necessity of standardizing the requirements for the practice of otolaryngology.

Brigadier-General Munson[1] has reported that at Camp Greenleaf, of those claiming to be otolaryngologists, 70 per cent. were rejected as incompetent. This statement brings to our minds the thought that if the army in order to protect its men found it necessary to reject 70 per cent. of the so-called otolaryngologists, what possible way exists at this time for the laity to protect themselves? How can any one in a strange city, needing the services of an otolaryngologist, tell whether or not he is employing a competent one? This is a most important question and should have a decided bearing on the question of a degree indicating proficiency in otolaryngology.

General Munson also said:

> It must be emphasized that the medical officers who finally reached the medical training camps represented much better than the average of the medical profession of the country, for these candidates had been subjected to several processes of elimination. . . . A large proportion of the undesira-

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* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Munson, E. L.: The Needs of Medical Education as Revealed by the War, J. A. M. A. **72**: 1050 (April 12) 1919.

bles of the medical profession were excluded from service and never reached a medical training camp. The latter, therefore, dealt with an already selected class. That this selected class presented still further professional deficiencies invites reflection on the part of all those in charge of medical education.

He stated that a large number of men actually practicing as specialists in this country, and generally accepted as such, are not duly qualified as the experts they are supposed to be. The latter point is one of special interest and concern to those interested in graduate and specialist education in this country.

In a general way it may be said that the general professional qualification of officers bears a close relation to the educational standard of the schools from which they graduate.

He further stated that in most instances in which a special knowledge was assumed, however, the student claimed to have been actually practicing a specialty.

We have no right to criticize these men. It is our fault that they were deficient in that we have not provided proper facilities for their education. We have not even indicated the length of time that should be devoted to attain proficiency in otolaryngology or the kind of work that should be done.

To overcome this lack of proper knowledge of otolaryngology in these officers, our own Dr. Thomas Harris was selected to establish a school for the teaching of this subject. The excellent work that he did requires no comment. The excellence of graduate work done in the army in otolaryngology is evidenced by numerous recent contributions to the literature of many of our younger men which are excellent research contributions—not merely citations of interesting cases.

Dr. James McKernon feels that many of the inefficient otolaryngologists were the product of short courses. In my own work I find a large number of men seeking advice regarding the study of otolaryngology who are stunned at the suggestion that they devote two or three years in preparation for the work, the impression being that only a few weeks are necessary. We should do something to correct this more or less universal opinion.

It is equally important to the standardizing of graduate work in otolaryngology to create some method of enforcing these standards. Unless the American Association of the State Licensing Boards should become interested in this subject, it will be a very difficult thing to do. The least we can do is to indicate to prospective otolaryngologists what constitutes proper preparation.

THINGS OF IMPORTANCE IN TEACHING

In the graduate teaching of otolaryngology, certain things are of importance. Most essential in the development of the specialist is for him to be so well prepared in general medicine that he will not overrate the importance of his specialty. One of the best things that can be said of a specialist is that he is a good internist. He must be so well versed in general medicine that he will feel the need of the services of the internist and other specialists constantly. He must not feel that because he has disease of the nasal sinuses, and a lesion of the optic nerve, the latter is necessarily the result of the former. His knowledge must be such that he will feel the necessity of reports from the internist, serologist, roentgenographer and others before he can render his patient the best service.

Norval Pierce[2] has said:

> If I were called to tell what I considered the best thing in a medical sense that I got out of my experience at Camp Grant, I would say it is the realization of what efficient results may be obtained when medical experts really work together.

The same condition should come about during the educational period. As I view it, it is very essential for the student to do a large part of his work in hospitals where a large percentage of the special cases are seen by representatives from other departments, dermatology, neurology, psychiatry, internal medicine, general surgery, genito-urinary surgery, etc., and where he sees, as consultant, a large number of cases that logically belong to the other specialties. In this way only will he secure the proper point of view of a specialist.

The greatest danger in specialism, as I view it, is the fact that the specialist may become narrow, and see only his side of the medical problems. During the educational career, everything possible should be done to prevent this. In the seminar work, which should form such an important part of otolaryngologic teaching, fully one third of the topics considered should be borderline subjects, and not those treated in our special textbooks.

The clinical teacher in the fundamentals of graduate otolaryngology must be one who is willing to place the teaching first, and private practice second. The latter part of the work may be given by the great clinicians, who need not necessarily engage in the routine didactic work. The clinical man who teaches the fundamentals must carry out a regular routine work. I do not have reference to the laboratory subjects, anatomy, pathology, bacteriology, etc. Necessarily the courses in the branches must be systematic and complete.

The clinical teacher of the fundamentals of graduate laryngology should spend at least one half day with the student. He should have the regular ward walks; he should supervise the clinical charts; every case the student has in his care he should go over with him; he must conduct seminar work; he must teach thoroughly the diagnostic technic, and he should have these men assist him at the operating table, and then later supervise every move they may make when they are themselves operating. This is particularly a most laborious task. Naturally, no student should be allowed to attempt any operation until he has mastered it in the mortuary. What does the teacher get out of this work himself? I know of two things: First, nothing can influence him more favorably than constant association with a small group of graduate students, answering their questions, and discussing the problems not thoroughly understood today. The teacher who can satisfactorily answer all questions is indeed a rare man. Second, his clinic becomes a real scientific laboratory, and as a rule his charity patients are better diagnosed and treated than the average private patients.

The laboratory work can best be done in the laboratories of our medical schools and universities. Complete systematic courses in anatomy, pathology and bacteriology are essential. The laboratory and the fundamentals of clinical work should go hand in hand. The operative work in the necropsy room must be very thorough in order that no patient when operated on shall get anything but the best possible result. The performance of operations on patients by students, not properly prepared and supervised, is a most inexcusable thing.

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[2] Pierce, Norval: Annals Otol., Rhinol. & Laryngol. 27: 856 (Sept.) 1918.

A man is better qualified for the practice of otolaryngology who has a thorough knowledge of the anatomy and pathology of the subject, with little clinical experience, than one who has had the clinical experience and little anatomy and pathology. Certainly a thorough foundation in anatomy and pathology is necessary. This work should be given by excellent teachers who command large salaries. Proper education in otolaryngology can be given only with a great financial loss to the institution giving it. The conditions necessary can best be met by our medical colleges and universities.

A DEGREE IN OTOLARYNGOLOGY

The establishment of a degree that will indicate to the layman proficiency in otolaryngology is a question that needs much investigation and thought. We should not hurry in this matter.

The report of the Committee on Undergraduate and Graduate Degrees of the Association of American Medical Colleges shows that, at this time by various institutions, several different degrees are given indicating proficiency in public health work. We should early establish a standard degree indicating proficiency in otolaryngology satisfactory to all schools. This can best be accomplished through the Association of Graduate Colleges of American Universities, and the Association of American Medical Colleges. The degree should be granted by the universities and medical schools. In no other way can it be standardized and kept on a high plane. This does not signify that all work should be done in the medical schools and universities. Both the medical schools and our special hospitals should be used for educational purposes. The school granting the degree must be conversant with and responsible for all work done in special hospitals. Credit may be given for work in absentia if done n special hospitals not associated with medical colleges.

The degree should be an earned degree. It should not be granted on a basis of examination alone. At present in various universities the degrees of M.S. and M.A. are given for one year's graduate work in mediine. These are secondary degrees, and as at present granted do not express proficiency in any line of medicine. We should avoid the use of these degrees to ignify in any way proficiency in otolaryngology unless he requirements for the granting of the degrees should be greatly increased.

The degree of Ph.D. with the qualifying term, such s Ph.D. (otolaryngology), written in the diploma but not included in the title or degree conferred on the ndividual, meets with much approval. The Committee of the Association of American Medical Colleges, ust mentioned, recommended that the degree of Ph.D. with or without specification of the field of study be onferred for research work done in any of the fields f medicine when under the auspices of and approved y graduate schools of equal standing with those in the Association of American Universities.

The degree of Ph.D. is the highest earned degree. Three years of work is required for it. This is not oo much work for those who wish to excel in otoaryngology. Our desire is not to make more otoaryngologists but better otolaryngologists.

This first degree gives the individual not only professional but scholarly standing. The length of time required to secure this degree should not be urged against requiring it, as after the individual has received his M.D. he can make his own way. Naturally, a prerequisite is an academic degree. Not all well prepared candidates for the Ph.D. degree will receive it; hence it seems advisable to grant a second degree signifying expertness in the art of otolaryngology without indicating research ability.

There is now existing a committee on undergraduate and graduate teaching of otolaryngology. This committee represents the American Laryngological Association, American Otological Association, this section of the American Medical Association, the American Academy of Ophthalmology and Otolaryngology, and the Association of Laryngology, Rhinology and Otology. I would recommend that your representatives on this committee be urged to hasten a definite report regarding the graduate teaching of otolaryngology.

THE DIAGNOSIS OF CHRONIC PULMONARY TUBERCULOSIS *

THOMAS McCRAE, M.D.
AND
ELMER H. FUNK, M.D.
PHILADELPHIA

The recognition of chronic pulmonary tuberculosis is generally regarded as a simple matter in which there is slight chance of error. That this is not always the case is quickly recognized by any one who has the opportunity of studying a series of cases of advanced pulmonary disease. This study is based on our experience in the department for diseases of the chest of the Jefferson Hospital. In this department the dispensary handles all stages of tuberculosis, early and late, but only advanced cases are admitted to the wards. By admitting only these it seemed that we were making the best use of the beds in the effort to lessen infection by isolating patients in the advanced stages. Our admissions come from the general medical clinic and from the tuberculosis dispensary, but a considerable number are accepted on the diagnosis of other hospitals and general practitioners. We have no opportunity to study these cases until after admission. This study is made to check the correctness of the diagnosis of advanced pulmonary tuberculosis as made by many different members of the profession.

It may be asked what difference an error makes if the patient has some chronic disease. In some of the conditions, for example, bronchiectasis, it is evident that no great harm will be done; but, in others, valuable time may be lost and a condition left untreated which might be helped. Syphilis and the presence of a foreign body in the bronchus are examples of such a condition. In addition, such patients are occupying beds which might be more usefully employed. In discussing errors in diagnosis, we must realize that every one makes mistakes, and we should be charitable to the other man concerning those he makes, but very severe in judgment on our own. The important lesson is to try and reduce the number of errors in the future.

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* From the Jefferson Medical College.

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

This report is based on the study of 1,200 consecutive admissions, all the patients coming with a diagnosis of advanced pulmonary tuberculosis. In the series, seventy-two, or 6 per cent., were found to be nontuberculous. There is always a chance of error in a clinical diagnosis, but we have a check in the necropsy results. There were 134 necropsies in this series, and among these it was found that seven patients had been nontuberculous, 5.2 per cent., which is fairly close to the previous figure. Of these seven cases which came to necropsy and were found to be nontuberculous, in five we had made the correct diagnosis; but two went to necropsy with a diagnosis of tuberculosis in which we were in error. These cases are discussed later.

There is an interesting study by Ash[1] on the necropsy findings at the Boston Consumptives' Hospital. In 198 necropsies, twenty-three cases (11.6 per cent.) were found to be nontuberculous; seven of these had been correctly diagnosed before death. He collected a series of 353 necropsy cases from eight hospitals and found that thirty-eight (10.9 per cent.) of these were nontuberculous. The total of this report gives 551 necropsies with sixty-one nontuberculous cases (11 per cent.). The conditions found were: chronic cardiorenal, 27; pneumonic sequelae, 11; neoplasm, 7; aneurysm, 6; syphilis, 4; septicemia, 4; actinomycosis, 1; pellagra, 1.

In our series, the various conditions which were wrongly diagnosed as advanced pulmonary tuberculosis are: cardiorenal, 19; pneumonic sequelae, 9; bronchiectasis, 8; abscess of lung, 8; chronic bronchitis, 6; neoplasm, 5; syphilis, 4; aneurysm, 2; anthracosis, 2; bronchial asthma, 2; empyema, 2; diabetes mellitus, 1; cancer of rectum, 1; foreign body, 1; malingering, 1.

Seven of these came to necropsy (five with a correct diagnosis), the conditions found being: abscess, two cases; cardiorenal disease, two cases, and one each of aneurysm, neoplasm, and delayed resolution in lobar pneumonia. Of the two instances in which cases came to necropsy with a diagnosis of tuberculosis, one of the patients had had chronic lung abscesses, and the other, delayed resolution of a lobar pneumonia.

It is to be understood that there were cases in which these various diseases, with the exception of syphilis and neoplasm, were associated with tuberculosis. We have given only the number of cases in which an error in diagnosis had been made and tuberculosis was not present. The various groups are discussed in detail.

VARIOUS GROUPS

1. *Cardiac and Cardiorenal Disease* (nineteen cases).—These are cases in which a proper diagnosis might give a chance of benefit, in some cases, at any rate. The reasons for error are very evident, and first among them we must put careless or incomplete examination. These are the cases in which there is the least excuse for error. Failing health and strength, dyspnea, cough and the finding of râles in the chest were the features which were wrongly interpreted. A proper physical examination and a study of the sputum should prevent such mistakes. This group took first place in the series of instances collected by Ash. Of the cardiac cases it is of interest to note that fifteen were cases of mitral disease, in seven, mitral stenosis being present.

2. *Chronic Inflammatory Conditions in the Lungs, Usually Associated with Some Form of Pneumonic Process* (nine cases).—There was usually an associated general bronchitis. It is evident that in this group there are difficult problems, but it may be that because of this difficulty more care is taken. Of these cases, three proved to be unresolved lobar pneumonia, and six were atypical cases of bronchopneumonia. Case 1 is an example of lobar pneumonia in which we failed to make a correct diagnosis:

Case 1.—W. G., a negro, aged 37, was admitted with a history of cough which for three months had become progressively worse. Three weeks prior to admission he was compelled to go to bed because of chilliness, fever and weakness. His cough became quite severe and was associated with blood-tinged sputum. His best weight was 175 pounds a year before, and for four months he had progressively lost weight until, on admission, he weighed 99 pounds. Examination showed an extremely sick, emaciated negro with signs of consolidation over the greater part of the right lung and scattered, crackling râles throughout both lungs. One sputum examination was negative. A clinical diagnosis of tuberculous pneumonia, in spite of the one negative sputum, was made, because it was thought that the finding of tubercle bacilli had perhaps been missed, but would show on future examinations. The patient died on the third day following admission.

The necropsy revealed the following nontuberculous changes: The right lung was solid except along the anterior margin and extreme apex of the upper lobe, anterior margin of the middle lobe, and a slight fringe at the bottom of the lower lobe. An incision of the organ showed surfaces that were gray, except a small portion of the apex and the base of the lower lobe; these areas were light red, with small, grayish mottlings. The gray areas were firm. The left lung was large, dark in color, and very soft, with decreased crepitation. The incised surface exuded an excess of frothy, blood-stained serum. The pathologic diagnosis (verified by histologic examination) was lobar pneumonia with gray hepatization of the right lung.

Several cases were instances of the slow-clearing basal pneumonia to which much attention has recentl been drawn. The good rule that a basal process i rarely tuberculous is often forgotten. Case 2 i typical:

Case 2.—E. S., a white woman, aged 24, referred with diagnosis of advanced pulmonary tuberculosis, had lost abou 25 pounds in the past year, and two weeks before she began t cough and spit blood. The temperature averaged from 10 to 103. There were signs of acute bronchitis, with man râles throughout both lungs. The resonance was impaire at both bases with suppressed breathing and numerous fin crackling râles. Sputum examinations were repeatedly negative for tubercle bacilli. After one month her temperatur became normal and remained so for another month, at th end of which time she had a febrile recurrence with the sam symptoms and signs. The condition again cleared up in abo four weeks, and the patient was discharged three mont later free from symptoms and signs. During the first febri period the following roentgen-ray findings were noted: The was a very dense area at the base of the right lung, probab unresolved pneumonia, and another extending from the s ond to the fourth rib anteriorly and the fifth and sixth po teriorly. The left base showed some clouding but not extensive as on the right side. The apexes appeared fair clear.

With regard to the subacute and chronic nontube culous pulmonary infections, the composite clinical hi tory of a group of these patients is about as follow

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[1] Ash, J. E.: The Pathology of the Mistaken Diagnoses in a Hospital for Advanced Tuberculosis, J. A. M. A. **64**: 11 (Jan. 2) 1915.

The patient has a cold with slight fever but continues at work, although he feels ill, or, in more severe cases, may be compelled to go to bed for a few days or a week. A diagnosis of bronchitis or influenza is made. A week or ten days after the onset the fever is less, although there may be an afternoon elevation between 99 and 100. The constitutional symptoms subside, but cough and expectoration continue and, in a few instances, there may be hemoptysis. Examination reveals a more or less constant localization of signs in the lower lobe, dulness, increased vocal fremitus, diminished breath sounds and many fine, crackling râles. Tubular breathing is seldom heard. The sputum examination is negative for tubercle bacilli, but usually shows a larger number of other organisms.

This group has been carefully studied, and the differential diagnosis rests, as Miller states, on the constant localization in a lower lobe, the absence of constitutional symptoms in the presence of extensive physical signs, the absence of tubercle bacilli, and the presence of the organisms of acute respiratory infections, the character of the roentgenogram, and the disappearance of signs and symptoms, in the majority of instances, far more quickly than would be possible in tuberculous lesions of similar extent.

It is of interest that most of our cases of this group came in during the past winter, and this is undoubtedly because of the influenza epidemic. Many errors of the nature described are to be made in the next few years if the experience of the last pandemic is any guide. In the nineties we learned by experience that there were many atypical pneumonias of long duration, sometimes apical, which were mistaken for tuberculosis. In many of these, the question of diagnosis is concerned with the possible lighting up of an old tuberculous process and, in this, the roentgen rays give little help in some cases. We would emphasize the value of time and repeated sputum examinations in making a correct diagnosis in this group.

3. *Bronchiectasis, Usually with Marked Fibrosis* (eight cases.)—It is easy to understand the reason for this error if the diagnosis is made on physical signs alone and the sputum is neglected. The study of the sputum should prevent mistakes. We have reported one of these cases[2] in which the patient had been in three tuberculosis sanatoriums with a diagnosis of advanced pulmonary tuberculosis.

4. *Pulmonary Abscess* (eight cases.)—Apparently the general features, fever, emaciation and sweating, with the signs in the lung, were relied on for diagnosis. The examination of the sputum was evidently neglected. Sputum which is persistently purulent and does not contain tubercle bacilli is strong evidence against tuberculosis. In one case of this group we made an error in diagnosis:

CASE 3.—J. D., a white man, aged 32, gave a history of pleurisy three years before, since which time he had a persistent cough with expectoration. Ten months previously he had been in a tuberculosis sanatorium. He had a pulmonary hemorrhage one week prior to admission. He had lost about 16 pounds in weight. He had not had chills or sweats, but had been feverish in the afternoon for some months. The examination disclosed, in addition to the signs of acute bronchitis, evidence of infiltration and cavity formation in the left lower lobe. The sputum examination was reported positive for tubercle bacilli. In spite of the basal character of the lesion, which our clinical sense told us was against tuberculosis, we made a diagnosis of tuberculosis on the sputum examination. The necropsy revealed a large cavity in the lower left lobe, the outer wall of which was the greatly thickened pleura. The cavity had a fairly distinct wall with a dilated bronchus opening into it. The nonadherent portion of the pleura was covered by a grayish exudate. There was no evidence of tuberculosis in either lung.

5. *Emphysema and Chronic Bronchitis* (six cases). —Reliance on symptoms and signs, together with neglect of proper sputum examination, is the explanation of errors in this group.

6. *New Growth* (five cases.)—The same remarks apply as in the two preceding groups. Error is due to lack of proper examination, especially of the sputum. An example is presented in Case 4:

CASE 4.—A. T., a white man, aged 40, was referred with the diagnosis of advanced pulmonary tuberculosis. He gave a history of onset one year before with cough, expectoration, hemoptysis, marked gastric symptoms, and loss of weight. The physical examination revealed marked emaciation, with signs in the chest indicative of consolidation of the upper half of the left lung and scattered râles throughout the entire pulmonary area. The sputum examinations were repeatedly negative. The Wassermann test was negative. A careful study of the history revealed the fact that the gastric symptoms were primary and had been quite marked since the onset. There had been pain after eating, vomiting of brownish material, etc. Examination of the abdomen revealed a small mass in the region of the pylorus which the roentgen ray confirmed as a pyloric tumor. The sputum examinations continued negative, and a diagnosis of secondary carcinoma of the lung was made.

7. *Syphilis* (four cases.)—With the present craze, in some quarters, to diagnose syphilis of the lung on rather slight evidence, the number of cases under this heading may seem small; but we are conservative in making this diagnosis. These cases seemed thoroughly proved, and the results of specific treatment were striking. An example is given:

CASE 5.—L. H., a colored woman, aged 27, referred by a general hospital with the diagnosis of advanced pulmonary tuberculosis with laryngeal involvement, gave a history of cough which, for two years, had gradually grown worse, and of expectoration which at times was blood tinged. During the two weeks before admission she had many small hemoptyses. She was weak and had lost a good deal of weight. In the past year she had been treated in a New York hospital for advanced tuberculosis. The physical signs and roentgen ray showed fairly marked bilateral pulmonary disease. The temperature usually rose to about 101 in the afternoon. The sputum was repeatedly negative for tubercle bacilli, and the laryngologist reported that the laryngeal ulceration seemed more like that due to syphilis than tuberculosis. The Wassermann test showed a strongly positive reaction. Following antisyphilitic treatment, the symptoms disappeared, the temperature fell rapidly to normal, the signs became less and, four years later, she is well and working.

8. *Aneurysm, Anthracosis, Bronchial Asthma* and *Empyema* (two cases of each).—In both cases of aneurysm the diagnosis, while suggested by symptoms and signs, was made positively only by the roentgen-ray examination. Anthracosis is regarded as tuberculosis much more commonly than these figures indicate, and many such cases sent to the hospital as tuberculosis were recognized in the dispensary and sent to the general wards; so they do not figure here. With any care in sputum examinations, such an error should not be made. The cases of empyema were not

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[2] McCrae, Thomas, and Funk, E. H.: Bronchiectasis of the Upper Lobes, J. A. M. A. **67**: 1060 (Oct. 7) 1916.

the ordinary type, but were interlobar and, while difficulty in the diagnosis is understood, sputum examinations would have prevented the error.

9. *Miscellaneous Cases* (one each of diabetes mellitus, cancer of the rectum, foreign body in a bronchus and malingering).—In the first two cases there was some cough, but little else in the way of signs even to suggest the diagnosis. The foreign body was a bullet in the bronchus, the diagnosis being made by the roentgen ray. In several other cases of foreign body which were sent for admission, suspicion was aroused and the patients were not admitted. This figure does not, therefore, give an accurate idea of the number of cases in which an erroneous diagnosis had been made. The malingerer was well up in the symptoms of the disease and was found to have scratched his throat to produce blood-streaked sputum. It was found that he had done this in other hospitals and had been regarded as tuberculous. His object was to evade the military draft.

COMMENT

What were the reasons for these errors? Lack of thorough examination, drawing hasty conclusions from symptoms and signs, and neglect of proper sputum examinations are probably the main causes. Many of these conditions result in loss of weight and strength with anemia, are accompanied by fever, and show signs in the lungs. The great safeguard is proper examination of the sputum. In any patient with marked signs in the lungs and a sputum negative for tubercle bacilli, suspicion of a diagnosis of pulmonary tuberculosis should be aroused at once. Too often a diagnosis is made and no thought given to proving it. How many negative sputum examinations are necessary before tuberculosis can be excluded? Six negative examinations are said to be enough, but we should suggest more than this.

The problem is very different from that concerned in the diagnosis of early pulmonary tuberculosis. Here we should endeavor to make the diagnosis before bacilli are found in the sputum; in the advanced form we should never make a diagnosis of tuberculosis unless tubercle bacilli are found. A word may be said as to verifying a positive result. Of the two cases in which we erred, one error was due to some mistake in the examination of the sputum. A positive result was reported but not confirmed. Either the specimens of sputum or the slides were mixed and a wrong report sent for that patient. There is a rule in the clinic that a positive diagnosis is not to be made on the result of one sputum examination. It must be confirmed. In this case it was not, and that led to error. Had we watched this point more carefully, we should not have had this error in the necropsy series. A positive sputum report is naturally regarded as giving a definite diagnosis; but it is easy to be careless and, in many laboratories, the slides are handled in such a way that a mistake is easily made. This is a point to which more attention should be given. Its possibility is suggested when patients come with a history of one positive and many negative examinations.

It will be noted that there is no mention of the mycotic infections. We have had these in mind as a possible source of error, but no instance occurred in the series so far as we could discover. In this connection, one comment may be made on the possibility of finding streptothrix which has come from the mouth. If a careful effort is made to clean the mouth thoroughly, the frequency of the occurrence of streptothrix in the sputum will be found to undergo a striking reduction.

The clinical errors in this series could have been prevented by more care and thoroughness. Some of the mistakes, as, for example, those in regard to the recognition of syphilis of the lung, or aneurysm, are readily made and, perhaps, not easy to avoid in the case of a man in general practice; but this cannot be said of the majority of mistakes. There is little excuse for the error made in diagnosing chronic cardiac disease or bronchitis as advanced pulmonary tuberculosis. One of our own errors was made through lack of attention in making sure that our rules as to sputum examinations were followed.

There is a lesson for sanatorium physicians. A number of these patients had been in tuberculosis sanatoriums and always regarded as tuberculous. This was the case with those patients, particularly, who had bronchiectasis. Some of them stated that a sputum examination had not been made, which is difficult to believe, but is supported by the fact that an incorrect diagnosis was made. In any institution dealing with patients with chronic disease, it requires constant effort not to rest content with a diagnosis once made. We are too likely to accept a diagnosis of advanced pulmonary tuberculosis as one not requiring special care to make, and, when once made, not needing revision. How many patients there are today wrongly regarded as having advanced tuberculosis, no one can say; but they are not few.

CONCLUSIONS

1. In a series of 1,200 consecutive cases admitted as advanced pulmonary tuberculosis, seventy-two (6 per cent.) were found to be incorrectly diagnosed.

2. Among 134 cases coming to necropsy, in seven (5.2 per cent.) the diagnosis with which the patients came to the hospital was incorrect, and in two of them the diagnosis was not corrected.

3. The conditions most frequently diagnosed incorrectly were: cardiac and cardiorenal disease (nineteen cases), chronic inflammatory conditions (nine cases), bronchiectasis (eight cases), pulmonary abscess (eight cases), and chronic bronchitis and emphysema (six cases).

4. The diagnosis of advanced pulmonary tuberculosis should not be made unless tubercle bacilli are found in the sputum on at least two examinations.

5. Physicians in tuberculosis sanatoriums and hospitals should take particular care to verify the diagnosis in all patients sent with a diagnosis of advanced pulmonary tuberculosis.

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ABSTRACT OF DISCUSSION

Dr. Leo Kessel, New York: It is difficult for most the men to understand the readiness with which the diagnosis is made in patients who are supposed to be suffering from advanced miliary tuberculosis. So much emphasis has been laid on the diagnosis of early tuberculosis that we have los sight of the fact that it is just as easy to err in advanced cases. Dr. Funk has pointed out the conditions under which these patients are admitted. One of the most importan features to lay stress on is the noninflammatory conditions These patients usually apply for admission to a hospita between January and March. As a rule, they feel compara tively well in the summer. A large number of the patients afflicted with this illness have spent years at a sanatorium. They are discharged with the diagnosis of pulmonary tuberculosis, and when a particularly severe winter comes along, they are admitted to a hospital complaining of cough, sometimes also of dyspnea, etc. They are promptly admitted to a department or to a sanatorium. Careful examination of these patients has revealed that the predominating organisms are pneumococci and streptococci and practically all of the organisms are found in the lungs. The physical signs are almost always at the base. The great majority of patients presented signs at the left base, such as dulness, crepitation and diminished breathing. The patient may have fever, and some have bloody sputum, so that it is very easy to make a mistake in diagnosis. Dr. Funk laid stress on the importance of considering syphilis of the lung as one of the possibilities of mistaken diagnosis in these cases of extensive chest involvement. I believe that it has become a fad to make that diagnosis. We have had a large series of cardiorenal cases which were admitted as cases of tuberculosis, and some of these patients have aneurysm. They have pressure on the bronchus with cough, bloody expectoration and fever. A mistaken diagnosis has usually been made owing to the fact that the patients have not been observed with a reasonable degree of care. The other common mistake has been the error of overlooking new growths of the lung, both primary and secondary. We have had patients with metastatic growths of the lung from carcinoma of the prostate sent to us as advanced cases of pulmonary tuberculosis. The one point I should like to emphasize is the importance of careful examination of the sputum of all patients who present physical signs, and to avoid the immediate supposition that there is something wrong when there are signs in the chest.

Dr. John A. Lichty, Pittsburgh: It is difficult to differentiate between chronic pulmonary tuberculosis and bronchiectasis, and mistakes in diagnosis are frequently made. The after effect of influenza on the lung is such as to simulate pulmonary tuberculosis. This must be borne in mind. Since this epidemic we have all had experience with cases which we would ordinarily diagnose as tuberculosis but which we now diagnose as influenzal lungs. Dr. Roland G. Curtis gave a series of lectures at Philadelphia in 1894 and 1895 in which he spoke of nonbacillary phthisis. Then we were not in the psychologic mood to accept that diagnosis because it was just after we had learned to stain the tubercle bacillus. Today we have exactly the same class of cases following this epidemic as followed the epidemic of 1889.

Dr. F. M. Pottenger, Monrovia, Calif.: We are missing chronic tuberculosis ten times more often than we are diagnosing other cases as chronic tuberculosis. The postinfluenzal cases are giving us much trouble. It is extremely difficult to determine whether or not a patient presents the results of a postinfluenzal pneumonia or whether it is a case of tuberculosis. To be sure, most of these postinfluenzal cases are basal, but I have seen several of these cases which were combined with tuberculosis. Foci are scattered through the lung that it is easy for influenza to stir up. On the other hand, influenza may localize at the apex of the lung just as well as at the base, and then we think it is tuberculosis. I see many cases of bronchiectasis that are diagnosed as tuberculosis. We cannot say that a negative sputum is not tuberculous. In these cases in which we find no bacilli and in which there is an extensive involvement, we can not say that the case is not one of tuberculosis. Also we find patients who have chronic tuberculosis, with healing, leaving a cavity containing secretion but no bacilli. As a rule, if these patients take cold, bacilli appear. Chronic pulmonary tuberculosis with an abscess in the center of an infiltrated area gives râles. Pulmonary bronchiectasis is of the same type. The tissue adjacent to the lesion may be the seat of a considerable fibrosis, and there will not be many râles. Consequently you will suspect a nontuberculous process in the absence of signs on auscultation. Very often a rhonchus is heard but the signs of acute pulmonary tuberculosis are rarely present.

Dr. A. G. Shortle, Albuquerque, N. M.: I want to call attention to the importance of a Wassermann test in the diagnosis of chest cases. In my own work I found about 10 per cent. positives. I then compiled results of quite a number of other workers, and they averaged about 7.5 per cent. During the war I had to neglect this routine Wassermann, making Wassermanns only when the history or some uncertainty made it desirable, and I got only 3.5 per cent. positives. Four out of 1,300 cases is a very small percentage. If Dr. Funk had made routine Wassermanns he would have found that 7 or 8 per cent. had syphilis of the lung or syphilis as a complication.

Dr. Elmer H. Funk, Philadelphia: In regard to the postinfluenzal cases, we are going to be at a loss to classify patients who have cough and expectoration. The roentgen ray does not help us much. If this man has not had a previous influenza, I would be inclined to think that the shadow meant tuberculosis. If he has had influenza, he might have a lighting up of a tuberculosis, but the roentgen ray would not help us on that. If a man has a basal lesion, that is good evidence that it is not tuberculosis. In 134 consecutive necropsies on patients with tuberculosis, we have never yet found a single primary basal case; in every one, you could trace out the old lesion to the apex. So that when you get a basal lesion with clear apex, it is fairly good evidence that it is not tuberculosis. Neither can it be said that because the lesion is apical it is tuberculosis. We reported some cases of bronchiectasis without clubbing of the fingers and without fetid sputum. These patients suggested tuberculosis but they were negative for tubercle bacilli. Every now and then you will get an advanced tuberculous lesion which is closed, but the occurrence is rare.

THE RECOGNITION OF TROPICAL SPRUE IN THE UNITED STATES *

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There can no longer be any doubt of the existence of tropical sprue in the United States. While the majority of the cases are occurring in the Southern states, it is interesting to note that one of my series came from New Hampshire, one was seen in Syracuse (a Porto Rican case), and one came from the Johns Hopkins Hospital. It is evident, therefore, that a familiarity with its cardinal symptoms would be helpful to many more in the profession than those of us from the South.

In another communication[1] I attempted to collect all references in the literature to the occurrence of the disease in America. Since 1915, when that paper was written, the evidence has grown that the disease is by no means rare and that the cases are widely distributed. In North Carolina its occurrence is no longer a medical curiosity.

SYMPTOMS OF SPRUE

Sprue is characterized by three groups of symptoms: those of the mouth, the intestinal tract, and the blood.

The mouth symptoms have been painstakingly described by Sir Patrick Manson,[2] who divides them into seven subheads. His description is too full to allow of even an abstract here. My own observation leads me to avoid too fine a line of differentiation of these symptoms. Suffice it to say that the tongue is inflamed and pink, with congested fungiform papillae, eroded patches and superficial cracks on the dorsum and edges. Crombie's molar ulcer is frequently mentioned as a helpful symptom, but I have observed it even more frequently in pellagra. The tongue in sprue is quite different from the tongue in pellagra. In the latter disease it will be found more pointed and not so flabby. In sprue, it is very much paler than in pellagra. There is also, in sprue, an approach to the cobblestone appearance which does not occur in pellagra. After a short experience with the two diseases, any observer may expect to make a correct differentiation by examining the tongue alone.

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* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Wood, E. J.: The Occurrence of Sprue in the United States, Am. J. M. Sc. **110**: 692 (Nov.) 1915; Tr. A. Am. Phys. **30**: 505, 1915.

[2] Manson, Sir Patrick: Sprue or Psilosis, Allbutt's System of Medicine, Ed. 7, **3**: 774.

The diarrhea in sprue is the most distinctive symptom. The bowel movements occur from midnight until about 10 o'clock in the morning. There then occurs a cessation until the next day. If the cessation does not occur, there will be, at least, a marked diminution in the number of movements in the afternoon and early hours of the night. The bowel movements are very large, suggesting at once a pancreatic condition. The reaction is decidedly acid, and there is much gas mixed with the feces. Examination of the feces reveals a large amount of fat. The stools are light in color and give a positive reaction for hydrobilirubin. Pratt and Spooner,[3] with the Schmidt-Strassburger test diet, found a fat loss of 45 per cent. and a nitrogen loss of 15 per cent. P. H. Bahr,[4] in his Ceylon cases, found a fat absorption of from 70 to 90 per cent., which is much greater than was shown in our experience. In addition to this failure in the utilization of fat and nitrogen, there are other evidences of pancreatic insufficiency indicated by the thymus nucleus test and the Sahli glutoid salol capsule test.

The question of the relationship of the pancreas cannot be discussed here, but it is hoped that an interest in this fascinating problem may be aroused and that the material so close to hand may be utilized in the solution of an important problem. The difficulties of the problem are enhanced by a marked variation in the degree of pancreatic digestion, and also in the utilization of fat and nitrogen.

BLOOD PICTURE

The most interesting phase of the study of sprue at this time is the blood picture. In a large number of cases the color index is above 1, and a case now under observation gives a persistent index of 1.66. The anemia has always been regarded as secondary, and I have no wish to question this point; but it is important to show how the condition may be confused with pernicious anemia. I believe that many cases of sprue have been called pernicious anemia. On the other hand, some cases of pernicious anemia have been diagnosed as sprue. One such experience has befallen me.

In sprue I have noted the most marked variation in the size of the red cells. There was found in a recently studied case a decided preponderance of oversized cells, as well as numerous dwarf cells. There also occurs poikilocytosis. It was noted that there were many very pale cells in the field when the blood was stained with any of the eosinates of methylene blue. Stipple cells were very rarely found. In the case referred to above, in which the blood was carefully studied on different occasions in many slides, no nucleated red cells were found.

Notes of a case now under observation will be briefly presented, chiefly on account of the blood picture.

REPORT OF CASE

Case.—Mrs. H., aged 37, the mother of three children, was married to a saw mill worker moving from point to point in North Carolina, and living under rather unfavorable hygienic conditions.

The present trouble is said to have begun at the birth of her third child in September, 1918. She denied ever having had any form of anemia before. Her physician's information was limited because of the fact of her moving about at short intervals from one saw mill to another. Following the birth of the third child she had a rather severe influenza and has never been well since.

Owing to a sore mouth and tongue, in addition to extensive pyorrhea, she was advised to have all her teeth removed, which she did.

Throughout the winter the diarrhea, which was of the matutinal character, and the anemia persisted. There seemed to have been only the very slightest variation in the severity of either symptom.

The physical examination was practically negative. The liver dulness was slightly reduced. The spleen was not palpable. The patient had lost some flesh.

The red blood count was 600,000; the hemoglobin, 20 per cent.; the color index, 1.66. No megaloblasts nor normoblasts were found on repeated examination of many slides. There were no stipple cells. There was a marked difference in the way in which the red cells took the stain. This was shown chiefly in numerous strikingly pale cells. There was a preponderance of oversized red cells, the percentage ranging from 25 to 30. The fragility test of the red cells with hypotonic salt solutions showed that hemolysis had begun at the 0.45 per cent. point and was complete at the 0.3 per cent. point. This we regarded as normal.

The white blood count was 3,200; polymorphonuclears, 40 per cent.; large lymphocytes, 16 per cent.; small lymphocytes, 44 per cent. No parasites of malaria were found. The blood Wassermann test was negative.

There was an absence of free hydrochloric acid in the stomach contents, and marked stasis.

The feces were light yellow, and were very acid in reaction. Crystals and droplets of fat were found on microscopic examination, after staining with sudan III. The beef nucleus test showed that while the nuclei of the muscle fibers were in great measure digested, there persisted nuclei which had not been completely digested. The agar tubes of Einhorn failed to give returns from which any conclusions could be drawn, probably because of faulty technic. The three-day test diet was given, and the examination to determine the absorption of fat and nitrogen undertaken; but they cannot be reported on now.

There was no tenesmus or blood with the diarrhea. The movements were for the most part large.

RELATION OF SPRUE TO ANEMIA

Biermer's[5] original report on pernicious anemia mentioned, as a group of symptoms, digestive disturbances with occasional diarrhea. Elder and Matthews[6] reported two fatal cases of pernicious anemia following labor. The attack was ushered in with ulceration of the tongue and throat. The work of Hunter[7] will be recalled because of his rather extreme view that streptococcic infection of the tongue and upper alimentary tract bore a part in the etiology of pernicious anemia. G. A. Charlton[8] studied the effects of chronic infection with *Bacillus coli,* and produced a very striking anemia, which was characterized by a pari passu reduction in hemoglobin and red corpuscles. He concludes that by subinfection the ordinary organisms of the intestinal tract may produce a very definite anemia.

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[3] Pratt, J. H., and Spooner, L. H.: A Study of Sprue, J. A. M. A. **59**: 218 (July 20) 1912.

[4] Bahr, P. H.: Tr. Soc. Trop. Med. and Hyg., London, 1914, p. 161.

[5] Biermer: Cor.-Bl. f. schweiz. Aerzte, quoted in full in Nothnagel American Edition, 1905, Alfred Stengel, editor.

[6] Elder and Matthews: Lancet **2**: 371 (Aug. 8) 1903.

[7] Hunter, William: Pernicious Anemia, London, C. Griffin & Co. 1915, p. 1901.

[8] Charlton, G. A.: J. M. Res. **8**: 344 (Nov.) 1902; in Nothnage (Footnote 5).

These instances from the literature are mentioned because our study of sprue has led us to think that it may be a bridge between the anemias experimentally produced by the colon bacillus, and possibly others of the usual intestinal flora, and an anemia which probably owes its origin to a true intestinal disease, one which more nearly approaches pernicious anemia than any of the anemias produced experimentally. We are now preparing for a study of the colon bacillus isolated from the duodenal contents in sprue.

It is worthy of emphasis that the remissions in sprue are as striking as in pernicious anemia. That remarkable recurrence which is so often seen in pernicious anemia, even after years of quiescence, is also seen in sprue.

What the relation between the two diseases is, if any, remains to be seen, but it is not improbable that a more accurate study of sprue will shed light on many obscure corners in the study of pernicious anemia.

There is no longer an occasion to mention the confusion between sprue and pellagra. The matter should be dismissed with a word. If the sprue stool and tongue are considered, even in the light of an absence of the skin lesion, there should be no confusion.

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ABSTRACT OF DISCUSSION

Dr. Douglas Vanderhoof, Richmond, Va.: Much credit is due Dr. Wood for having called attention time and again to the existence of so-called tropical sprue in the United States. Chronic or recurring diarrhea, that is, characterized subjectively by absence of pain and tenesmus and objectively by presence of blood, mucus and pus in the stools, is generally due to one of four causes: first, achylia gastrica with diarrhea, a matutinal diarrhea. This cause of diarrhea accounts for from 90 to 95 per cent. of the cases of chronic or recurring diarrhea characterized by absence of pain and tenesmus, by blood, pus and mucus in the stools. Second, cases of pancreatic achylia, characterized by absence or deficiency of the pancreatic ferment in the duodenal contents or in the stools, perfectly definite cases, not occurring very frequently but worthy of consideration. Third, the type of diarrhea in pellagra, and fourth, we must consider sprue. Certain symptoms are common to all these four forms of diarrhea, namely, stomatitis, anemia and weakness, and loss of weight; and from these symptoms it is difficult to differentiate between these four forms. Of course, in sprue the patient goes on to extreme emaciation, whereas in pernicious anemia or achylia the patient is not infrequently a well nourished individual. Then, again, the picture is confused by the fact that either a gastric or pancreatic achylia may complicate pellagra or may complicate sprue, and it is due to this fact undoubtedly that so much confusion has existed in the establishment of sprue as a clinical entity. There are certain cases of so-called sprue that are absolutely relieved by the exhibition of pancreatic ferment in the diet. Other cases of sprue are relieved by an autogenous streptococcus vaccine. As to the differentiation of these diseases: In achylia gastrica, the absence of the gastric secretion is characteristic; in pancreatic achylia the deficiency of the pancreatic ferment in the duodenal contents or in the stools is characteristic. In pellagra, the skin lesions and the mental symptoms help, whereas in sprue examination of the stools is decisive. My personal experience with sprue in Virginia and the neighboring states leads me to confirm the opinion of Dr. Wood and others that so-called tropical sprue is a clinical entity, and that it occurs in the United States in individuals who have never been out of the United States.

Dr. Joseph H. Pratt, Boston: The patients with tropical sprue that have come to America from the West Indies and from China have had fatty stools. In other words, the diarrhea is a fatty diarrhea. The resemblance of the stools in these cases of sprue to those in complete obstruction of the pancreatic duct is very striking. In three or four cases we did metabolism experiments to determine the amount of fat that was absorbed and the amount of fat that appeared in the feces, and we found that the feces contained so much fat that microscopically they seemed to consist almost entirely of fat. There is no doubt that a great many patients with sprue are coming to this country and cases are developing in the northern states and are unrecognized. Prior to the time that Dr. Wood wrote his first paper there was very little if anything written on the subject of sprue in this country. We should always consider the possibility of sprue in every case of chronic diarrhea with loss of strength and anemia, and examine the stools for fat. The tongue may not be sore at the time the case comes under observation, and the anemia may not be marked but in the cases I have seen, the fatty diarrhea has been the striking feature. I studied very carefully the case of a patient who had not been out of New Hampshire for five years. In that patient the subsequent course and the clinical history were typical of sprue, and if there is one case in the northern states, there must be others.

Dr. W. C. Alvarez, San Francisco: We see many cases of sprue in San Francisco mainly in people returning from the Orient and India, and I believe that there is something more than the pancreatic lesion present because I have seen pancreatic fatty stools and stools of sprue. In sprue the characteristic thing in all cases I believe is a change of the type of flora in the stools. If you put a sprue patient on a meat diet for a while, he generally improves very markedly. Many patients get well, the bacteria in the stools change, and the stool changes in color. It seems that if it were a pancreatic lesion, the large amount of meat which you feed would not be digested any more than the fat. Take a patient who is comfortable and give him starch, he immediately bloats up with gas if some of those yeasts and moulds are still present. I have seen remarkable cures from the use of vaccine. The strawberry cure is one of the strangest things I have ever seen. Why a man with a violent diarrhea can eat several boxes of strawberries and improve on it is a puzzle. You can differentiate sprue from other types of diarrhea by feeding the patient on a box of strawberries.

Dr. Emanuel Libman, New York: Five years ago I saw a case of secondary sprue in New York. The patient had never left New York City. There was complete achylia and disturbance of the reflexes. Up to that time no cases had been called sprue with a color index above 1. These cases are of importance, and we must diagnose between sprue and pernicious anemia. If you analyze the symptomatology of sprue and pernicious anemia, you will see a close relationship. There is a mistaken idea that in pernicious anemia the symptoms are due to anemia, but if you perform transfusion, you can remove the symptoms, the sleeplessness, the poor digestion, etc., and you can raise the functional capacity of the kidneys, but you do not remove the tongue lesions, the achylia, or the spinal cord symptoms. Evidently an anemia is produced by a toxin which has an affinity for the blood forming organs and the spinal cord. In sprue there is a toxin which attacks the gastro-intestinal system and the tongue. As to the spinal cord changes, I do not know what they are, but there is an important difference there. If the toxin of sprue is found, it will give a lead to look out for pernicious anemia.

As to the pancreas: I have seen a few cases of sprue and have been struck by the resemblance to pancreatitis and I have decided to find the exact condition of the pancreatic ferment. Meanwhile, Dr. Thomas R. Brown of Baltimore has reported that in one case of sprue studies of the feces had shown that the pancreatic secretion was entirely missing.

Dr. M. L. Graves, Galveston, Texas: I wish to emphasize the fact that sprue is becoming endemic in this country. Up to a few months ago the only cases of the disease that I had seen in Texas were cases that had been imported from South America and Africa, but recently I saw a case which appears to have originated in Louisiana. An interesting feature of this case is the age of the patient—9½ years. She presents voluminous stools associated with the organism described by Ashford in the Porto Rico cases. This little child presented an epileptoid syndrome which I have not seen in other cases of sprue. The attacks are without a definite aura and occur with great frequency, from three to twenty during the day, associated with great pallor and great sweating. The organisms have also been recovered from the mouth in this particular case. This relationship of epileptoid symptoms to sprue has not yet been established.

Dr. Alfred T. Livingston, Jamestown, N. Y.: On my way to Porto Rico a few years ago I happened to have as companions on the voyage two people affected very intensely with sprue. I became very much interested in them, and before we got to Porto Rico I became a patient myself, having very severe hemorrhages of the bladder, with clots. I was taken to the hospital and operated on, but as soon as I was able after that, I had my wife write to these two people to come to see me because I had conceived an idea that I might be helpful to them. The impression made on me was that the condition was one involving a tremendous amount of fermentation. The stools were so horrible that the husband of this lady could not stay in the house while that operation was going on. So having had a good deal of experience with an antiseptic which I had used in my medical work, without the least suggestion of toxic effect, I thought that if these people could be filled with this antiseptic, immersed in it as it were, they might get relief. One of the persons I met on my trip, a man, did not take my advice. He died within ten days. The other person, a lady, accepted the idea, and made a complete recovery. Other sprue patients have also been relieved by the same antiseptic, betanaphthol.

Dr. Edward J. Wood, Wilmington, N. C.: Dr. Vanderhoof mentioned the occurrence of pellagra and sprue. I have seen that occasionally. The condition that attracts your attention is the superimposed anemia. In pellagra the anemia is a negligible factor. In pellagra on the three-day diet the utilization of fat and nitrogen is perfectly normal even in extreme cases. In one case I thought I saw some improvement from the use of pancreatic ferment, but I would not dare claim credit for every remedy used in sprue any more than I would claim credit for helping pernicious anemia because it seems to help itself. Dr. Pratt emphasized the fatty diarrhea which after all is the essential characteristic and is the pathognomonic sign of the disease. It would be interesting to know what the chemistry of the feces is. Dr. Alvarez brought up the question of the diet which is one of the vital points in the differentiation. The meat diet of Canty is a pound of beef without any fat, scraped and fed the patient in half portions with hot water. I have seen the hemoglobin double in four weeks by that treatment alone. One of my patients had a high color index just before death. I think it is apt to recur late in life, because the English authorities call it a secondary anemia. The point of vital importance, after all, will be the differentiation between sprue and pernicious anemia. Unfortunately cases of sprue will occur where complete laboratory investigation is well nigh impossible. There is no possible doubt that the disease exists.

Effects of Substandard Diet on German Population.—The effects which have appeared relate to all organs. Especially noteworthy is the fact that a tendency to polyuria is present, produced by a very watery diet. Interesting also is the retardation of menstruation in girls and women sometimes for as long a period as a year; the appearance of intestinal intussusceptions; diseases of the genitals in women; besides a great increase in mortality, especially among (*a*) old people above the age of 50, (*b*) younger persons, especially women, (*c*) in the last few years even among schoolchildren, most recently of all, among children up to the age of 6 years. The milk of nursing women is decreasing. The loss of weight among newly born children is not recovered until after many months. Tuberculosis is again as bad as it was twenty-five or thirty years ago.—Dr. Max Rubner.

NEPHRITIS IN THE SOLDIER *

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Two types of nephritis were encountered abroad in soldiers during the recent war. Chronic nephritis was a rare disease and can be dismissed without further discussion, as obviously it was to be excluded by a thorough routine physical examination of all recruits before enlistment. Acute nephritis was more common and a greater problem from the points of view of medical administration as a whole, and individual care of patients in particular.

Acute nephritis was not important in warfare until the present time with the exception of the Civil War, when there were approximately 14,000 cases. It was not prevalent in the Franco-Prussian War, the Chino-Japanese War, the Soudan War, the Spanish-American War, or in the South African War. After 1915, however, it appeared among British, French, Austrian and German troops. No figures have been published as to the frequency of the disease in the American Expeditionary Forces. Among the British in 1917 and 1918, as judged by the admissions in two typical general hospitals, it represented about 5 per cent. of all medical casualties sent from the line.

The type of acute nephritis was so well marked clinically that it came to be called "trench" or "war" nephritis to differentiate it from chronic nephritis or acute nephritis of other types. It had four outstanding clinical characteristics: acuteness of onset; the symptom of dyspnea apparently not of cardiac or mechanical origin; the rapid development and disappearance of edema, and the suddenness and frequency of uremic manifestations. The disease affected all branches of the army and was prevalent among officers as well as men. The etiology was not discovered. Many theories as to the cause were put forward, such as exposure, unwholesome drinking water, lead, or the concentrated and high protein diet contained in rations. None were substantiated. No predisposing factors could be demonstrated.

Physical examination of patients with trench nephritis was essentially negative except for dyspnea, high blood pressure and general edema. The dyspnea was not associated with a marked hydrothorax or with cardiac dilatation. There was often a diffuse coexistent bronchitis without signs of consolidation. The blood pressure was sometimes normal or subnormal, but was usually 170 mm. or more. The edema was most marked in the extremities, over the sacrum and chest wall, and in the face. Edema of the genitals occurred with less regularity, and marked ascites was rare. Retinal hemorrhages were not often seen, and true albuminuric retinitis was unusual.

The course of the disease was that of a subacute nephritis tending to last for several months but not to develop into a chronic progressive nephritis. After a period of rest in bed the patient's fluid output rose, and at the same time there was an increased output of salt. Some patients got rid of their edema in this fashion in a few days, while others took several weeks. The excretion of albumin was high at first and tended to increase during the first days of improvement, after which it fell away to traces and eventually disappeared. The urinary sediment cleared up slowly. At first there were many granular casts, much blood and epithelium. Later hyaline casts appeared and remained for several weeks. A few blood corpuscles seemed to persist for months. The blood pressure fell to normal after sufficient rest in bed, and the dyspnea cleared up promptly. So far as could be discovered, there was nothing specific for trench nephritis in any of these features. They seemed typical of any form of acute nephritis with edema and hypertension.

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* From the Medical Division, United States Army Base Hospital 5.

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Among complications, epileptiform convulsions were the most common. These developed in both mild and serious cases, with or without marked edema and with or without extreme degrees of hypertension. They were often associated with mild or maniacal delirium. They were not as alarming as they first appeared and were rarely fatal. Other complications were severe headache and gastro-intestinal indigestion, with nausea and vomiting or diarrhea. Pericarditis and pleuritis were almost never seen.

The eventual prognosis was good, as the mortality in a large series of cases was only 3 or 4 per thousand. The disease, however, did not clear up immediately, and every case was rightly considered as serious, and the patient unfit for any immediate duty.

The treatment for trench nephritis varied in different hospitals. As a routine in Base Hospital No. 5 in Boulogne, a rigid fluid intake and output chart was kept. For the first few days of observation the patient was given a fluid diet of 600 c.c. of milk and 900 c.c. of tea or water. As the fluid output rose, small amounts of bread and jam were added to the diet; and finally when the edema and dyspnea had disappeared, the patients were allowed eggs, porridge, small amounts of chicken, rice and potato, with such desserts as fruits or puddings. An effort was made to avoid diets containing much salt, protein or many calories. The most important single feature of such a course lay in the systematization. The same amount of fluid was given at the same hour every day. When food was added, it was divided carefully into three or four feedings, and each meal contained approximately the same amount of bulk and nourishment. On the whole, the patients did surprisingly well and were very comfortable.

Few drugs were used. Morphin or codein was useful for controlling cough, dyspnea or severe headache. Purgation was avoided as being liable to cause indigestion, and the bowels were regulated with enemas or mild vegetable cathartics. No patients were sweated. A few were given diuretics, but the results obtained were inconclusive. No effort was made to lower blood pressure, as it was difficult to obtain evidence that hypertension alone caused symptoms.

Bleeding seemed efficacious in stopping convulsions. In certain cases, 600 or 700 c.c. of blood were withdrawn, with immediate apparent relief. This procedure next to systematic dietetic regulation seemed most important.

The patients were sent to England on a hospital ship as soon as possible. They all traveled well and seemed to be unharmed by the trip.

The ultimate course in treatment consisted in managing the cases of trench nephritis as though they were cases of chronic nephritis. The diet was gradually made more liberal. After the edema and albuminuria disappeared the patients were allowed to get up, and were sent back to duty or were discharged from the army as unfit after a period of observation lasting for several months.

On the whole, the problem of nephritis in the soldier was essentially that of the treatment of trench nephritis. This was a type of acute nephritis of unknown cause and of remarkable frequency. It was characterized by its suddenness of onset, the symptom of dyspnea, the rapid occurrence and subsidence of edema, the commonness of uremic manifestations, and its low mortality. Clinical study of cases did not demonstrate anything specific as to the nature of the disease. Good results in immedite treatment were obtained by bleeding in the case of patients having convulsions, and by the systematic regulation of food and fluid intake in the less serious cases. The ultimate treatment was that of chronic nephritis.

The disease was serious from a military point of view, as it caused many casualties. However, even very sick patients stood a short journey well so that they could be sent promptly from the line to hospitals outside the zone of advance.

At present it appears that trench nephritis tends to heal and not to develop into a chronic progressive kidney disease. It will be necessary to follow cases for a much longer time than has been heretofore possible before this opinion can be established as fact.

ABSTRACT OF DISCUSSION

Dr. Harold Feil, Cleveland: Approximately 100 of these cases have been casualty cases. There has been one striking point and that is the persistence of the hematuria and albuminuria without edema. These patients all resisted treatment in the hospitals for weeks and most of them have been discharged from the army for disability. All these cases were observed for a period of six months or more.

Dr. E. P. Joslin, Boston: In the absence of Dr. Horace Gray and Major Vanderveer, I would say for them that each had a large series of similar cases under their supervision, and they have attempted to carry out what Dr. Fitz has suggested, i. e., to follow up the course of each case for several years. These gentlemen, who have worked at Vichy and Mesves, respectively, have collected the addresses of all these men, their records in the army, the names of their physicians, and hope to report on their condition later. As others have collected data of this description we should eventually have interesting facts relating to the after effects of this type of nephritis. In general, the innocuousness of the disease at the time of its height was obvious. Our patients at Mesves certainly did very well. The point was also obvious that these cases could be found if one looked for them. Following the influenza epidemic, a systematic examination of the urine of every man at the center was made, and then the cases promptly came to the fore—cases that would otherwise have been overlooked.

Dr. H. E. Jones, Roanoke, Va.: I would like to ask the doctor a question: He did not give the type of the cases, except to state that chronic interstitial nephritis was absent. I would like to know what type of the disease he found among those cases of nephritis; that is, whether acute and chronic parenchymatous, or glomerular and tubular forms of the disease.

Dr. Homer F. Swift, New York: Following our army through the active fighting period, seeing many troops that were evacuated from July to November, we saw very few cases of this type go through the triages when men were living under trench conditions. When our army got up into Germany and the men were living under better conditions, we saw more cases of nephritis, described as trench nephritis by Dr. Fitz. Perhaps, the influenza epidemic had something to do with it, but these patients did not give a history of having had an influenzal infection.

Dr. Reginald Fitz, Boston: In answer to Dr. Jones, all I can say is that the clinical picture of acute trench nephritis was quite different and distinct from other types of nephritis. In addition there were cases of acute nephritis following tonsillitis, other infections or surgical conditions with marked albuminuria but without edema, hypertension or the dyspnea which was characteristic of the trench nephritis type.

A NEW METHOD FOR TYPING PNEUMOCOCCI BY THE USE OF BLOOD *

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Because of the disadvantages known to be inherent in all the methods used for typing pneumococci by means of sputum or urine, we attempted to devise a method which should be based on the use of the blood of the patient. We finally adopted the procedure described herein. It had been pointed out by Rosenow,[1] and later by Longcope,[2] that pneumococci produce a coagulum when grown in the serum of patients suffering from pneumonia, the clot formation being due to the production of acids, probably from glycoproteins, in the serum. This property—manifested in a different way—we have found to be specific, not only for pneumocicci as a group, but also for the various pneumococcus types. A full discussion of the theory of the reaction is reserved for another time.

PROCEDURE

Ten c.c. of blood are drawn with sterile precautions into test tubes containing a few crystals of potassium oxalate (sufficient to prevent clotting). The blood is then shaken with pure fresh ether, added in small, successive amounts, until the red cells are completely laked. The laked blood is transferred to a sterile centrifuge tube and centrifuged at high speed for five minutes. The disk of red cell shadows which collects at the surface is removed with a heated platinum loop. With a sterile pipet, 0.3 c.c. of the laked blood is placed in each of four sterile stoppered tubes 0.8 by 13 cm. To each of the first three is added 0.5 c.c., respectively, of saline emulsion of proved Type I, II and III pneumococci grown on glucose serum agar. The fourth tube constitutes the control. Sterile physiologic sodium chlorid solution is added to all tubes, sufficient to make up to 1 c.c. Sterile pipets are used throughout. All tubes are stoppered and placed in a water bath at a temperature of 37 C. until the color change appears.

COMMENT

The reaction consists in the formation of hemoglobin derivatives, mostly methemoglobin, which impart to the tube an unmistakable brownish-red color. The final result is a dark brownish-red, gelatinous clot. The chemistry of the reaction has not been fully studied. It is hoped, by spectroscopic means, to discover initial changes and thus shorten materially the time of the reaction. The reaction, as now determined by the naked eye, has been noted as early as after two hours. The average time for appearance of color change is from six to eight hours.

Certain precautions must be observed: The blood should be tested as soon as possible after withdrawal from the vein. Clotted blood should not be used. The ether should be free from alcohol, poured fresh from closed containers. Saline emulsions of actively growing strains of pneumococci, grown on glucose serum agar, should be employed. Strains that have been artificially cultivated for some time and are growing poorly have delayed the reaction, and may even fail to produce any change.

TESTS

Under the kind supervision of Dr. E. Lebman studies were made on fifty-two patients. The tests in forty-nine of the cases could be confirmed by agglutinin reactions made on organisms isolated from sputum, lung puncture, or both. The tests on the remaining three patients are not checked up with agglutinin reactions, no sputum being available at the time (from twelve to fourteen days after the crisis). These tests are included to show that the reaction apparently does not persist after the crisis.

The forty-nine cases corroborated by agglutinins are divided as follows:

Group I, seven cases (14 per cent.).
Group II, eleven cases (23 per cent.).
Group III, nine cases (18 per cent.).
Group IV, eighteen cases (37 per cent.).
Mixed infections, four cases (8 per cent.).

The following mixed infections (as shown in the accompanying table) were disclosed:

Case 4: Types I and II: Agglutination tests on organisms isolated from sputum proved these to be Types I and II.

Case 15: Types I and III: A Type III organism was obtained from sputum; a Type I organism, from lung puncture.

Case 23: Types I and III: The sputum yielded a Type III organism. A lung puncture was unreliable (clumps being present in all tubes).

Case 33: Types I and III: A Type I organism was obtained from sputum; a Type III organism from lung puncture.

It may be inferred that, in some cases of Type I pneumonia, serum therapy may have been unsuccessful because of the presence of unsuspected mixed infections.

Tests on several patients were repeated at intervals to establish the persistence or disappearance of the reaction. In three instances (Cases 34, 42 and 43) the reaction disappeared after the crisis. The three cases mentioned above, in which tests were made from twelve to fourteen days after the crisis, proved to be negative. A result was obtained as early as the second day. There was no opportunity to make studies on the first day of the disease.

Control tests, on patients suffering from diseases other than pneumonia, were uniformly negative.

COMPARISON WITH AVERY TEST

Avery and precipitin tests were made in practically every case. There were twelve instances in which our test proved the presence of organisms of Types I, II and III (confirmed, as stated above, by agglutination tests), in which the Avery test gave a negative result. In this group of twelve cases, two were instances of mixed infections, one case showing Types I and II, and the other Types I and III. In one instance, our test showed the presence of infection by Types I and III; agglutination showed the same; the Avery and

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* From the Pathological Laboratory of the Mount Sinai Hospital.
* Read before the New York State Medical Association, May 7, 1919.

[1] Rosenow, E. C.: J. Infect. Dis. **1**: 280 (March 19) 1904.

[2] Longcope, W. T.: J. Exper. M. **7**: 626 (Aug. 25) 1905.

precipitin tests showed Type III only. In one instance the agglutination method and our method showed the Type III organism; the Avery test was negative, but the precipitin test gave a reaction for Type III. There was the same experience in another case of Type I infection.

COMPARISON WITH PRECIPITIN TEST

The test was in agreement with the precipitin reaction (when the latter was present), with the following exceptions:

Case 31: Our test showed Type IV; precipitin, Type II.

Case 36: Our test showed Type IV; precipitin, Type III.

Case 37: Mixed infection. Our test showed Types I and III; Avery test, Type III only, and precipitin test, Type III only.

Case 46: Our test showed Type III; precipitin reaction showed Type II.

The accompanying table gives the data from some cases of special interest.

RESULTS OF DIFFERENT TESTS FOR PNEUMOCOCCI

No.	Case	Diagnosis and Day of Illness	Avery, Type	Precipitin, Type	Agglutination, Type	Lung Puncture, Type	Test, Type
41	B.	Lobar pneumonia, 3d day.....	Neg.	I	I	....	I
	190872	Lobar pneumonia, 5th day....	....	....	....	....	I
		Lobar pneumonia, 7th day....	....	....	....	....	I
		Lobar pneumonia, 10th day, 3 days postcrit.	....	....	....	....	Neg.
39	S.	Lobar pneumonia, 6th day....	I	Neg.	I	....	I
	191008	Lobar pneumonia, 8th day, 2 days postcrit.	....	....	....	....	Neg.
43	D.	Lobar pneumonia, 3d day.....	Neg.	Neg.	I	....	I
	191023	Lobar pneumonia, 8th day, 2 days postcrit.	....	....	....	....	Neg.
48	T.	Lobar pneumonia, 4th day....	I	Neg.	I	....	I
	191055						
7	R.	Lobar pneumonia, 5th day....	*	Neg.	....	II	II
20	G.	Bronchopneumonia, 4th day..	II	Neg.	II	....	II
22	B.	Bronchopneumonia, 3d day...	Neg.	Neg.	II	II	II
28	R.	Bronchopneumonia, 6th day..	II	II	II	....	II
		Bronchopneumonia, 8th day..	....	....	....	....	II
9	S.	Lobar pneumonia, 5th day....	III	III	III	....	III
12	L.	Lobar pneumonia, 7th day....	III	III	III	....	III
		Lobar pneumonia, 9th day....	....	....	....	....	III
16	R.	Lobar pneumonia, 6th day....	III	III	....	III	III
38	B.	Bronchopneumonia, 4th day..	Neg.	II	....	III	III
		Bronchopneumonia, 6th day..	....	....	....	....	III
5	M.	Lobar pneumonia, 5th day....	Neg.	Neg.	IV	IV	Neg.
24	M.	Bronchopneumonia, 10th day.	Neg.	Neg.	IV	....	Neg.
		Bronchopneumonia, 12th day.	....	....	....	IV	Neg.
31	L.	Bronchopneumonia, 11th day.	Neg.	Neg.	IV	....	Neg.
45	M.	Lobar pneumonia, 4th day....	Neg.	Neg.	IV	....	Neg.
		MIXED INFECTIONS					
4	C.	Lobar pneumonia, 5th day....	Neg.	Neg.	I II	....	I II
15	L.	Lobar pneumonia, 6th day....	Neg.	Neg.	III	I	III I
23	C.	Bronchopneumonia, 8th day..	Neg.	Neg.	III	Clumps in all tubes	I III
33	W.	Lobar pneumonia, 3d day.....	III	III	I	....	I, III
		Lobar pneumonia, 5th day....	....	....	....	....	I, III
		Lobar pneumonia, 7th day....	....	....	....	III	I, III

* Sputum unobtainable.

ADVANTAGES OF THE METHOD

1. It is simple.
2. The reaction, when it occurs, is unmistakable and persists.
3. From 5 to 10 c.c. of blood are practically always obtainable, whereas satisfactory sputum is often not available, especially in early stages of the disease.
4. A reaction with blood is obviously more accurate than one depending on sputum, in which contact types may be present.
5. Mixed pneumococcus infections can be determined.

Studies will be extended to establish the possibility of specificity in other infections.[3]

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[3] Since this article was written, a positive Type I test was found in a case which proved to be peritonitis due to Type I pneumococcus.

EPIGASTRIC HERNIA IN THE SOLDIER

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There is such a general failure on the part of physicians to realize the importance of the small epigastric hernia, with an even greater failure to recognize the hernia itself, that I wish to report a typical instance with operation, and to speak briefly of six other patients operated on in this base hospital. I shall also call attention to four other cases which either came to my attention elsewhere or were cases in which diagnosis was made and operation performed by surgeons who had, in their work here, come to recognize the importance of these trivial-appearing hernias in causing obscure abdominal symptoms.

Let us say in the beginning that there is no lack of textbook description of the hernia. Berger[1] found 137 in 10,000 individuals (120 males and seventeen females); Macready found thirty-eight cases of epigastric hernia to 19,341 cases of inguinal and femoral hernia, but he obviously overlooked all but the relatively few which are actually obtrusive in appearance. In our "recruit mill" at this camp, we have found them by the dozen, so commonly, in fact, that we have made no note of them unless they produced symptoms, and but few of them do. Only seven have been accompanied by sufficiently severe symptoms and signs to lead us to advise operation.

These hernias generally occur, as stated in most textbooks of surgery, in or near the central line in the space running 2 to 3 inches upward from the navel. Multiple hernias are not infrequent. Keen described four varieties:

1. A small mass of subperitoneal fat without any sac.
2. In addition to the subperitoneal fat a process of parietal peritoneum attached to it without any contents.
3. A sac containing omentum (omentocele).
4. A sac containing intestine.

An ordinary lipoma may be found in the epigastrium, but it is more movable than the hernia, and is not tender.

If the opening of the sac is of some size, the contents may increase when the patient coughs. The orifice is generally so small, however, that it is probably in less than 10 per cent. of the cases that this sign is observable. Bergman states that the majority contain omentum and transverse colon. This is certainly an error, for of the many score that I have seen, perhaps only half a dozen contained any part of the bowel. The fault with all the statistics lies in the failure to recognize the minute hernias, of the size, say, of a shirt button. There are twenty of these to one of the size of a filbert, and they are too frequently entirely overlooked.

The hospital for the ruptured and the crippled has found no such conditions as Bergman[2] has mentioned.

Symptoms.—Perhaps in 80 per cent. of the cases there are no symptoms. These are in general the ones in which no true omentocele exists. When a bit of omentum actually comes through the minute orifice, often from 1 to 4 mm. in diameter, it generally becomes fast, cannot be reduced, and by dragging on the omentum causes symptoms which I should place thus in the order of their importance:

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[1] Berger, in Keen, W. W.: Surgery: Its Principles and Practices, Philadelphia, W. B. Saunders, 1907.

[2] Bergman: Quoted by Keen (Footnote 1).

1. Pain or troublesome discomfort.
2. A feeling of dragging.
3. The ulcer syndrome, sour-stomach, occasional nausea, even vomiting, distress after eating, with periodic exacerbation of all symptoms, and even attacks of colic.

SIGNS

There is a bulging in the epigastrium, such as might result from the subcutaneous insertion of a small button. This mass occurs in these cases with symptoms of great tenderness on pressure, and is occasionally reducible; in that event, reappearing when the patient coughs.

Sharp pressure causes the patient to double up to escape the pain. In two or three instances, notably in one of a man with gastric ulcer, I found what I have called the "electric bell reaction." A touch on the hernia causes instantaneous belching—a quicker response than one would believe possible.

The definite association between epigastric hernia and gastric ulcer has long been known, but is not so widely recognized by internists as it should be. A patient receives no benefit from an operation for ulcer if such a tender hernia is overlooked. As I have elsewhere stated,[3] the explanation probably lies in the long continued reflex irritation of the stomach by the omental "drag," so that hyperacidity and ulcer follow, as in chronic appendicitis.

REPORT OF CASES

J. H. S., a young soldier, was sent to the base hospital, Camp Logan, from the stockade, in which he had been confined for being absent without leave. He complained of constant indigestion, gas, pain, sour stomach and so much distress that he could not eat. He had been in another base hospital for the same trouble.

I found a very tender omentocele 3 mm. in thickness and 1.5 cm. in diameter, and recommended immediate operation, believing it to be the seat of all his trouble. There were no signs of chronic appendicitis, ulcer or gallbladder disease. Three days after the operation the patient asked why the omentocele had been overlooked at the previous hospital, "for," said he, "I now feel well for the first time in years. It was that constant, nagging pain that made me so cantankerous that I went absent without leave and, as a consequence, was put under arrest."

He was discharged well in a few days, with a recommendation that his sentence be suspended, as he was more of an invalid than a criminal.

In six similar cases, in only one of which did the sac contain part of the bowel, operation was performed here with perfect results. The surgeon who assisted in the first case was called as a witness in court to his former home. Learning that his associate had a patient with indigestion who failed to respond to any treatment, he examined him, found such a hernia, operated the next morning, and showed me a letter after he returned, stating that every symptom had disappeared by the fourth day.

Another young surgeon was ordered to a distant base hospital, and recognized such a hernia in a case of an officer at the time of his third admission for some acute abdominal disease, but was unable to convince the chief of medicine that the hernia was the cause of the trouble. On the fourth admission, a few weeks later, he talked so convincingly to the chief surgeon that the patient was operated on, and, what is more important, has remained absolutely free from symptoms ever since.

At his quarters in Houston, I saw a young officer with a violent attack of colic, his organization surgeon believing that he had a partial obstruction. His epigastric hernia was one of the most tender that I have ever palpated. He had been examined repeatedly in one of the most famous of eastern hospitals, with free use of the stomach tube and of the roentgen ray, but without definite diagnosis and, obviously, without any critical examination of the epigastrium. He is preparing to go to the hospital for operation at this time. The very fact that a two weeks' course of investigation, with every modern appliance, failed to show any organic digestive disease leads me to believe that his symptoms will all clear up with the operation.

I have just examined, in another hospital, a patient who has had his appendix removed and his gallbladder drained, with no benefit, and who has just such a tender hernia. This patient is to be operated on at once.

CONCLUSIONS

Physicians should examine with special care for epigastric hernia in every case of digestive disease. If a hernia is found, the opinion of a surgeon should be obtained as to the advisability of operation, unless it is clear that the hernia is without symptoms. These hernias are so minute and unobtrusive in many cases that we may safely say that the failure of the average physician to find them in possibly about 1 per cent. of the subjects examined is to be taken as evidence that the examination was made without sufficient care. Since less than a fourth of these hernias are associated with any digestive disorder, the question of operation arises in only a minority of cases; but it should, nevertheless, receive the most careful consideration. The surgical operation involved is trivial in comparison with the importance of the results commonly obtained.

HEMORRHAGE AND BLOOD TRANSFUSION IN THE WAR *

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Among the advances in medicine and surgery wrought in France during the war was the forcible demonstration of the great usefulness of blood transfusion; not only that, it was shown also that thus far nothing has been found to take the place of blood, once a hemorrhage has passed beyond the limits of safety.

This war development is of real significance for, despite efforts to popularize blood transfusion, despite all the brilliant advances of recent years made in this line of work and the reports of innumerable lives prolonged, and lives saved, by its use, there always existed in the profession generally an apathy toward it, a skepticism not only as to its efficacy, but also as to its need. How often have we been told that it is the rarest thing for a patient to bleed to death! The woman suffering from ruptured ectopic pregnancy never passes away from loss of blood—the bleeding gastric ulcer never bleeds till actual exitus. The torn blood vessel of a mangled limb always becomes twisted and plugged; so bleeding from it ceases. And after all, so we were told, a salt infusion or a gum infusion is all that is needed—urgent cases may, perhaps, demand the introduction of the solution by way of the veins. But, in either event, they will do all that blood will do.

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[3] Hall, J. N.: Borderline Diseases, New York, Appleton & Co., 1915.

* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City. N. J., June, 1919.

Would that this were so! The number of American dead populating French cemeteries would be reduced quite considerably and the feeling of animosity toward those responsible for the ill-directed, albeit sincere, efforts to introduce gum solution into the treatment of hemorrhage and shock in the battle-wounded would be less keen. The theory was, as I understand it, that the solution of gum acacia possessed all the powers of salt solution for combating shock and refilling blood vessels emptied as a result of hemorrhage. But this was not all: It had a further advantage over salt solution—an advantage approximating even that of blood—namely, the power of sustaining a rise in blood pressure and of remaining within the confines of the blood vessels.

By way of explanation to those who perhaps are not familiar with the sedative degrees of efficacy of salt solution in blood it may be said that in cases of extreme hemorrhage and shock, while salt solution may relieve the condition, it has little sustaining power, chiefly because it rapidly passes out of the blood vessels into the surrounding tissues by osmosis. Blood, on the other hand, has real sustaining power because of its oxygen-carrying properties and its ability to remain intact as a circulating medium. It goes without saying that any medium possessing such attributes, and of a harmless nature—as was said to be true of gum solution—would have been of extreme, really untold, value in the treatment of wounded men. And it was quite in order to try it out. That the studies were, apparently, not carried out with an open mind, that overwhelming evidence against the solution was not sufficient to cause its abandonment, instead of promoting futile efforts to improve it, is greatly to be regretted. It would perhaps have been unfair to demand that when gum solution failed to measure up to expectation no effort should have been made to improve it—the probabilities are that Dr. Cannon and his co-workers felt that the medium had so much to commend it that further efforts were justified. I can only say that with its initial fall from grace, there arose a fear of it and a prejudice against it of such widespread proportions that it never had a chance afterward. Besides, we were at war, our troops were engaged in actual battle, the wounded were coming in by the hundreds and thousands: this was no time for further experimentation. All the efforts of the shock teams, surgeons, physicians and nurses should have been concentrated on salt solution and blood transfusion, the efficacy and the limitations of which we already knew. It is my opinion that if one-half the energy and time that were spent on gum solution had been spent on efforts to get blood and secure donors, we would have more to show for our efforts. Salt solution was practically always at hand—I say practically, because the strain and the stress were so great, at times, that even this simple remedy was not to be had; so we needed, chiefly, a more intensive effort to secure blood—to be used only in those cases in which salt failed to help.

When my attention was called to the fact that patients who had been given gum solution were failing to react, that in certain instances the blood pressure not only failed to show the expected rise, but actually fell, that the fluttering pulse failed to steady and that the depression even had a tendency to become more alarming than it already was, I suggested, when my advice was asked, that salt solution be given instead of the gum, and that more intensive efforts be directed toward securing blood for those most in need of help. The results were gratifying. It was possible to secure blood oftener than one would imagine, and not from the hospital personnel, either. I am opposed to using these self-sacrificing, overworked persons, even when they volunteer. Passing troops, billeted troops, the lightly wounded, patients with fracture, gave willingly of their blood.

Even so, the number of lives thus saved, compared with the number that might have been saved, was small—and all because blood in bulk was not obtainable, and salt solution, in many cases, would not answer the purpose. I am confident that the high mortality in certain types of cases would have been reduced materially had it been possible to give the patients even small quantities of blood. This is particularly true in the case of those compound, comminuted fractures of the femur in which the patient came in severely shocked by loss of blood, pain, hunger, fatigue and delay in getting him back to the base. The splints were usually properly applied. Salt solution overcame the shock; but because too much had been expected of it, and because blood was unavailable, results were too often fatal in spite of immediate operation.

I recall the case of that man who came in almost lifeless, his left femur shattered in its lower third by a through and through shell fragment. For twenty-four hours he hung between life and death, but as the result of the most judicious use of salt infusions he gradually picked up until operation was considered feasible. A further delay of twelve hours would have been better, but he began to show definite signs of gas infection, and it was then or never if an operation was to be performed. He died eighteen hours after it. If we could have given him 400 c.c. of blood during the operation, he would surely have survived.

I could cite numbers of cases like the one just mentioned, but there is little to be gained thereby. We came to fear this type of case more than others. At times it was impossible to delay operation a moment, owing to the fulminating gas infection which was so prone to develop. Salt solution to the extent of 500 or 1,000 c.c. would be given in the shock tent, a bit of heat applied, and the operation performed. When we had blood, it was customary to give it just as the operation started, in order to tide the patient over; and those who received it invariably did better than those who did not. A case in point is that of a sergeant who came in with an arm shattered, a leg hopelessly injured, and his remaining hand badly torn, one of the most battered-up men it has ever been my pleasure to see live. He too was worked over for twelve hours, at the end of which time some blood was given him. He was put under a light ether anesthesia, and one surgical team removed the arm while another took off the leg. A few days later he had to be put to sleep again to have his right hand cleaned out, his condition at the primary operation having been such that it had to be left untouched.

Another case has always stood out in my mind: A very young trooper was brought in—the instances I am citing occurred during the second battle of the Marne—with his left leg hanging by some loose tissue, the whole wound area filled with dirt and grass and creating a strong suspicion of a gas infection. His condition was so critical that a member of the shock team attached to our outfit, seeing him lifted out of the ambulance and recognizing the urgency of aid, had him carried directly to the operating room. Any kind of operation then would have meant death; so while he was being given 500 c.c. of blood, which were, fortunately, obtainable, I simply removed the foot with one stroke of the knife and put on a bandage—trusting to luck concerning later developments.

It was remarkable how that boy picked up. Within a few hours, aided by hot water bottles and some hot drinks, he had taken a new lease on life. Nor did he slip back in the slightest—even when, twenty-four hours later, the signs of gas infection were unmistakable. He withstood an amputation above the knee without a quiver and, a few days later, was evacuated to the rear, a well, happy boy, smoking the inevitable cigaret. I could cite other instances like this one, equally gratifying; but one example is as good as a dozen in the same class of cases.

So much, then, for the acute hemorrhage and shock of the battle casualties. The need for blood was great and urgent; the supply, pitifully small. Substitutes were tried and found wanting. Further to the rear, where conditions were a bit less strenuous than in the forward areas, it was possible to secure blood more often, and in greater quantities. Thus, in the base hospitals, a great light was shed on the value of blood transfusion in the anemias secondary to battle wounds. These were very common and most distressing. The men would lie pale, inert, unable to eat, nervous, day by day slipping back just a little, while their wounds not only failed to heal but became increasingly dirty, until all bodily resistance being finally overcome, septicemia ensued, and death resulted. Particularly was this true of bone and joint cases.

We transfused a number of these men, and in nearly every instance a prompt improvement followed. One of them had a huge wound of the buttocks with a great area of bone involvement—always a sad condition. He was having rough going until he got some blood, after which his improvement was rapid and continuous. Another man had a big thigh wound and a septicemia—staphylococcus, I think. He overcame the septicemia, as many did, but his anemia was so profound that he did not improve. With two or three doses of blood, however, he took on renewed life and finally recovered, though the leg had finally to be removed. Still a third, and a most remarkable demonstration of the efficacy of blood transfusion, was that of a young lieutenant of aviation who, being wounded through the chest, crashed to earth, sustaining a compound fracture of both bones of his right forearm, a similar condition of the bones of his left lower leg, and a compound fracure of the bones of his right foot. Two months later, when I saw him, he was a mere skeleton, and, in addition to his fractures, had three intractable bedsores and a knee joint involved in a metastatic infection necessitating the turning back of the patella. It was clearly a case of too much absorption from too many foci of infection. In all, this man received four transfusions. After the second, his right leg was removed just above the knee for, with the foot hopelessly crippled and the knee joint badly infected, it was simply pulling him down without offering him anything in case of his recovery. The last two started him on the road to recovery. He was far from a well man even when he reached America; but without those transfusions his chances for life would have been nil. These three cases, each one of a different type, are sufficiently illustrative to prove the efficacy of blood in aiding the recovery of the battle-wounded.

At my suggestion, the sodium citrate method was adopted by the Medical Department of the American Expeditionary Forces as the only method of blood transfusion to be used. The reasons for this are so obvious as hardly to need explanation. Its simplicity, its elasticity, the fact that it could be employed under circumstances that precluded the use of any other method, all combined to make it the one procedure of election. At my further suggestion, all transfusion work in France was turned over to the medical men. Thus it happens that many men have obtained a wide experience in blood transfusion who, in civil life, had had no opportunity to familiarize themselves with it. A brilliant page in the history of blood transfusion was written in France. Let the physicians who wrote it there expand the chapter here.

2313 Eutaw Place.

THE COURSE OF EVENTS IN SECONDARY WOUND SHOCK *

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In the issues of The Journal of February 23 and March 2, 1918, there was published a series of articles by Cowell, Fraser, Hooper and myself which described certain clinical observations that we had made on soldiers who suffered from shock and allied conditions. These observations confirmed earlier reports on the persistent low arterial pressure, the rapid pulse and respiration, and the lowered body temperature of the shock state; they also revealed a concentration of corpuscles in the capillaries, a reduction of the alkali reserve corresponding in general to the degree of lowering of arterial pressure, a marked sensitiveness to ether or chloroform anesthesia, and a tolerance of nitrous oxid and oxygen as an anesthetic. On the basis of these facts a definition of traumatic or wound shock might be offered; it is a general bodily state occurring after severe injury and characterized by persistent low arterial pressure, rapid pulse, pallor or slight cyanosis, sweating, superficial rapid respiration, and usually by a dulled mental condition.

EXEMIA AS A CAUSE OF LOW PRESSURE

Among the articles in the series above mentioned was a theoretical discussion of the nature of wound shock, in which the low blood pressure was regarded as the central fact of the fully developed complex.[1] Reasons were given for refusing acceptance of the acapnia theory and the nerve exhaustion theory of the low pressure. The factors determining arterial tension were then analyzed, with the result that the low pressure was ascribed to "exemia"; that is, a

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* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Cannon, W. B.: A Consideration of the Nature of Wound Shock, J. A. M. A. **70**: 611 (March 2) 1918.

temporary lessening of the volume of circulating blood, though not a loss of blood from the body. The possibility that the acidosis of shock, if carried to a sufficient degree, might play a rôle in causing further exemia was considered, but the occasion for the primary fall of pressure was left unsettled.

Shortly after the foregoing articles were presented as a report to the Subcommittee on Shock of the English Medical Research Committee, opportunity was offered at University College, London, to cooperate with Prof. W. M. Bayliss in an experimental analysis of the phenomena which had been observed clinically. Unfortunately, that work was cut short by military necessities, and the possibility of resuming it did not arise until the establishment of the Laboratory of Surgical Research of the American Expeditionary Forces at Dijon, France. Much that appears later in this report has come from observations made in London and from observations made by the group working at Dijon.[2]

PROPER EVALUATION OF THE DIFFERENT AGENTS IN SHOCK

That the phenomena of shock require experimental analysis is clear from a consideration both of its inherent complexity and of its attendant conditions. Shock has long been one of the great mysteries in surgery, and because of associated hemorrhage and infection there is usually much difficulty in assigning proper values to the different agents which might produce the general state of depression. No doubt hemorrhage may have an important part in the development of this state, and infection likewise is important; but there are recorded cases in which both hemorrhage and infection were absent or slight and in which, nevertheless, shock was observed. These facts of observation have led to the view that, beside hemorrhage and infection, there is an unknown factor at work.

Various views have been advanced to account for the nature and operation of this unknown factor. It was early suggested that serious wounds exhaust the nerve centers controlling the blood flow and that in consequence arterial pressure falls. This view has been extended so as to include the idea that the shocked man is suffering from general exhaustion not only of nerve cells, but of other parts of the body as well. Another view which has been widely noticed is that excessive respiration, by reducing the carbon dioxid content of the blood, causes such vascular changes as to reduce the volume of circulating blood. And still another suggestion is that the low pressure follows accumulation of fat either in the lungs or in the nerve centers governing the circulation; in the former instance the low pressure would be due to mechanical obstruction in the pulmonary capillaries, and in the latter case it would be due to injury of the vasoconstrictor center by anemia. None of these views as to the unknown factor in shock has been generally accepted. Possibly, as will be seen later, certain of them may at some stage have significance in the production of shock. The fact that the condition of shock has long remained unexplained, however, indicated the need for further investigation. The question to be settled seemed to be a determination of what factor, naturally related to the onset of shock, may so operate in the body, when hemorrhage and infection are ruled out, as to induce the characteristic persistent low blood pressure of the shock state.

DUPLICATING IN EXPERIMENTS THE CONDITIONS SURROUNDING SHOCK

One of the fundamental principles of experimental research is that the phenomenon to be studied shall present, when experimentally reproduced, as much detailed similarity as possible to the phenomenon as it occurs naturally. This is a principle which has been largely neglected in experimental investigations of shock. There is no doubt that a persistent low blood pressure can be produced by a variety of means. Investigators have reported the duplication of certain aspects of shock by prolonged stimulation of nerves, by severe and long-continued manipulation of exposed intestines, by the application of acid to the abdominal viscera, by vigorous over-ventilation of the lungs, by repeated punching of the diaphragm, or by injecting into the circulation large amounts of cream. It is possible that such procedures induce changes similar to those which may occur naturally in shock; but no one can successfully argue that such procedures reproduce the circumstances which occasion shock after ordinary wounds or injury. Obviously, it is desirable to duplicate so far as possible the actual conditions which give rise to shock and then to analyze them to determine what factor among them is operative.

Shock occurs in warfare on an enormous scale. To find evidence of the interest which the subject of shock has aroused at times of fierce strife one needs only to look through any large catalogue of medical literature and observe the dates of publication of articles. In warfare the shock state occurs characteristically in association with extensive and severe wounds—wounds in which large tissue masses are shredded, torn or crushed; as, for example, when there has been rupture and mashing of muscle by shell fragments. Similarly in civil life, traumatic shock is seen characteristically after injuries under car wheels or in machinery, when limbs have been badly mangled.

As Cowell[3] pointed out, there are certain very severe wounds in which death is certain to occur soon because of the anatomic damage which has been done. The patient's condition may be seriously complicated by abundant hemorrhage. In such cases, symptoms of shock are seen immediately; and from the earliest moment there is low pressure. This may be called "primary wound shock." On the other hand, there is testimony from a variety of sources[4] that after large wounds the state of shock commonly does not appear at once, but develops in the course of a few hours. This is Cowell's "secondary wound shock." When shock thus develops it may be attended by little hemorrhage, and it may occur too soon to be due to infection. Since these facts have been actually observed by medical men and dressers working in front line relief stations, there is justification for looking for the development of a state of shock in which hemorrhage and infection are negligible factors.

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[2] Already reports of these observations have appeared: Cannon: Med. Bull. Med. Research Society of the American Red Cross, Paris, April, 1918, p. 426; Compt. rend. Soc. de biol. **81**: 850 (Oct. 19) 1918. Bayliss: Intravenous Injection in Wound Shock, London, 1918. Cannon and Bayliss: Note on Muscle Injury in Relation to Shock, Report of Special Committee on Surgical Shock, English Medical Research Committee, March 14, 1919, p. 19. Cannon: Some Characteristics of Shock Induced by Tissue Injury, ibid., p. 27; Mil. Surgeon **44**: 494 (May) 1918.

[3] Cowell, E. M.: The Initiation of Wound Shock, J. A. M. A. **70**: 607 (March 2) 1918.

[4] Archibald and McLean: Ann. Surg. **66**: 280 (Sept.) 1917. Sant: Bull. Mém. Soc. de Chir. **44**: 207 (Feb. 6) 1918. Quénu: Presse méd. **26**: 69 (Feb. 7) 1918.

EXPERIMENTAL PRODUCTION OF SHOCK

In order to duplicate in lower animals conditions which give rise to shock in man, the thigh muscles in the anesthetized cat were traumatized by means of a blunt wedge-shaped hammer. While being struck, the muscles were supported by an iron block. The trauma usually failed to break the skin, so that infection from without was impossible. Occasionally the femur was broken, but this had no important influence on the results which were seen. After this procedure the course of events was followed and the arterial pressure was recorded by means of a mercury manometer. In Figure 1 is presented a record of the blood pressure changes typically seen after such trauma.

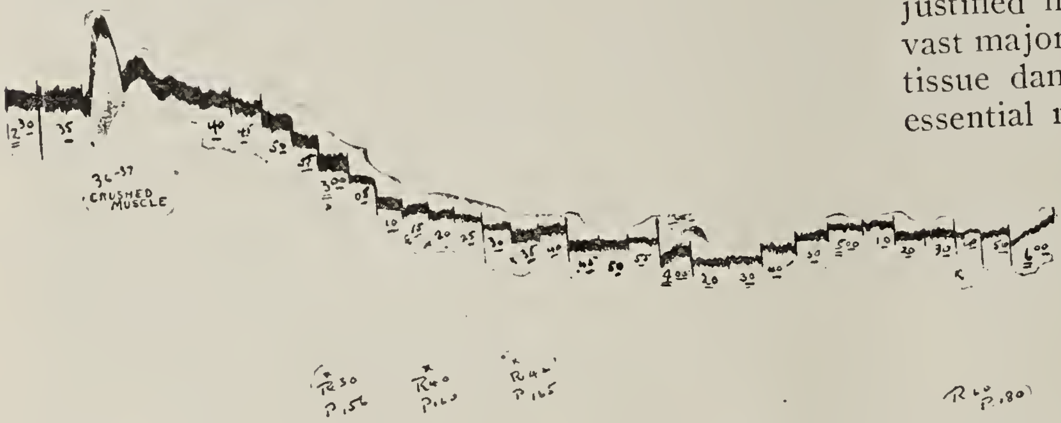

Fig. 1.—Typical fall of arterial blood pressure after crushing muscles of the thigh; *R*, respiration; *P*, pulse.

As Figure 1 indicates, the crushing of the muscles in the hind leg may have no immediate effect. After about twenty minutes, however, a fall of arterial pressure begins, and after about an hour the pressure has usually fallen to 80 or 90 mm. of mercury or even lower; that is, to a shock level. Pressure may persist at this level for several hours. Obviously, a general bodily condition resembling shock has been produced by duplication of circumstances which induce shock in man. The only variant from human conditions is the presence of anesthesia. That this is not a determining factor, however, is indicated by the use of a controllable anesthetic such as ether, which may be lightened as the animal goes into deeper and deeper stupor. The lessening of the ether concentration under these circumstances has no beneficial effect in improving the circulation.

THE PART PLAYED BY NERVOUS IMPULSES

The general bodily state which has been caused by the crushing of tissues in one hind leg naturally raises the question as to whether the widespread effect in the organism is due to nervous impulses roused by the trauma. These impulses on passing to the central nervous system might so affect it as to produce profound depression of nerve cells and the exhaustion which is apparent both in experimental animals and in human beings when shocked. Is that the case? The nature of the experiment permits the settlement of this question. It is only necessary to transect the spinal cord above the lumbar plexus or to sever all nerves of the limb which is to be injured in order to disconnect the region from the central nervous system. When this has been done and the denervated muscles are traumatized, events occur similar to those seen after trauma with the nerves intact (Fig. 2). There is common testimony from men who have been seriously injured that the wounds are not painful; in other words, afferent impulses are not arriving from the injured region in any such intensity as to affect deeply the central nervous system. It would be rash, however, to argue that nervous impulses play no part in the establishment of shock; indeed, there are cases in which a pure nervous shock from trivial wounds seems to be present. From personal experience and from testimony of other observers, however, I am justified in reporting that these cases are rare. The vast majority of shock cases are associated with severe tissue damage. As shown in Figure 2, there is no essential relation between the production of shock in such instances and excessive stimulation of the central nervous system.

TOXIC MATERIAL PROCEEDING FROM WOUNDED TISSUES

If the general bodily state resulting from local trauma is not mainly the consequence of effects produced on the nervous system, the relation between the general and the local conditions may be looked for in the other great integrating system, namely, the circulatory. Quite possibly there is given off, from the injured tissue to the flowing blood or lymph, material which, when carried to the rest of the body, proves toxic and affects the vascular system in such a way as to lower arterial pressure. The idea can be readily tested. The blood vessels of the leg (the iliac artery and vein) are tied and the muscle then crushed. As stated above (Fig. 1), the arterial pressure usually begins to fall in the cat about twenty minutes after the injury. In Figure 3, the blood vessels of the leg were tied before the muscles were smashed, and ligatures were left in place for thirty-three minutes after the injury. The record shows that there was no dropping of blood pressure during this period; but as soon as the blood flow was restored, the pressure promptly fell to a low level.

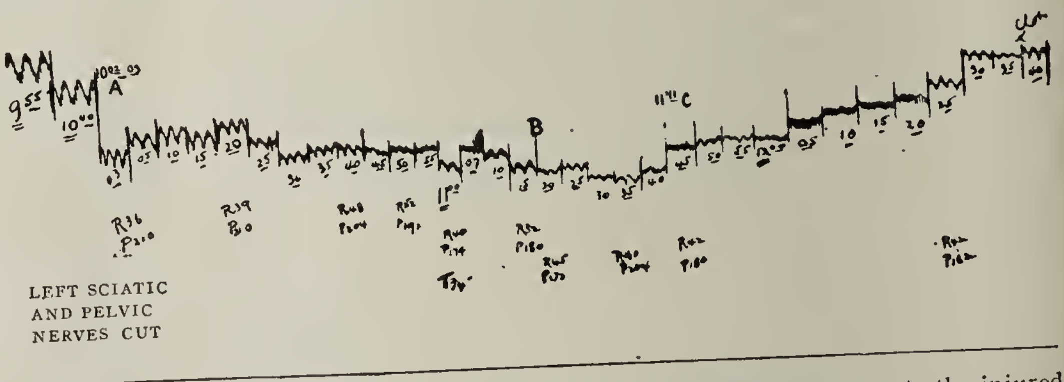

Fig. 2.—Fall of blood pressure after muscle injury though the nerves to the injured limb had been cut. Rise of blood pressure to the original level after tying (at 11:41) the blood vessels to and from the injured region. *A*, left leg muscles hammered; *B*, muscles hammered again; *C*, clip on vessels to left leg.

The fall of pressure after restoration of blood flow in the traumatized limb might be regarded as due to loss of blood and lymph into the damaged tissues and not to the washing out of toxic material from these tissues into the rest of the body. This suggestion was put to test by removing with symmetrical cuts the two hind legs and weighing them. The difference in weight, which in some instances was only 10 per cent. of the estimated blood volume, would not represent enough extravasated blood to account for the fall of pressure.

The conclusion appears justified, therefore, that a pressure-lowering substance passes from the traumatized region to the rest of the body by way of the circulation. Extravasation of blood may augment the depressant effect.

The conclusion just stated receives support from an experiment in which the muscle was injured, and while the pressure in consequence was falling, the vessels of the leg (the iliac artery and vein) were clipped. As shown in Figure 2, the occlusion of the vessels was followed by a progressive rise of pressure to the normal level. This evidence indicates, therefore, that whatever may be the substance arising from the injured tissues, it is fairly promptly changed in the body so that its effect is not permanent.

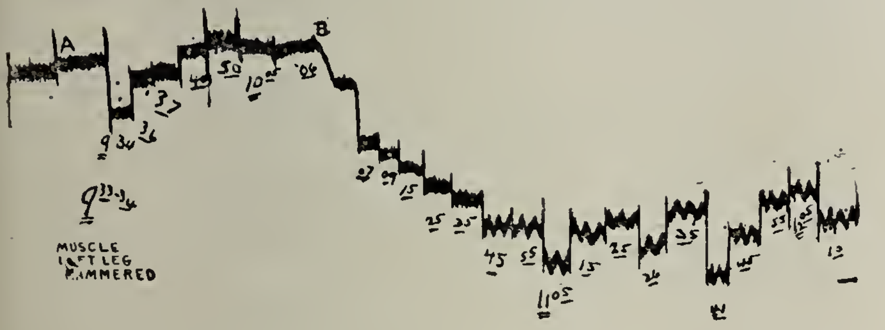

Fig. 3.—Failure of blood pressure to fall at the usual time after muscle injury if the blood vessels to the injured region have been tied. On restoration of the blood flow, the pressure promptly falls. *A*, vessels clamped; *B*, clamps off.

Experiments which have been performed by Cattell since returning to the United States indicate that the fall of blood pressure is not, at least in the early stages, associated with dilatation of the arterioles. This evidence is in agreement with that reported by Seelig and Lyon,[5] by Mann,[6] and also by Erlanger and Gasser.[7] It is further testimony against the view that shock is primarily due to nervous exhaustion.

Careful examination was made of the lungs in several of these cases by Col. L. B. Wilson and by Major Henry W. Cattell, and in no instance was there evidence of any accumulation of fat. Furthermore, there was no twitching or other disturbance which might indicate that fat had passed through the pulmonary capillaries and into the central nervous system. The fall of pressure, therefore, cannot be attributed to fat embolism.

Although there was usually a change of respiration in the direction of greater rapidity and lessened amplitude, this was not such as to cause a washing out of carbon dioxid and a consequent acapnia. The lowered blood pressure, therefore, cannot be ascribed to such a change in the blood.

For a long time it has been known that tissue extracts, when injected into the blood stream, will cause a temporary fall of pressure. In 1903, Vincent and Sheen[8] proved that watery extracts of a variety of tissues would produce this effect. Furthermore, Dale and Laidlaw have shown that a characteristic shock-like condition can be induced by the injection of extremely minute amounts of histamin, a substance which Barger and Dale proved present in the mucosa of the small intestine.[9] The low pressure caused by this substance is not due to dilatation of the arterioles but apparently to dilatation of the capillaries with escape of plasma into the tissue spaces.[10] This effect is in consonance with the evidence for diminished volume of circulating fluid and concentration of the corpuscles in capillaries in human cases. French surgeons with extensive experience in the war, Delbet[11] and Quénu,[12] have independently come to the conclusion that the phenomena of secondary shock are the consequence of absorption of proteolytic products arising from the region of the injury; and Turck[13] has expressed similar ideas. There is the possibility that this *traumatic toxemia* may be closely related to "peptone" shock and that the toxic agent is, like "peptone," capable of making the capillary wall more permeable to the fluid portion of the blood. These suggestions must be regarded, however, as purely hypothetic. It is clear that a large field for investigation is opened by the facts above described.

A SECONDARY DAMAGE

Besides the primary fall of blood pressure induced by substances given off by the injured tissues, there is a secondary damage, which may result from the low blood pressure itself. As stated above, there commonly appears in clinical cases of shock a reduction of the alkali reserve of the blood, or an "acidosis" in the sense defined by J. L. Henderson. The reduction of the reserve corresponds roughly to the degree of lowering of blood pressure. In forty-four cases of shock and hemorrhage which I investigated at Béthune in 1917, the relations between blood pressure and the alkali reserve were as shown in the accompanying table.

When we consider that 50 per cent. by volume of carbon dioxid capacity is close to the boundary between normality and acidosis, it is obvious that the maintenance of a blood pressure above 80 mm. causes little alteration in the blood, but that a reduction of the pressure below this level results in a marked diminution of the sodium bicarbonate as indicated by the carbon dioxid given off. These clinical observations have been confirmed by experiments. A cannula introduced through the chest wall and tied into the pericardium permits fluid to be introduced into the pericardial sac. By varying the pressure of this fluid, the output from the heart can be varied or held at any

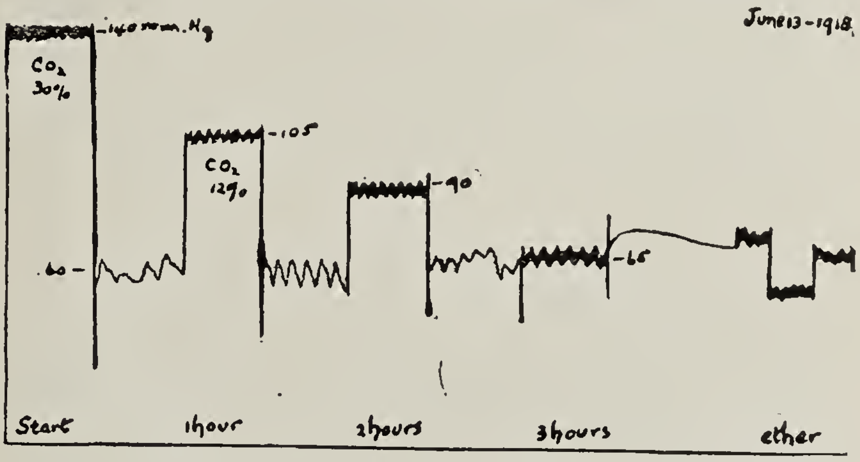

Fig. 4.—Record of an experiment showing the progressively harmful effects on the circulation of persistent low arterial pressure.

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[5] Seelig and Lyon: Surg., Gynec. & Obst. **11**: 146 (July) 1910.
[6] Mann: Bull. Johns Hopkins Hosp. **25**: 208 (July) 1914.
[7] Erlanger and Gasser: Ann. Surg. **69**: 391 (April) 1919.
[8] Vincent and Sheen: J. Physiol. **29**: 264 (April) 1903.
[9] Dale and Laidlaw: J. Physiol. **41**: 318 (Dec.) 1910 and 499 (Jan.) 1911; **43**: 182 (Oct.) 1911; **52**: 355 (March) 1919.
[10] Dale and Richards: J. Physiol. **52**: 110 (July) 1918.
[11] Delbet: Bull. de l'Acad. de méd., Paris **80**: 13 (July) 1918.
[12] Quénu: Bull. et mém. Soc. de chir. de Paris **44**: 496, 1918; Presse méd. **26** (Feb. 7) 1918.
[13] Turck: M. Rec. **89**: (June) 1918; **90**: 471 (March) 1919.

given level. When this is done, the interesting result is observed that unless there has been considerable hemorrhage, a blood pressure in the neighborhood of 80 mm. of mercury results in no diminution of the alkali reserve. On the other hand, a reduction of the pressure to 70, 60 or 50 mm. will cause, at the end of half an hour or an hour, a marked reduction of this reserve (Fig. 4), varying directly with the degree of lowering of the blood pressure. There appears to be, consequently, a critical level in the blood pressure below which it may not fall without bringing about a change in the character of the blood itself.

In the theoretical article previously referred to the suggestion was offered that the acidosis observed in shock may, when it becomes sufficiently developed, take part in a vicious circle of causation which might lead to still further reduction of blood pressure. This idea was put to experimental test, and it was found that if a volatile anesthetic, such as ether, is employed, the alkali reserve can be very greatly reduced by injection of acid without any noteworthy fall of arterial pressure.[14] From these observations it appears clear that the reduction of the alkali reserve in the flowing blood has in itself no serious effect in the direction of augmenting the shock state.[15]

RELATION BETWEEN BLOOD PRESSURE AND ALKALI RESERVE

Systolic Blood Pressure, Mm.	Average Carbon Dioxid Capacity Vols. %
Above 80	49
70-80	43
60-70	35
Below 60	27

REDUCTION OF THE ALKALI RESERVE

The reduction of the alkali reserve may be accounted for on the basis of retarded blood flow. When the head of arterial pressure is lowered, the blood flow becomes slower. Observations by Gesell have revealed that a fall of arterial pressure from the normal to a low shock level (59 mm. of mercury) may be accompanied by the reduction of the flow to one fifth of its former speed.[16] Under such circumstances the number of trips which the corpuscles make between the lungs and the tissues will be reduced approximately to the same extent; thus, in such a case, though every corpuscle may leave the lungs fully laden with oxygen, the total amount of oxygen delivered to the tissues in unit time may be lowered, other things being equal, to one-fifth the usual amount.

It has been known for many years, chiefly from the work of Araki,[17] that any condition which diminishes the oxygen supply of the tissues, such as rebreathing expired air, or extreme slowing of respiration by morphin or by hemorrhage or poisoning with carbon monoxid, will lead to the production of lactic acid rather than carbonic acid as a tissue metabolite. Since lactic acid is nonvolatile, it will not be breathed away as is the case with carbonic acid. It will unite with the sodium of the sodium bicarbonate, forming sodium lactate, thus diminishing the alkali reserve. The carbon dioxid which is set free will, of course, be promptly eliminated.

DANGER FROM INSUFFICIENT OXYGEN SUPPLY

On the basis of the foregoing evidence, the acidosis which appears as the blood pressure is lowered, though not dangerous in itself, is an indication of a really serious danger, namely, the danger arising from insufficient oxygen supply.

The tissues of the body are known to vary greatly in their sensitiveness to oxygen want. Some muscles will endure total anemia for at least three hours without undergoing destructive alterations. On the other hand, certain nerve cells of the cerebral cortex cannot endure total anemia for more than seven or eight minutes without suffering changes so profound as to be irreversible. There is especial danger, consequently, that the nervous system will be damaged by persistence of the blood pressure below the critical level.

As shown in Figure 4, the blood pressure may be lowered to 60 mm. of mercury for an hour, and at the end of that time, if the pressure is allowed to rise, it will be nearly restored to its normal level. If now the pressure is again lowered to 60 mm. and held there for an hour, it does not rise so high; and when held to this low level for another hour, it may not rise at all. Examination of the blood under these circumstances indicates that there has been no material escape of fluid from the vessels. The failure of the pressure to rise after persistence at the low level is to be regarded, therefore, as dependent on the damage done to control of the circulation by the inadequacy of the circulation itself.

The facts just developed offer a basis for the similarity which has been repeatedly noted between the phenomena of shock and the phenomena of hemorrhage. After the blood pressure has once been lowered in shock, the effects on the organism are in all respects similar to those which are produced by a marked loss of blood. The dictum of the older surgeons that "shock is hemorrhage and hemorrhage is shock" is thus justified. The significance of this similarity in the treatment of both shock and hemorrhage will appear later.

SECONDARY SHOCK

A review of the evidence presented above permits us to follow the course of events in secondary shock. It may be thus summarized: Toxic material given off by smashed and dying tissue affects the circulation in such a way as to cause a lowering of the blood pressure; the low pressure involves a slowing of the circulation; the slow circulation involves damage because of diminished oxygen supply; and in consequence highly sensitive structures, especially nerve centers, become injured and lose their tonic activity. Thus, though in the early stages of shock the low blood pressure may be associated with constriction of the arterioles, in the late stages the arterioles may be relaxed because of such damage to the vasoconstrictor center that it no longer holds the vessels in tonic contraction.

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[14] Acidosis and Shock, Report No. 9 of Special Committee on Shock and Allied Conditions, English Medical Research Committee, October, 1918.

[15] In a discussion of theories of shock, Meltzer (Penn. M. J. **22**: 129 [Dec.] 1918) has stated that I became "converted to the theory that the most essential factor in the production of shock is acidosis." I have never published the idea that there was in the acidosis of shock a primary cause for the low pressure. At one time I did advocate the use of sodium bicarbonate as a means of avoiding the extreme acidosis which may follow surgical operation on shocked men. Men who were in great distress from air hunger after operation were made immediately comfortable by alkaline therapy. Because of this effect the suggestion was offered that the injection be made during the period when the pressure is likely to fall; that is, during operation. Thus the pressure was held up and the alkaline content of the blood increased. At that time it seemed possible that anesthesia and operation might in themselves produce a harmful acidosis. Later experimental work proved that the acidosis was probably purely secondary to the fall of pressure and that the main object should be to avoid the fall. Alkaline therapy thus became limited to the relief of symptoms of extreme acidosis. Because alkaline therapy was suggested is no warrant for assuming the conviction that shock is primarily due to acidosis.

[16] Gesell: Am. J. Physiol. **47**: 491 (Jan.) 1919.

[17] Araki: Ztschr. f. physiol. Chem. **15**: 335, 1891.

TREATMENT OF SHOCK

The principles of the treatment of shock are suggested by a consideration of the facts and inferences outlined above.

In the first place, if a part of the body has become shattered and useless through injury so that it is impossible to save it, the harmful toxic effect of the torn tissue on the rest of the body may be avoided by applying tightly, as near as possible to the injured region, a tourniquet. Extreme care should be taken *not to remove the tourniquet before operating at a point proximal to it.* The reason for this urgency is that when tissues are deprived of their blood supply they undergo at a slower rate the same changes which they undergo when mechanically traumatized. During the course of military operations last year, several cases were reported of the sudden production of shock on removal of a tourniquet which had been applied to stop bleeding and left in place for an indefinite period. These observations obviously support the view of shock which has been outlined above. If a tourniquet used to stop bleeding is to be left in place for a long period, it should be applied at the most distal effective location. The surgeon must be guided in his decision to save or sacrifice the part by questions of viability, of gross infection in the excluded region, and of danger to the rest of the body from its retention. The danger of the tourniquet should lead, whenever possible, to the substitution of other methods of controlling hemorrhage. If the injured tissue can be removed promptly either by amputation or débridement, that should be done in preference to the application of a tourniquet.

Observations by Lieutenant Aub in the Surgical Research Laboratory of the American Expeditionary Forces at Dijon proved that there is a marked diminution of the heat production as the blood pressure is lowered. Furthermore, the man in shock sweats and thus loses heat both by evaporation and by greater conduction of heat through wet clothing, especially when he is exposed in cold weather. These considerations give a rational basis for the treatment of shock by warmth, a procedure universally recognized as of great value. Every effort should be made to avoid loss of heat from the shocked man or to restore heat that has already been lost. These objects may be attained by avoiding unnecessary exposure of the body and by use of hot drinks, warm water bottles, and proper blanketing.

The facts regarding the damaging effects of low arterial pressure which have been emphasized above should be emphasized again. If the pressure is allowed to remain below the critical level for a sufficient length of time, the vasoconstrictor center may be so profoundly affected that no measure will restore it to its normal condition. The transfusion of blood, for example, then results in only a temporary rise of arterial pressure, just such a rise as may be seen after total destruction of the center. As shown in Figure 4, the time element in the damaging effect of low pressure is of the utmost importance. If simple measures, such as warmth and fluids by mouth, do not in half an hour raise the pressure above the critical level of 80 or 90 mm. of mercury, the case should be treated as if it were a case of hemorrhage; and the treatment should be *prompt* in order to avoid the progressive damage as time passes. There appears to be little doubt that the best method for raising the blood pressure is transfusion of properly matched blood; by such means not only is the pressure raised but oxygen carriers are added to the circulation. If blood is not available, Bayliss' gum salt solution,[18] made of selected pure gum in physiologic sodium chlorid solution, or Erlanger and Gasser's[7] modification of this solution, may be employed. These colloidal solutions, if used early, can permanently raise arterial pressure. They do so by increasing the circulating volume of fluid. The corpuscles which are present are made to circulate more rapidly and thus to be employed more efficiently as oxygen carriers. There is no evidence that either the subcutaneous or intravenous injection of physiologic sodium chlorid solution has more than temporary value, if it has any beneficial effect at all.

SENSITIVENESS OF THE SHOCKED TO OPERATIVE PROCEDURES

In the earlier series of articles the sensitiveness of the shocked man to operative procedures was emphasized. Work done in cooperation with Lieutenant Cattell at the Surgical Research Laboratory at Dijon revealed the fact that not the operation but the etherization was the chief reason for the fall of pressure. If shock is already present in an animal, etherization until the wink reflex disappears may cause the pressure to fall 30 or 40 mm. of mercury (Fig. 4). On the other hand, the same degree of anesthesia may be induced by using nitrous oxid and oxygen in a ratio not exceeding 3 : 1 without any fall of blood pressure. There is little difficulty in bringing about satisfactory anesthesia or analgesia in shock cases with this ratio of the gases if there has been a previous dose of morphin. From suggestions which have been given above, it should be clear that morphin should not be given in such amount as greatly to retard respiration; and it should be clear also that at all stages deep anesthesia, or cyanosis or such rebreathing as would diminish the oxygen supply in the respired air, should be scrupulously avoided.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CANNON AND BERNHEIM

Dr. George W. Crile, Cleveland: During the campaign of 1917 the various teams of the Lakeside Unit with the British and in later campaigns, did nearly 1,000 transfusions of blood, the results of which confirm Dr. Bernheim's conclusions. Surgeons must feel gratified that physiologists have undertaken the solution of certain urgent practical problems. Dr. Cannon and many of his colleagues did most valuable work during the war. There are three practical reasons why we are unable to accept Dr. Cannon's work as conclusive: 1. Patients with extensive wounds of the extremities to which tourniquets had been applied so that the blood supply of the injured part was so completely blocked that no tissue poisons could have been introduced into the circulation, have passed into shock and have died from shock. Patients have died during operations from shock in which a tourniquet has completely controlled the circulation of the blood of the injured part. The tourniquet does not block nerve impulses; it does block circulation. 2. Nerve blocking does prevent shock. It is possible to kill animals by traumatizing nerve tissues without touching any other tissue. Indeed, if Cannon believes that the nervous system bears no part in shock, it would be an unfortunate conclusion from the surgical point of view. In this the work of men like Cabot, with low spinal anesthesia, is most illuminating. Cabot performed 180 amputations of the thigh—ninety under ether anesthesia in the usual way, ninety with low spinal anesthesia. The death rate of the latter series exactly reverses the death rate in the former series, that is, under ether anesthesia without blocking the spinal cord there were two deaths out of three; with the blocking of the spinal cord there was one death out of three. 3. Nitrous oxid is almost a specific preventive of shock. This action of nitrous oxid in the presence of toxins and proteins has been demonstrated conclusively in my laboratory as appearing from its influence on the nervous system. As a matter of fact, I believe that we must cling to the principle that a number of factors are concerned in the causation of shock. Of these various causative factors, Cannon's is one and in practical surgery one of the least important.

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[18] Bayliss: Intravenous Injections in Wound Shock, London, 1918.

Dr. Oswald H. Robertson, New York: While it is generally agreed that in cases of severe hemorrhage transfusion is the most effective method of treatment, I do not think that gum acacia solution, or gum saline as it is called, should be dismissed as having little value in this condition. The reports on the use of gum acacia solution in hemorrhage vary considerably. Some people are very enthusiastic, others say it has little or no effect. I think this diversity of opinion is due to several factors. I had an opportunity during the course of the war to investigate the subject in a number of our hospitals. Certain men reported very favorably from the clinical side; they got excellent results. Others are inclined to regard it as being the last resort if they could not get blood. It seems to me that the reason for this is that people, on the whole, are expecting gum acacia solution to act as a "cure-all." There were four classes of cases in which gum acacia solution was of very little use. In the first place, cases of shock or hemorrhage which had been in this condition for twenty-four to forty-eight hours responded very little to gum acacia, or to an injection of any substance, even blood. These patients had been in a condition of oxygen starvation so long that nothing would benefit them. Without morphin and rest any intravenous treatment is harmful if given before the patient has begun to recuperate. Third, in the case of those patients who had lost large quantities of blood, and who were very anemic, gum acacia solution increased the volume, the blood pressure rose temporarily, and then it dropped. What the patient needed was new blood. He did not get it, therefore, he died. In the fourth class, the patient often had a concealed gas gangrene and in these cases gum acacia solution was of no avail. Where gum acacia solution was used intelligently and with these considerations in view it had a very definite value and was successful in many instances. From intensive study of hemorrhage in the war we have learned the value of forced fluids in the treatment of hemorrhage. It is well known that considerable fluid is contained in the body tissues outside of the circulation. After hemorrhage this fluid is poured into the circulation in an attempt to make up the lost blood volume. If the hemorrhage has not been very severe sufficient fluid can be supplied by the tissues to make up for the lost volume and the pressure comes back to normal. If the hemorrhage is very severe the body tissues cannot supply sufficient fluid to make up the volume and outside assistance is needed. Even with moderate hemorrhage if the fluid reserves are low, before these can be made up fresh fluid must be given by forced fluids through the digestive tract. So that very soon the volume begins to rise and with it the blood pressure. Fluid may be given in very large quantities by mouth, as much as a liter, and by rectum. It is absorbed rapidly. In severe cases transfusion is needed. Forced fluids should be considered an essential part of the treatment of hemorrhage in all instances. Even in cases of severe hemorrhage transfusion makes up only a small part of the loss, the rest must be made up from the fluid of the tissues.

Dr. Howard T. Karsner, Cleveland: So far as the general proposition of the success of transfusion in cases of hemorrhage is concerned, I can support everything Dr. Bernheim said. From the point of view of a laboratory man, however, numerous points are to be considered and I feel that some exception must be taken to the statement of Dr. Bernheim that the citrate method has proved itself to be the best method of transfusion. Certain methods have been tried with certain degrees of success. I have been particularly impressed by a paper by Lindemann on the transfusion by the needle syringe method in which the blood is transferred from one individual to another almost directly, with a minimum of contact with foreign surfaces. It is unqualifiedly true that the longer the blood stays out of the body the more likely a change in the course of transfer. The more immediately the blood is changed from donor to recipient the better the results are likely to be. Of course, I am not taking into account the amount of blood transferred. The addition of chemicals, however, places in the blood a factor which otherwise would not have to be considered. It adds a variable and a considerable number of variants. As regards anaphylaxis and anaphylactic symptoms, I have seen nothing which would indicate that anaphylaxis plays any part in regard to transfusion. In the matching of blood we have a problem which affects the individual patient. I would like to put myself on record as favoring the grouping of donors and of patients. I am convinced that the safest method of matching donor and recipient is to have them in the same group. This matter has been the subject of investigation in my laboratory for the last year, with the collaboration of Dr. Reckert. The principle of serum for testing blood for transfusion is unsatisfactory if we are to preserve this serum for any length of time. After the lapse of five or six weeks the serum not only lost its potency but also its specificity. The final comment is on the matter of simply matching up the recipient's serum against the donor's corpuscles, maintaining that if in a test tube or slide it does not agglutinate the transfusion is safe. I believe in testing blood and in order to make this test the serum must be preserved in some other way than by drying.

Dr. R. Picqué, Bordeaux, France: During the last year of the war we experimented with thirty-six cases of blood transfusion: thirty-two were cases of hemorrhagic shock, with twenty-one successes; four were cases of operative shock, with two successes. As guides for transfusions we utilized, first, clinical examination of the patient, and second, the blood count. In two thirds of the cases the scale as per Depage and Govaertz (de la Panne) was proved correct. But in one third of the cases, when seen near the lines, we noted that in the recently wounded (first to sixth hour), though the men were almost bloodless from severe hemorrhage of a most serious type, the leukocytes were almost normal in number. Third, the blood pressure is a guide. The instrument of Pachon (of Bordeaux), which is ultrasensitive, allows us to follow the blood pressure from hour to hour and to seize the moment when loss from hemorrhage indicates instant transfusion. In such cases, either we transfuse first then operate; or we operate first and transfuse afterward. Either immediately after the venous injection, or later when serotherapy has proved unable to sustain the blood prèssure, and at all times in order not to waste blood we only practice transfusion on those whom we judge able by a radical operation to protect from infection for transfusion itself has not a single action against infection. As to results, in these picked cases we have obtained, first, twenty-one "resurrections" among simple, severe hemorrhages. Second, two successes among serious cases of operative shock, where serotherapy had proved absolutely impotent. The wounded are constantly watched and studied in well warmed rooms, either in the divisional ambulance or the subterranean surgical stations. The study of the cases is made by trained, experienced surgeons or nurses. The blood pressure instrument permits the surgeon to keep in instant touch with the patient's condition before and after transfusion. Those giving blood for the transfusion are the surgeons, dressers, nurses of the ambulance who after administering 500 to 800 grams of their blood still continue to work at the bedside of the wounded. We have not studied the agglutination and we have not observed any bad effects among our cases, except for two cases of hemoglobinuria, with serious results. We endorse use of the ampule of Kinpton and the citrate method of Jonde.

DR. RICHARD LEWISOHN, New York: It is a great gratification to me that the sodium citrate method, which I first suggested in January, 1915, was adopted officially by the American Expeditionary Forces. The safety of the method is based on the atoxicity of the dose. The dose of sodium citrate is so small that it will not produce any toxic symptoms. Another important factor is that sodium citrate, though it prevents coagulation of the blood outside of the body, shortens the coagulation time temporarily when introduced into the body. This shortening is one of brief duration and the blood coagulation time falls back to pretransfusion time in about twenty-four hours. The advantages of the method are its simplicity, its flexibility, the possibility of the transfer of blood from one place to another, the very important factor that donor and recipient do not have to be together in the same room and do not have to be attached to each other by some form of apparatus, and that this transfusing can by simplicity of technic be repeated as frequently as we want to do it. The disadvantage of the method is the occurrence of chills. Chills occur in about 20 per cent. of the cases. The syringe methods and the Unger apparatus usually cause chills in 5 to 10 per cent. of the cases, so that the disadvantage is really not very great. A few points in the technic are very important, the proper insertion of the cannula into the vein and the use of very large cannulas for the donor so that the blood runs out very rapidly. My personal experience comprises about 300 cases. I have never seen any bad results. In another field of blood transfusion we have to make improvement and that is in cases of sepsis. This improvement will lie in the rapid immunization of the donor. At present it takes from two to three days to immunize the donor for a septic patient. If we can do this in a few hours, another field for transfusion will be opened up for us.

DR. WALTER B. CANNON, Boston: Dr. Bernheim suggested that efforts should have been made in France to assure transfusion of blood rather than injection of gum-salt solution. The resuscitation teams in the A. E. F. received about sixteen hours of instruction; about one hour was spent in considering gum-salt solution, and most of the rest of the time was spent in practicing blood transfusion. As long ago as last July we urged that gassed men be placed near the shock ward to provide blood for shock cases. And when later the badly wounded were found segregated, with the result that there was no possibility of getting blood for them, we called attention to the handicap they thus suffered, and again urged putting lightly wounded men near them to supply blood for transfusion.

Dr. Crile mentions lack of agreement regarding the toxic origin of shock. Possibly there is more agreement than he realizes. In the last report of the English Medical Research Committee on Shock, surgical, biochemical, physiologic and pathologic judgments all came to the support of "traumatic toxemia" as a highly important factor in the causation of shock. Furthermore, when the facts reported above were presented last October before the Société de biologie in Paris, Delbet, the well-known French surgeon, remarked that the meeting would be historic because biologists, physiologists and surgeons had for the first time agreed on the toxic origin of shock. Dr. Crile has argued that shock is of nervous origin because he has seen alterations in nerve cells in tissues taken from shocked animals. These alterations may be present in nerve cells, but one may disagree with Dr. Crile's interpretation of them. Dolley, the cytologist who worked with Dr. Crile, admitted that the same cellular alterations seen after shock are produced by hemorrhage. But the low blood pressure of shock is equivalent to hemorrhage. The changes in nerve cells taken from the shocked animal may be interpreted, therefore, not as the cause, but as the result of shock. As to the practical bearings of our views, Dr. Crile and I agree in being disturbed about the same thing, that is, rough surgery. He is fearful lest rough surgery affect nervous tissue, and I am fearful lest it may affect all tissues, including nervous. I do not wish to detract in the slightest from the moral effect of Dr. Crile's teachings; I would only insist that surgeons must not unnecessarily injure any tissues.

DR. BERTRAM M. BERNHEIM, Baltimore: Dr. Crile is interested in the nerve and Dr. Cannon in tissue; both are interested in surgery, and I am interested to see that they do not have any loss of blood. So that if we all get together by mixing a little blood with the tissue and nerves it will be all right. During the war we must consider the greatest good to the greatest number. Any man who maintains that the Kimpton-Brown method or the Pederson method is one twentieth as good as the citrate method has not been in France. I was rather surprised to hear Dr. Robertson make excuses for gum acacia solution. The advocates of gum acacia solution are always making excuses for it. That in itself should rule it out. They are always accusing the other fellow of not using it right. I have never found a man who had any good to say of it. There are men in this audience whose experience with it proved disastrous. Certain men here have seen deaths from it. It not only did not help, it killed men. While I was in France I did no transfusion. My sole object in reading this paper was to show that substitutes for blood are not of any help, and that we have a method of doing transfusion which any one can use. What I want to insist on is that the laboratory men find a method of preserving blood so that you can go to a corner drugstore and get half a liter just as you can anything else.

SCIENTIFIC MEDICINE—YESTERDAY AND TOMORROW *

GRAHAM LUSK
NEW YORK

Last winter I heard a talk by Galsworthy at the University Club in New York. His strain was that men who had fought in the war had become mentally addicted to the contemplation of their own past and that they could not look forward with hope or enthusiasm to the future. It seemed utter nonsense; and yet this theme has been so stressed that it has affected seemingly well balanced men. Only last Sunday a little girl visiting her grandfather told him that her mother was spending the morning studying pathology, while her father, home from France three months, was occupied in chasing butterflies. The young men of this country cannot become addicts of the pastime of butterfly chasing when the advance of the world is so largely in their hands.

The fathers of men now living, fathers who had been engaged in desperate fighting for four long years of civil war, returned after the war to their former occupations, some of them following medicine with joy and in careers of distinction. Galsworthy thoughtlessly disparaged the character of that war, the battles of which were much costlier in human life than those of the Franco-Prussian war of 1870, and a war in which one man out of every four living in the Confederate States was under arms: as large a proportion as served in Great Britain during the recent conflict. Do we, who are most of us the descendants of this race, propose to chase butterflies when the opportunity for carrying on the treasured learning of the world and for its future development is placed fairly and squarely on our shoulders? The meeting held today answers this in the negative.

Twenty years ago (June 16, 1899) Theodore Janeway, then 27 years old, wrote me that he would give up an idea he had had of going to New Haven to teach pharmacology at the Yale Medical School, and that he would conduct an "elementary clinic" for the benefit

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* An address delivered before the American Society for Clinical Investigation.

of second year medical students. I think it may be of interest to read that letter:

> Your letter came to me at a most opportune moment. I had been going over the points of our discussion and arguing with myself both pro and con, and the more I thought the more everything seemed to point to the folly of giving up what really most appeals to me in medicine, and opportunities which could hardly come again, for an uncertainty. It seemed more and more possible that I might much more nearly accomplish what I want to in my life where I am and where everything seems open to me.
>
> Then came your most encouraging words, which made probabilities of possibilities and made me feel that if you were working for such ends in New York and had such hopes, that Bellevue could be made a school which should take some part in the advance of true medical knowledge and not merely diffuse what is already known. I appreciate your letter highly and I want to thank you very much for it.
>
> I have told Dr. Biggs that I would take all of the elementary clinic next year that they will give me and I will do my best to make it carry out the ideas that you and Dr. Dunham have, so far as they seem capable of translation into actual cases available. I am reading Krehl now and I find much that is suggestive, though of course his method is the reverse of what one would pursue in instruction from the concrete case. It is nice reading, and his reasoning is free from the desire to prove more than the facts warrant.
>
> I trust it will be possible for me to keep in touch with your work and Dr. Dunham's next winter and especially with your enthusiasm, and that I may be able to persuade the students to regard symptomatology as the physiology of the "sick life." It will certainly be a most interesting experiment from my side.

This letter gives no picture of New York medicine as it was then. One should remember that Meltzer, at the time, was a practicing physician, snatching such moments of rapture as were his when he drove down Fifty-Ninth Street, tied his horse to a lamp post near the P. and S. and, with his coachman who acted also as laboratory servant, entered the dingy recesses of that college and ascended to the laboratory of physiology, there to perform some fundamental experiment, perhaps one on the nature of shock, for example. At that time Herter had just undergone metamorphosis from a specialist in nervous diseases into a physiologic chemist. Park had established a modern laboratory in the board of health. But besides this there was little to encourage the adventurer into clinical science. As matters of fact be it recorded that a few years later the medical faculty to which Janeway was attached refused him a teaching position in Bellevue Hospital, though the salary belonging to the position had been raised from outside sources, and the same faculty held a solemn, special meeting to discipline me because I had publicly before the students expressed opinions favorable to the Johns Hopkins Medical School. These were days when there appeared to be no future for clinical science, days in which there was almost no intellectual, social or financial influence making for its welfare. And yet we in this country, since that time, have made great headway in this direction, not on account of the influence of any special men, but because the principle that the primary mission of a medical school, "to take some part in the advance of true medical knowledge and not merely to diffuse what is already known," is everlastingly right. This society bears witness to such a conception and will never forswear its faith and take to chasing butterflies.

It is to be hoped that German medical science will not fall into decay as did that of France after 1870; but there are indications that such a fate awaits it. It has been reported from Munich that immediately after the armistice a society for the conservation of German intellectual interests was formed, Friedrich von Müller, Germany's greatest professor of clinical medicine, representing medicine. A month later it was reported that an academic meeting, held Dec. 16, 1918, was broken up by representatives of soldiers and sailors who, armed with guns, revolvers and hand grenades, entered the hall in which the meeting was taking place. The *Münchener medizinische Wochenschrift* describes this under the caption "Die Herrschaft des Terrors" (The Reign of Terror) and states that the presence of mind of those composing the gathering alone prevented disastrous consequences.

About 1890, referring to the prevailing vogue of General Boulanger in Paris, Carl Voit said to me that unhappy political conditions acted as a depressant on a wonderfully gifted people. One can easily imagine that a similar depression will fall on Germany. Even before the war, German science had shown signs of decay. I remember traveling up the Rhine with a distinguished Austrian professor after we had attended the last international physiologic congress held at Groningen in 1913. He said to me:

> The best papers read at the congress were by English and Americans. The best thing shown there was Abel's artificial kidney. You heard that disgraceful row between Röhmann and Abderhalden. Just because Abderhalden had gained a little fame, Röhmann was determined to pull him down. The Americans and the English would not have behaved that way. It is because the Germans are not "gentlemen," as you English speaking people say.

Alas, in such a comparatively superficial attribute as bad manners one may perhaps find the interpretative symbol of the cause of the war. I have heard it queried whether the bad manners of political and military leaders of the German people were not the primary curse that brought the world near to the brink of hell.

There were many of us who formerly believed that German appreciation of our scientific work meant that such work was good. The incentive to this attitude has passed. But we may look in compensation for an appreciation by British men of science which, in keeping with British character, will not be outspoken but which nevertheless will be keenly attentive to the better class of work that we may do. I have heard it stated that, while the French are brilliant and the Germans thorough, the British are both. If you look back into their history for three hundred years there is no hiatus in their production of distinguished, creative, scientific minds. Those who doubt this statement should read the impressive "General Physiology" of Bayliss. We may also expect much from a reawakened France.

But above all we must learn to appreciate honest, careful work done by those who live around us, learn not to steal another man's ideas, and learn also how to bear adverse personal criticism.

A few days ago I was chosen arbiter in a dispute between some New York and Boston people. I said to the parties concerned that their discord and criticism of each other had led to the accomplishment of much better work than if all had been harmonious; and, though at first they were somewhat surprised at the statement, they freely admitted its truth.

I once visited Pflüger at the time when he was engaged in a vitriolic polemic arraignment of Voit. A few days later in Munich I told Voit that I had called on Pflüger.

"But he did not receive you?" "Yes."

"But he did not know whose pupil you were?" "Yes."

"So, Sie sind in dem Löwenkäfig gewesen!" (So you have been in the lion's cage!)

I remarked that in conversation Pflüger was willing to grant the possibility of the production of sugar from protein to which Voit smilingly replied:

"Ja; der Löwe wird bald zahm." (Yes; the lion will soon become tame.)

There is no doubt that irritating criticism is a highly beneficial stimulus. Only the vain refuse to hear it; and the teachings of such become dogmatic, their investigations futile.

We Americans have learned much from England, France, Italy and Germany. We have brought over the seas their knowledge and have set it up here as a common heritage. Sometimes we have advanced beyond their methods, and at other times have fallen far short. We have just helped to rescue Europe from torment. In comparison with ourselves they are living in abject poverty, and we are selling to them the necessities of life, wheat and cotton, at prices which are highly profitable to our people. They are under great financial strain in the struggle for existence, and will be so for many years. In this great land of ours, which is overflowing with opportunity and abundance, it is of very especial importance to elevate our intellectual standards. Many scientific men hardly seem to realize the heavy world responsibilities which have been placed on us.

Money alone will not produce a creative mind; money may well spoil such a mind. The best work does not always come from the most richly endowed institutions, nor from those laboratories that have the largest number of assistants and laboratory servants. It is the spirit that matters. This spirit cannot be manufactured according to a formula. It belongs to the genius of the people. The spirit animating this society gives it the power to achieve greatly in the advancement of American medicine. This spirit is the greatest present asset of American medicine.

The members of this society, urged on by the vision of the condition of the world, have the honorable privilege to render high service for the benefit of all mankind, perhaps winning through scientific achievement the medical leadership of the world.

477 First Avenue.

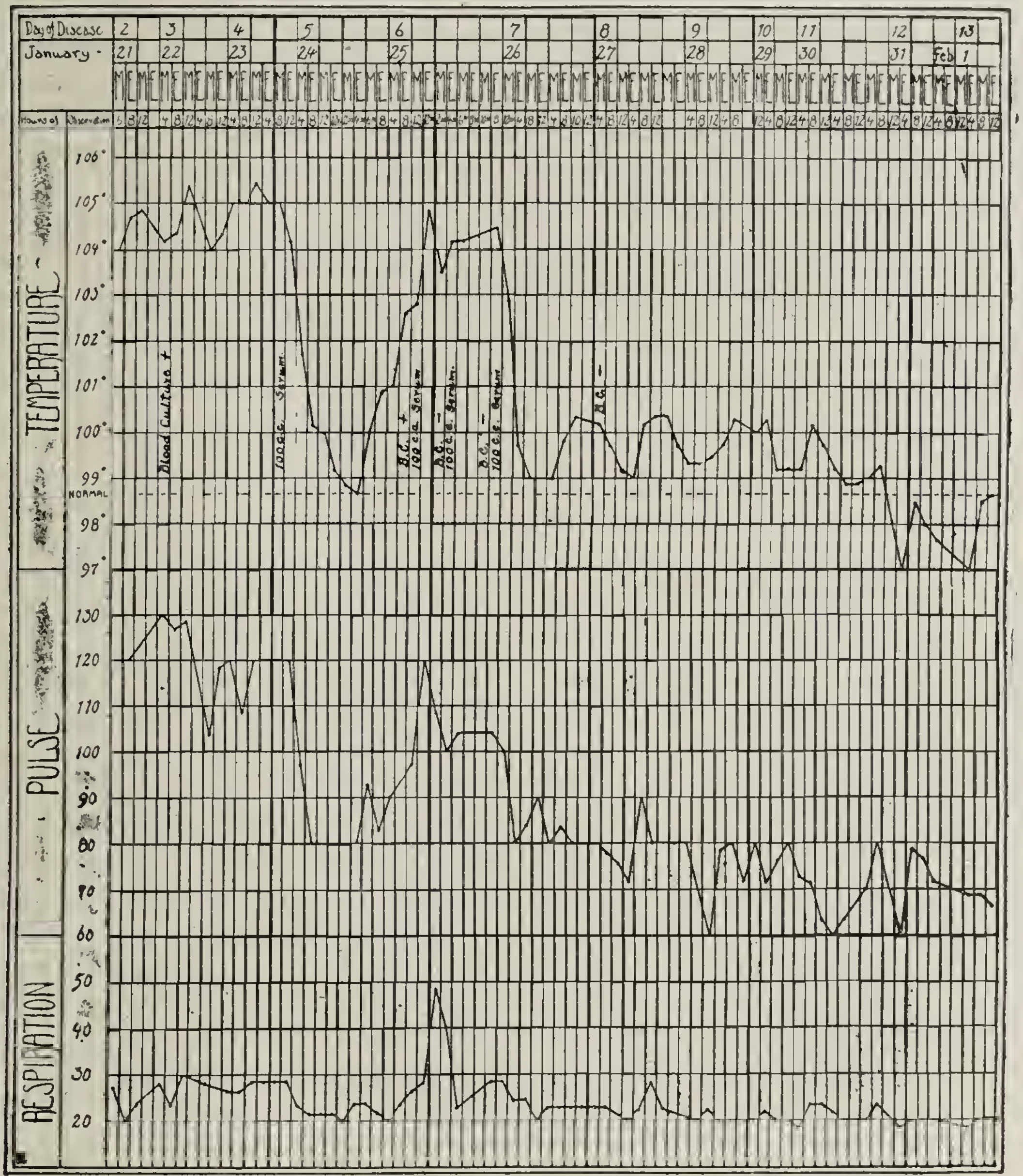
Japanese Opium Trade with China.—In an article which appeared in the *North China Daily News*, Dec. 17, 1918, it is stated that the trade in morphin is still flourishing. As morphin cannot, however, be purchased in Europe, the seat of industry has been transferred to Japan, where the Japanese are now manufacturing morphin. Wholesale contraband traffic between Japan and China is carried on. It is conservatively estimated that during the last year 18 tons of morphin were imported by the Japanese into China, and the amount is said to be steadily increasing.

TYPE I PNEUMOCOCCUS LOBAR PNEUMONIA AMONG PORTO RICAN LABORERS

AT CAMP JACKSON, SOUTH CAROLINA

JAMES H. PARK, Jr., M.D. (Houston, Texas)
First Lieutenant, M. C.; U. S. Army
AND
H. T. CHICKERING, M.D. (New York)
Captain, M. C., U. S. Army
CAMP JACKSON, COLUMBIA, S. C.

Shortly after the epidemic of acute respiratory disease appeared at Camp Jackson in September, 1918, 1,653 Porto Rican laborers arrived in camp direct from Porto Rico to be employed in the construction work incident to the enlargement of the cantonment.



Effect of serum in a case of Type I pneumonia of the right and left lower lobes: *B. C.*, blood culture; +, positive; —, negative.

A large proportion of these men were poorly developed individuals, most of whom suffered from chronic hookworm infection as well as from other intestinal parasites. They appeared undernourished and were obviously underclad, with their Palm Beach suits and Panama hats, for the almost freezing nights of South Carolina in November and December.

Soon after the arrival of these Porto Rican laborers, respiratory infections developed among them, and 1,003 were admitted to the base hospital with the diagnosis of influenza. Of these, 220 exhibited signs of complicating pneumonia, and sixty-seven died, a mortality of 30.4 per cent.

During the height of the epidemic, it became impossible to take cultures of the sputum of all individuals having pneumonia, but as soon as the hospital assumed approximately its normal condition, the careful examination of the sputum of all cases exhibiting pulmonary lesions was again resumed.[1]

During the early part of the influenza epidemic among the Porto Ricans, atypical types of pneumonia were seen; but later, beginning about Dec. 15, 1918, a number of patients were admitted who exhibited the more usual signs of lobar pneumonia.

In the early part of the summer, in May and June, twenty-two of fifty-one cases of pneumonia were Type I pneumococcus infections. From that time on until Sept. 15, 1918, only twelve more cases of Type I pneumococcus infection occurred out of 122 cases of pneumonia. While the statistics covering sputum and blood culture examinations during the influenza epidemic are extremely fragmentary, apparently there were but few Type I pneumococcus infections of the lung, as but three patients were found to be harboring that type of pneumococcus in the sputum, and only two persons were shown to have positive blood cultures, as shown in Table 1.

TABLE 1.—FREQUENCY OF OCCURRENCE OF TYPES OF PNEUMOCOCCUS INFECTIONS

Sputum Cultures:	No.	Blood Cultures:	No.
Pneumococcus Type I	9	Pneumococcus Type I	2
Pneumococcus Type II	47	Pneumococcus Type II	17
Pneumococcus Type III	29	Pneumococcus Type III	9
Pneumococcus Type IV	194	Pneumococcus Type IV	16
Staphylococcus aureus	18	Staphylococcus aureus	2
B. influenzae	13	S. hemolyticus	1
S. hemolyticus	8		

Type I pneumococcus infections of the lung occurred but rarely among the soldiers of Camp Jackson during the epidemic, as compared with other types of pneumococci and other organisms. Of 312 postmortem lung cultures, this group of organisms was encountered only eight times, whereas other types of pneumococci were found 131 times and *Staphylococcus aureus* 153 times.[2] It seemed to be a matter of some interest, therefore, that among the respiratory infections affecting a group of Porto Rican laborers, the incidence of Type I pneumococcus infection should be much greater than among the soldiers in camp.

Table 2 shows the incidence of the various types of pneumococcus among the white and black soldiers, and among the Porto Ricans, over a period from Dec. 15, 1918, to Feb. 1, 1919.

TABLE 2.—INCIDENCE OF VARIOUS TYPES OF PNEUMOCOCCUS

Type	White	Black	Porto Rican
Pneumococcus I	1	2	34
Pneumococcus II	4	2	0
Pneumococcus III	4	0	2
Pneumococcus IV	97	17	16

The Porto Rican laborers lived under crowded conditions in wooden buildings. Fourteen barracks were used, 120 feet long by 20 feet wide. The bunks were arranged in two tiers, the lower being about 3 feet from the floor. In this way, from 120 to 160 men were accommodated in each building. The five kitchens, formerly occupied by the depot brigade, were used as mess halls. On account of the cold, the screens were removed and the openings boarded up. The latrines were about 200 yards from the barracks. Under these conditions there was abundant opportunity for close contact and wide temperature variations.

The first Type I infection among the Porto Ricans was discovered by a routine lung puncture made postmortem. This patient, for some unexplained reason, had not been transferred to the pneumonia ward, and no sputum examinations had been made. From that time on all cases of pneumonia among the Porto Ricans, as well as among the soldiers, were treated in wards especially designed for pneumonia, and cultures were made with as much dispatch as possible.

The sputum was cultivated by streaking directly on blood agar plates, by mouse inoculations, and by the use of the Avery 1 per cent. glucose blood broth. The results of sputum cultures were checked up by repeated blood cultures and by cultures made from exploratory puncture of the lung when indicated.

The patients in whom evidence of Type I pneumococcus infection were found were treated intravenously with antipneumococcus serum according to the method described by Cole.[3]

TABLE 3.—TYPE I CASES *

Case No.	Color and Age	Date Admitted and Day of Disease	Temperature on Admission	Pulse and Respiration	Involvement	Leukocytes	Blood Culture and Method	Stimulation	Amount of Serum, C.c. and Serum Sickness	Result	Hookworm	Wassermann Test	Remarks
1. 42482	P.R. 21	12/16/18 ?	106 crisis 12/23/18	80–124 18–44	Lobar Pn. R. and M.† L. L. L.	20,000 Polys. 85%	Neg. Mouse	Tincture of digitalis, 14 c.c.	355 None	Recovered, 12/23/18	+	Not taken	Relapse; left lower lobe; no serum, 12/31/18; recovered 1/7/19
2. 43162	P.R. 38	12/29/18 ?	103.2 crisis 1/1/19	80–100 18–48	Lobar Pn. R. L. L.	12,700 Polys. 50%	+ I‡ Avery	Tincture of digitalis, 7 c.c.	200 None	Recovered, 1/1/19	+	Not taken	
3. 43706	P.R. 24	1/7/19 ?	104.2 lysis	72–128 18–32	Lobar Pn. R. U. L.	14,800 Polys. 84%	Neg. Mouse	0	1/10/19 100 None	Recovered, 1/13/19	—	Not taken	
4. 43922	P.R. 32	1/9/19 ?	104 lysis	72–124 18–48	Lobar Pn. Lt. lung	18,000 Polys. 94%	Neg. Mouse	Tincture of digitalis, 9 c.c.	400 None	Recovered, 1/25/19	—	Not taken	1/16, acute suppurative otitis media, right
5. 42730	P.R. 48	12/20/18 ?	104	74–128 18–44	Lobar Pn. L. lung	12,000 Polys. 90%	+ I Avery Mouse	Tincture of digitalis, 8 c.c.	350 None	Died, 1/9/19	—	Not taken	1/5/19, thoracotomy; facial erysipelas, empyema, left
6. 42900	P.R. 24	12/24/18 4th	100.2	60–114 18–44	R. lung L. L. L.	15,400 Polys. 86%	Neg. Mouse	Tincture of digitalis, 5 c.c.	115 18th day	Died, 1/7/19	—	Not taken	Onset gradual; died suddenly, cause unknown; embolus ?
7. 43852	P.R. 26	1/18/19 ?	105.4 lysis	68–120 18–50	Bron. Pn. R. lung L. L. L.	24,600 Polys. 88%	Neg. Mouse I. + B.§ Inf.	Tincture of digitalis; strychnin; camphor	1,050 None	Recovered, 1/19/19	+	Not taken	Old serum used
8. 43278	P.R. 24	12/31/18 ?	102.4	68–104 18–40	Bron. Pn. bilateral	30,000 Polys. 89%	Neg. Mouse	None	300 None	Recovered, 1/7/19	+	Not taken	

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[1] The sputum examinations were all made in a separate room, the so-called pneumonia laboratory, by specially trained technicians, Miss Pirie Davidson and Private R. A. Ambler, under the supervision of Capt. H. T. Chickering and Lieut. J. H. Park, Jr. As soon as a patient arrived in the pneumonia ward, notice of his arrival was sent to the laboratory, and the specimen was collected by Private W. J. Archer, who was instructed concerning the importance of obtaining sputum from the deeper air passages.

[2] Chickering, H. T., and Park, J. H., Jr.: Staphylococcus Aureus Pneumonia, J. A. M. A. **72**: 617-626 (March 1) 1919.

[3] Avery, O. T.; Chickering, H. T.; Cole, R., and Dochez, A. R.: Acute Lobar Pneumonia, Prevention and Serum Treatment, Monograph 7, Rockefeller Institute for Medical Research, 1917.

TABLE 3.—TYPE I CASES *—*Continued*

Case No.	Color and Age	Date Admitted and Day of Disease	Temperature on Admission	Pulse and Respiration	Involvement	Leukocytes	Blood Culture and Method	Stimulation	Amount of Serum, C.c. and Serum Sickness	Result	Hookworm	Wassermann Test	Remarks
9. 43491	P.R. 22	1/3/19 ?	102.8	80–120 18–40	Bron. Pn. bilateral	13,400 Polys. 93%	Neg. Mouse	Tincture of digitalis; strychnin	350 None	Recovered, 1/15/19	—	Negative	
10. 43934	P.R. 19	1/9/19 ?	104 lysis	72–124 18–42	Lobar Pn. L. lung	18,000 Polys. 94%	Neg. Mouse	Tincture of digitalis; strychnin	450 None	Recovered, 1/18/19	+	Negative	Acute otitis media, right; N. S. 1/15
11. 42991	P.R. 23	12/26/18 ?	103 crisis	72–136 20–48	Lobar Pn. L. L. L.	17,800 Polys. 92%	Neg. Mouse	Tincture of digitalis	365 None	Recovered, 1/4/19	+	Negative	
12. 43420	P.R. 32	1/2/19 4th	100.6 crisis	84–120 18–40	Lobar Pn. R. L. L.	19,200 Polys. 91%	Neg. Avery	Tincture of digitalis	200 None	Recovered, 8th day	—	Negative	Onset, sudden
13. 43177	P.R. 18	12/29/18 ?	101 crisis	70–132 18–56	Lobar Pn. L. L. L.	13,700 Polys. 89%	Neg. Mouse	Tincture of digitalis	550 None	Recovered, 1/5/19	—	Negative	
14. 43324	P.R. 18	1/1/19 1st	103 crisis	80–120 18–34	Lobar Pn. L. L. L.	13,000 Polys. 83%	Neg. Mouse	None	400 None	Recovered, 7th day	+	Negative	Onset, sudden
15. 43334	P.R. 19	1/1/19 ?	103.4 lysis	80–120 18–48	Lobar Pn. R. U. L.	8,200 Polys. 75%	Neg. Mouse	Tincture of digitalis	365 None	Recovered, 1/7/19	+	Negative	
16. 44397	P.R. 17	1/15/19 3d	105.4	68–144 22–48	Lobar Pn. L. lung	18,000 86% 36,000 84%	Neg. Mouse	Tincture of digitalis	900 None	In hospital, doing nicely	—	Negative	Onset, sudden; costectomy and thoracotomy, 1/13/19; secondary pocket, left lower chest, 2/5/19; thoracotomy, 2/6/19; empyema left chest, 1/22/19
17. 42783	P.R. 23	12/21/18 ?	101.8 lysis	72–120 20–38	Lobar Pn. L. lung	17,200 Polys. 87%	+ 1/8/19 Mouse	Tincture of digitalis	1,000 None	Recovered, 1/27	—	Negative	Old serum used; 1/21/19, abscess right superior scapular region
18. 43401	P.R. 23	1/2/19 ?	102	84–120 20–38	Lobar Pn. L. L. L.	18,800 Polys. 92%	+ I Mouse	Tincture of digitalis	600 + 1/23/19	Recovered, 2/2/19	—	Negative	Slowly resolving pneumonia
19. 43161	P.R. 20	12/29/18 2d	102	88–128 20–40	Lobar Pn. L. lung	16,000 Polys. 83%	Neg. Mouse	Tincture of digitalis	300 None	In hospital, doing nicely	+	Negative	Onset, sudden; thoracotomy, left, 1/10/19; empyema, 1/5/19
20. 43401	P.R. 18	12/27/18 ?	103.6	84–146 20–40	Lobar Pn. R. L. and M. L.	49,600 Polys. 93%	+ Mouse	Tincture of digitalis	315 None	In hospital, doing nicely	—	Negative	Thoracotomy, 1/6/19; empyema, 1/5/19
21. 42911	P.R. 32	12/24/18 2d	102	80–124 20–30	Lobar Pn. L. L. L.	15,600 Polys. 85%	Neg. Mouse	None	0 None	+	—	++	Onset, sudden; suppurative submaxillary adenitis, 1/7/19; erysipelas, face, 1/9/19; periostitis, right tibia and fibula, 1/14/19
22. 43490	P.R. 20	1/3/19 1st	104.6	76–136	Lobar Pn. R. L. L.	29,600 Polys. 94%	Neg. Mouse 1/7/19	Tincture of digitalis	250 None	Recovered, 1/11/19	—	Negative	Onset, sudden
23. 43025	P.R. 45	12/27/18 ?	101.6	70–120 18–40	Bron. Pn. bilateral	15,200 Polys. 85%	Neg. Mouse 1/2/19	Tincture of digitalis	250 None	Recovered from pneumonia 1/4/19	—	Negative	Left myringotomy, 1/10/19; mastoidectomy, left, 1/25/19; acute otitis media suppurativa, left, 1/10/19; acute suppurative mastoiditis, left, 1/17/19
24. 43540	P.R. 34	1/4/19 ?	101.6	80–120 18–36	Lobar Pn. R. U. and L. lobes	12,800 Polys. 87%	Neg. Avery	Tincture of digitalis	550 + 1/20/19	Recovered from pneumonia 1/12/19	+	++	Slowly resolving pneumonia; phlebitis, left leg, 1/9/19
25. 42656	P.R. 19	12/23/18 4th	104.6	80–108 20–32	Lobar Pn. L. L. L.	?	Neg. Avery Mouse	Tincture of digitalis, 2 c.c.	0 None	Recovered, 6th day	—	Negative	Onset, sudden; recovered before type obtained
26. 42912	P.R. 18	12/24/18 ?	103.3	80–144 20–38	Bron. Pn. bilateral	11,900 Polys. 88%	+12/25/18 Mouse 12/25/18	Tincture of digitalis	100 ?	Recovered from pneumonia 1/4/19	+	Negative	Came in with right parotitis; dental caries; chronic alveolar abscess; acute arthritis, both hips
27. 42857	P.R. 19	12/23/18 3d	103.4 lysis	72–120 20–34	Lobar Pn. L. L. L.	18,000 Polys. 86%	+ I Mouse	Tincture of digitalis	250 + 1/12/19	Recovered, 1/2/19	+	+	Onset, sudden
28. 42611	P.R. 19	12/28/18 ?	100 lysis	80–126 18–42	Bron. Pn. bilateral	12,000 Polys. 87%	+ I Mouse	Tincture of digitalis; atropin; strychnin	300 None	Recovered, 12/28	+	Negative	Relapse, 1/11/19; Type III from sputum; recovered, 1/17/19
29. 43539	P.R. 37	1/4/19 ?	101.4 crisis	66–120 18–38	Lobar Pn. R. U. and L. U. L.	10,600 Polys. 86%	Neg. Mouse	None	700 None	Recovered, 1/11/19	—	Negative	
30. 42520	P.R. 17	12/16/18 ?	104.3 crisis	80–144 20–44	Lobar Pn. B. U. and R. L. L.	16,000 Polys. 91%	Neg. Mouse	Tincture of digitalis; whisky	300 None	Recovered, 12/23/18	—	Negative	Abscess, sacral region, 1/5/19
31. 43731	P.R. 42	1/7/19 ?	104.2 lysis	72–120 18–48	Lobar Pn. R. L. L.	12,800 Polys. 95%	Neg. Mouse	Tincture of digitalis	100 None	Recovered, 1/12/19	—	Negative	
32. 42910	P.R. 32	12/24/18 5th	103 crisis	76–108 18–36	Lobar Pn. R. L. L. L. L. L.	14,000 Polys. 84%	Neg. Mouse	Tincture of digitalis	85 None	Recovered, 12/28/18	+	Negative	Onset, gradual
33. 42019	P.R. 37	12/8/18 ?	103 lysis	80–140 20–40	Lobar Pn. R. L. L. R. M. L.	8,500 Polys. 90%	Neg. Mouse	Tincture of digitalis	100 None	Recovered, 1/16/19	+	Negative	Serum treatment not followed up; result not due to serum; otitis media acuta, left, nonsuppurative, 12/13
34. 42600	Col. 26	12/18/18 2d	104.2 lysis	78–120 20–60	Lobar Pn. L. L. L.	16,400 92%	Neg. Avery Mouse	Tincture of digitalis	100 None	Recovered, 8th day	+	Negative	Onset, sudden
35. 43331	Col. 22	1/1/19 2d	101-104	80–120 18–26	Bron. Pn. R. L. L.	16,000 93%	Neg. Avery Mouse	0	100 None	Recovered, 5th day	—	Not taken	Onset, sudden; very toxic; prompt change after serum
36. 44775	white Co.B. M.P.	1/21/19 2d	104 lysis	80–130 20–48	Lobar Pn. both lowers	14,400 88%	+ — after 2d serum Mouse	Tincture of digitalis	400 None	Recovered, 11th day	—	Negative	Onset, sudden

* No evidence of malaria was found in any of the cases. When there were complications, these are stated in the last column.

† Right lower and middle

‡ + I means positive for Type I pneumococcus.

§ Positive for Type I pneumococcus and Bacillus influenzae. Refers to organisms recovered from the mouse.

As will be seen in Table 3, these Type I pneumococcus infections among the Porto Ricans resembled more nearly the kind of pneumonia ordinarily encountered in practice, rather than the type of pneumonia experienced as a complication of the recent epidemic of respiratory infection. When a history could be obtained, the onset, in most instances, was found to have been sudden. The type of involvement was, clinically, lobar in twenty-seven, or 81.8 per cent., out of the thirty-three cases studied. All but two cases, moreover, showed the presence of some degree of leukocytosis. In eight cases, or 24.2 per cent., there was a positive blood culture. Thirty-one patients were treated with serum. One case was discovered only postmortem; the other two patients were out of danger when the type of infection was determined.

The smallest amount of serum given to any one individual was 85 c.c.; the largest, 1,050 c.c., with recovery. The average amount of serum administered was 375.8 c.c.

The serum therapy of pneumonia in the case of white persons is followed by serum sickness in a large percentage of cases—probably around 80 per cent.—anywhere from the fifth or sixth day to the second or third week after the administration of the serum, usually about the tenth day.

It was noted during the summer that the occurrence of serum sickness was much less among the negroes, who had been treated with immune horse serum, than among the whites. The absence of serum sickness was even more striking among the Porto Ricans. Only four of the thirty-one men treated showed evidence of serum sickness, as urticaria, muscular and joint pains, headache or fever.

The results of the serum therapy were very satisfactory; only two patients died in this series of thirty-three. One patient died suddenly on the eighteenth day during convalescence, apparently from a pulmonary embolus. No necropsy was granted. The second developed an empyema, and subsequently a severe facial erysipelas with which he died a few days later, on the twentieth day of the disease. The therapeutic results are especially gratifying, as a majority of these men were in wretched physical condition. Sixteen, at least, were shown to be harboring the hookworm in the intestine. Eight of the thirty-three had a pneumococcus bacteremia, which may be taken in general as evidence of severe infection.

Of the complications, four patients developed empyema, and three recovered after thoracotomy and drainage. Four developed otitis media and one of these an acute infection of the mastoid cells which necessitated a radical operation. Several had skin abscesses, one a phlebitis, one a submaxillary adenitis, one acute catarrhal appendicitis, and one an epididymitis. Two had complicating facial erysipelas.

During the same period there were three other cases of Type I pneumococcus infection among the soldiers. One of the patients was white, and two were colored. They were treated with serum and recovered.

SUMMARY

Porto Ricans under favorable conditions are susceptible to lung infection by the Type I pneumococcus. The disease pursues a typical course, accompanied by a bacteremia in about the same proportion as among white persons.

Specific serum therapy seemed to influence the disease. The mortality of this series was 6 per cent.

The incidence of serum sickness following the administration of antipneumococcus immune horse serum was infrequent as compared with our usual experience among white persons.

END-RESULTS OF ARTERIAL RESTITUTION WITH DEVITALIZED TISSUE

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Jan. 22, 1908, the right common carotid artery of a young, adult, female dog was divided, and a segment of vena cava, preserved for sixty days in formaldehyd solution, was interposed and sutured to the ends of the artery. The implanted tissue was treated with ammonia and absolute alcohol, and was impregnated with petrolatum, just prior to the operation. Feb. 12, 1908, the artery at the site of the operation was exposed, and a direct examination revealed an active circulation through the segment.[1]

The animal was demonstrated before the St. Louis Medical Society, Feb. 29, 1908, at which time, as far as could be determined by palpation, pulsation in the common carotid arteries was the same on the two sides.

Clinical examination, from time to time, demonstrated like pulsations in the two common carotid arteries. On the right side, at the site of operation, a dense nodular structure could be felt on the course of the artery. The animal raised pups in 1909-1910, and whelped several times in immediately succeeding years, but failed to raise litters. She remained in excellent condition except after occasional fights with other dogs, until age led to a general physical decline. For about six months prior to death, the decline grew increasingly more marked, and for several weeks preceding death she showed great physical weakness, with loss of appetite; emaciation became correspondingly evident. Two days before death she was barely able to rise to her feet, and was unable to stand for more than a minute. An examination revealed the pulse in both common carotid arteries to be the same by palpation. The animal died suddenly, March 20, 1919, just after the attendant gave water. According to his statement, she fell over dead—there was no struggling.

An examination shortly after death revealed the two scars of the previous operations: the first, for the operation proper, Jan. 22, 1908, and the second, for exposing the structures for direct examination, Feb. 12, 1908.

There was an enlargement of the right common carotid artery about 3.5 cm. long and 2 cm. in diameter on the course of the artery near the root of the neck, several centimeters distal to the origin of the artery. Above and below, the artery appeared and felt normal. The enlargement was fibrous and vascularized on the surface, and to the touch was resistant, but springy and apparently hollow.

A connection through the mass between the two parts of the artery on each side was demonstrated by manipulation under liquid, and confirmed by section.

COMMENT

This experiment was undertaken in an attempt to obtain conclusive evidence as to whether devitalized tissue may serve adequately and indefinitely to transmit blood in vascular restitution. At that time, others

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[1] Guthrie, C. C.: Am. J. Physiol. **19:** 482 (Sept. 2) 1907; Interstate M. J. **15:** 25 (Feb. 29) 1908; Science **27:** 690 (March 20) 1908; ibid. **29:** 29 (Jan. 11) 1909; Structural Changes and Survival of Cells in Transplanted Blood Vessels, J. A. M. A. **50:** 1035 (March 28) 1908; Heart **2:** 115 (Nov.) 1910; Cleveland M. J. **11:** 317 (May) 1912; Blood Vessel Surgery and Its Applications, New York, Longmans, Green & Co., 1912, p. 93.

were advancing the view that implanted vascular tissues resumed active, vital functions, even when the tissues employed had been removed for considerable periods from the body, or when their source was of a species different from the host. Our results from implanting vascular segments of cat and rabbit into dog, namely, effecting a restoration of good mechanical function, notwithstanding profound degenerative changes, had led me to suspect strongly that mechanical function in itself was not evidence of tissue survival; and I had expressed the view that, to restore and maintain mechanical function, such an implanted segment need only temporarily restore mechanical continuity and serve as a scaffolding or bridge for the laying down of an ingrowth of tissue derived from the host. For this reason, the implanted tissue was subjected to treatment that would, beyond question, assure its complete devitalization. Others have abundantly confirmed the findings, the most recent work being that of Nageotte and Sencert.[2]

An interesting feature of the experiment reported is that it is the first of the kind, as well as the longest in respect to end-results.

It is planned to report the results in detail elsewhere in collaboration with Prof. Oskar Klotz, to whom my thanks are due for the necroscopic examination, for preparing and preserving the gross specimen, and for conducting the microscopic study of the tissues.

TREATMENT OF GUNSHOT WOUNDS OF THE ABDOMEN *

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In the treatment of gunshot wounds generally, the last five years have witnessed great change and great improvement. In the treatment of gunshot wounds of the chest and of joints the advance has been most striking and will greatly change the civil practice in these fields; but in abdominal surgery it cannot be said that any wonderful change or improvement has been made. Because of the great prevalence of shell wounds over those made by high velocity bullets, operation in these cases has been much more regularly resorted to than, for instance, at the end of the Boer War. During that war it was undoubtedly true that patients did recover after penetrating and perforating wounds of the abdomen; but I cannot say that I saw in nineteen months spent in advanced and base hospitals a single instance of this kind.

In a communication of this length it is impossible to go deeply into the literature of the subject or to give extensive tables of statistics, even if this were desirable, and I shall confine myself to personal experience and observation.

NEEDLESS ABDOMINAL EXPLORATION

One of the most important things in the treatment of gunshot wounds of the abdomen is the ability to estimate fairly accurately whether the missile has really penetrated the abdominal cavity, and if so what structures have probably been damaged. This may not at first thought appear to be of the prime importance that it is, for one may say it is safer to open the abdomen in any case and determine whether penetration has occurred and what viscera, if any, have been injured. But, taking a large number of cases, this is not true; for one would find himself doing an exploratory laparotomy many times when there was no penetration; when the injured viscus, such as the liver, were better undisturbed; when the injury was above and not below the diaphragm, and in many cases in which the patient had multiple wounds and the prolonged negative exploration only added to the risk of life.

If a man has, for instance, a compound fracture of the leg or thigh, and perhaps a number of wounds of less severity, one should be very sure that a wound which would seem to have involved the abdomen really entered it before subjecting the patient to a deliberate abdominal section and a prolonged search for injury of the viscera; the other wounds alone render this case a serious one, and their treatment must require considerable time and involve a prolonged anesthesia. I do not mean, of course, to say that the abdominal wounds are not the most serious, or that they do not demand first consideration; but I would suggest that here, as in civil practice, one has no right to subject a patient to a needless abdominal exploration, especially when care and the exercise of judgment may show that such an operation is unnecessary. Numerous instances illustrating these points must come to the minds of many, and a common observation has been that many wounds which would certainly seem to have involved the abdomen were only wounds of its wall, and that others which were small and seemed trivial at first sight did involve the abdominal viscera.

VARIOUS TYPES OF WOUNDS

A common type of wound of the wall which produced shock and abdominal rigidity was that caused by a shell fragment and characterized by a large ragged wound of entrance, probably by a larger one of exit, by extensive ecchymosis, by marked abdominal rigidity, and by costal breathing. In such cases the wound should be excised or débrided and the abdomen should not be opened deliberately at some point of election until penetration has been definitely determined. It is needless to say that probing should never be done. The probe, in fact, should be eliminated from the paraphernalia of the military surgeon. I have seen a number of small and apparently trivial wounds, of the loin and lumbar region particularly, in which either a careful examination or time would show that the missile had penetrated the abdomen. I recall seeing a young officer, being treated for gas poisoning of slight degree in a field hospital, who made very light of a small wound in the left loin; but examination made one suspicious of abdominal penetration, and a few hours later, when he had been transferred to an evacuation hospital and operated on, the suspicion became a certainty.

It can truly be said, then, that to lay down definite rules for action in these cases is difficult, and that experience and judgment, and above all a careful examination of each case, are of prime importance.

Many more lives are lost in this field by "not wasting time in trying to make a diagnosis" and operating at once than by wasting the time in study of the case. It is not so much a question of diagnosis as of determining whether or not the abdomen should be opened. In this connection there comes to mind that interesting group of combined chest and abdominal wounds—perforations of the diaphragm—in which the surgeon probably has the greatest difficulty in determining his action. It is surprising in how many cases of gunshot wound of the lower chest or those in which a missile lies in or on the diaphragm, the patient will present symptoms which would certainly suggest an abdominal penetration: particularly abdominal rigidity, sometimes later abdominal distention, and frequently hiccup. I can recall six such cases in one evacuation hospital last summer, in any one of which operation might have seemed justified, but in which all six patients recovered without operation.

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[2] Nageotte, J., and Sencert, L.: Compt. rend. Soc. de biol. 82: 45, 1919.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

Still another type of these combined chest and abdominal wounds was that in which the missile penetrates the abdominal wall, perforates the liver and diaphragm, and lodges in the thorax. If the injury is confined to the structures mentioned, and the missile, as disclosed by roentgenoscopy, is not large, no immediate operation should be performed; but the question always came up as to the possibility of injury of the colon or stomach. The probable course of the missile, as indicated by its point of entrance and its location, was of the greatest help in many of these cases. My own rule was not to operate unless there was present a pretty definite indication of injury of a hollow viscus. The wound of the liver and diaphragm alone, except when made by a large foreign body or accompanied by a sucking wound of the chest, was not considered as calling for an immediate operation. I have often regretted operating and suggesting operation in these cases, but I cannot recall a single case in which I regret not having operated or recommending such a course. The situation here can be summarized by saying that if one is fairly certain that the hollow viscera have escaped injury, no operation should be done.

What about hemorrhage? In cases of hemorrhage from the liver caused by gunshot wounds, a few patients are saved by operation, many are not benefited, and not a few are made worse. I believe that nature is more likely to stop bleeding from a gunshot wound passing through the liver than is the surgeon. In some of these cases the missile has injured the kidney as well as the liver and diaphragm, and here the hemorrhage can and should be controlled, or the kidney removed.

TECHNIC

In regard to the technic of abdominal operations I think there is little to be said, for the war has, I believe, brought about no important changes. Perhaps an exception to this statement can be made in regard to drainage. The rule of closing the abdomen without drainage became established by our allies early in the war, and I believe is a good rule. The war has certainly shown that drainage of any wound is a frequent cause of its infection, and the discontinuance of the abdominal drain represented the application of this general rule to abdominal cases. There are, however, many cases, especially of wounds involving the large intestine and bladder, in which it would have been foolish not to drain.

An observation which I made, after a few months' service in a British base hospital in France, was that although many men with gunshot wounds of the abdomen were admitted in good condition a week or ten days after operation, yet a number of them later developed an infection of the wound and it had to be laid wide open. This occurred so often that later in my own work at a British clearing station I followed the plan in every instance in which evacuation was necessary within ten days—and this was true in most cases—of closing all the layers of the abdominal wall excepting the skin and placing sutures through the skin which could be tied later, if no infection occurred. I learned from Brewer that he had reached the same conclusion and followed the same practice. These late infections, I believe, occurred from the skin, and they were also frequently seen after complete closure of the chest and knee-joint wounds. Of course, in the latter two situations it is much more difficult to close off the cavity thoroughly, without closure of the skin, than it is in the case of abdominal wounds. I am sure from my personal experience that the late closure of the skin prevented an infection in many cases. It is true that the late infection of the abdominal wound practically never gave rise to an infection of the peritoneal cavity, whereas such an infection in a chest wound or in a wound of the knee-joint almost invariably resulted in an infection of the underlying cavity. My impression is that when an abdominal drain is employed, it should be a loose gauze drain covered with rubber dam or rubber tissue. The hard, rigid, rubber tubing, or uncovered gauze drains are much more apt to give rise to dense adhesions, which may later produce obstruction or, by pressure, necrosis.

MORTALITY

The mortality in gunshot wounds of the abdomen was extremely high, and a large proportion of this mortality occurred on the field or before the patient reached an advanced operating center, and hemorrhage and shock were its two most potent causes. But the mortality in those cases in which the wounded did reach the operating center was also high, largely for the same reasons, but often because the patient suffered from multiple wounds, the repair of which meant prolonged anesthesia and increased shock. From what I have seen of the late results, I should say that the mortality was not so high as might be expected from late complications in the case of those who recovered from the primary effects of their wound and the operation.

A common observation was that the prisoners with abdominal wounds seemed to stand operation better than our own soldiers, and that the mortality among them was not so high. This, I believe, was due to the fact that they were not operated on with the promptness, I may say haste, that was exercised in the case of our own men. If this observation is correct, the inference is obvious: that it is a mistake to operate on gunshot wounds of the abdomen until the patient has recovered from the shock sufficiently to stand operation, unless the shock is due to hemorrhage. To determine whether the shock is due to hemorrhage was, in many instances, very difficult; but when it was not due to hemorrhage, much better operative results were obtained by waiting. All of the patients, of course, have lost a certain amount of blood; and the important question to decide is whether the bleeding is continuing. One cannot resort to exploratory laparotomy with the same impunity that he would in civil life, because in most instances the patient is suffering from more than one wound, and the operation, which is indicated, must of necessity occupy a much longer period of time and necessitate the employment of a much larger quantity of the anesthetic agent, two factors which largely increase the immediate operative mortality.

ABSTRACT OF DISCUSSION

DR. EDWARD W. MEREDITH, Pittsburgh: In the case of patients arriving with abdominal wounds which seemed to have penetrated the peritoneum we were able, on account of the absence of rigidity, vomiting and because of the generally good condition of the patient, to say that this patient did not have a penetrating wound of the abdominal cavity. This gave us an opportunity to operate on the wounded men most in need of immediate attention, and to leave the treatment of other patients for a more convenient time. The average time of arrival of patients after injury was twenty hours. In cases in which a hollow viscus was penetrated the question was that of diagnosing peritonitis. We did have abdominal rigidity, some distention and some rise in pulse rate, in addition to the rise that might come from hemorrhage, to aid us in diagnosis. The surgical proposition, therefore, was that of treatment of peritonitis. In none of these cases, except a case of ruptured spleen, was there any question of serious hemorrhage. Four patients with wounds of the chest and abdomen were operated on; two patients had a ruptured spleen; one patient had a ruptured kidney; the fourth patient showed no visceral lesions. The two patients with ruptured spleen died from preoperative and postoperative hemorrhage. All patients were placed in the shock ward, both for observation and resuscitation. After a long ambulance ride, with more or less exposure to cold, with pain and loss of fluids they arrived in a much shocked condition and with depressed vitality. After two or three hours rest in a warm bed there was usually considerable improvement, if anything could be done. Perhaps we used drainage more than Dr. Gibbon did. We found it necessary to drain in 30 per cent. of the cases. The abdominal wall was sutured, with the exception of the skin—following the general rule laid down in the A. E. F. not to suture the skin. We did, however, suture the remaining layers of the abdominal wall. The chest cases in which it was possible that there might be combined abdominal injury were treated conservatively as were all chest cases in our hospital. In wounds of the lower chest wall, in which abdominal distention might be expected, we followed the same rule of depending on rigidity of the abdomen to determine whether an operation should be done. If we could satisfy ourselves that no abdominal hollow viscus had been injured we followed the conservative plan as in the straight chest cases. The difference between military and civilian surgery in cases of wounds of the abdomen is not great. We have nothing special to offer in improved technic in the operation itself. We were handicapped, of course, by the lateness of the patient's arrival. In civilian life this interval would certainly be less than twenty hours. We were handicapped also at times by the rush of patients, and by questioning whether it was advisable to operate in some of the more serious abdominal cases or to operate first on patients who were more lightly injured that they might be restored more quickly. We did not refuse any patient an operation because of the seriousness of his condition. The larger percentage of patients arriving in our hospital reached there in fair condition. Outside of the difference in time of seeing the patient after injury there is little difference between military and civilian surgery.

Is Your Community Fit?—Are your schools provided with medical supervision to control the spread of communicable diseases among the children and to limit the number of sources of contagious diseases which often spread rapidly when carried to susceptible persons? Do your children have the advantage of regular physical examination by a physician? Is there a clinic for the treatment of all the physical defects discovered as a result of this examination? The after-war development of your community will depend largely on the physical fitness of your present school population.—*Pub. Health Rep.*, April 25, 1919.

SURVEY OF THE EPIDEMIC OF INFLUENZA IN THE AMERICAN EXPEDITIONARY FORCES *

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The origin of the epidemic of influenza and its invasion of Europe is still obscure; but it is certain that influenza existed in epidemic form in Spain, France and possibly England, early in 1918, and it may even have been present in endemic form during the previous year. By May, 1918, there was in Spain a widespread epidemic which received much publicity. In April or May there were local outbreaks of the disease, according to the report of the British commission, in the first and second British armies, and by the late spring influenza was present in epidemic form, not only in Spain and in France, affecting both the British and the American armies, but also in Italy, Belgium, Austria and Germany.

Until the complete official reports of the incidence of influenza in the American Expeditionary Forces are made available and the statistics of the epidemic published, it is impossible to give figures or similar accurate data which bear on the epidemiology of this disease among our own troops in France. A paper by Dr. Ward J. MacNeal,[1] assistant to the director of laboratories and infectious disease, American Expeditionary Forces, which recently appeared, is an official report on the epidemic, and contains considerable data of interest. Dr. MacNeal kindly allowed me to see the manuscript and to quote from it. Much of what I have to say, nevertheless, must be based on personal observations that are of necessity fragmentary and limited.

As one reviews the history of the epidemic in France, it may be divided into three fairly definite outbreaks with an intermediate and interesting phase bridging the gap between the second and third outbreaks.

The first outbreak appeared in April and May, 1918. It was comparatively mild and spoken of as "three day fever."

The second outbreak came in September and October, 1918, and formed a part of the terrible pandemic.

The third definite outbreak, according to recent reports, was much less serious, and occurred in January and February, 1919.

The fourth or intermediate phase was represented by scattered cases of influenza and great numbers of respiratory infections, either unaccompanied by pneumonia or associated with a pneumonia of the true lobar type. This phase followed the second great outbreak, and continued during the autumn and winter of 1918-1919.

THE FIRST OUTBREAK

In the first outbreak the earliest recorded epidemic among the American Expeditionary Forces appeared, according to MacNeal, about April 1, 1918, at Rest Camp No. 4 in Base Section 2, near Bordeaux. It reached its height, April 22, and ceased, May 5. In May, 1918, a second outbreak of influenza was reported from the Quartier de Beaumont, Tours, which lasted from May 1 to May 24, and affected 117 persons.

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* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] MacNeal, W. J.: The Influenza Epidemic of 1918 in the American Expeditionary Forces in France and England, Arch. Int. Med. 23: 657 (June) 1919.

During this month another epidemic occurred at Chaumont, and from this time until July, more or less extensive epidemics appeared throughout the entire American Expeditionary Forces. The disease was likewise prevalent at this time among the French population and in parts of the British army. It is stated by the British commission[2] that in the first British army, between May 18 and July 2, 36,473 cases of influenza were admitted to casualty clearing stations. It is obvious, therefore, that a widespread epidemic of influenza prevailed throughout France in the spring of 1918, reaching its height in May and June, and subsiding during July and August.

Influenza in this first outbreak was a comparatively mild disease. It was notable on account of the rapidity with which it spread through any organization, on account of the high morbidity rate, the short duration —from two to four days—and the rarity of complications.

The onset was sudden with fever, headache, prostration, pain in the eyeballs, pain in the back, soreness of the muscles, occasional abdominal pain, and rarely vomiting and diarrhea. Epistaxis was common. Occasionally a dryness of the throat with a harsh cough was described. In many cases there were conjunctivitis, slight suffusion of the face and some reddening of the fauces. Muscular tenderness and, more rarely, abdominal tenderness, were present. The fever lasted from two to four days, and convalescence was rapid and almost always uneventful. At this time serious involvement of the respiratory tract was so uncommon that this feature attracted little attention. Only the milder manifestations already mentioned were observed in most localities, though in a few places pulmonary involvement was referred to. In the first British army, it was estimated that in 1 per cent. of all cases coming to the casualty clearing stations, bronchopneumonia developed, from which 10 to 15 per cent. of the patients died. In one epidemic in the Eleventh Engineers, A. E. F., reported by Bradbury,[3] among 613 cases of influenza there were ten of severe laryngitis and four instances of bronchopneumonia, from which one of the patients died. It is clear, therefore, that while the first outbreak was generally of a mild character, the upper respiratory tract was not infrequently affected, and occasionally pneumonia recurred as a complication.

THE SECOND OUTBREAK

The second and serious outbreak started during the latter part of August and early in September. In the early epidemics at this time the involvement of the respiratory tract first became alarming. Even by Aug. 18, 1918, in an epidemic at an artillery camp at Valdahom that has been carefully studied by Major Snow and Captain Alan M. Chesney, the disease in most of the 203 patients that were in the hospital presented symptoms of involvement of the upper respiratory tract. Many patients presented signs of the acute emphysema to which Torry and Grosh[4] have called particular attention in the cases in this country, while the development of pneumonia was not uncommon. Later with the assignment of fresh troops to this camp, the epidemics became much more serious in nature, owing to the frequency of pneumonia. A little later and during the early part of September, a similar but much larger epidemic took place in an artillery camp near Bordeaux, and though the cases of pneumonia were not very numerous, the mortality among these patients was high.

From the latter part of September until the last of October, the outbreak was at its height. This was approximately the same time that the influenza raged in America. The disease seems to have been the same in the two continents. If it were possible it would be of the greatest interest to compare the incidence of the disease and the morbidiy and mortality rate in the different units and organizations in the American Expeditionary Forces with the figures that have been collected from the camps in this country, for in America the troops were under fairly uniform conditions, whereas in France these varied tremendously. It is fair to say, however, that the disease was present throughout France in epidemic form from the base ports to the fighting front. It prevailed particularly, however, first, among the troops at the base ports where during a part of the epidemic transports laden with infected troops were being landed; secondly, in those organizations that contained the largest numbers of replacement troops; and thirdly, in organizations that were being moved on troop trains, where the men were necessarily closely crowded.[5] The effect which exposure and cold had on the incidence of the disease and its share in determining the prevalence of pneumonia as a complication is not perfectly clear. Troops which were at the front were affected, but it seems highly probable that some organizations were much more severely affected than others which operated under very similar conditions. A study of carefully collected figures and an analysis of the exact conditions would be necessary before one could make any statement regarding this matter. It did seem clear, however, that crowding of influenza patients and their transportation on trains increased the incidence of pneumonia. It will undoubtedly be extremely difficult to determine the morbidity rate in the American Expeditionary Forces, but there is little reason to suppose that it will differ materially from the figures and variations that occurred in this country. An epidemic in one organization which was well separated from other American divisions affected about 20 per cent. of the men. It was further estimated that there were upwards of 1,000 cases of pneumonia, of which 30 per cent. were fatal. This is not very high as compared with the tables which Soper[6] gives for the camps in this country.

The symptomatology, the clinical course, the pathology and the bacteriology of the disease seem to have been in the main the same in France as they were in this country, and it is, therefore, unnecessary to describe the clinical course which is familiar. At many hospitals that interesting complication, generalized subcutaneous emphysema, which has also been reported from camps in this country, was observed. The mortality in this group was high.

There is a second group of cases to which attention must be drawn. In these meningococci were obtained in culture from the sputum, the blood and in enormous quantities from the pneumonic lungs at necropsy; and it seems highly probable that the meningococcus played some part in the epidemic as a secondary invader and must be classed as such with the various types of pneumococcus, *Streptococcus hemolyticus* and *Staphylococcus aureus*. The etiology of the disease and, therefore, the position of the influenza bacillus in relation to it, are outside the present discussion. There is one other group of cases which was common in the American Expeditionary Forces, but to which reference has rarely been made. These are the cases of influenzal pneumonia running a prolonged or subacute course. In many of these patients, signs suggestive of lobular pneumonia with extensive bronchitis persisted for weeks and were frequently confused with tuberculosis. It is highly probable that some of these patients had developed bronchiectasis.

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[2] A Report on the Influenza Epidemic in the British Armies in France, 1918, by the Influenza Committee of the Advisory Board to the D. G. M. S., France, Brit. M. J. **2:** 505 (Nov. 9) 1918.

[3] Bradbury, S.: Am. J. M. Sc. **156:** 737 (Nov.) 1918.

[4] Torrey, R. G., and Grosh, L. C.: Am. J. M. Sc. **157:** 170 (Feb.) 1919.

[5] Epidemic Influenza Among American Soldiers Abroad, Pub. Health Rep. **33:** 2035 (Nov. 22) 1918.

[6] Soper, G. A.: The Pandemic in the Army Camps, J. A. M. A. **11:** 1899 (Dec. 7) 1918.

OTHER OUTBREAKS

The second and terrible outbreak subsided during the early part of November. The third outbreak of influenza is reported as occurring in January and February of 1919; but since very few data are available concerning this epidemic, I shall not discuss it here.

Between the second and third true outbreaks there occurred what I have termed the fourth or intermediate phase of this epidemic; and though the infections during this period must be considered as a sequel to, rather than a part of, the influenza epidemic, they nevertheless have an important bearing.

With the subsidence in November of the great outbreak, respiratory infections of all types became extremely common, and though it was difficult to differentiate many of these infections from influenza, the large majority did not conform to the clinical picture which had previously been familiar. Laryngitis, tracheitis and bronchitis were extremely common. As a rule, the infections ran a fairly prolonged course with slight initial fever of a day or two. True lobar pneumonia was not unusual. The lobular pneumonias were less common than before. Many of these patients had previously had an attack of typical influenza. There was a leukocytosis in some of the patients observed. Although it is difficult to come to any definite conclusion as to the position which this intermediate phase bears to the general epidemic, it seems highly probable that respiratory infections at this time were not all instances of influenza, but were usually due to the bacteria which had been secondary invaders in the original epidemic. As an explanation of this phase of the epidemic, therefore, one might suggest that the bacteria which as secondary invaders had been widely disseminated and had repeatedly passed through numerous susceptible hosts during the influenza epidemic, had acquired increased virulence and certainly wide distribution and were responsible in themselves for the great prevalence of more or less serious respiratory infections during the few months following the second serious outbreak of influenza.

SUMMARY

It may be said that the influenza epidemic in the American Expeditionary Forces was characterized by three definite outbreaks or peaks: the first between April and July, 1918; the second in September and October, and the third in February and March, 1919. Between the second and third peaks there was an intermediate phase.

The first outbreak was comparatively mild, and at this time involvement of the respiratory tract was unusual and attracted little attention. In the second outbreak, infection of the respiratory tract with the occurrence of lobular pneumonia became rapidly the predominant feature and was responsible for the high mortality.

These respiratory infections were often associated with the influenza bacillus, but were largely dependent on a secondary invasion of pneumococci, streptococci or, in some instances, even of meningococci.

Following the second peak, there came the intermediate phase during which time the variety of influenza observed in the early outbreaks was rarely seen but respiratory infections of all sorts were extremely prevalent, and one gained the impression that the organisms acting as secondary invaders during the epidemic proper were the primary causes of the bronchitis and pneumonia which was widespread at this time.

The character of the disease occurring in the second peak was the same as that which spread at the same time throughout the United States.

The influenza epidemic affected troops in all parts of France, but prevailed especially at the base ports, in those organizations containing the greatest number of fresh replacements, and in organizations in which the men were of necessity densely crowded together and subjected to excessive fatigue and exposure.

ABSTRACT OF DISCUSSION

DR. ALBERT E. ROUSSEL, Philadelphia: I would like to ask Dr. Longcope what the mortality is in the uncomplicated influenza cases and by that I mean that bronchitis can be accepted in most of these cases as one of the necessary accompaniments of the respiratory tract, what the mortality in these uncomplicated cases is. In the experience of the two epidemics of influenza I think that the mortality of the influenza even of the more virulent type is as yet relatively small—not more than possibly 2, 3 or 4 per cent., that the greater mortality is due to complications often unrecognized so that I do not see why an attempt should not be made to differentiate from influenza proper and its complications. We do know that the pneumonic complications were of a particularly high rate of mortality. Another particular point of interest, I would like to know the proportion of bronchopneumonias to lobar pneumonias. Out of 186 cases of pneumonias in my service there were only seventeen cases of lobar pneumonia. And yet another question, I would like to know the number of cases of kidney involvement of various degrees. No less than 8 per cent. of these cases showed kidney involvement, probably 4 per cent. an acute nephritis.

DR. EDWIN R. LE COUNT, Chicago: It seems to me that some of the members might be interested to know that the first outbreak of influenza was in April, 1918. In Chicago the first postmortems were made by me in the first week of April, 1918. I think there may have been other cases in this country. We did not know at that time what we had. The lungs were full of hemorrhages. It was a reasonable thing to diagnose them as poliomyelitis and meningitis. I sent for my colleagues, Dr. Hektoen and Dr. Davis, to look over it as a new disease. Dr. Davis studied it bacteriologically. We sent everything worth while to a chemist and made histologic examinations, but it was not until the fall that we knew what we had, when we had cases duplicated.

Child Welfare.—Organized recreation is a new idea in comparison with the idea of health. The child of elementary school age should spend at least two or three hours a day in play. Thirty minutes a day is the minimum of time that should be spent in play during the school day. In Camp Sherman it was discovered that 75 per cent. of the men did not know how to play. Two hours a day was spent in organized play as a part of their training.—*School Life* **2**:2 (May 16), 1919.

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SATURDAY, JULY 19, 1919

IS EPINEPHRIN INDISPENSABLE TO LIFE?

Epinephrin is produced by the suprarenal glands. As these are generally regarded as indispensable for life, and since epinephrin is a potent physiologic product which can profoundly affect certain muscular structures and the circulation, the discharge of this substance into the blood has come to be regarded as the most prominent feature of suprarenal function. There is no doubt that the suprarenals can at times and under appropriate nervous stimulation secrete unusual amounts of epinephrin into the circulation. Some clinical observers have therefore asserted that certain features of nephritis and arteriosclerosis are due to a sort of suprarenalinemia. Furthermore, epinephrin has been held responsible for some of the physiologic manifestations called forth by fright or other extreme emotions. A recent reviewer of the present status of these contentions that epinephrin is secreted into the blood in supernormal amounts in such emergencies states that the belief has arisen partly from the similarity between the general behavior of an animal following the intravenous injection of epinephrin and during states of extreme excitement. Dilatation of the pupils, bristling of the hair, salivation, rise in arterial blood pressure, inhibition of the intestinal movements, protrusion of the eyeballs, are all symptoms of fear just as they are of epinephrin injection.[1]

The assumption that the physiologic reaction to fear and other emotional states is dependent on hypersecretion of epinephrin into the blood—an assertion especially supported by Cannon—has been rendered of doubtful validity, if not actually untenable, by the extensive researches of Stewart and Rogoff and their collaborators at the Western Reserve University School of Medicine. They report that animals in which both suprarenal glands are entirely removed from the influence of the nervous system behave like normal animals when frightened. Therefore, epinephrin appears to have little if any contributory influence in the usual course of events associated with emotional states.

Doubt has already been expressed that such functions as the tone of the muscles and blood vessels are particularly dependent, as some have argued, on a discharge of epinephrin into the circulation. It has been a tempting hypothesis to assume that changes in blood pressure are brought about by a mechanism in which the secretion of a pressor substance like epinephrin plays a dominant part. But the investigations of Stewart and Rogoff[2] seem clearly to negate this. They have demonstrated on a number of animal species that it is possible to live indefinitely in good health after excision of one suprarenal and section of the nerve of the other, an operation which either abolishes the output of epinephrin from that suprarenal or reduces it to a small fraction of the normal. The observations have been so numerous and so well controlled that they preclude the assumption of the presence of accessory suprarenals or of any similar factor to account for the results. For the present, physiology may rest with the belief that the liberation of epinephrin from the suprarenals is not indispensable for life and health.

THE CLOTTING OF MILK IN THE STOMACH

It is singularly unfortunate that there are such marked differences of opinion regarding a food as nutritious and unique as is milk. The physician who advises its use is continually met with statements as to the intolerance of individual patients toward it. Usually their idiosyncrasy is described as an inability to digest milk; more rarely there are reports of apparent hypersensitiveness to this food suggesting the familiar anaphylactic responses to other dietary articles. By some who are responsible for feeding the sick, the use of milk is studiously avoided whenever the patient expresses an objection to it. Others, on the other hand, follow the dictum expressed by Richard Cabot:

> Any one can take milk. If a person tells me, "I cannot take milk," I always say, "You can if you will take it in a certain way." It is a question usually of flavoring it aright or of taking it like soup, with a spoon, with a bite of some carbohydrate substance, cracker or bread, between the sips. I do not think everybody must take milk, but I think everybody can.[3]

The digestion of milk in the alimentary tract is unique, in contrast with other foods, in that it exhibits the well-known phenomenon of clotting. The clots produced in the stomach vary enormously in size and texture. Sometimes they remain finely flocculent; otherwise they may shrink or coalesce into a hard and leathery mass. It would not be difficult to quote "authorities" for all manner of views respecting the relative digestibility of the precipitated casein in the different forms which it may take in the stomach. Even more varied are the views regarding the conditions or treatment of milk responsible for its clotting in the dense or in the finely flocculent state, respectively. It is natural that the hypothesis of the greater digestibility of a finer suspension of protein should have proved more popular on general principles, yet this is by no means the view held exclusively. To attain a desired type of flocculence, various procedures have been advised. Dilution with water, with lime water, or with cereal concoctions finds advocates. The suggestion to boil the milk; to reduce or augment the fat content, as the case may be; to employ preliminary chemical or enzymatic treatment—these and other proposals have been made, from time to time. It is doubtless true that a dozen claims, mostly conflicting, could be discovered in the literature of advices regarding the ideal mode of preparing milk as a food.

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[1] Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 745.

[2] Stewart, G. N., and Rogoff, J. M.: J. Pharmacol. & Exper. Therap **10**: 1, 1917; Further Observations Showing That Epinephrin from th Adrenals Is Not Indispensable, Am. J. Physiol. **48**: 397 (May) 1919.

[3] Cabot, R. C.: A Layman's Handbook of Medicine, Boston, Houghton, Mifflin Company, 1916, p. 115.

A group of investigators[4] at the Jefferson Medical College have discarded the test tube and beaker, and substituted the human stomach in the study of how milk coagulates under physiologic conditions. The cooperation of a normal man who could regurgitate stomach contents at will supplied an unusual facility for such an investigation. The results observed on him are contradictory to much that is traditional and taught. They tell us, for example, that milk drunk rapidly left the stomach sooner and produced a smaller curd mass than milk drunk slowly or "sipped." This is quite as revolutionary as the now admitted assertion that water drunk at meal time is not an unmixed evil, or that the "fletcherizing" of food fails to accomplish any marvels in digestion. Again, it was learned that raw whole cow's milk forms a large, hard curd, whereas boiled milk curds in a much finer and softer form; that the presence of much cream (milk fat) in the milk insures the formation of particularly soft curds which are slow to leave the stomach; that skimmed milk yields a particularly hard curd, owing to the absence of fat; that pasteurized milk shows smaller curds than the raw whole milk but larger than the boiled whole milk, and that cold milk coagulates more slowly than warm milk.

Some of these findings have been reported before.[5] It would be premature to announce them as the last word on the clotting of milk in the human stomach, or to make them the sole guide to the ways of using milk as food. Thus, the question of the effects of heating milk on some of its physiologic properties, such as the antiscorbutic potency, cannot be ignored in this connection; nor do the texture and form of the curd necessarily parallel any scheme of digestibility. Perhaps this recital will have served a useful purpose if it directs attention to the inadvisability of offhand pronouncements on subjects still so incompletely investigated and imperfectly understood as are the conditions modifying the alimentary digestion of milk.

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[4] Bergeim, O.; Evvard, J. M.; Rehfuss, M. E., and Hawk, P. B.: The Gastric Response to Foods, II, A Fractional Study of the Coagulation of Milk in the Human Stomach, Am. J. Physiol. **48**: 411 (May) 1919.

[5] Brennemann, Joseph: Boiled Versus Raw Milk, J. A. M. A. **60**: 575 (Feb. 22) 1913; Arch. Pediat. **34**: 81, 1917.

IMPRESSIONS VERSUS FACTS IN THE TREATMENT OF PNEUMONIA

The value of any method of treatment, whether developed empirically or by a long and laborious course of scientific reasoning and experiment, must rest finally on the outcome of its application to clinical medicine. Furthermore, the analysis of clinical results, either statistical or derived from observations of symptomatology, must also be scientifically controlled. On passing from the laboratory to the clinic, the obligation of scientific accuracy is increased rather than diminished, and with the decrease in control over the individual elements of the experiment, the need for caution in interpretation of results increases proportionately. If the case mortality of a given disease were regularly 100 per cent., and if by the use of a remedy the mortality were regularly reduced to 50 per cent., the number of cases necessary to establish the clinical value of the remedy would be many times smaller than if the untreated case mortality were, say, 75 per cent. And if in the untreated disease it were known that the mortality varied within wide limits, the number of observations necessary to prove the value of a remedy by the statistical method would be still further greatly increased.

Lobar pneumonia presents an unrivaled variability in clinical course, duration and mortality in different epidemics from season to season and in the relation of case mortality to age incidence. The long list of remedies, each with its extremely low case mortality, which have claimed temporary favor and later been discarded, testifies to the difficulty of safe scientific deduction in a disease in which there are so many naturally varying and often imponderable factors.

The difficulties of forming a clinical judgment are in no wise decreased when it is proposed to substitute a biologic product for a drug. The known presence of antibodies in a serum, or the demonstrated protective power of a serum for test animals, may serve to raise one's hopes of success, but do not justify any departure from the most rigorous control of data derived from a study of clinical results. McClellan[1] has recently presented the results in 322 cases of lobar pneumonia in soldiers at Camp Grant in which treatment with immunized chicken serum was given. He concludes that "the low mortality . . . together with the favorable modification of clinical symptoms by the serum . . . would seem to indicate the extension of its use in pneumococcus lobar pneumonia."

Without debating the question as to whether antibodies said to be demonstrable in the serum might reasonably be expected to exercise an appreciable specific effect on the human body when injected in doses of 2.5 c.c. once or twice a day, or whether the chill and other phenomena observed following its intravenous injection may not have been of a nonspecific nature — similar to those observed when other foreign proteins are injected intravenously as has been already shown in pneumonia — it seems desirable to examine critically the deductions of the author to determine how far the carefully made observations justify his conclusions.

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[1] McClellan, J. H.: Antipneumococcus Serum (Kyes) in the Treatment of Lobar Pneumonia, J. A. M. A. **72**: 1884 (June 28) 1919.

The total case mortality was 7.7. Unfortunately the case mortality of untreated control cases, which is obviously required for a scientific statistical study, is lacking. While the mortality is low compared to the general civilian mortality for pneumonia, several factors besides specific treatment undoubtedly entered into the favorable result. The age incidence (from 21 to 30) and the good general health of a selected class of soldiers should yield a lower mortality than is encountered in civilian population. The case percentage of deaths from pneumonia in the registration area, ages 5 to 20 in the years 1911 to 1916, varied between 5.1 and 5.7, and for ages 20 to 40 from 15.5 to 16.9. For ages 20 to 30 the mortality would be somewhere between these, probably above rather than below 10. Complete figures of mortality from lobar pneumonia for 1918 in the army are not yet available, but sufficient data are at hand to show that the mortalities in the several camps varied and that the total case mortality from lobar pneumonia, not associated with influenza or measles, was probably less than in corresponding civilian groups. Thus in published reports the case mortality varied greatly, so that a group of cases in one camp might show a mortality of 6 per cent., and in another a mortality three times as large. The case mortality of pneumococcus pneumonia for the period September, 1917, to March, 1918, will probably average about 10 per cent. Type I pneumococcus infections may perhaps be expected to give a slightly lower mortality. The mortality of Type I cases in which McClellan applied his treatment was 9.3 per cent. Some camps of the North showed lower mortality than did those of the South. The environment of soldiers previous to entry into the army, whether urban or rural, their race and physical condition, the coincidence of other epidemic disease and the detailed medical care and symptomatic treatment which they received while in hospital all no doubt had some influence on the mortality of pneumonia. When these factors are considered in relation to cases in which McClellan gave his treatment at Camp Grant, the Camp Grant cases might be expected to yield a mortality even lower than the general army average, quite independently of specific treatment.

As a record of achievement in obtaining a low death rate in a serious disease, the report of McClellan deserves much credit; but in the absence of data relative to control cases treated in the same camp, its value as a scientific demonstration of the effectiveness of a remedy is limited. Continued study and experimentation offer the only hope of progress in the cure of disease, and any rational attempt at therapy deserves a thorough and sympathetic hearing; but in the final trials, before a method is given the clinical stamp of approval, the evidence in its favor should be most carefully weighed and controlled. The joint responsibility of an investigator and his clinical colleagues is large and requires circumspection lest the remedy that appears promising may pass prematurely from their control into the hands of those less interested in science than in financial gain, with the resultant exploitation of the profession and the public.

EXPERIMENTAL ALTERATIONS OF BRAIN BULK

The physical conditions that determine the character of the circulation in the brain have long been regarded to be considerably different from those that obtain in other parts of the body. In most vascular areas, vasomotor changes in the blood vessels are followed by corresponding alterations in the volume of the parts affected. A limb swells or shrinks, respectively, as its blood vessels become dilated or constricted. The brain, on the other hand, is enclosed in a rigid cranium which cannot alter its size in such elastic fashion. Since the blood vessels of this organ are currently believed to project into "a rigid case filled with incompressible material," it is obvious that they cannot, on this hypothesis, contract or dilate without some increase or decrease in the volume of the contents of the cranial cavity. Consequently, a recent writer[1] reflects the trend of present-day opinion when he states that the total volume of blood in the brain must be constant at all times. This is the doctrine formulated by Monro[2] more than a century ago, elaborated by Kellie[3] in 1824, and accepted by the eminent surgeon Abercrombie.[4] As a logical consequence, alteration of blood supply to the brain would depend on the change in velocity with which the circulating medium traverses that organ. As Macleod describes the situation, when more blood is required in the brain to compensate for the increased metabolism which we must assume accompanies heightened mental activity, it is not supplied as in other parts of the body by an increase in the capacity of the vessels as compared with those of other vascular areas, but by an acceleration of the circulation through vessels whose caliber remains unaltered. The main factors determining the velocity of bloodflow through the brain must, therefore, be dependent on changes occurring elsewhere in the vascular system.

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[1] Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918.

[2] Monro: Observations on the Structure and Function of the Nervous System, Edinburgh, 1783.

[3] Kellie: On Death from Cold and Congestion of the Brain, Edinburgh, 1824.

[4] Abercrombie, John: Pathological and Practical Researches on Diseases of the Brain, Edinburgh, 1828.

Quite recently other possibilities have been indicated through the researches of Weed and McKibben[5] of the Army neurosurgical laboratory at the Johns Hopkins Medical School. Their researches suggest that the brain should no longer be regarded as incompressible and of fixed volume in accord with the earlier doctrines, but rather as capable of some variation in size. Weed and McKibben have reported the production of alterations in brain bulk independent of changes in volume of the blood in the vascular bed. By producing marked alterations in the osmotic pressure of the blood —through intravascular injection of either hypertonic or hypotonic solutions—changes in the pressure of the cerebrospinal fluid can readily be brought about. But in addition to this, there are striking changes in the size of the brain itself. That these experimental variations are dependent essentially on the factor of osmotic pressure changes of the blood is attested by the fact that no alteration in the volume of the brain follows relatively large doses of Ringer's solution but occurs promptly on intravenous injection of far smaller amounts of distilled water or concentrated salines. Just how this change in osmotic value of the blood affects the brain tissue and alters its volume, the discoverers add, can only be speculated on at the present time. For the purpose of future consideration, we must, therefore, now assume that "the cranial cavity is relatively fixed in volume and is completely filled by brain, cerebrospinal fluid and blood; variations in any one of the three elements may occur, compensation being afforded by alteration in the volume of one or both of the remaining elements."

"CATAPHYLAXIS" AND GAS GANGRENE

The unexpected prominence of gas gangrene as an incident of war wounds has stimulated new investigations in this field of pathology. It is known that the peculiar, abnormal manifestations fail to appear in a large number of cases definitely demonstrated to be infected with the organisms chiefly responsible for gas gangrene, namely, *Bacillus welchii, B. oedematiens* and *Vibrion septique*. According to Bulloch and Cramer,[6] the explanation generally given for the small incidence of gas gangrene in wounds infected with these bacteria is found in the special conditions supposed to obtain in war wounds. The interference with the circulation, the presence of large masses of dead and lacerated muscle, and the presence of dirt and other foreign substances, have all been suggested as factors in making the wounds an exceptionally favorable nidus for the growth of the micro-organisms concerned.

Certain striking experimental facts must be considered in attempting to explain the problem here concerned. When the bacteria of gas gangrene or of tetanus are completely free from their toxins by washing or other methods, they do not produce their specific disease when injected into mice or guinea-pigs. The apparent reason is that the animals dispose of the bacteria partly by lysis and partly by phagocytosis. This defensive mechanism is reputed to be so effective that the bacteria become nonpathogenic when they are injected by themselves. If, however, a small quantity of toxin—even less than is fatal by itself—is introduced along with the micro-organisms, these defensive devices are paralyzed and untoward results follow. In other words, the protective mechanism may be so effective normally that the formation of a toxin in a concentration sufficient to interfere with the normal defensive activities is prevented.

Bulloch and Cramer[6] have observed that if a small dose of a soluble ionizable calcium salt is injected together with the bacteria or their spores, the specific disease is elicited in a very virulent form. The chlorids of sodium, potassium, ammonium, strontium and magnesium, when injected together with *B. welchii,* are not capable of producing gas gangrene. A direct contact between the bacteria and the calcium salt is not essential. The phenomenon will occur if the bacterial suspension and the calcium salt are injected at different times into the same site, or into different sites at the same time or at different times. The English pathologists conclude that the effect of such injections of calcium salts is to produce local changes leading to local breakdown of the normal defensive mechanism against the bacteria of gas gangrene and tetanus. To this phenomenon the name "cataphylaxis" or "defense rupture" has been assigned.

If "cataphylaxis" is responsible for the unfavorable outcome of infection with the bacillus of gas gangrene, one naturally inquires as to what destroys the body's defenses in the case of those war wounds that take an unfavorable turn. Obviously, salts of calcium cannot always be held responsible. Bulloch and Cramer have found that, of the various foreign bodies tested by them, emulsions of earth were the only ones which frequently, although not invariably, elicited gas gangrene when injected together with the detoxicated bacteria of gas gangrene or their spores. The result is due to a chemical rather than a mechanical factor, since filtered watery extracts were also effective. The damaging potency differs in samples obtained from different localities. Hence the chemical contamination of wounds, as well as their bacterial invaders, may play a part in determining the appearance of gas gangrene. Hence, further, we may understand why it varied with the locality in which the wounds had been received, and was relatively infrequent in certain localities, even though the wounds were infected with the bacteria of gas gangrene. The hypothesis of the special significance of wound contamination with earth will not explain every case of tetanus and gas gangrene. It adds a new chemical factor for consideration in the mechanism of bacterial infection.

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[5] Weed, L. H., and McKibben, P. S.: Experimental Alteration of Brain Bulk, Am. J. Physiol. **48**: 531 (May) 1919; Pressure Changes in the Cerebro-Spinal Fluid Following Intravenous Injection of Solutions of Various Concentrations, ibid., p. 512.

[6] Bulloch, W. E., and Cramer, W.: On a New Factor in the Mechanism of Bacterial Infection, Proc. Roy. Soc. London B. **90**: 513 (May 15) 1919.

Current Comment

DR. ABRAHAM JACOBI

With Dr. Jacobi's passing, medicine loses one of its foremost figures. Dr. Jacobi enjoyed an unusually long and eventful career, marked by numerous honors at the hands of civic and professional societies. In his capacity as teacher and writer for six decades, he was known to a vast number of physicians throughout the country. His conversation and writings were full of "quaint wit, varied learning and true wisdom." His interest in medical progress and medical knowledge never wavered. Justly held in touching reverence by American physicians, Abraham Jacobi, the Nestor of American pediatrics, lived a full life as beloved physician, noted pediatrician, public spirited citizen, and honored leader.

ERYTHEMA NODOSUM AND OTHER SKIN LESIONS IN TUBERCULOSIS

Tuberculids or paratuberculoses are sometimes defined as a group of skin affections, associated with tuberculosis of other structures of the body, but which do not themselves show the anatomic picture of tuberculosis, to which they consequently seem to have only an indirect relation. Some of the well recognized members of this group are acnitis, lichen scrofulosorum, and acne scrofulosorum. Dermatologists are not agreed as to the causative factor of these lesions, some believing that they are due to "tuberculous toxins," while others hold that the lesions are due to actual reactions to hematogenously distributed tubercle bacilli. Recently Stokes[1] of the Mayo Clinic has discussed the frequent association of erythema nodosum, purpura, and erythema multiforme in patients who suffer from more or less well concealed forms of tuberculosis. This writer believes that such lesions are cutaneous reactions to hematogenously distributed tubercle bacilli, deposited in a hypersensitive skin, and originating in a tuberculous focus, perhaps unrecognized for years. Other investigators have noted the association of tuberculosis and erythema nodosum, and the question remains whether the association is of etiologic significance or merely one of coincidence. According to the definition of a tuberculid, erythema nodosum might be classed perhaps in this group of skin affections, as there is no evidence at hand to warrant the assumption that the lesions are due to hematogenously distributed tubercle bacilli. The work of Rosenow[2] will be recalled, particularly the production of lesions suggesting erythema nodosum in animals by the intravenous injection of a diphtheroid gram-positive diplobacillus, which he found in a series of eight cases of erythema nodosum. Stokes points out that "the pathology of erythema nodosum is such that it seems a rash assumption to attribute it to a single type of organism." But he did not make microscopic and bacteriologic studies of the skin lesions in his cases. He did study the cervical or axillary glands in a few cases, and while many glands were found tuberculous, it is not safe to assume that also the associated skin lesion necessarily must have been due to reactions to the tubercle bacillus. The difficulties in the way of bacteriologic and microscopic study of skin lesions in patients are apparent; but such study is, of course, the only way to substantial progress. The association of erythema nodosum and other skin manifestations with tuberculosis is of great interest, and the exact nature of these skin lesions requires further investigation.

SPORTING NOTE

"Nuxated Iron put added power behind my punch and helped to accomplish what I did at Toledo."—Jack Dempsey.

Thus the new world's champion, in large advertisements appearing in last Sunday's papers—at least in such papers as need the money from such sources. The secret is out. We feel that an apology is due to those of our readers who rely on this department for their knowledge of sporting events. We admit to a lack of enterprise in not discovering earlier what was going on behind the scenes in Mr. Dempsey's training camp. But three short years ago, Mr. Willard was telling the public—at the expense of the manufacturers of Nuxated Iron—that that marvelous "patent medicine" was the secret of his easy victories over Jack Johnson and Frank Moran. Now the Honorable William Harrison ("Jack") Dempsey—also at Nuxated Iron expense—"tells the secret" of his training, and explains how "Nuxated Iron" helped him to whip Jess Willard! Ain't science wonderful!

WHEAT AND MEAT IN THE SOLDIER'S DIET

According to the records of food shipped from this country to our army abroad, one third of the American soldier's rations (34.1 per cent.) consisted of flour, 28.2 per cent. of meat, 8.3 per cent. of coffee, 7.3 per cent. of vegetables, 6.8 per cent. of beans, 3.7 per cent. of sugar, 2.5 per cent. of milk, and 1.7 per cent. of fruits.[1] Some fresh vegetables and fruits were purchased abroad. The nutritive "backbone" of this ration thus consisted of flour and meat, the food products that also furnished the bulk of the protein. Considerable discussion has been waged in the past about the question as to the extent to which meat ought to be made a fundamental part of th army ration. It is therefore interesting to note th correspondence of the proportions of cereal and mea actually adopted to the optimum nutritive use recentl described for wheat flour by Osborne and Mendel[2] i their nutrition experiments at New Haven on animals. Having demonstrated that the proteins of the wheat endosperm (which is equivalent to patent flour) are adequate for maintenance but inadequate for normal growth, even when liberal quantities are consumed, they compared the rate of growth made on the proteins of flour alone with that secured from corresponding quantities of protein, two thirds of which was supplied by wheat flour and one third by egg, milk or meat. The results showed how strikingly these supplements enhance the value of wheat flour as a source of protein for the growing animal; and we may infer that its value for the well-being of the adult is also improved thereby. Since milk and eggs are not yet available as staple commodities under wartime conditions, the wisdom of the wheat-meat regimen is manifest.

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[1] Stokes, J. H.: Clinical Studies in Cutaneous Aspect of Tuberculosis, Am. J. M. Sc. **157**: 157 (Feb.) 1919; 313 (March) 1919; 522 (April) 1919.

[2] Rosenow, E. C.: The Etiology and Experimental Production of Erythema Nodosum, J. Infect. Dis. **16**: 367 (April) 1915.

[1] Where the War Money Went, Treasury Department Loan Organ zation, quoted from J. Home Econ. **11**: 269 (June) 1919.

[2] Osborne, T. B., and Mendel, L. B.: The Nutritive Value of th Wheat Kernel and Its Milling Products, J. Biol. Chem. **37**: 55 (April) 1919.

VENOUS FACTORS IN THE MAINTENANCE OF BLOOD PRESSURE

Every clinician must be interested in the factors that determine the phenomena of the circulation. The measurement of arterial blood pressure in man has become a matter of daily routine for thousands of physicians, some of whom, we fear, fail to realize the real significance of the data which they are collecting so assiduously. Indeed, until quite recently, the causes which operate to maintain the pressure have been sought almost exclusively in the pumping action of the heart, on the one hand, and the peripheral resistance to the outflow of blood from the arteries, on the other. Gradually recognition has come to the significance likewise of the fact that the output of the heart at each beat is dependent on the degree to which the ventricles become filled with blood. Increased frequency of heart beat cannot alter the output into the arteries and increase the blood pressure therein unless the supply from the venous system keeps pace with it. The optimum frequency of the heart beat will thus be dependent on the state of filling of the great veins. In this country, Yandell Henderson in particular has emphasized the significance of what he terms the venopressor mechanism concerned in filling the heart. Recently, also, R. Tigerstedt[1] of Helsingfors has called special attention to the importance of the adequate filling of the great central veins for a proper functioning of the circulation and a maintenance of good pressure when the peripheral arterial factors are unchanged. Any device that leads to an engorgement of these veins with blood almost invariably conditions a consequent rise in pressure. C. Tigerstedt[2] has shown that this sequence of events can be brought about by immersion baths. Through the pressure exerted by the water on the veins of the periphery and the abdomen, more blood is driven toward the heart, whereupon the output of the heart promptly increases. The extent to which this phenomenon occurs depends, of course, on the degree to which the peripheral vessels are dilated before the bath. R. Tigerstedt has pointed out that whenever the circulation is impaired because of more or less significant peripheral vascular dilatation, the primary difficulty resides, not so much in this dilatation per se or in a decreased working capacity of the heart, but rather, in the peripheral stagnation of the blood which allows too little to reach the central veins that help to fill the heart.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending July 11, there were 12,388 officers in the Medical Corps, a decrease of 343 from the previous week. The Medical Reserve Corps contained 2,901 officers. The total number of physicians discharged since the beginning of the war is 20,808. The records of the discharge branch of the general staff show the following discharges of officers of the Medical Department from Nov. 15, 1918, to noon, July 10, 1919: 2 brigadier-generals, 63 colonels, 431 lieutenant-colonels, 2,172 majors, 8,697 captains, 10,263 lieutenants, making a total of 21,628 officers discharged to date.

All Temporary Officers to Be Discharged by September 30

All temporary officers of the Medical Corps of the Army, as well as other corps, must be discharged by Sept. 30, 1919, under an order issued by the Secretary of War. Announcement is made that this is a blanket order and not subject to exception. This includes all officers whose commissions were for the recent emergency only.

Award of Cross of the Order of the Bath to American Physiologist

Dr. Walter B. Cannon, professor of physiology at Harvard University, and formerly lieutenant-colonel in the United States Army, who in 1917-1918 cooperated with British investigators in the study of wound shock, has been decorated by the British government with the cross of the Order of the Bath, and given the title of companion of that order. An article by Dr. Cannon on shock, delivered at the last annual session of the Association, appears in this issue.

Personal News of the Services

The honorary degree of LL.D. was conferred on Major-Gen. Leonard Wood, M. C., U. S. Army, by Wesleyan University, recently, and by George Washington University, Washington, D. C., June 18.——The order of commander of the Legion of Honor was conferred on Merritte W. Ireland, Major-Gen., M. C., U. S. Army, Surgeon-General of the Army, and Francis A. Winter, Brigadier-Gen., M. C. U. S. Army, commandant of the Army Medical School at the French embassy at Washington, D. C., in recognition of the services of these officers in the medical department of the Army during the war.——Yale University conferred the degree of Doctor of Laws on Sanford H. Wadhams, Lieut.-Col., M. C., U. S. Army, at the commencement exercises, June 18.

Naval Appropriation Bill

The Naval Appropriation Bill passed by Congress carries an appropriation of $7,500,000 for the medical department of the United States Navy, for the fiscal year beginning July 1, 1919. This is to be used for surgeon's necessaries for vessels in commission, navy yards, naval stations, Marine Corps, and for the civil establishment at the several naval hospitals, navy yards, naval medical supply depots, Naval Medical School and Dispensary, Washington, D. C., and for the Naval Academy. It may also be used toward an accumulation of reserve supplies of medical stores. For the contingent expenses of the Bureau of Medicine and Surgery of the Navy $1,000,000 has been appropriated. The principal items for which this is to be expended are hygienic and sanitary investigations, burial of the dead who die within the United States, automobile expenses and for minor improvements at naval hospitals. The sum of $1,000,000 is also appropriated for the care, maintenance and treatment of patients in naval and other hospitals. The Navy Department is authorized to accept a tract of land on the bay of San Diego, Calif., for the establishment of a Naval Training Station there, provided a site for a naval hospital in Balboa Park is also donated.

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[1] Tigerstedt, R.: Die Bedeutung der Blutfülle in den zentralen Venen für den Kreislauf, Finska Läkaresällskapets Handlingar **60**: 517 (May-June) 1918.

[2] Tigerstedt, C.: Ueber die Einwirkung von Bädern auf den Kreislauf, Skandin. Arch. f. Physiol. **36**: 322, 1917.

Appointments to U. S. Public Health Service

The following nominations in the Public Health Service have been sent by the President to the United States Senate:

Dr. Guy McM. Parkhurst to be assistant surgeon in the Public Health Service, to be effective from date of oath.

Dr. Clarence A. Ransom to be assistant surgeon in the Public Service, to be effective from date of oath.

Asst. Surg. David Prather to be passed assistant surgeon in the Public Health Service, to rank as such from April 8, 1919.

Asst. Surg. Louis L. Williams, Jr., to be passed assistant surgeon in the Public Health Service, to rank as such from April 8, 1919.

Asst. Surg. Warren F. Fox to be passed assistant surgeon in the Public Health Service, to rank as such from April 9, 1919.

Promotions in the Navy

Among recent promotions in the Medical Corps of the United States Navy are the following:

Medical Insp. Ammen Farenholt to be a medical director in the Navy, with the rank of captain, from the 15th day of October, 1917.

Medical Insp. Middleton S. Elliott to be a medical director in the Navy, with the rank of captain, from the 1st day of January, 1918.

Medical Insp. Dudley N. Carpenter to be a medical director in the Navy, with the rank of captain, from the 1st day of February, 1918.

The following named surgeons to be medical inspectors in the Navy, with the rank of commander, from the 15th day of October, 1917: Archibald M. Fauntleroy, Joseph P. Traynor and John L. Neilson.

The following named surgeons to be medical inspectors in the Navy, with the rank of commander, from the 1st day of January, 1918: Charles C. Grieve, John D. Manchester, James S. Woodward and James A. Randall.

Surg. Robert G. Heiner to be a medical inspector in the Navy, with the rank of commander, from the 1st day of February, 1918.

Surg. Owen J. Mink to be a medical inspector in the Navy, with the rank of commander, from the 1st day of July, 1918.

Surg. Harold W. Smith to be a medical inspector in the Navy, with the rank of commander, from the 8th day of February, 1919.

Awards of Military Cross

The Military Cross has been awarded to the following named medical officers:

Lieut. SAMUEL S. ADAMS, Washington, D. C.; Lieut. MAURICE LINDSEY ALLEN, Galion, O.; Capt. STANHOPE BAYNE-JONES, Baltimore; Lieut. DANIEL EDWARD BERNEY, Scranton, Pa.; Lieut. GOUVERNEUR HENRY BOYER, Pottsville, Pa.; Lieut. JAMES BROOMFIELD CLINTON; Lieut. JAMES ELMER CROOP, Erie, Pa.; Lieut. DRAYTON HOWARD DOHERTY, Selma, Ala.; Lieut. CARL ELLIS DUNAWAY, Valdosta, Ga.; Lieut. FRANK ALEXANDER EVANS, Baltimore; Lieut. HAROLD ELMER FOSTER, Castile, N. Y.; Lieut. LINWOOD MALONE GABLE, New York City; Capt. HENRY CHRISTIAN GALSTER, Hudson, N. Y.; Lieut. JOHN GREGG, Lieut. ALBERT ALLEN GROSSMAN, Portland, Ore.; Lieut. THOMAS FARRIS HALE, Louisville, Ky.; Lieut. PERCY GATLIN HAMLIN, Philadelphia; Lieut. ABRAHAM IRVING HASKELL, Minneapolis; Lieut. ALSON JOY HULL, Troy, N. Y.; Lieut. WILLIAM ADDISON JACQUES, New York City; Lieut. ALBERT LESTER JONES, Weatherford, Texas; Capt. HOWARD FRANCIS KANE, Washington, D. C.; Capt. JOHN EDWARD KELLEY; Chicago; Lieut. BALDWIN LONGSTRETH KEYES; Lieut. CORNELIUS THEODORE McCARTY, Philadelphia; Lieut. ROY RALPH McHENRY, Rogers, Ark.; Capt. WILLIAM FULFORD SAPPINGTON, Hancock, Md.; Lieut. EDGAR FERDINAND SCHMITZ, St. Louis; Lieut. JOHN WESLEY SHERRICK, Ann Arbor Mich.; Lieut. THEODORE HIGGINS SWEETSER, New York City; Lieut. GUY DANIEL TIBBETTS, Bennington, N. H.; Lieut. HARVEY CLAUDE UPDEGROVE, Easton, Pa.; Capt. THOMAS EDWARD WALKER, Cleveland; Lieut. WILLIAM AUGUSTUS WILLIAMS, Monticello, Ga.; Lieut. WILLIAM FREDERICK WILLIAMS, Jr., Cumberland, Md.; Lieut. JAMES W. ALDRIDGE, Covington, Ind.; Lieut. HUGO ALEXANDER, Lieut. WILMOT AYRES, Bedtord, Pa.; Lieut. IRVING FRANCIS BARNETT, Chicago; Lieut. WILLIAM HATFIELD CAINE, Cleveland; Lieut. WILLIAM ANDREW ROBERTSON CHAPIN, Springfield, Mass.; Lieut. EARL RAY CHAMNESS; Lieut. EDWARD ALBERT CHRISTOFFERSON, Chicago; Lieut. MILTON BUELL COFFMAN, Richmond, Va.; Lieut. FRED WALTER COMSTOCK, New Haven, Conn.; Lieut. NEIL AVON DAYTON, Burton, O.; Lieut. GRIFFITH ALONZO DEMAY, Indianola, Neb.; Lieut. LOUIS WILLOUGHBY DESPREZ, Tuscumbia, Ala.; Lieut. ROY ARCHIE DOUGLASS, Huntington, Tenn.; Lieut. JOHN FRANCIS DOOLING, Brooklyn; Lieut. THOMAS LAWRENCE DOYLE, Tremont, Pa.; Lieut. WILLIAM BENEDICT EVANS, Chester, Pa.; Lieut. LAWRENCE BRYANT FARRIOR, Mobile, Ala.; Lieut. ROY G. GILES, Belton, Texas; Lieut. ALEXANDER JAMES GILLIS, Baltimore; Lieut. THOMAS EVERETT GRIFFITH, Lieut. TORRANCE JOHN HANLON, Donora, Pa.; Lieut. ALLEN GEORGE HEARD, Galveston, Texas; Lieut. WILLIAM YOUNG HOLLINGSWORTH, Bel Air, Md.; Lieut. JAMES HENRY KEELING, Albany N. Y.; Lieut. ANDREW KNOX, Philadelphia; Lieut. GEORGE SCOTT LAMBETH, Bronson, Kan.; Lieut. BURTON MALTBY, Liberty, Mo.; Lieut. ROBERT N. MacGUFFLE, Passaic, N. J.; Lieut. WINTHROP ESSEX McGINLEY, New London, Conn.; Lieut. WILLIAM GEORGE MILHOLLAND, Lieut. DANIEL JOSEPH MURPHY, New Orleans; Lieut. CHARLES QUAY NORTH, Punxsutawney, Pa.; Lieut. CLARENCE EDWARD NORTHCUTT, Lexington, Okla.; Lieut. EDWARD LAURENCE PATTERSON, Barnwell, S. C.; Lieut. OSCAR HEDBERG PETERSON, Lamoni, Iowa; Lieut. PAUL JAMES PRESTON, Minneapolis; Lieut. GEORGE H. REDDICK, Wabeno, Wis.; Lieut. SYDNEY S. SCHOCHET, Chicago; Lieut. ANGUS JAMES SMITH, Greenville, Fla.; Capt. WILLIAM LESTER SMITH, Toledo, Ill.; Lieut. FRED OSCAR STONE, Andersonville, Tenn.; Lieut. FENTON TAYLOR, New York City; Major LAURENCE MATHEWS TAYLOR, Lieut. CASSELL CLARK TUCKER, Boston; Lieut. ROBERT VINEYARD, St. Louis.

Distinguished Service Order

The following medical officers are to be Honorary Companions of the Distinguished Service Order:

Lieut. CHARLES EARL FALLET, De Soto, Mo.; Lieut. RAYMOND HORACE GEORGE, Chicago; Lieut. WOOSTER HASSELL HOUSE, Oak City, N. C.; Lieut. FRANK HARRISON McGREGOR, Mangum, Okla.; Capt. HAROLD JAMES MORGAN, Lieut. GILBERT SEYMOUR OSNICUP, New York City; Lieut. GLEN DEWEY RANSOM, Big Rapids Mich.; Lieut. FRANK E. SCHRAM, Chicago; Major EMANUEL GOLDSTEIN, Brooklyn; Capt. GEORGE PATRICK O'MALLEY, Cleveland.

Bar to the Military Cross

The following medical officers have been awarded a Bar to the Military Cross:

Lieut. CORNELIUS THEODORE McCARTHY, Philadelphia; Lieut. JAMES BROOMFIELD CLINTON, Philadelphia; Lieut. LAWRENCE BRYANT FARRIOR, Mobile, Ala.; Lieut. HAROLD ELMER FOSTER, Castile, N. Y.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Birmingham—McLean, C. C. (L.)
Wilson, O. E. (L.)
Buhl—Booth, J. L. (C.)
Piedmont—Vansant, J. P. (L.)
Samson—Meriwether, F. V. C. (C.)
Selma—Gay, S. G. (C.)
Swain—Sentell, J. H. (L.)
Theodore—Walker, H. S. J. (C.)
Thomasville—Kimbrough, R. M. (L.)

ARKANSAS

Pine Bluff—Brunson, A. (C.)

CALIFORNIA

Ione—Hawkins, G. G. (C.)
Los Angeles—Coy, L. M. (L.)
Marxmiller, H. G. (M.)
McClurkin, A. A. (L.)
Ross, M. H. (C.)
Oakland—Berry, S. F. (L. C.)
Byrnes, J. P. (C.)
Von Adelung, E. (C.)
Orange—Bradshaw, A. F. (C.)
Oxnard—Avery, R. W. (C.)
Patton—Meyer, E. W. (L.)
Redlands—Avey, J. L. (C.)
San Francisco—Baldwin, W. I. (L. C.)
Barkan, H. (C.)
Fleming, H. W. (C.)
Hutchings, R. K. (C.)
Shields, J. W. (M.)
Shufelt, A. A. (L.)
Wright, H. W. (C.)
San Luis Obispo—Guilfoil, J. A. (L.)
Stockton—Cochran, J. S. (L.)
Susanville—Dozier, W. E. (C.)
Woodland—Fairchild, F. R. (M.)

COLORADO

Colorado Springs—Bortree, L. W. (C.)
Dennis, F. L. (C.)
Colorado Springs—Gillett, O. R. (C.)
Timmons, E. L. (C.)
Craig—Brown, M. D. (C.)
Denver—O'Donnell, F. J. (C.)
Edgewater—Marshak, M. I. (L.)
Pueblo—Killough, H. B. (C.)

CONNECTICUT

Hartford—Borden, C. H. (L.)
Thomas, H. (L.)
Manchester—Higgins, J. A. (C.)
New Haven—Honeij, J. A. (M.)
New London—McGinley, W. E. (C.)
Waterbury—Quinn, R. J. (L.)

DELAWARE

Wilmington—Gross, A. J. (L.)
Washburn, V. D. (L.)

DISTRICT OF COLUMBIA

Washington—Conklin, C. B. (L.)
Lyon, M. W., Jr. (C.)

FLORIDA

Bronson—Markey, M. R. (L.)
Jacksonville—Handley, D. R. (C.)
Parrott, A. R. (M.)
Lake City—Long, J. P. (L.)
Monticello—McEachern, J. R. (M.)
Sanford—Stevens, R. E. (C.)

GEORGIA

Atlanta—Cooper, J. H. (C.)
Augusta—Spivey, O. S. (L.)
Camilla—Spence, J. M. (C.)
Fitzgerald—Luke, J. M. J. (L.)
Griffin—Grye, A. H. (C.)
Monroe—Aycock, T. R. (C.)
Ochlocknee—Winchester, M. E. (L.)
Pitts—Dorsey, H. A. (L.)

IDAHO

Lewiston—Perkins, L. J. (C.)
Pocatello—Newton, A. M. (C.)

ILLINOIS

Bloomington—Rogers, A. E. (C.)
Chicago—Amerson, G. C. (L. C.)
Biezis, S. (L.)
Billings, F. (Col.)
Boren, C. H. (L.)
Blyes, W. J. (L.)
Cloud, H. B. (L.)
Dagnault, T. V. (L.)
Duffy, F. T. (L.)
Fouts, R. M. (L.)
Fox, C. M. (C.)
Funk, N. E. (C.)
Henderson, R. H. (C.)
Hopkins, P. E. (C.)
Johnston, L. C. (C.)
Leenheer, C. A. (M.)
Martin, A. (C.)
McDonell, C. L. (L.)
McKenna, C. M. (C.)
Perry, E. B. (L.)
Reinsch, H. (L.)
Rentfro, C. C. (C.)
Schram, F. E. (C.)
Sweet, W. C. (C.)
Thompson, A. (L.)
Collison—Campbell, J. H. (L.)
Decatur—Lyon, G. E. (L.)
East Chicago—Spear, R. (M.)
East St. Louis—McQuillan, A. B. (C.)
Evanston—Balderston, S. V. (M.)
Maroa—McLean, E. P. (L.)
Mattoon—Parrish, B. D. (C.)
Mount Carmel—Wilson, G. H. (L.)
Mount Vernon—Poole, C. J. (M.)
New Berlin—McLaughlin, C. (L.)
Nilwood—Morgan, D. A. (L.)
Oak Park—Vaughan, H. G. (C.)
Peoria—Easton, M. T. (L.)
Philo—Ryan, W. D. (L.)
Rockford—Harvey, H. (C.)
Rock Island—Hollowbush, J. R. (M.)
Watseka—Van Kirk, J. A. (L.)
Waverly—Allyn, W. H. (C.)

INDIANA

Bluffton—Brickley, H. D. (L.)
Bunker Hill—Moss, W. C. (C.)
Columbus—Thorne, W. G. (C.)
Edinburg—Bice, L. C. (C.)
Elizabethtown—Redman, L. H. (C.)
Evansville—Wilson, A. H. (C.)
Fort Wayne—Dancer, C. R. (C.)
Hammond—Chidlaw, E. W. (C.)
Hartford City—Corey, C. W. (L.)
Huntingsburg—McKinney, S. L. (C.)
Madison—Denny, F. C. (L.)
Marion—Davis, M. S. (L.)
New Albany—Funk, C. C. (C.)
Salamonia—Jones, H. H. (L.)
Terre Haute—Freed, J. E. (C.)
Wabash—Jewett, L. E. (M.)
Warsaw—Murphy, S. C. (C.)

IOWA

Britt—Chester, W. S. (C.)
Centerville—Marker, J. I. (L.)
Charles City—Woodruff, R. H. (C.)
Clarinda—Van Meter, F. J. (L.)
Fort Madison—Wahrer, F. L. (L.)
Grinnell—Padgham, J. T. (C.)
Hampton—Johnston, G. F. (C.)
Kalona—Wolfe, J. H. (L.)
Keokuk—Gilfillan, B. L. (M.)
Monticello—Osborn, D. H. (L.)
Prairie City—Van Voorhis, C. R. (C.)
Rock Valley—Huizenga, R. (C.)
Sloan—Prescott, L. W. (C.)
Steamboat Rock—Caldwell, J. W. (C.)

KANSAS

Galena—Shelley, A. A. (C.)
Garland—Albright, F. C. (C.)
Harveyville—Tomlinson, L. M. (C.)
Minneapolis—Harvey, F. E. (M.)
Topeka—Ott, L. S. S. (C.)
Stewart, J. G. (C.)

KENTUCKY

Lexington—Marks, S. B. (C.)
Louisville—Davis, E. C. (L.)
Hartman, H. G. (L.)
Trawick, J. D. (C.)
Sedalia—Page, M. W. (C.)
Somerset—Griffin, T. R. (M.)
Winchester—Caywood, W. C. (C.)

LOUISIANA

New Orleans—Barker, W. E., Jr. (L.)
Heninger, B. R. (L.)
Shreveport—Bodenheimer, J. M. (L.)

MAINE

Franklin—Underhill, C. S. (C.)
Ogunquit—Richardson, H. B. (L.)
Waterville—Desjardins, A. U. (M.)

MARYLAND

Baltimore—Byrne, J. F. (M.)
Carroll, H. R. (L.)
Carter, H. R. (M.)
Dorsey, J. L. (C.)
Edwards, C. R. (C.)
Erkenbrack, C. P. (C.)
Hussey, R. G. (M.)
Linthicum, E. S. (M.)
Moise, T. S., Jr. (L.)
Powers, F. J. (C.)
Curtis Bay—Scott, W. D., Jr. (M.)
Vienna—Lamkins, E. E. (C.)

MASSACHUSETTS

Boston—Davis, F. A. (C.)
Felch, G. A. (L.)
Kauffman, A. B. (L.)
Nichols, A. (C.)
Osgood, R. B. (L. C.)
Sturgis, C. C. (L.)
Brockton—Leavitt, P. H. (C.)
Cambridge—Berry, F. B. (C.)
Fitchburg—Lane, C. R. (L.)
Holyoke—Drouin, W. G. (C.)
Lynn—Judkins, C. L. M. (C.)
Marlboro—Lemay, A. M. (L.)
Robinson, H. A. (C.)
Milton—Munro, D. C. (C.)
Palmer—Greene, R. A. (C.)
Springfield—Schillander, C. A. (L.)
West Springfield—Bostick, W. J. (C.)
Worcester—Emerson, K. (M.)
Lemaire, W. W. (C.)

MICHIGAN

Ann Arbor—Foster, N. B. (L. C.)
Keim, H. L. (L.)
Bay City—Perkins, R. C. (M.)
Randall, F. H. (L. C.)
Detroit—Blanchard, F. N. (L.)
Catherwood, A. E. (C.)
Dibble, H. F. (C.)
Gramley, W. (C.)
Jenne, B. H. (C.)
Kidner, F. C. (M.)
Reye, H. A. (L.)
Smeck, A. R. (C.)
Flint—Goering, G. R. (C.)
Grand Rapids—Grube, H. A. (L. C.)
Highland Park—Juers, R. H. (C.)
Marquette—Carriel, H. T. (C.)
Parshallville—Rynearson, W. J. (C.)
Romeo—Greenshields, R. M. (C.)
Saginaw—Alger, G. L. (C.)

MINNESOTA

Bricelyn—Stewart, O. E. (C.)
Hancock—Ransom, M. L. (C.)
Lakefield—Rose, J. T. (C.)
Mankato—Wentworth, A. J. (C.)
Mazeppa—Heagerty, W. B. (M.)
Minneapolis—Morriss, H. A. (M.)
Ziskin, T. (L.)
Renville—Maercklein, I. R. (C.)
Rochester—Marsh, H. E. (L.)
Wilson, L. B. (Col.)
St. Paul—Ferguson, J. C. (M.)
Ghent, C. H. (L.)
Whitmore, F. W. (L.)
Truman—Hunte, A. F. (L.)

MISSISSIPPI

Jackson—Berry, W. G. (L.)
Lula—Shurley, E. R. (L.)
Meridian—Garner, M. C. (M.)

MISSOURI

Excelsior Springs—Craven, Y. D. (C.)
Independence—Stuart, F. I. (C.)
Kansas City—Dickson, F. D. (M.)
Kirksville—Grim, E. C. (C.)
Kirkwood—Bowles, T. K. (L.)
St. Louis—Fleisher, M. S. (C.)
Funsch, E. C. (C.)
McKenzie, E. M. (L.)
Ranson, J. R. (L.)
Upshaw, H. T. (L.)
Washington—Seibert, D. A. (L.)
Webb City—Wilfley, O. S. (C.)

MONTANA

Clydepark—Denney, J. C. (C.)
Great Falls—Coulter, C. F. (L.)
Missoula—Turman, G. F. (L.)

NEBRASKA

Ogallala—Wallingsford, C. C. (L.)
Ainsworth—Jones, T. K. (M.)
Albion—Walker, H. P. (C.)
Cairo—Methany, S. E. (L.)
Champion—Legg, C. E. (M.)
Crawford—Ivins, R. L. (L.)
Dwight—Dunram, C. B. (C.)
Edgar—Jones, R. T. (C.)
McCook—Fahnestock, C. L. (C.)
Reed, R. R. (L.)
Nebraska City—Koser, M. L. (C.)
North Platte—Fetter, E. W. (C.)
Omaha—Shook, C. F. (C.)
Springfield—Peters, J. A. (C.)

NEVADA

Yerington—Leavitt, G. E. (C.)

NEW HAMPSHIRE

Berlin—McGee, E. R. (L.)
Manchester—Wilkins, G. C. (M.)

NEW JERSEY

Burlington—Rodgers, H. L. (L.)
Dover—Baker, A. L. L. (C.)
Hackensack—Finke, G. W. (L.)
Jersey City—Bott, J. A. (L.)
Finn, F. A. (C.)
Montclair—Schimmelpfennig, R. D. (C.)
Passaic—Gluck, C. (L.)
Warren, D. E. (C.)
Paterson—Connolly, T. V. (L.)
Plainfield—Leggett, T. H., Jr. (L.)
Somerville—Lawton, A. A. (C.)
Trenton—Dorety, P. J. (C.)
Richardson, H. T. (L.)
Slack, C. J. (C.)

NEW MEXICO

Hanover—Davis, C. W. (L.)
Reserve—Riddle, H. K. (L.)

NEW YORK

Albany—MacTaggart, R. A. (C.)
Amsterdam—Thompson, J. B. (C.)
Blackwell Island—Howe, C. E. (L.)
Brooklyn—Berger, E. L. (L.)
Bunker, H. A. (C.)
Doyle, S. B. (L.)
Gissel, H. W. (C.)
Grant, L. J. (C.)
Jennings, J. E. (L. C.)
Levy, S. K. (L.)
Rossiter, P. E. (C.)
Seidenstein, J. J. (L.)
Stahl, M. (L.)
Thomas, S. S. (C.)
Buffalo—Evans, J. H. (C.)
Canaserago—Schwan, C. G. (L.)
Catskill—Honeyford, L. B. (C.)
Delmar—Holmes, T. M. (C.)
Elmhurst—Combes, J. D. (C.)
Falconer—Stewart, A. J. (L.)
Fulton—Fox, F. E. (C.)
Hamburg—Minkel, A. J. (L.)
Hornell—Hart, J. G. (L.)
Hudson—Mambert, J. W. (L.)
Huntington—MacLean, B. P. (C.)
Hyde Park—Cronk, J. M. (C.)
Mendon—Wright, J. E. (L.)
New York—Brown, H. R. (L.)
Conklin, W. H. (L.)
Dwight, K. (C.)
Emerson, H. (Col.)
Giffen, S. D. (C.)
Glaeser, A. T. (L.)
Greenhouse, A. C. (L.)
Haskin, W. H. (L. C.)
Kraus, W. M. (C.)
McSweeney, J. A. (C.)
Muller, H. R. (L.)
Schwerdfeger, O. M. (M.)
Thomas, H. M., Jr. (L.)
Walker, J. B. (Col.)
Witt, S. E. (L.)
Profile House—Smith, J. F. (L.)
Rome—Marshall, R. J. (C.)
Saratoga Springs—Eaton, F. G. (C.)
Saugerties—Diedling, R. F. (C.)
Tupper Lake—Barrett, P. J. (L.)
Watertown—Farmer, H. G. (M.)
Westernville—MacFarland, H. D. (L.)
Whitehall—Plunkett, R. E. (C.)
Wilton—Parkinson, V. M. (L.)
Youngstown—Schmid, H. (C.)

NORTH CAROLINA

Clarkton—Clark, D. D. (C.)
Powelton—Nicholson, N. G. (L.)
Warrentown—Davis, R. B. (C.)

NORTH DAKOTA

Cogswell—Howard, C. E. (C.)
Devils Lake—Jamieson, G. V. (C.)
Mandan—Aylen, W. C. (L.)

OHIO

Chillicothe—Brown, H. R. (L.)
Cleveland—Berr, A. H. (L.)
Davis, H. H. (C.)
Cleveland—Fried, A. E. (L.)
Krauss, L. W. (L.)
Lichtig, H. A. (L.)
McNamee, E. P. (L.)
Neitz, E. P. (C.)
Dayton—Koppe, H. F. (C.)
Edgerton—Curl, G. R. (C.)
Marion—Dombaugh, R. S. (L.)
Norwood—Eagon, S. E. (L.)
Saur, L. O. (L.)
Sparta—Larimore, H. B. (L.)
Youngstown—Mossman, R. G. (L.)

OKLAHOMA

Blackwell—Gearhart, A. P. (C.)
Clinton—Comer, M. C. (L.)
Pawnee—Weller, R. E. (C.)
Tahlequah—Peterson, C. A. (L.)

OREGON

Cove—McCown, A. C. (C.)
Newberg—Littlefield, H. A. (M.)
Portland—Belknap, H. P., Jr. (L.)
Dillehunt, R. B. (M.)
Sargentich, S. F. (C.)
Selling, L. (M.)

PENNSYLVANIA

Ambler—Godfrey, A. (C.)
Ashland—Constien, R. A. (C.)
Boyertown—Dotterrer, C. B. (M.)
Canonsburg—Hazlett, E. L. (L.)
Chambersburg—Seaton, L. H. (C.)
Columbia—Shillott, C. J. (C.)
Dickson City—Lonergan, P. A. (L.)
Erie—Smith, B. B. (L.)
Stilley, J. C. (C.)
Hazelton—Cuozzo, J. A. (L.)
Hillsville—McWilliams, W. M. (L.)
Marcus Hook—Whitehouse, W. J. (M.)
Oakmont—Edgar, J. C. (M.)
Penn Yan—Leader, G. H. (L.)
Philadelphia—Antrim, H. T. (C.)
Bedrossian, E. H. (L.)
Campbell, R. F. (L.)
Corcoran, M. P. (L.)
Davis, T. C. (C.)
Dorrance, G. M. (M.)
Ely, W. C. (L.)
Kalodner, E. J. (L.)
Keyes, B. L. (C.)
Means, P. B. (L.)
Morrison, W. F. (C.)
Muller, G. P. (M.)
Shallow, T. A. (C.)
Torrey, R. G. (M.)
Walker, W. (M.)
Walkling, A. A. (L.)
Pittsburgh—Buck, C. J. (C.)
Dillinger, G. A. (L. C.)
King, R. H. (C.)
Robinson, R. V. (C.)
Steffy, J. L. (L.)
Turner, H. H. (C.)
Wolfe, C. H. (L.)
Reading—Glick, S. B. (L.)
Scranton—Flynn, R. J. (C.)
Redding, L. G. (L.)
Seminole—Lamp, C. B. (C.)
Turbotville—Muffly, G. W. (L.)
Washington—Rinehardt, S. H. (C.)
West Alexander—Timmons, J. M. (C.)
Wilkes Barre—Tischler, M. (L.)
York—May, C. H. (M.)

SOUTH CAROLINA

Buffalo—Salley, F. P. (M.)
Greenville—Wilson, T. R. (M.)
Sharon—Blair, J. L. (L.)

SOUTH DAKOTA

Platte—Brooks, C. F. (C.)

TENNESSEE

Chattanooga—McIsaac, F. C. (C.)
Lobelville—Cagle, W. D. (C.)
Nashville—Menees, T. O. (L.)
Normal—Verdel, L. F. (L.)

TEXAS

Cedar Bapou—Schilling, J. G. (L.)
Dallas—Bland, L. F. (L.)
Terrell, S. L. (M.)
DeKalb—Beck, J. W. E. H. (L.)
Dublin—Barnett, H. N. (C.)
Edgewood—Farrell, C. E. (L.)
Gonzales—Dawe, W. T. (C.)
Greenville—Dickens, W. M. (L.)
Odell—Rogers, A. C. (L.)
Ranger—Terrell, C. O. (C.)
Refugio—Glover, G. E. (C.)
Taylor—Thomas, J. C. (C.)
Waco—Jones, S. R. (L.)
Murphey, P. C. (C.)
Winchell—Locker, H. T. (L.)

UTAH

Ogden—Whalen, W. E. (M.)

VERMONT

Bristol—Williamson, H. L. (L.)
Burlington—Larner, A. L. (C.)
Morrisville—Bates, G. L. (M.)

VIRGINIA

Radford—Poindexter, W. O. (C.)
Roanoke—Davis, P. (C.)
Hurt, G. S. (L.)
Staunton—Tynes, A. L. (C.)
Warrenton—Trow, W. G. (M.)

WASHINGTON

Cashmere—Parker, W. G. (C.)
Coupeville—Ristine, E. F. (C.)
Metaline Falls—Hiett, J. (M.)
North Yakima—Keeler, C. E. (C.)
Seattle—Ballance, C. (L.)
Schrock, E. B. (C.)
Turner, P. A. (C.)
Spokane—Lupton, I. M. (C.)
Rohrer, P. A. (C.)
Tacoma—Gammon, C. P. (M.)
Wilson, C. S. (L. C.)
Wenatchee—Gerhardt, A. E. (M.)

WEST VIRGINIA

Clarksburg—Haynes, H. H. (C.)
Fairmont—Carr, H. H. (C.)
Huntington—Bobbitt, R. M. (C.)
Yost, G. (C.)
Martinsburg—Bitner, E. H. (M.)

WISCONSIN

Barron—Coleman, H. M. (C.)
Barton—Driessel, S. J. (C.)
Cazenovia—Schlenker, G. H. (C.)
Hancock—Joseph, W. A. (C.)
Hudson—Burns, H. J. (C.)
Kenosha—Andre, F. E. (C.)
Milwaukee—Wilske, C. A. (L.)
Neenah—Del Marcelle, C. (C.)
Oconto—Clarke, T. C. (C.)
Racine—Salbreiter, W. P. (C.)
Shawano—Schroeder, E. L. (L.)
Sheboygan—Bedford, E. W. (C.)
Wauwatosa—McCoy, H. J. (L.)
Sargeant, H. W. (C.)
Whitewater—Miller, H. C. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

Los Angeles—Feldman, A.

ILLINOIS

Chicago—Hoodlett, J. J.
Spawr, C. V.
Peoria—Bradley, R. C.

LOUISIANA

New Orleans—Foster, R. H.
Rankin, R. B.

MASSACHUSETTS

Boston—Holmes, F. G.

MINNESOTA

Minneapolis—Tyrrell, C. C.

NEBRASKA

Elba—Frandsen, C.

NEW YORK

Auburn—Bennett, A. J.
New York—Gould, E. W.

NORTH CAROLINA

Asheville—Tennent, G. S.
Williamston—Harrell, W. H.

OHIO

Circleville—Jonnes, L.

PENNSYLVANIA

Greenville—Doyle, J. A.

VERMONT

Burlington—Andrews, B. F.

VIRGINIA

Richmond—Allen, C. D.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Arizona

To Hampton, Va., from Camp Jackson, Capt. R. R. KNOTTS, Yuma.

Arkansas

To Edgewood, Md., Edgewood Arsenal, from Camp Dix, Capt. P. E. THOMAS, Jr., Clarendon.

California

To Camp Lee, Va., from Camp 'Zachary Taylor, Lieut. H. W. SPIERS, Los Angeles.

To Camp Meade, Md., base hospital, from Army Medical School, Lieut. L. O. W. MOORE, Alameda.

To Fort Benjamin Harrison, from Camp Bowie, Major C. E. SISSON, Norwalk; from Camp Dix, Capt. W. C. S. KOEBIG, Los Angeles.

To Fort Leavenworth, Kan., from Camp Dix, Lieut. T. C. SCHNEERER, Los Angeles.

To Fort Sheridan, Ill., from Camp Kearney, Capt. R. L. TEBBITT, Los Angeles.

To Hoboken, N. J., Lieut. D. B. ZBINDEN, Downey.

To San Francisco, Calif., Letterman General Hospital, from Camp Dix, Capt. L. J. SCHERMERHORN, Stockton; Lieut. R. A. POWERS, San Francisco; from Fort Douglas, Major A. D. S. McCOY, Pasadena.

Colorado

To Camp Travis, Texas, from San Francisco, Major R. E. TALBOT, Denver.

To Washington, D. C., Surgeon-General's Office, from Camp Lee, Lieut. R. L. CHARLES, Denver.

Connecticut

To New Haven, Conn., from Camp Upton, Lieut. S. MAISLEN, Hartford.

District of Columbia

To Camp Bowie, Texas, from Walter Reed General Hospital, Major P. E. McNABB.

To Colonia, N. J., from Walter Reed General Hospital, Lieut.-Col. N. T. KIRK.

To Fort Bayard, N. M., from Surgeon-General's Office, Col. E. M. WELLES, Jr.

To Fort McHenry, Md., from Surgeon-General's Office, Col. H. PAGE.

To Fort Sheridan, Ill., from Washington, D. C., Lieut.-Col. T. E. DARBY.

To Washington, D. C., from Fort Oglethorpe, Major L. C. ECKER, Washington. Surgeon-General's Office, from Hoboken, Major J. W. BURKE, Washington; from Newport News, Major M. H. DARNALL, Washington.

Florida

To Astoria, N. Y., from Camp Dix, Capt. W. P. DICKINSON, Nichols.

To Fort McPherson, Ga., from Camp Jackson, Capt. A. M. C. JOBSON, Nichols.

Georgia

To Camp Mormoyle, Texas, from Roland Park, Lieut. C. L. EDGE, Columbus.

To Fort McPherson, Ga., from Camp Dix, Lieut. W. J. TURNER, Ashburn; from Camp Jackson, Major R. H. STANLEY, Augusta.

To Fort Sheridan, Ill., from Camp Dix, Capt. I. C. CASE, Atlanta.

To Spartanburg, S. C., from Camp Lee, Capt. L. F. WRIGHT, Atlanta.

The following order has been revoked: *To report to the commanding general,* American Expeditionary Forces, from Camp Gordon, Capt. R. B. HARDING.

Illinois

To Camp Dodge, Iowa, from Camp Dix, Major F. DEACON, Chicago.

To Camp Lee, Va., base hospital, from St. Louis, Major D. E. EGAN, St. Charles.

To Camp Sherman, Ohio, from Camp Bowie, Capt. J. K. POLLOCK, Elgin; from Camp Grant, Lieut. A. SUMMERS, Chicago.

To Chicago, Ill., from Washington, D. C., Col. F. H. MARTIN, Chicago.

To Colonia, N. J., from Camp Sherman, Lieut. H. M. GOODYEAR, Morton.

To Fort Riley, from Camp Dix, Capt. W. H. RUPERT, Chicago.

To Fort Sheridan, Ill., from Camp Dix, Major F. A. MARTIN, Tower Hill.

To Fox Hills, N. Y., from Camp Dix, Capt. A. J. WEIRICK, Marseilles; from Camp Upton, Capt. H. B. THOMAS, Chicago; from Cape May, Capt. C. J. DAVIS, Deerfield.

The following orders have been revoked: *To Fox Hills, N. Y.,* from Camp Dix, Major G. G. DAVIS, Chicago. *To Spartanburg, S. C.,* from Fort Oglethorpe, Lieut. C. E. KELSO, Thomasboro.

Indiana

To Camp Sherman, Ohio, from Camp Bowie, Capt. C. A. UNDERWOOD, Indianapolis.

To Fort Benjamin Harrison, from Camp Dix, Capt. J. C. BOHN, Terre Haute; from Panama Canal Department, Capt. I. M. CASEBEER, Newport.

To Fort McPherson, Ga., from Camp Dix, Lieut. T. P. GOODWIN, South Bend.

To Fox Hills, N. Y., from Cape May, Lieut. F. C. POTTER, Indianapolis.

To Hoboken, N. J., Capt. C. J. TUCKER, Rushville.

To Washington, D. C., Surgeon-General's Office, from Camp Abraham Eustis, Capt. E. A. WILLIS, Indianapolis.

Iowa

To Camp Grant, Ill., base hospital, from Camp Dix, Capt. E. D. McCLEAN, Oskaloosa.

To Carlisle, Pa., from Camp Dodge, Col. H. D. BLOOMBERGH.

To Fort Des Moines, Iowa, from Camp Dix, Lieut. C. S. FELT, New Providence.

To Fort Ontario, N. Y., from Camp Dix, Capt. A. NEGUS, Keswick.

To Fort Sam Houston, Texas, base hospital, from Camp Dix, Lieut. R. C. JACKSON, Independence.

To Fort Sheridan, Ill., from Fort McHenry, Capt. M. B. DUNNING, Conway.

To report to the commanding general, Panama Canal Department, from Camp Dodge, Capt. F. S. MATLACK.

Kansas

To Fort Riley, from Fort McHenry, Major L. A. CLARY, Hutchinson.

The following order has been revoked: *To Fort Riley,* base hospital, from Spartanburg, Lieut. H. R. SCATES, Baxter Springs.

Kentucky

To Camp Sherman, Ohio, from Hoboken, Major F. B. DeWITT, Rockport.

To Fox Hills, N. Y., from Cape May, Lieut. H. J. BEARD, Hardinsburg.

Louisiana

To Hoboken, N. J., Capt. T. R. RUDOLF, New Orleans.

Maine

To Fort Sam Houston, Texas, base hospital, from Fort Benjamin Harrison, Major F. E. LESLIE, Andover.

Maryland

To Fort McHenry, Md., from Camp Jackson, Lieut. K. H. DOEGE, Baltimore.

To Fort McPherson, Ga., from Cape May, Major R. FAYERWEATHER, Baltimore.

To Fox Hills, N. Y., from Cape May, Lieut. J. H. BAIRD, Baltimore.

To Oteen, N. C., from Pittsburgh, Lieut. B. B. BRUMBAUGH, Denton.

Massachusetts

To Camp Lee, Va., from Camp Dix, Major S. A. MOULTON, Winthrop.

To Carlisle, Pa., from Camp Upton, Major H. A. JOHNSON, Lynn.

To Fort McPherson, Ga., from Camp Dix, Lieut. E. H. MacMICHAEL Malden.

To Fort Ontario, N. Y., from Camp Dix, Capts. L. H. LIMAURO, Lynn; H. R. COBURN, Tewksbury.

To Fort Porter, N. Y., from Plattsburg Barracks, Capt. H. L. STICK, Baldwinsville.

To Fox Hills, N. Y., from Camp Dix, Lieut. H. L. DAVIS, Lynn; from Camp Upton, Lieut. L. S. KEMP, Canton; from Cape May, Capt. G. BERRY, Worcester; Lieuts. T. B. RAFFERTY, Lynn; G. E. DEERING, Worcester.

To Otisville, N. Y., from Camp Dix, Lieut. E. J. GRAINGER, Winthrop.

To Plattsburg Barracks, N. Y., from Camp Jackson, Lieut. J. E. BANQUER, Boston.

Michigan

To Camp Custer, Mich., from Camp Dix, Majors C. A. MITCHELL, Benton Harbor; V. D. BARNES, Morenci.

To Camp Meade, Md., from Camp Upton, Capt. H. S. COLE, Whitehall.

To report to the commanding general, Southeastern Department, from Camp Dix, Lieut. A. B. EGAN, Muskegon.

To Walter Reed General Hospital, D. C., from Detroit, Capt. E. O. SAGE, Detroit.

Minnesota

To Camp Custer, Mich., from Camp Dix, Lieut. R. C. URBAN, Minneapolis.

To Fort McHenry, Md., from Camp Upton, Capt. F. P. MOERSCH, Minneapolis.

To Fort Sheridan, Ill., from Camp Dix, Capts. P. R. HANKEE, Cannon Falls; F. N. BJERKEN, Red Wing.

To Walter Reed General Hospital, D. C., from Pittsburgh, Lieut. H. H. WARNER, St. Paul.

Missouri

To Denver, Colo., from Spartanburg, Lieut. E. J. BUTZKE, Bowling Green.

To Fort Sam Houston, Texas, from Camp Dix, Lieut. L. G. PAWELEK, St. Louis.

To Fort Sheridan, Ill., from Plattsburgh Barracks, Capt. M. L. F. UNDERWOOD, St. Joseph.

To Hampton, Va., from Pig Point, Lieut. E. V. KRING, St. Louis.

To Jefferson Barracks, Mo., from Camp Dix, Major R. E. BYRNS, St. Louis.

To Mineola, N. Y., from St. Louis, Col. B. J. EDGER, Jr.

To Plattsburg Barracks, N. Y., from Camp Dix, Capt. C. D. MENEFEE, Perry; from Camp Jackson, Lieut. A. C. KIRBY, St. Louis.

To *Spartanburg, S. C.*, from East View, Lieut. B. W. LEWIS, St. Louis.

Montana

To Fort Bayard, N. M., from American Expeditionary Forces, Lieut.-Col. T. B. SCOTT, Butte.

To report to the commanding general, Southern Department, from Camp Grant, Capt. S. ANDROP, Richey.

Nebraska

To Camp Sherman, Ohio, from Camp Bowie, Lieut. C. W. WAY, Wahoo.

Nevada

To Fort D. A. Russell, Wyo., from Camp Dix, Major W. J. CIRCE, Carson City.

New Jersey

To Camp Lewis, Wash., from Camp Dix, Col. W. R. EASTMAN.

To Camp Zachary Taylor, Ky., base hospital, from Camp Dix, Capt. J. V. FALISI.

To Fort Slocum, N. Y., from Hoboken, Col. D. BAKER.

To Fox Hills, N. Y., from Cape May, Lieut.-Col. J. T. AYDELOTTE.

To Hampton, Va., Langley Field, as sanitary inspector, from Camp Dix, Major J. S. C. FIELDEN.

To Hoboken, N. J., from Camp Mills, Lieut.-Col. R. H. HUNT, East Orange.

To Newport News, Va., from Camp Dix, Lieut. T. J. KELLY, Newark.

To New York City, from Camp Upton, Capt. P. A. POTTER, East Orange.

To Plattsburg Barracks, N. Y., from Cape May, Lieut.-Col. W. H. ALLEN.

To San Francisco, Calif., from Hoboken, Lieut.-Col. H. G. FORD.

To Walter Reed General Hospital, D. C., from Camp Dix, Lieut.-Col. T. J. LEARY.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Col. P. C. HUTTON; from Hoboken, Col. R. S. PORTER.

New York

To Camp Meade, Md., from Fort Ontario, Col. H. D. THOMASON.

To Carlisle, Pa., from Camp Dix, Major H. E. BABCOCK, Amagansett; from Plattsburg Barracks, Major W. A. CONLON, Central Islip.

To Colonia, N. J., from Camp Dix, Capts. H. S. CAMPBELL, Otto; A. KRIDA, Schenectady.

To Fort Jay, N. J., from Camp Dix, Capt. H. HERSCHBERG, New York.

To Fort McHenry, Md., from Camp Lewis, Capt. E. M. JOHNSON, New York; from Camp Upton, Lieut. T. J. RYAN, New York; from Carlisle, Capt. J. R. HUNTER, New York.

To Fort Porter, N. Y., from Pittsburgh, Lieut. A. R. SHIRLEY, New York.

To Fort Sheridan, Ill., from Hoboken, Lieut. A. LEBENDIG, Rochester.

To Fort Slocum, N. Y., from Camp Dix, Major G. B. BROWN, Saratoga Springs; from Camp Upton, Lieut. A. T. MAYS, Brooklyn.

To Fox Hills, N. Y., from Camp Upton, Lieuts. S. S. FRIEDMAN, New York; F. S. WETHERELL, Syracuse; from Cape May, Capt. J. E. J. KING, New York; Lieuts. F. DAMRAU, Brooklyn; G. C. ANDERSON, S. SILBERT, New York; from Eastview, Capt. W. PANITCH, Troy.

To Garden City, N. Y., as cardiovascular examiner, from Camp Upton, Capt. S. STRUWASSER, Brooklyn.

To Muscle Shoals, Ala., from Hoboken, Lieut. H. W. SCHLESINGER, New York.

To New Haven, Conn., from Camp Dix, Capt. J. E. RAPUZZI, Staten Island.

To Otisville, N. Y., from Camp Dix, Capt. P. M. BOLTON, Buffalo; from Camp Upton, Lieut. H. C. DORSEY, New York.

To Plattsburg Barracks, N. Y., from Camp Dix, Capts. J. H. WATSON, Buffalo; L. J. WARD, Gloversville; Lieuts. G. G. DAVIS, Arcade; A. W. MAHONEY, New York.

To report to the commanding general, Panama Canal Department, from District of Porto Rico, Lieut. H. GOODMAN, New York.

To Walter Reed General Hospital, D. C., from Camp Lee, Lieut. W. F. TOLSON, New York; from Detroit, Capt. G. E. STANBRO, Springville.

To Washington, D. C., Surgeon-General's Office, from Hoboken, Lieut. G. B. THAXTON, New York.

The following order has been revoked: *To Camp Bragg, N. C.*, from Williamsbridge, Lieut. H. T. CARTWRIGHT, New York.

North Carolina

To Plattsburg Barracks, N. Y., from Camp Jackson, Lieut. J. R. LATHAM, Belhaven.

Ohio

To Camp Dodge, Iowa, from Fort Leavenworth, Lieut. W. H. MERRIAM, Mount Eaton.

To Camp Sherman, Ohio, from Camp Dix, Capts. R. B. TATE, Harrison; E. E. LYNCH, Mount Victory.

To Camp Upton, N. Y., base hospital, from Camp Dix, Capt. L. SHIELDS, Xenia.

To Columbus Barracks, Ohio, from Camp Dix, Major J. A. LINK, Springfield.

To Fort Sheridan, Ill., from Camp Dix, Major E. J. GORDON, Columbus.

Oklahoma

To Camp Sherman, Ohio, from Camp Zachary Taylor, Lieut. E. L. YEAKEL, Oklahoma City.

To Fort Riley, from Camp Dix, Capt. R. L. HOLT, Mangum. Base hospital, from Camp Dix, Capt. R. G. SHERWOOD, Ochelata.

Oregon

To Carlisle, Pa., from Camp Dix, Capt. E. D. EVERETT, Lakeview.

To report to the commanding general, Western Department, from Camp Lewis, Lieut. J. E. SHEARER, Cloverdale.

Pennsylvania

To Army Medical School for instruction from Camp Dix, Capt. B. E. WILKINSON, Trevorton.

To Camp Dix, N. J. as cardiovascular examiner, from Camp Upton, Lieut. A. LEVY, Philadelphia.

To Camp Jackson, S. C., base hospital, from Camp Dix, Capt. D. BALLOU, Jr., Gibraltar.

To Camp Shelby, Miss., from Camp Jackson, Major G. B. BOYER, Pottsville.

To Camp Sherman, Ohio, from Camp Dix, Major E. J. GORDON, Wyncote.

To Carlisle, Pa., from Camp Dix, Lieuts. R. A. FISHER, Easton; A. I ROSENBERGER, Meadville; from East View, Major R. J. HENDERSON, Bowmansville.

To Colonia, N. J., from Camp Dix, Capt. W. R. SHOEMAKER, Wilmerding.

To Denver, Colo., from Pittsburgh, Lieut. W. E. GARDNER, Pittsburgh.

To Fort Sheridan, Ill., from Pittsburgh, Lieut.-Col. E. D. KREMERS.

To Fox Hills, N. Y., from Cape May, Lieut.-Col. C. H. FRAZIER, Capt. S. D. INGHAM, Lieuts. M. McCUTCHEON, Philadelphia; W. S. REESE, Scranton.

To Jefferson Barracks, Mo., from Pittsburgh, Capt. R. DUCAT.

To Oteen, N. C., from Camp Dix, Capt. G. R. HARRIS, Jr., Pittsburgh; from Camp Jackson, Capt. A. M. DANNENBERG, Philadelphia.

To Plattsburg Barracks, N. Y., from Camp Dix, Major W. C. HENSYL, Berwick; Capt. J. J. BENDICK, Olyphant.

To Spartanburg, S. C., from Camp Jackson, Lieut. H. A. HOLLAND, Pittsburgh.

To Wolter Reed General Hospital, D. C., from Camp Dix, Capt. J. P. MAUS, Philadelphia; from Pittsburgh, Capt. C. A. STAYTON.

The following order has been revoked: *To Governors Island, N. Y.*, from New York, Lieut. J. C. HARDING, Philadelphia.

Rhode Island

The following order has been revoked: *To Muscle Shoals, Ala.*, from Camp Lee, Capt. A. A. WEEDEN, Woonsocket.

South Carolina

To Spartanburg, S. C., from Camp Jackson, Capt. W. S. BURGESS, Sumter.

Tennessee

To Camp Sherman, Ohio, from Camp Zachary Taylor, Major J. L. MORGAN, Memphis.

To Jefferson Barracks, Mo., from Camp Dix, Lieut.-Col. J. B. STEELE, Chattanooga.

Texas

To Camp Sherman, Ohio, from Camp Bowie, Lieut. W. E. CAMPBELL, Cedar Creek.

To Fort Bayard, N. M., from Camp Dix, Major A. M. COFFEY, San Antonio.

To Fort McHenry, Md., from Camp Gordon, Lieut. W. A. LEE, Denison.

To Fort Riley, base hospital, from Detroit, Lieut. O. T. KIRKSEY, Galveston.

To Fort Sam Houston, Texas, base hospital, from Fort Bayard, Capt. W. A. VEE CASH, Abilene.

To Metuchen, N. J., Raritan Arsenal, from Camp Lee, Capt. J. S. WHEELER, Coryell.

To New Haven, Conn., from Camp Jackson, Lieut. J. H. PARK, Jr., Houston.

To New York City, from Camp Dix, Major A. M. COFFEY, San Antonio.

To report to the commanding general, American Expeditionary Forces, Siberia, from Camp Bowie, Major R. E. PARRISH.

Virginia

To Camp Meade, Md., from Camp Custer, Major H. C. MALLORY, Greenbackville.

To Fort Des Moines, Iowa, from Camp Dix, Capt. R. J. EVANS, Jr., Hopewell.

To Fort McHenry, Md., from East View, Lieut. J. W. ROBERTSON, Onancock.

To Fox Hills, N. Y., from Cape May, Major C. C. COLEMAN, Richmond.

To Hampton, Va., from Newport News, Capt. A. B. PAVY.

To Washington, D. C., from Newport News, Lieut.-Col. H. H. BAILY.

West Virginia

To Camp Meade, Md., base hospital, from Army Medical School, Capt. L. A. PETTY, Charleston.

To Hoboken, N. J., from Camp Dix, Major J. J. GOODWILL, Coopers.

Wisconsin

To Fort Riley, from Fort Sheridan, Capt. J. E. McGINNIS, Green Bay.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut.-Col. F. F. BOWMAN, Madison.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg. Gen. T. CLARK (Reserve) authorized to proceed to necessary places in the investigation of Child Hygiene.

Passed Asst. Surg. ROBERT OLESEN, relieved at Montgomery, Ala. Proceed to Washington for instruction preparatory to detail to Milwaukee, Wis.

Passed Asst. Surg. C. L. WILLIAMS, proceed to Washington, D. C., on special temporary duty.

Passed Asst. Surg. C. E. WALLER, relieved from further duty at the Hygienic Laboratory.

Asst. Surg. L. L. WILLIAMS, Jr., relieved at Charleston, S. C. Proceed to Washington, D. C., on special temporary duty.

Asst. Surg. R. E. DYER, proceed to Washington, D. C., on special temporary duty. Relieved at Englewood, N. J.

Asst. Surg. M. V. ZEIGLER, relieved at Brunswick, Ga. Proceed to Washington, D. C., on special temporary duty.

Passed Asst. Surg. I. J. FRISCH (Reserve), relieved at the Bureau of War Risk Insurance. Proceed to the United States Public Health Service Hospital, Waukesha, Wisconsin.

Asst. Surg. H. C. BEST (Reserve) ordered to active duty in the Reserve Corps of the Public Health Service. Proceed to Mount Alto Hospital, Washington, D. C., for duty.

Asst. Surg. M. J. HAHN (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service. Proceed to the Marine Hospital, Boston, Mass., for duty.

Asst. Surg. JOSEPH E. WHEELER (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service. Proceed to the Marine Hospital, St. Louis, Mo., for duty.

Act. Asst. Surg. A. L. BEIER, proceed to Waukesha, Wis., for duty in the U. S. Public Health Service Hospital.

Act. Asst. Surg. W. A. WILSON, proceed to Washington, D. C., for conference.

Intern GEORGE K. ARMEN, proceed to the Marine Hospital, St. Louis, Mo., for duty.

Regional Consultant LOUIS HOUGH, proceed to the States of Missouri, Kansas, Arizona, Wyoming and Colorado to confer with State Health Officers relative to venereal disease control.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—The degree of LL.D. has been conferred by the University of California on President Ray Lyman Wilbur of Stanford University.

Osteopathic Bill Vetoed.—A bill which would grant full physician's license to persons now practicing osteopathy in California was vetoed recently by Governor Stephens.

Sentenced for Illegal Operation.—Dr. Ephraim Northcott, Redwood City, charged with the murder of Miss Inez E. Reed, a United States Army nurse, by an illegal operation, is said to have been found guilty, July 5, and given an indeterminate sentence of from ten years to life imprisonment.

Medical Board Appointments.—Dr. Alfred J. Scott, Los Angeles, has been appointed a member of the state board of medical examiners, succeeding Dr. Harry V. Brown, Los Angeles, term expired.——Dr. Cyrus J. Gaddis, Oakland, has been appointed a member of the state board of medical examiners, to succeed Dr. Ernest Sisson, Oakland, resigned.

Certificates Revoked.—The certificates of Dr. Franklin T. Duncan, San Francisco, and Robert D. Schultz, Marin County, are said to have been revoked at the meeting of the state board of medical examiners at San Francisco, June 26. Dr. Duncan was charged with malpractice and Dr. Schultz was said to have used the designation of Doctor of Medicine, while his was a license to practice only naturapathy.

Cancer "Specialists" Arrested.—Morton M. Winchell, an alleged cancer "specialist" of Los Angeles, according to report, was arrested, May 14, by the state board of medical examiners on the charge of practicing medicine without a license. He pleaded guilty and was fined $250. He is also being held under bail of $11,000 pending a trial for manslaughter in connection with the death of Mrs. Nellie E. Daniels who is reported to have died, May 8, soon after being treated by Winchell for cancer. Another alleged cancer specialist, A. Edwin Mohr of Pasadena, and a house painter, J. O. F. Haase of San Diego, said to be an ex-convict, were arrested recently for practicing medicine without a license.

COLORADO

Personal.—Dr. John A. Wenk has succeeded Dr. J. H. Hurley as chief resident physician at the Denver County Hospital.——Rea P. McGee, Major, M. C., U. S. Army, Denver, on duty with the A. E. F. in France, has been promoted to the rank of lieutenant-colonel, and has been twice cited for bravery.

Eye, Ear and Throat Men to Meet.—The Colorado Congress of Ophthalmology and Oto-Laryngology will be held in Denver, August 4 and 5, under the auspices of the Colorado Ophthalmological and Colorado Oto-Laryngological societies. The meeting will be held in the Denver County Society Assembly Room in the Metropolitan Building, and Dr. Melville Black, Denver, will preside.

DISTRICT OF COLUMBIA

Graduation Exercises.—Georgetown University School of Medicine and the dental department of the university held their annual graduation exercises, June 28.

Raise Money for New Home.—The Medical Society of the District of Columbia has already raised more than $50,000 of the $90,000 required for the erection of a building for the organization on M Street N.W., near Seventeenth Street.

Personal.—Dr. William J. French, Washington, has been awarded the Legion of Honor by the French government, in appreciation of the work done by Dr. French in each of the children's bureaus which he established as a war measure in Paris.——Melville B. Fischer, Washington, who has been chief consultant at Embarkation Camp No. 2, St. Nazaire, France, has been honorably discharged from the service.

Enlargement of Walter Reed Hospital.—Merritte W. Ireland, Major-General, M. C., U. S. Army, Surgeon-General of the Army, appeared before the senate military committee recently and made an urgent appeal for the appropriation of funds with which to purchase about 26 acres of land for the future home of the Army Medical School, Surgeon-General's Library, Army Medical Museum, thus centering all local activities at Walter Reed General Hospital. He estimated that eventually it would be necessary to increase the accommodation of the hospital to about 1,000 beds and have the institution become an establishment for the treatment of special and difficult cases.

FLORIDA

Health Board President Dead.—Honorable Edward M. Hendry, Tampa, former president of the Florida State Board of Health, aged 51, died at the home of his sister in Fort Myers, May 28.

Personal.—Dr. Van H. Gwinn has been appointed acting state health officer, succeeding Dr. William H. Cox, removed; both physicians are of Jacksonville. Dr. Gwinn will serve until the arrival of Ralph N. Greene, Major, M. C., U. S. Army, Chattahoochee, newly appointed state health officer.

Tax Bill Vetoed.—May 28, the governor vetoed an act passed by the legislature to amend section 1137 of the general status, providing for a state board of health tax. The causes for veto as stated are: that the bill does not provide sufficient revenue to meet the regular expense of the board, that the language of the act may limit the use of the funds derived so as to embarass the work of the board and, furthermore, the governor does not believe the revenue to be derived under the terms of the bill will be sufficient for the maintenance and support of the work of the board.

GEORGIA

Venereal Clinic to Be Established.—At a recent meeting of the city council of Macon, it was voted to arrange to finance a venereal disease clinic at the City Hospital, which will be in charge of the hospital commission.

Personal.—Dr. William F. Brunner, health officer of Savannah for twenty years, was presented by the municipality, June 18, with a silver water service.——Dr. George

S. Murray, Columbus, has been demobilized from the Royal Army Medical Corps.——Charles A. Downey, health officer and food inspector of Waycross, has resigned and has been succeeded by Major John R. Scully, who has recently been discharged from the military service.——Dr. James C. Gower has been elected secretary-treasurer of the Park View Hospital, Gainesville, succeeding Dr. Charles W. Larrabee, resigned.

Medical Faculty Changes.—The following members of the teaching staff of the medical department of the University of Georgia, Augusta, have been promoted as follows: Joseph H. Ackermann, assistant professor of obstetrics; Guy T. Bernard, assistant professor of surgery; Charles I. Bryans, associate in ophthalmology, otology, rhinology and laryngology; Asbury Hill, associate in genito-urinary diseases; William J. Cranston, associate in medicine; Robert L. Rhodes, associate in surgery; J. R. Robertson, associate in genito-urinary diseases, and William H. Roberts, instructor in genito-urinary diseases.

ILLINOIS

Sanitary Inspector Returns. — Charles Backus Ball, chief sanitary inspector of the Chicago Department of Health and lecturer for the Army Educational Commission in France, returned to Chicago, July 10.

Illegal Practitioner Arrested.—Mary Zahinsky of 1626 South Morgan Street, Chicago, was arrested by the Illinois Department of Registration and Education and fined $25 for violation of the medical practice act.

Personal.—Dr. Hartwell C. Howard, Champaign, who was graduated from Starling Medical College, Columbus, in 1850, and has practiced continuously since that time in Champaign, celebrated his ninetieth birthday anniversary, July 12.——Harry D. Orr, Col., M. C., U. S. Army, Chicago, chief surgeon of the Thirty-Third Division, received his discharge at Camp Grant, last week.——Dr. George W. Cusick has been appointed local surgeon for the Illinois Central Railroad at Freeport.

Graduate School Lectures.—The fifth lecture of the graduate summer quarter in medical science at the University of Illinois, Chicago, was delivered, July 11, by Dr. D. Carl Huber, professor of anatomy in the University of Michigan, Ann Arbor, on "Nerve Transplantation."——The sixth lecture of the course was delivered, July 16, by Dr. Charles C. Bass, professor of experimental medicine in Tulane University, New Orleans, on "Malaria with a Special Reference to Its Control."

INDIANA

Telephone Consultations No Longer Free.—Columbus doctors have added 50 cents to the price of all professional calls. Conversations on the telephone of a professional nature will also be charged.

Health Association Organized.—The Public Health Association of South Bend was organized, June 27, and Dan Pyle was elected president, Dr. Walter H. Baker, vice president, Dr. Alta K. Boram, secretary, and Mr. Walter Bloomfield, treasurer.

Venereal Clinic to Open.—The city council of Newcastle, at a special session, July 1, voted to cooperate with Henry County in the establishment of a free clinic for venereal disease. Appropriations of $500 were made by the county council and city council.

Hospital Items.—Plans for a new Wabash County hospital, to be erected at Wabash, at an approximate cost of $80,000, have been presented for approval by the state board of charities.——There is to be a new tuberculosis sanatorium in Wayne County, located about seven miles south of Richmond.

State Board Loses Suit.—In the Knox Circuit Court, July 5, Judge Thomas B. Coulter found for the defendant in the suit of the state board of medical registration and examination against Dr. George F. Smith, Bicknell, the verdict of the court being "not guilty." The charges against Dr. Smith were that he induced the state board to grant a certificate for license by fraud in that he did not have sufficient credits to entitle him to a certificate for preliminary high school work and that he practiced fraud and deception.

Charges Against Physicians. — The coroner of Wayne County is said to have bound Dr. Frederick W. Krueger, Richmond, over to the grand jury on the charge of alleged criminal neglect by throwing a two-day-old infant which he believed to be a monstrosity down a 60-foot embankment on the city dump. The child was found and lived for twelve hours.——Drs. Charles E. Burris, Harrison B. Hulse, Alonzo S. Neely, Edgar M. Outland, Calvin R. Atkins, Indianapolis, Walter M. Byers, Shirley, William McQueen, Quincy, and Lewis L. Williams, Brazil, are said to have been indicted by the Marions County grand jury on the charge of the illegal sale of intoxicating liquors.

Tuberculosis Notes.—The headquarters of the Mississippi Valley regional secretary of the National Tuberculosis Association are to be established in Indianapolis. Arthur J. Strawson, who was executive secretary of the Indiana Tuberculosis Association for two years prior to March 1, 1918, has been appointed regional secretary, and he will have charge of the new district headquarters which will also be the headquarters of the Mississippi Valley conference on tuberculosis. The new regional secretary will have jurisdiction over the states of Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Ohio and Wisconsin.——The Adams County commissioners, at their July session at Decatur, unanimously indorsed the proposition of joining with the counties of Wells, Jay, Blackford and Huntington, or any of these counties in the establishment of a sanatorium for the treatment of tuberculosis.

MARYLAND

Personal.—Dr. J. Carroll Monmonier, who recently served as major in the Medical Corps with the American Expeditionary Forces, has returned to Catonsville to resume practice.——Dr. John S. Green, Jr., Long Green, who was recently discharged from the U. S. Navy, has opened an office at Towson.

MASSACHUSETTS

Hospitals Reopened. — Peter Bent Brigham and the Elks Reconstruction hospitals in which U. S. Army Base Hospital No. 10 has been located, reopened, July 1, for the treatment of War Risk Insurance cases, under the direction of Major Ezra K. Sprague, Portland, Me. These hospitals will have accommodation for 800 patients.

Personal.—Dr. Sumner C. Brooks of the Department of Tropical Medicine in Harvard University has been appointed associate professor of physiology and biochemistry at Bryn Mawr College.——Dr. Emily C. MacLeod, Boston, sailed for Serbia from New York to assist in forming hospital organizations in Serbia.——Governor Coolidge has nominated Dr. Joseph Armand Bedand, Lynn, for medical examiner (coroner) of Essex County, to succeed Dr. Joseph G. Pinkham, resigned.

MISSOURI

Personal.—Dr. Frederick A. Baldwin, Columbia, who has been in charge of the Department of Preventive Medicine of the Missouri State University during the absence of Dr. Mazyck P. Ravenel, in army service, has been appointed pathologist to Wesley Hospital, Kansas City.

State Board Laboratory Transferred.—The Missouri State Board of Health has formally transferred to the Department of Preventive Medicine of the University of Missouri the laboratory works formerly conducted by the department at Jefferson City, and Dr. Mazyck P. Ravenel is now the authorized bacteriologist for the board. Under the new arrangements all diagnosis of typhoid fever, tuberculosis, diphtheria, the examination of water and the like will be carried on at the state university, and treatment for hydrophobia will be administered at the Parker Memorial Hospital at the institution.

MINNESOTA

Hospital Items.—The Oliver Iron Mining Company is preparing to erect a hospital to cost $270,000 in Hibbing.——Physicians of Sandstone have converted the Parish residence into a modern infirmary.

Tribute to Society Members.—A banquet was given at the Minnesota Club, St. Paul, June 21, by the Ramsey County Medical Society to its members who have been in the medical service of the United States or Allies. Of the membership of the society, ninety entered the service and of these, eighty-eight returned. Lieuts. Harry C. McIntosh and Otto L. Winter, both of St. Paul, died in service.

Public Health Associations Organize.—The Isanti County Public Health Association was organized at Cambridge, June 21. Dr. Charles Swenson Braham was elected president.——The Blue Earth County Health Association was organized in Mankato, June 21, and Dr. Helen Hughes, Hirlscher, was elected president.——The Beltrami County Public Health Association was organized at Bemidji, May 29, and Dr. Edwin H. Smith was elected vice president.

Personal.—Drs. S. Marx White, Axel E. Hedback, Minneapolis, and Oscar W. Holcomb, St. Paul, have been appointed members of the state board of health.——L. P. Wolff, St. Paul, has been reappointed a member of the state board of health.——Dr. Henry L. Williams, Minneapolis, has resumed his duties as chief medical officer of the ninth district board of vocational education of soldiers and sailors and marines.——Dr. Henry M. Bracken, executive officer and secretary of the state board of health, St. Paul, was presented with a brass desk set by the women employees of the health office. Dr. Bracken retired from his official position with the state board of health, July 8, to accept a position in the United States Public Health Service.——Walter R. Ramsey, Major, M. C., U. S. Army, Minneapolis, has been awarded a gold medal by the French government for his services to French war refugees in northern France.——Dr. Wenceslaus J. Hovorka, St. Paul, is on trial charged with the illegal selling of narcotic drugs.——Dr. Joseph M. A. Gravelle, Minneapolis, charged with the murder of his wife in June, was found insane by a commission of physicians, June 23, and ordered to be committed to the Hospital for Dangerously Insane, St. Peter.——Dr. Dennis B. Rice, assistant superintendent of the St. Paul City Hospital, has resigned and has been succeeded by Dr. Charles H. Pelton, Bucyrus, Ohio.——Dr. Francis H. Gambell, Thief River Falls, was given a farewell banquet, June 5. Dr. Gambell has started for Sibera, where he expects to remain two years in Red Cross work.——Dr. William B. Wright, Jr., St. Paul, has resumed charge of the Rood Hospital interest in the Mesaba range as superintendent of hospitals.

MISSOURI

Occupational Therapy.—The first issue of the *Bulletin of the St. Louis School of Occupational Therapy* announces that instruction in occupational therapy is being systematically conducted in St. Louis. The course will prepare students to teach occupational therapy to physically and mentally handicapped, and convalescents in public and private institutions, and to meet the demand of the government for reconstruction aides in military hospitals so long as that need exists. The next class opens, September 16, and includes sixteen weeks of craft work and twelve weeks of hospital practice. The cooperation of the Barnes Hospital, the City Hospital and the City Sanatorium offers ample opportunity for practical instruction.

Child Welfare Clinics.—Through the generosity of several public spirited citizens of St. Louis, eight clinics will be established, about September 1, to promote the welfare of infants and children of preschool age. The plan contemplates prenatal work, instruction in the care of the newly born, and watchful supervision until school age. The funds for the first year's work were contributed by private donations, but will be administered under the supervision of the director of public welfare until April, 1920, when the city will take charge of the work and continue it as a municipal undertaking. The donors are Benjamin Gretz, Mrs. Lily Busch, Benjamin and Marcus Harris, Mrs. J. Louis Swarts, William T. Hill, Mr. and Mrs. George Warren Brown, Mrs. Ames Cushman, Mrs. Lon O. Hocker, Mrs. A. Brueggemann and an anonymous donor. The funds will be administered under the direction of Dr. Borden S. Veeder of the Children's Hospital; Mr. John Schmoll, director of public health; Dr. C. H. Shutt, hospital commissioner, and Miss Lyda M. Anderson, chief of the Municipal Nurse's Corps.

NEW JERSEY

State Society Meeting.—The fifty-third annual convention of the Medical Society of New Jersey was held at Spring Lake Beach, June 24 and 25, and the following officers were elected: president, Dr. Gordon K. Dickinson, Jersey City; vice presidents, Drs. Philander A. Harris, Paterson, Henry B. Costill, Trenton, and James Hunter, Jr., Westville; correspondent secretary, Dr. Harry A. Stout, Wenonah; recording secretary, Dr. William J. Chandler, South Orange (reelected), and treasurer, Dr. Archibald Mercer, Newark. Dr. Alexander Marcy, Riverton, offered a resolution appropriating $1,000 for a prize essay on "State Social Insurance," open to all medical men of the country.

NEW YORK

Venereal Disease Clinics.—The board of health of Port Chester has decided that a venereal disease clinic should be opened in connection with the child welfare station.——Syracuse has opened a venereal disease hospital in charge of Dr. Henry A. MacGruer. This building will also be used as a detention hospital.——A venereal disease clinic has been opened in Batavia under the direction of Dr. Frederick D. Carr.

Addition to Letchworth Village.—Governor Smith laid the cornerstone for new dormitories at Letchworth Village, near Thiels, Rockland County, July 9. The new dormitories and other buildings will provide for 840 additional patients. At the last session of the legislature $880,000 was voted for new construction at the village to make provision for the large number of mental defectives who are without proper institutional care. Dr. Pearce Bailey also made an address in which he urged an extension of the research work at the village, and stated that as a nation we were far behind in taking active measures to handle the problem of the mental defective.

Coordination of Health Activities.—At the meeting held in Utica, June 16, representatives of the committee of hygiene of the board of education; the child welfare committee; home agencies for dependent children; Utica Dispensary; Camp Healthmore; the public welfare committee; Junior League and Day Nursery; the American Red Cross; Associated Charities; Utica Chamber of Commerce and county tuberculosis committee voted to organize a health coordination committee of from five to twelve members. The purpose of this committee is to coordinate the health activities in the community, to promote public health education, to support approved health measures, and to cooperate with the local health authorities in the direction of public health and in meeting emergencies relative to public health.

Personal.—Dr. William G. Bissell, bacteriologist of the Buffalo Health Department, was elected president of the State Sanitary Officers' Association at the annual meeting held in Saratoga, June 25.——Fred M. Meader, New York City, director of the division of communicable disease of the state department of health, has returned from France and has resumed his work. While abroad Dr. Meader served as epidemiologist at Bordeaux and London.——Dr. Linsly R. Williams, Albany, formerly deputy commissioner of the state board of health, returned from his service abroad in June.——Dr. Paul B. Brooks, Albany, acting director of the division of communicable disease in the state department of health, has been designated as chairman of the special committee on drug addiction of the Medical Society of the State of New York.——Dr. Henry L. K. Shaw, Albany, has been appointed a member of the advisory child welfare board of the children's bureau of the federal department of labor.——Dr. Joseph E. Clark, Utica, sanitary supervisor of Herkimer, Madison and Oneida counties, is at St. Luke's Hospital, Utica, convalescing after a surgical operation.

New York City

Personal.—William H. Haskin, Lieut.-Col., M. C., U. S. Army, who has been on duty for two years at the U. S. Military Academy, West Point, was discharged from service, July 1, and will return to his practice, about September 1.——Dr. Pearce Bailey has been appointed chairman of the State Commission for Mental Defectives.

Floating Hospital Opens Season.—The Floating Hospital, which takes sick babies and mothers to the Seaside Home, New Dorp, Staten Island, made its first trip, July 7. The Floating Hospital usually carries about 50,000 babies and mothers during the months of July and August. This year a service of fifty beds has been added, and the night service will be continued whatever the weather. An anonymous donor has promised the Seaside Hospital $50,000 toward a much needed nurses' home, provided the trustees can raise $150,000.

Physicians Neglect to Register.—Commissioner Herrick of the state department of narcotic drug control has notified 9,000 physicians, dentists and veterinarians who prescribe or administer habit-forming drugs that they must register or submit to criminal prosecution. July 1, only 8,000 dispensers out of a total of 17,000 had complied with the law. Commissioner Herrick announces that proceedings will be begun against evaders immediately. It is pointed out that two courses of action are open to the department. Licenses may be revoked or evaders may be prosecuted as violators of the public health law.

Greenhut Hospital Closes.—The Greenhut Military Hospital, known as Debarkation Hospital No. 3, was closed, July 15. The Greenhut Hospital has been the largest military hospital under one roof in the world and has received and evacuated more cases in a shorter time than any other institution of its kind in the United States. Since the first consignment of wounded arrived from overseas, Nov. 23, 1918, 36,878 patients have entered the institution and have later been discharged or evacuated to hospitals nearer their homes. The record number received in one day was 2,235, and the largest number discharged was 1,638.

Appointments to Staff of Rockefeller Institute.—The board of scientific directors of The Rockefeller Institute for Medical Research announces the following promotions and appointments: Dr. Harold L. Amoss, hitherto an associate in pathology and bacteriology, has been made an associate member; Dr. Oswald T. Avery, hitherto an associate in medicine, has been made an associate member. The following have been made assistants: Miss Clara J. Lynch (pathology and bacteriology) and Dr. Waro Nakahara (pathology and bacteriology). The following new appointments are announced: Drs. Homer F. Swift, associate member in medicine; Francis G. Blake, associate in medicine; Raymond G. Hussey, associate in pathology and bacteriology; J. Harold Austin, assistant in medicine and assistant resident physician; Albert H. Ebeling, assistant in experimental surgery; Ferdinand H. Haessler, assistant in pathology and bacteriology; Thorsten Ingvaldsen, assistant in chemistry; Charles W. Barrier, fellow in pathology and bacteriology; J. Jay Keegan, fellow in pathology and bacteriology; Philip D. McMaster, fellow in pathology and bacteriology. Dr. Alphonse R. Dochez, hitherto an associate member in medicine, has accepted an appointment as associate professor of medicine in the medical department of Johns Hopkins University. Dr. Arthur L. Meyer, hitherto an associate in physiology and pharmacology, has accepted an appointment as associate in physiology in the school of hygiene and public health, Johns Hopkins University.

To Make New York Medical Capital.—An organization, to be known as the New York Association for the Advancement of Medical Education and Medical Science, has adopted a constitution and by-laws and has filed an application for incorporation with the secretary of state at Albany. The project has as its aim the making of New York City a great medical center which shall fill the place formerly occupied by Vienna and Berlin. The constitution of the association names as the four prime objects to be obtained: (1) to improve and amplify the methods of graduate and undergraduate teaching; (2) to perfect plans for utilizing the vast clinical material of the city for teaching purposes and to make use of teaching talent now unemployed; (3) to bring about a working affiliation of the medical schools, hospitals and laboratories, as well as the public health facilities of the city to the end that the best interests of medical education may be conserved; (4) to initiate the establishment of a medical education foundation in New York City whereby funds may be secured to meet the financial requirements of all forms of medical education and investigation. There will be two classes of membership in the organization, one a general membership, including all physicians in good standing, teachers of auxiliary sciences, and investigators of problems related to medicine, the other a corporate membership of medical teachers and medical men with hospital appointments or affiliations. The corporate membership is limited by the constitution to not more than 150. A nationwide campaign to raise $50,000,000 with which to finance the project will be started immediately. The officers of the association are: president, Dr. Wendell C. Phillips; first vice president, Dr. George David Stewart; second vice president, Dr. Glentworth R. Butler, Brooklyn; secretary, Dr. Haven Emerson; treasurer, Dr. Arthur F. Chace; trustees, Col. Charles H. Peck, Dr. William Francis Campbell, Brooklyn, Dr. John A. Hartwell, Dr. Frederick Tilney, Dr. Otto von Huffman, Dr. Adrian V. Lambert, Dr. Samuel Brown, Dr. James Alexander Miller and Dr. George W. Kosmak, all of New York City.

PENNSYLVANIA

Licenses Revoked.—The State Board of Medical Education and Licensure, June 27, is said to have revoked the licenses of seven medical men for violation of the Harrison Narcotic Law; to have suspended five physicians and to have revoked for three months the license of another physician who is at present serving a sentence for seditious utterances. Those whose licenses were revoked are: Drs. Davis A. Dean, John F. Fox and Oscar Brun, Pittsburgh; John C. Bateson, Scranton; Thomas R. Francis, Connellsville; William H. Rote, Williamsport, and Henry L. Lewis, Erie. Those whose licenses were suspended are: Drs. William P. Buck, Elizabethtown; Henry A. Zeigler, York; George R. Welchans, Lancaster; Charles G. Hayes, Montoursville, and Walter W. Senn, Williamsport.

"Swat-the-Fly" Campaign.—The war against the house fly is to be carried on more earnestly this year, according to Dr. William C. Miller, Harrisburg, chief of the division of public education of the state department of health, who hopes to reach every schoolchild and housewife, every store owner and employee through the educational drive. Contests in fly-swatting have been organized among the schoolchildren of Harrisburg, and medals have been awarded by the department to the pupils with the largest crops of the obnoxious insects. Dr. Miller is under instructions from Dr. Edward Martin, state commissioner of health, to use the county fairs and the summer schools, the churches and Sunday schools in promoting this health propaganda. Boy Scouts and social workers are both serving, the latter principally in teaching mothers how to make "kiddie coops," and to manufacture simple contrivances to prevent the breeding of flies. According to statistics compiled by the state health department, every year throughout Pennsylvania, the mortality rate among infants who die from intestinal diseases begins to increase in May coincident with the first appearance of the house fly. Month by month, as the flies multiply the death rate from these diseases rises proportionately.

Philadelphia

Personal.—Daniel M. Hoyt, Lieut.-Col., M. C., U. S. Army, recently in command of Base Hospital Unit No. 55, which operated as a part of the Justice Hospital group at Toul, France, has returned.——Morris C. Thrush, chief of the surgical service of the military district near Chateauvaux, France, returned on the *Leviathan,* July 5.——Joseph D. Purvis, Butler, formerly chief of the Section of Hospital Administration of the South Intermediate Zone in France, has succeeded Dr. Clarence V. Clemmer as chief director of the Hahnemann Medical College and Hospital.

CANADA

Deputy Minister of Health.—The Federal Department of Health is in process of organization. It is expected that the deputy minister of health will be Dr. John A. Amyot, professor of public health in the University of Toronto, but no decision has as yet been arrived at.

Hospital Units Arrive Home.—The base hospitals of the University of Toronto, Queen's University, Kingston, and Dalhousie University, Halifax, have arrived in Canada. Only four of the original medical men on the staff of the Toronto Hospital remained with the unit until its return. Col. William B. Hendry, Toronto, was the officer commanding.

Personal.—Dr. Wilfrid Grenfell, C. M. G., is in Ottawa from Labrador.——Dr. Thomas B. Richardson, pension board, Ottawa, is in Toronto for a month's work at the local branch of the board.——Dr. Charles J. C. O. Hastings, Toronto, M. O. H., states that there were only three deaths from typhoid fever in Toronto for the first six months of the present year, and these were all contracted outside of the city. There were eighteen cases in all.——Dr. John A. McCollum has arrived in Toronto from overseas.——Dr. John G. Adami, Montreal, Strathcona professor of pathology and bacteriology in McGill University, since 1892, has accepted the vice chancellorship of the University of Liverpool, England.

GENERAL

Change of Meeting Date.—The date of the meeting of the American Academy of Ophthalmology and Oto-Laryngology in Cleveland, which was to have been held September 1, 2 and 3, has been changed to October 16 to 18.

Consolidation of Health Establishments.—The Senate amended the sundry civil appropriations bill inserting a provision calling on the members of the War, Navy, Interior, Treasury and Agricultural departments to report to Congress, before December 1, a plan for the consolidation of the various health divisions and bureaus of the government.

Specialists Elect Officers.—At the annual meeting of the Kansas City Eye, Ear, Nose and Throat Club, the following officers were elected: president, Dr. Hal Foster, Kansas City; vice presidents, Drs. John D. Pifer, Joplin, and Theodore S. Blakesley, Kansas City, and secretary, Dr. J. Halcombe Laning, Kansas City. The membership of the Club includes physicians of Arkansas, Kansas, Oklahoma and Missouri. The next meeting will be held October 16.

Specialists Hold Meeting.—At the annual meeting of the American Laryngological, Rhinological and Otological

Society, held in Atlantic City, May, 1919, the following officers were elected: president, Dr. Harris P. Mosher, Marblehead, Mass.; vice president, eastern section, Dr. Wells P. Eagleton, Newark, N. J., southern section, Dr. Joseph B. Greene, Asheville, N. C., middle section, Dr. Samuel Iglauer, Cincinnati, mid-western section, Dr. Frank L. Dennis, Colorado Springs, and western section, Dr. H. Bert Ellis, Los Angeles; secretary, Dr. William H. Hasking, New York City, and treasurer, Dr. Ewing W. Day, Pittsburgh.

Cressy Returns to Serbia.—Dr. William H. Cressy, Grand Rapids, Mich., who has spent two and a half years in the Serbian Service during the war and was commissioned Major in the Royal Serbian Army, has returned to Serbia as director of the medical work of the Serbian Relief Committee. This committee is sending a commission of nineteen physicians and nurses to Southern Serbia under the personal direction of Dr. Cressy. They will be placed at strategic points in their respective districts and will do dispensary work and will conduct a general health campaign. The committee expects to dispatch another medical unit as soon as necessary funds and personnel may be obtained.

Bequests and Donations.—The following bequests and donations have recently been announced:

Jefferson Medical College, $5,000 for a free scholarship; Rush Hospital, Philadelphia, $5,000 for free beds; Pennsylvania Training School for the Feeble Minded, Elwyn, $2,000 by the will of Dr. J. Ewing Mears, Philadelphia.

Hudson Hospital, Columbia, N. Y., and Brooklyn Home for Consumptives, each $10,000 and Long Island College Hospital, for hospital purposes, $5,000 by the will of Warren Snyder.

Cooper Hospital, Camden, N. J., for the establishment of five beds in memory of his father, his mother, his two sisters and himself, $30,000; Camden Home for Friendless Children, and West Jersey Homeopathic Hospital, Camden, each $5,000 by the will of Oliver D. Wood, Camden.

Adenoids.—As a result of an extensive survey among population centers conducted by the United States Public Health Service it is announced that adenoids are handicapping more than 10 per cent. of American children, and considerable proportion of the defects revealed in medical examinations conducted by draft boards indicated that a large proportion of the defects discovered were unquestionably due to the failure of the parents to pay attention to the physical defects in young children. The Public Health Service has prepared a booklet on "Adenoids," for distribution to parents and school authorities, which tells how the first appearance of adenoids may be detected and points out the means of relief of this condition.

A New Ruling on Narcotic Drugs.—In accordance with the decision of the United States Supreme Court in the Doremus case (The Journal, June 7, 1919, p. 1698), the commissioner of internal revenue in Treasury Decision 2879 has revoked the ruling made in Treasury Decision 2200, May 11, 1915, permitting a physician to dispense or prescribe narcotic drugs in a quantity more than is necessary to meet the immediate needs of a patient. The old ruling permitted a doctor to prescribe a sufficient amount of narcotic drugs to supply the patient for a reasonable length of time. The supreme court holds that an order for morphin issued to an habitual user thereof, not in the course of professional treatment in an attempted cure of the habit, but for the purpose of providing the user with morphin sufficient to keep him comfortable by maintaining his customary use, is not a prescription within the meaning and intent of the act. The commissioner therefore rules that prescriptions for narcotic drugs in a quantity more than necessary to meet the immediate needs of a patient are violations of the law and that the writer of such a prescription, the druggist who fills it and the person obtaining drugs thereunder are all liable regardless of the dosage indicated by the prescription. This means that under the ruling of the federal supreme court physicians prescribing narcotic drugs are permitted to prescribe only such amounts as are necessary for the immediate needs of the patient.

FOREIGN

Public Monument to Zaragoza Physician.—The professors and students of the Zaragoza Medical Faculty have recently erected in the grounds of the Hospital Clinico a monument with bust of the late Dr. Fairén, professor of hygiene and otorhinolaryngology, dean of the faculty and beloved chief of the hospital.

Study of Social Medicine in Spain.—The *Revista Española de Medicina y Cirugía* describes the founding at Madrid of the Instituto de Medicina Social for the study and teaching of questions affecting the practice of medicine from the social or sociologic standpoints. One of the aims of the institute is to incorporate its principle and methods in the direct administration of public affairs.

Gold Medal to American Red Cross in Italy.—The *Policlinico* relates that an impressive scene occurred at the capitol at Rome when the mayor of Rome, il sindaco Apolloni, presented the officials of the American Red Cross with the gold medal. The ambassador of the United States, Thomas Nelson Page, and the chief of the American Red Cross in Italy, Colonel Bartlett, replied on behalf of the Red Cross to the speech of presentation.

Catalan Medical Congresses.—Our Spanish exchanges mention that the Third Congress of Catalan-Speaking Physicians was to be held the last week in June at Tarragona in eastern Spain. An attendance of about 300 was anticipated. The subjects appointed for discussion are the "Physiopathology of the Abdominal Sympathetic System" and "Treatment of Septicemias." The leading addresses on these subjects were printed and distributed beforehand. Catalan is related to the Provençal of France across the border.

Bassini Reaches the Age Limit.—Prof. E. Bassini retires from the chair of surgery at the University of Padua, having reached his seventy-fifth year. Prof. A. Preti, director of the Bassini Institute for Treatment of Hernia in those unable to pay, has published a short history of the institution as a tribute to Professor Bassini, and subscriptions are being collected to put the institution on a more stable footing. Over 21,000 lire have already been collected. The subscriptions are sent directly to the Istituto Bassini, via Ricordi 1, Milan. Bassini is a senator of the realm.

Honors for Spanish Medical Journals.—The exposition in connection with the recent First National Medical Congress, held at Madrid, awarded a *diploma de honor* to the recently founded medical journals *Progresos de la Clinica* and *Plus Ultra,* and diplomas with gold medal to the *Revista de Medicina y Cirugía Prácticas,* now in its forty-third year, and to the *Medicina Ibera* which was founded about four years ago with an exceptionally full abstract department. All of these are indexed and reviewed regularly in our Foreign Current Literature Department. The *Siglo Médico* was *hors concours* as its editor was on the organizing board of the congress. Two other medals were awarded, one to a journal devoted to physical education, the other to one just founded for social medicine.

For Aged and Infirm Physicians of France.—Paris has an institution called the Maison du Médecin, a medical social gathering place which was founded in 1908, and in 1912 was listed by the state as an *institution d'utilité publique* and granted a subsidy. The social seat is on the rue d'Astorg, Paris, but there is a country home connected with it, a large modern château at Valenton, with twenty-five rooms and large grounds where aged and infirm physicians are given a home at low rates (800 to 1,500 francs—$150-$300). The prevailing high prices have rendered necessary an appeal for more funds, and the Maison du Médecin, in the French medical press, is asking for contributions: $200 makes one a *membre bienfaiteur,* $40 a *membre perpétuel,* and $20 a *membre donateur.* Address all contributions to the Maison du Médecin, 9 rue d'Astorg, Paris.

Graduate Course on Heart Diseases.—The dean of the Istituti Clinici at Milan, Senator Mangiagalli, called on Professor Mariani of the University of Genoa, director of the journal, *Le Malattie del Cuore,* to deliver a course of lectures on the present status of our knowledge of heart disease. This course on cardiology proved extremely popular as Mariani discussed treatment in particular after having shown the various forms of heart insufficiency that may be encountered. He emphasized especially the important aid that may be obtained from the Swedish system of training the heart by passive exercise in the graver cases and against progressive resistance in the others, thus strengthening the heart muscle and accumulating reserve force. A letter recentl received from Italy extols the advantages of such courses o cardiology to be held at different points to enable practitioners at large to keep pace with the progress that ha been realized of late in the knowledge and treatment o valvular and other affections of the circulatory apparatus Mariani's clinic at Genoa is known as the Refugium Cordis

Durante's Seventy-Fifth Birthday.—Having reached th age limit, Prof. Francesco Durante retires from the chair o surgery at the University of Rome but retains his seat in th senate. His last lecture was crowded with his present an former pupils and friends, many of his pupils now professor in other universities. He devoted his last address to suggestions for improving the medical curriculum and plan c teaching. With Guido Baccelli, Durante founded the *Policlinico,* twenty-six years ago, and has always kept his interest in the surgical section, which was his special charge while Baccelli guided the medical section. Both at first combined their efforts in the weekly practical section, now carried on by Prof. V. Ascoli. Durante was always called on to be at least honorary president at nearly every international medical and surgical gathering. The *Policlinico* gives an illustration of the handsome bronze bust, showing the master with his flowing beard, presented to the clinic by his former aids and pupils. The pupils of his last class presented him also with a parchment roll with their signatures and expressed intense gratitude for the way in which he had made it possible for them to complete their training despite their regular military service. Durante's name is connected particularly with progress in treatment of surgical tuberculosis, in the surgery of the skull and brain, and in the science of tumors. His iodin-iodid solution is in constant use.

LATIN AMERICA

Deaths in the Profession.—Dr. **E. Mazzini,** a leading obstetrician and practitioner of Rosario, Argentina, vice president of the Liga de la tuberculosis and director of one of its dispensaries as also of the training school for nurses and for midwives.

Typhus in Valparaíso.—It is reported from Chile that there have occurred a number of deaths at Valparaíso caused by the epidemic of typhus fever, which has assumed this year an extraordinary virulence. The sanitary authorities have adopted all kinds of precautions to prevent its spread to other places.

Tribute to Dr. Núñez.—The *Sociedad de Estudios Clínicos* held recently an extraordinary session to celebrate the fiftieth anniversary of the graduation of Dr. Emiliano Núñez, the director of the Hospital *Nuestra Señora de las Mercedes,* since its foundation. A gold medal and a diploma were presented to Dr. Núñez on this occasion at Havana.

MADRID LETTER

Madrid, May 10, 1919.

The First National Congress of Medicine in Spain

The First National Congress of Medicine was a great success, the credit belonging to the secretary-general, Dr. Florestán Aguilar, a true Yankee in Spain and a man who has given to his specialty, odontology, an importance not hitherto granted it. The congress was to have been convened November, 1918, but had to be postponed on account of the influenza epidemic.

With all the magnificence that behooves the most splendid European Court, the King of Spain opened the Congress in the Teatro Real. The rostrum was occupied by the Secretary of the Interior, the Mayor of Madrid, the president of the Central University (of Madrid), Dr. Carracido, and the president of the Congress, Dr. Gómez Ocaña, who were surrounded by other prominent scientific personalities. In the royal box were the Queen Dowager and the King's aunt, the Infanta Doña Isabel. Four thousand physicians were in attendance at the opening.

SPANISH NEEDS IN SANITATION

The president of the Congress, Dr. Gómez Ocaña, professor of physiology of the School of Medicine of Madrid, read a splendid address. He said that the need for the Congress was evident from the vast amount of papers, reports, and lectures, which had congested so much the sessions devoted to medicine at the last three meetings held by the Spanish Association for the Progress of Science. The Congress had two purposes: 1. A presentation of the sum of scientific knowledge and its progress and the aspirations of the medical profession of Spain. 2. To obtain a greater solidarity and a wider sphere of action in order to form a great association of the members of the profession in Spain. Other congresses will be held in the different provincial capitals of Spain so that all suspicion of centralization may vanish. He mentioned that the mortality rate of Spain is about twenty-three per thousand, that many deaths are due to malaria caused by the deficient rural sanitation, that many Spaniards die of typhoid fever caused by the inadequate systems of public water supplies, and that many more die of tuberculosis due to congestion and the lack of sunshine and ventilation. While there has not been noted as yet in Spain the diminishing birth rate that is troubling other nations, Dr. Gómez Ocaña repeated the Spanish proverb, "each child brings to this world a loaf of bread underneath his arm," adding, provided his parents teach him how to work and become prosperous. He asserted that the sanitary problem lacks recognition in Spain. The working class who pay the largest tribute to infection know nothing about it. The socialists hardly mention sanitation in their programs. The middle classes are so engaged in money making that with true Mussulman resignation let death arrive even if it comes too soon. The press pays no attention to sanitary questions, and as an instance he cited the fact that some newspapers call *perrerias* (dog doings) the dog bites inflicted on people and which could be avoided if municipal ordinances were enforced. "For our politicians, the proposed sanitary law is a bad omen, for as soon as it is introduced in parliament the government falls out of power, and to be frank about it, we physicians have had so much to do with microbes that we have lost all fear of them and trust entirely too much to the natural defenses of the body." He went on declaring that most physicians who practice in small towns as well as in large ones, are hardly making a living and do not enjoy that inner satisfaction that comes from rendering services which are acknowledged and appreciated. He alluded to the sad scenes which can be seen in many physicians' homes caused by disease, old age and too many children, etc., and end many times in the physician himself or his family finding themselves in destitution. We intend, he said, to form at this Congress a great association with all the advantages that numbers can give, counting with the assistance of the state and taking advantage of all the safeguards that science may furnish.

The Spanish physicians, whose desires were well interpreted by the organizing board of the Congress, were very eager to have associated with them on this occasion, the Portuguese physicians whom they consider as their brethren and the French physicians whom they consider as their teachers. In the name of the Portuguese physicians, Dr. Ceferino Falcon, made some remarks and as the representative of France, Mme. Curie, the illustrious discoverer of radium, addressed the King with words of gratitude for what he had done during the war on behalf of French wounded and prisoners. Addresses were also delivered by Dr. Carracido, the president of the Central University, the Mayor of Madrid who offered the freedom of the city, the Minister of the Interior and finally the King.

THE KING'S ADDRESS

The King delivered an impromptu address, greeting in eloquent words the medical profession which he thanked for the way they spent their lives for their fellow creatures. In their struggle against death the public health authorities, not only lack money as the Secretary of Interior had previously said, but, in the King's words, they also lack hospitals, laboratories and schools where to learn and where to teach medicine. Therefore, he will take on himself the initiative in building up a new school where Spanish-speaking people from across the seas can receive instruction. The cost of a medical school is the same as that of a battleship of 12,000 tons. I want, he said, Spanish medicine to have its battleship. He reiterated his optimism and faith in Spain, which in his words is going forward.

After the meeting the King proceeded to the exhibition connected with the Congress and visited each section and talked with the exhibitors.

The work of the sections furnished a splendid proof of the progress accomplished by the medical profession of Spain, which has now entered all phases of science, bringing with it a spirit of research. This constitutes the greatest triumph that could be wished by all those who regretted the byzantinism of Spanish medicine during the previous generation. We study facts today and cases in particular. Without neglecting generalization, we always start with the fact and have as guides in our work observation and experimentation.

MME. CURIE'S LECTURE

The most remarkable of the lectures was the one given by Mme. Curie, the discoverer of radium, who at the School of Medicine gave a dissertation on radium, its nature and its properties. It was a moment to be long remembered when that distinguished lady assisted by her daughter and surrounded by famous scientists, ended her speech which was greeted by enthusiastic applause. A touching note was added by the Queen Dowager who was prominent in showing her approval of the high gifts of the lecturer. The Queen, who is in mourning for her brothers and relatives killed in the war, embraced Mme. Curie, who was there representing one of the Allied countries. So, as one of our wits said, it is the first time after the war that representatives of the different enemy countries have spoken to each other with affection. Science is a great power, indeed.

There were many other conferences given by Spanish and Portuguese physicians and a very interesting one by Dr. Sard, a Spaniard who practices in Paris, where he was the founder and medical director of the Spanish hospital operated there during the war.

RECEPTIONS

Their majesties, the king and queen, gave a reception to all those attending the Congress and their ladies in the evening of the second day of the Congress. With the democracy that characterizes all members of the royal Spanish family, the monarchs talked to all physicians who came near them. As the medical class is undoubtedly the most active of all those which go to constitute this country, the royal family are acquainted with a great many physicians who in turn introduced many others to the king and queen.

Among the banquets special mention should be made of the general banquet with more than 5,000 present. There were also many banquets given by the Madrid members to the foreign guests.

NEXT CONGRESS TO MEET AT SEVILLA

It was decided to hold the next Congress in the city of Sevilla, taking advantage of the Ibero-American exhibition which will be held there next year. At that time an attempt will be made to establish closer relations with the American countries. Physicians coming from the United States will be doubly welcomed as being our guests in addition to being Americans, and their presence will furnish evidence of the present tendency toward union and friendship that inspires all of us.

CUBA LETTER

Havana, July 10, 1919.

American Hospital in Havana

One of the most needed institutions today in Havana is an up-to-date American hospital for the benefit of the large Anglo-Saxon colony in this island. In every part of the world where there is a foreign colony, one of the first necessities it feels is the possession of its own institutions, such as churches, schools and hospitals, of which the last mentioned are, perhaps, the most indispensable. New York, for example, has its Jewish, French and German hospitals, and soon will have a Spanish hospital. In Cuba the Spaniards have built their several *quintas* (country houses with gardens or parks) and no doubt feel more at home in them than in the strictly Cuban hospitals, notwithstanding the fact that they are of the same race and language, and it would seem as if the Anglo-Saxon residents of Cuba must feel the same need even more sharply. It is becoming more and more the custom among Anglo-Saxon women to be confined in institutions instead of in their homes. This is even more necessary in Cuba, owing to the difficulty of procuring trained American nurses for the homes on such occasions.

The large number of banks, railroads, sugar estates, and various other foreign corporations employing Americans, Canadians and Britishers, would not only find such an institution of great comfort and help, but it would also constitute an insurance for their employees.

The plans for this American hospital are made and the approximate cost will be $300,000, which includes the site and the building, $150,000 of which is already available. The American colony of Cuba has received with joy the idea of having its own hospital, and we doubt not that it will soon be a reality.

Latin-American Medical Congress

The last session of the Congreso Médico Latino-Americano held at Lima, Peru, was a great success according to the report presented by Dr. Lius A. Baralt, the Cuban delegate. The next session of the congress will take place in Havana, Cuba, in 1922.

Personal

Dr. Julio F. Arteaga has been awarded the Gordon prize in physiology for his work on "The Localization of the Sensations of Thirst and Hunger." Dr. Arteaga is the editor of the *Revista de Medicina y Cirugía de la Habana.*

Dr. J. Varela Zequeira and Ernesto de Aragón have been elected president and secretary, respectively, of the Colegio Médico de Cuba.

Dr. Francisco M. Fernández is the editor of the new *Revista Cubana de Oftalmología,* published in Havana.

Dr. A. Rodriguez Ecay, a physician of the medicolegal service of the city of Havana, died, July 8, at his home.

PARIS LETTER

Paris, June 26, 1919.

War Deafness

At a recent meeting of the Academy of Medicine, Dr. Marage discussed the causes and the duration of the cases of deafness produced by the explosion of shells of large caliber, without any traumatism by a fragment of metal or otherwise. These hypo-acusias are due to the enormous pressure (from 150 to 300 kg. per square centimeter) which is exerted for an exceedingly brief space of time (one hundredth of a second) on the whole surface of the body, and is transmitted through the fluids of the organism to the cortical surface of the brain. Sometimes deafness so produced disappears gradually of itself within two or three months after its causation. Some cases, however, are very serious, and a spontaneous cure is out of the question.

Treatment of Purulent Arthritis of the Knee

At one of the recent sittings of the Surgical Society of Paris, Dr. Tuffier, hospital surgeon and associate professor of the Faculté de médecine de Paris, presented a report on forty-eight cases of purulent arthritis of the knee which Dr. Delrez of Liége had treated at the field hospital of La Panne by the Willems method; that is, by arthrotomy followed by immediate active mobilization.

Of thirty-one simple cases, the results were as follows: Seventeen were successful, one was partially successful, seven ankyloses resulted, four resections, one death from embolism and one death from septicemia after amputation of the thigh. Of seventeen cases of purulent arthritis following an osteo-articular lesion, the treatment was successful in two cases, partially successful in two, seven cases resulted in ankylosis, five in resection and one in amputation. Successful results are termed those which permitted the patients to flex the joint more than 45 degrees and which promised this as a definite and permanent condition. Partially successful results are those which allow a partial flexure of the joint of from 20 to 40 degrees. The causes of the failure or partial failure of the method are to be sought in the nature of the infection (the streptococcic infections being especially serious) and the extent of the bone lesions.

In certain cases active mobilization cannot be accomplished for various reasons: (1) The age of the patient or the excessive pain (children, especially, not always being able to endure the pain caused by the first attempts at active mobilization); (2) a sort of functional inhibition (of which Delrez observed four cases out of forty-eight) which prevented any contraction of the extensor muscles of the knee, and (3) a serious lesion of the extensor muscles of the leg — a large or contused wound of the triceps. In these particular cases active mobilization should be replaced by passive mobilization which may give absolutely satisfactory results, but will require special care and watchfulness.

Other factors may enter in to embarrass the therapeusis in the course of the treatment; for instance, certain intercurrent affections, such as influenza and acute sore throat, exert a general influence on the condition of the patient, and even affect the local condition so as to diminish considerably the capacity for active mobilization. Furthermore, after a period of easy active mobilization, complications may arise, especially in cases of purulent arthritis following an osteo-articular lesion; occasionally, too, in cases of simple, penetrating wounds without bone lesion there will be a progressive limitation of movement and a cicatricial retraction resulting in increased stiffness of the joint, even on slight flexure with the classic external rotation of the leg, and finally in ankylosis. In combating these complications the older therapeutic methods come into their rights. A choice must be made between ankylosis and resection. The local condition of the wound and the general condition of the patient are the determining factors in choosing one or the other. If ankylosis can be obtained under good conditions which will permit of a slight flexure, it is always preferable to resection.

Compulsory Notification of Tuberculosis.

The Society of Medical Practitioners, after a discussion o the question of compulsory notification of tuberculosis, has published the following resolution, which received the unanimous approval of the society:

The Society of Medical Practitioners, convinced, as it is of the necessity of waging a bitter fight against tuberculosis and desirous of rendering support to the government, bu opposed to the idea of creating medical officials to accomplish a task which naturally falls to the medical practitioners cannot accept the principle of compulsory notification c tuberculosis until the government shall have introduced suc measures as will give the necessary assistance to indigent patients and their families, such as proper accommodations in hospitals. The society is convinced that, in the meantime, the proper field for the antituberculosis campaign lies in using all possible prophylactic measures in protection of the children; wide publicity as regards the principles and practice of hygiene; combating the alcohol evil; improvements in the character of the homes of the poor, and the amelioration of the social conditions of employment.

The Eight-Hour Day in the Hospitals and the Pharmacies

M. Henri Rousselle, member of the municipal council, recently gave his colleagues the benefit of the investigations and negotiations which he has been carrying on with the city administration in order to bring about the application of the eight-hour day to the hospitals of Paris. The proposed reform concerns more than 12,500 persons. In order to assure the sick the protection that is their due, the present day-shift will continue to devote a morning and an afternoon period to the care of their patients, the morning period to begin at 5 o'clock and the afternoon period at 3 o'clock. This schedule makes it unnecessary for the patients to change attendants, and the physician always has the same personnel to deal with. The night-shift will perform its duties from 11 to 7 o'clock, with the same personnel as at present. However, an "équipe de garde," or provisional shift, will be established, much after the fashion of the "équipe de veille," or watch guard, in order to secure permanence of attendance in the wards during meal times and during the break between the day-shift and the night-shift.

The application of the eight-hour day cannot be made, by reason of multiple difficulties, until the new schedule has been tried out in one or two of the large hospitals.

In this same connection, the Comité intersyndical des pharmaciens of the department of the Seine has informed the public that in response to representations drawn up by the syndicat des préparateurs en pharmacie, the following order of the day has been unanimously adopted by the Comité patronal:

In view of the fact that the pharmaceutical profession is quite distinct from every other profession, and in view of the fact that its hours of duty bear a very close relation to the consultation hours of physicians and to their hours for professional calls, which have not been regulated by law; considering the fact that in the present state of affairs the strict application of the eight-hour law would bring about a condition prejudicial to patients and to the people of Paris; considering, furthermore, that night service has been assured now for a long time by the voluntary offer of services on the part of the pharmacists themselves, the Comité intersyndical, acting in the name of a vast majority of the pharmacists of the department of the Seine, has decided, in view of all the facts, to urge all pharmacists of this department to reduce, from now on, the hours of work for their personnel, keeping in mind, at the same time, the needs of the public in the localities in which they are located, until such time as definite regulations shall be adopted in accordance with law, the purpose of this resolution being to harmonize all interests concerned and also to show respect for both the letter and the spirit of the law.

Withdrawal of Bread Tickets

Our importations of flour for the past few months having been large, the food administration has found it advisable to abolish the use of bread tickets.

Reciprocity Between French and American Universities

L'Union universitaire américaine en Europe elected recently a new executive committee which will enter on its duties, July 1, 1919. Prof. Henry A. Yeomans, dean of Harvard College and exchange professor at the Sorbonne last year, is the chairman.

Since establishing its headquarters in the Royal-Palace-Hôtel, rue de Richelieu, Paris, the union has enrolled about 35,000 students from the various services of the army. This new association of students from the American army in France, composed, as it is, of groups of American students from the fourteen universities of France, has just succeeded in working out a plan whereby it will be possible to send a considerable number of French students for attendance at American universities at the opening of the new school year in September.

Personal

At the meeting, held June 17, the Academy of Medicine elected Dr. Ed. Jeanselme as an active member of the section of medical pathology, and to serve as hospital surgeon and clinical professor of cutaneous and syphilitic diseases at the Faculté de médecine de Paris.

Exhibit of Prosthetic Appliances

The *Journal officiel* has just published an order in accordance with which practical demonstrations of prosthetic appliances and of agricultural tools and implements intended for the use of those mutilated in war will be held in 1919 on the farms of the society promoting the back-to-the-farm movement. The purpose of these demonstrations is to encourage the manufacture of prosthetic appliances of all kinds, such as will be needed by the war mutilated in order to permit them to continue their agricultural labors. The prosthetic appliances will restore in a measure the function of the amputated member, and the agricultural machines will permit mutilated men to perform all kinds of farm work without making very extensive use of the mutilated member.

French manufacturers and the manufacturers of allied and neutral countries or their representatives residing in France are invited to take part in the exhibit. The appliances and implements will be examined by a commission to be appointed by the departments of agriculture and food administration.

The appliances and machines will be tried out at the exhibit by the mutilated men under the actual conditions of use and will be tested long enough to satisfy the commission as to their advantages and disadvantages. These trials will begin with the harvest and will be continued until after the sowing of the wheat, and in this way the appliances will be tested in connection with almost all kinds of agricultural work.

Researches in Regard to Cancer

The Franco-Anglo-American League Against Cancer (The Journal, April 27, 1918, p. 1248) recently held a meeting in Paris presided over by M. Justin Godart, former undersecretary of state for the medical department of the army. Godart discussed the purpose of the league, which is primarily to carry on scientific researches in cancer. A committee composed of women will have charge of house investigations and control, including hospitalization of cancer patients. Dr. Hartmann, professor of clinical surgery at the Paris School of Medicine, emphasized the danger which cancer presented at the present time. Every year there die in France 33,000 cancer victims. In Paris alone, in 1913, 3,655 succumbed to this dread disease. Along with tuberculosis, it constitutes one of the two greatest evils that threaten mankind, affecting women even more than men; and that, too, right in the prime of life. The fight against tuberculosis is today at least on the way to a thorough organization. The same is not true of cancer. It is very necessary, therefore, without delay, to instruct the public in regard to the danger which threatens and with respect to the best means of avoiding it. As regards treatment of the cancerous, it is essential that women should learn, under the direction of physicians, just what are the best methods to employ.

An American the Recipient of the Croix de Guerre

Capt. Sterling S. Beardsley, of the American Red Cross, has just received from Marshal Petain the croix de guerre in view of having, at Château-Thierry, after the evacuation of the city, continued the service of his canteen in spite of numerous bombardments and aerial raids.

Personal

At the meeting of June 24, the Academy of Medicine proceeded to elect an active member in the section of legal medicine, in the place of Professor Chantemesse, deceased. Dr. Balthazard, professor of legal medicine at the Paris School of Medicine, was elected by thirty-seven votes out of fifty-four.

At the meeting of June 23, the Academy of Science elected a member in the section of medicine and surgery, to take the place of Professor Dastré, deceased. Dr. Fernand Widal, hospital surgeon and professor of clinical medicine at the Paris School of Medicine, was elected by thirty-three votes out of fifty-eight.

Dr. Gillot, agrégé professor at the Alger School of Medicine and Pharmacy, has been appointed professor of the clinic for tropical, syphilitic and cutaneous diseases, in the same school, in place of Professor Brault, deceased.

Dr. Breton, agrégé professor at the Lille School of Medicine and Pharmacy, has been appointed professor of hygiene and bacteriology, at the same school, in the place of Professor Calmette, resigned.

Dr. Bué, professor of obstetrics and hygiene of early infancy at the Lille School of Medicine and Pharmacy, has been appointed professor of clinical obstetrics at the same school, in place of Professor Oui, deceased.

Dr. Froelich, agrégé professor at the Nancy School of Medicine, has been appointed professor of infantile and orthopedic clinical surgery, in the same school.

LONDON LETTER

London, June 26, 1919.

The Disproportion of the Sexes

At the National Birth Rate Commission, Commissioner David C. Lamb, director of the emigration department of the Salvation Army, gave important evidence. He said that if a severe spell of unemployment and distress followed the war, there was no hope of an improved birth rate in this country, though no doubt there would be large migration from it. It had been stated that the C 3 classes were adding to the population in larger proportion than the A 1 classes; but in view of the increased publicity given to all matters pertaining to sex relationship during recent years, he questioned very much if the C 3 classes, faced with the prospect of hard times, would continue to be so prolific. The lack of houses would also prevent many of the other classes from marrying, and from that cause also the birth rate would suffer. The disproportion of the sexes, which before the war was causing grave disquietude, had now assumed a menacing aspect. Socially it promoted all sorts of evils. In this time of empire reconstruction, one of the most vital considerations should be the question of a more equal distribution of the sexes throughout the empire. More equal distribution was necessary: (1) that men in the overseas dominions should have the opportunity of getting married; (2) that there might be a higher standard of home life in the dominions affected; (3) for the sake of the women of the motherland who were forced to the repression of their maternal instincts. The progress of Canada and Australia had been hindered for lack of adequate female population, and both in Australia and New Zealand attention had been directed to a declining birth rate. The Salvation Army by means of its emigration department had been doing much to assist women to settle in the overseas dominions, and had emigrated about 10,000 single women. The failures did not amount to 0.5 per cent. Most of the girls had married well, and 70 per cent. of those sent to Canada had married within three years. At present the migration department was waiting for shipping facilities. They had already had applications from hundreds of girls desiring to go to various parts of the dominions. A large number had been employed during the war in munition factories, on the land, and in war work generally. They were mainly between the ages of 17 and 26, and the majority wished to go to Canada, Ontario being particularly favored. It was probable that in future the proportion of single women transferred to the dominions would be considerably greater than it ever had been. It was expected that there would be opportunities oversea for girls who had been working on the land during the war or employed in munition making, or in the various other occupations usually left to men. The housing question would have a big effect on the birth rate and on emigration. It was estimated that there was a lack of nearly 400,000 houses in England and Wales alone. It was reported that there would be a large exodus from Scotland when the shipping restrictions were removed. Was this to be wondered at when 47.9 per cent. of the population were living in houses of one and two rooms, the proportion in Glasgow being 62 per cent.? Scotland's young men and maidens were favoring migration more and more, and the population was declining perceptibly. Something should be done to make Scotland attractive for her own people. But the bothie system still remained in the rural districts, only slightly modified within the last thirty years, and in the cities, towns and villages the depressing and barrack-like tenement continued to spring up in all its unredeeming ugliness.

Ministry of Health

The ministry of health, with Dr. Addison, president of the Local Government Board, as the first minister of health, has been inaugurated. This means the organization under one ministry of all the public health activities which in the past have been administered by several departments. With the creation of the ministry of health, the Local Government Board (the most important of the old departments dealing with public health) will disappear, its functions and staff being handed over to the ministry of health. Similarly the insurance commissioners, who administer the national insurance act, will disappear, their functions being taken over by the new ministry. The first step taken by the minister of health will be to set up four consultative councils to give advice and assistance in connection with medical and allied services, national health insurance (approved societies work), local health administration, and general health questions. These councils, which will include a number of women, will consist of not more than twenty persons who have had practical experience of the matters for the purpose of which the councils are established. A health program is being drawn up, and it is hoped to get some large proposals ready this year. Apart from the legislative program, it is proposed to push on as rapidly as possible with changes which can be carried through by administrative action. It is hoped to set up a great many maternity and child welfare centers. More centers for dealing with venereal disease are proposed, and the great problem to be faced here is how to conduct them so that the people for whom they are provided will be ready to make use of them.

A Floating School for Physicians

A proposal, made by Dr. Louis Sambon, has excited considerable interest. It is the establishment of a floating school of tropical medicine. The idea is that the students shall embark in a ship fitted up with all the necessary apparatus and laboratories, and shall be taken from one tropical area to another. They will thus be enabled to visit the many fields in which disease flourishes, and, as the passengers will consist of men of every nationality, a new link of world friendship will be forged. Moreover, those workers who are struggling against the various diseases of hot climates will be stimulated by the visits of the "school." It is proposed to visit British, French, American and Italian possessions.

Amendment of the National Insurance Acts

The war has produced a disturbance in the working of the national insurance acts. The government has, therefore, decided to introduce a bill for the purpose of securing that the intention of the national insurance acts is not defeated in certain respects by incidental consequences of the rise in the cost of living due to the war. Under those acts, persons engaged in manual employment come within national insurance without any regard to amount of income or rate of remuneration; but persons who are engaged in nonmanual employment are excluded from compulsory insurance when their rate of remuneration is in excess of $800 per annum. As a result of the increased cost of living, employers have almost universally found it necessary to grant war bonuses to workers, with the result that in a large number of cases (it is believed between half a million and a million) nonmanual workers whose prewar remuneration was less than $800 per annum receive remuneration exceeding that rate, although the circumstances of their employment are wholly unchanged, and they have not been taken out of the economic status of the persons comprised in the act. If an amendment is not made in the acts, such workers must lapse from insurance and lose all benefits, unless they are entitled and can afford to become voluntary contributors; and even then they are deprived of medical benefit, they are under more onerous conditions as to cash benefits, they lose their employers' contributions, and they must themselves pay their weekly contributions, at an enhanced rate. The injustice would be aggravated by the fact that the distinction between the manual and the nonmanual worker is in many cases only technical. It has, therefore, been decided to substitute, for the figure $800, $1,250, which corresponds to the rise of wages in the case of nonmanual workers. This proposal has excited considerable apprehension in the medical profession. The hostility of a large number of physicians to the insurance act has never abated, and they are, therefore, opposed to any extension of the act. A deputation from the council of the British Medical Association has been received by the government. While recognizing that there was a case for keeping in insurance persons of the class that Parliament originally intended to be insured, the deputation urged that the simple change of the income limit which was proposed might have the effect of bringing into national insurance, and taking out of the sphere of private practice, a considerable number of persons who had hitherto had no difficulty in employing physicians to treat them as private patients. The representative of the government would not give a pledge to bring forward any provision to restrict the proposed measure to persons who were previously insured, but said that the government would be prepared to consider any practical amendment brought forward by a private member on the subject.

Deaths

Abraham Jacobi ⊕ New York City, for more than sixty years one of the most notable figures in American medicine, President of the American Medical Association in 1912-1913, died suddenly at his summer home, Lake George, N. Y., July 10.

Dr. Jacobi was born at Hartum, Westphalia, Germany, May 6, 1830. He studied at the Universities of Greifswald and Göttingen, graduating from the University of Bonn in 1851. He was intimately identified with the German revolutionary movement in 1848 for which he was imprisoned for two years under a charge of high treason. In 1853, while under sentence, he escaped to England and attempted medical practice unsuccessfully at Manchester, and then migrated to America, settling first in Boston and later moving to New York City. In 1860 the New York Medical College established the first professorship of diseases of children and invited Dr. Jacobi to accept this chair. This position he held until 1864, when he accepted a similar position in the University of New York. In 1870 he became professor of pediatrics in the College of Physicians and Surgeons, holding this position for twelve years and retiring as emeritus professor.

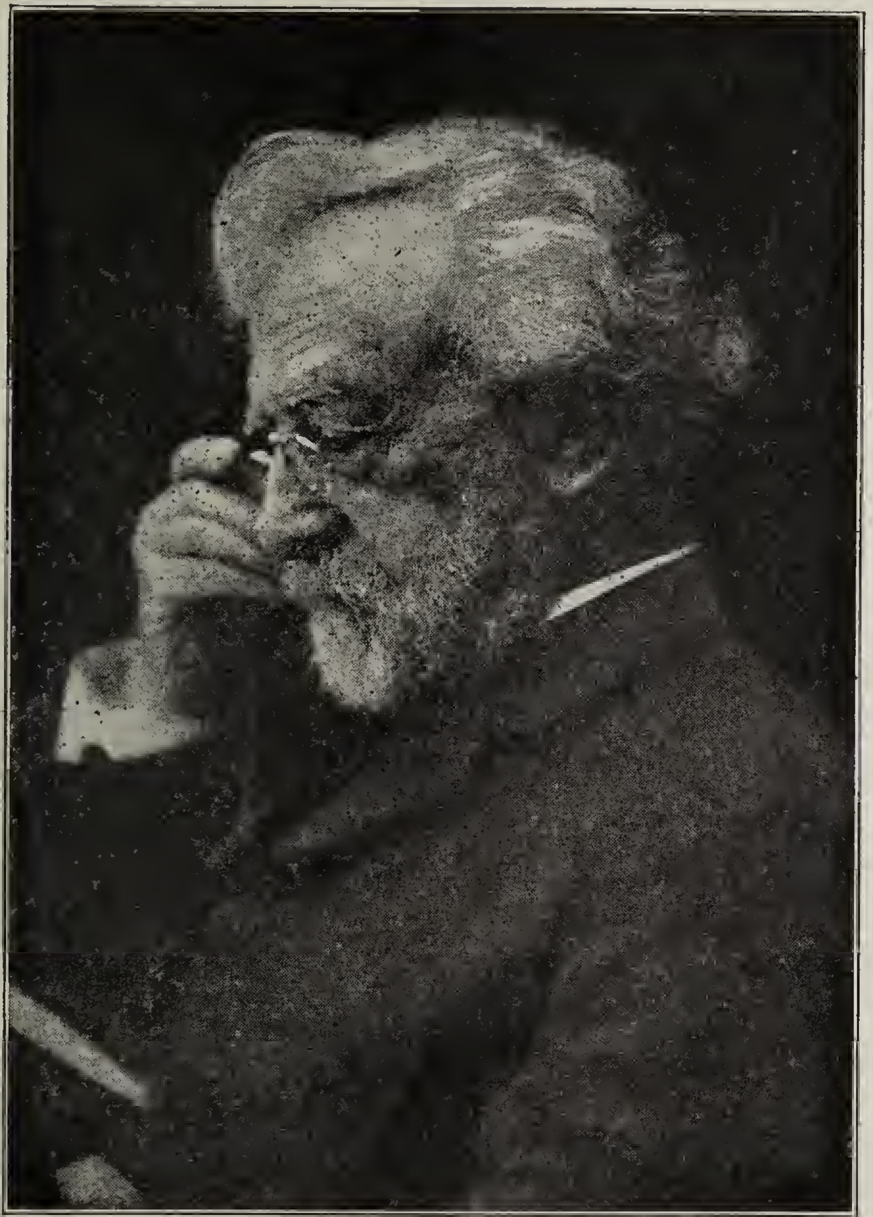
During a long career Dr. Jacobi held practically every honor which the medical profession can give to its members. He was twice president of the American Pediatric Society and the first chairman of the Section on Diseases of Children of the American Medical Association. He was president of the Association of American Physicians in 1896; of the New York State Medical Society in 1882; of the New York Academy of Medicine from 1885 to 1889. He was a member and officer of many medical societies both here and abroad. As a contributor to medical literature he is perhaps best known for his work on the intestinal disturbances and the therapeutics of infancy and childhood. His most important papers, monographs and addresses were assembled some years ago in eight volumes n the Collectanea Jacobi.

Dr. Jacobi was actively inerested in his profession up o the moment of his death; thus at the age of 88 years he ttended the annual session of the Association in Chicago nd was a conspicuous figure at all of the meetings. Throughut his life he was associated with eminent men, and numerus anecdotes tell of conversations with his early friend Carl Schurz, of meetings with William Osler, Austin Flint and many other noted statesmen and physicians. Although a German by birth, Dr. Jacobi was an ardent American. One of the most significant tributes of his life was the urgent invitation extended to him, October, 1893, to become professor of pediatrics in the University of Berlin, and this position he refused with the historic words "I was, I am, rooted to he American profession that I have observed to evolve withut governmental aid out of its own might to become equal o any on the globe."

Dr. Jacobi was perhaps equally well known as a great itizen. He was a formidable opponent of prohibition and an rdent advocate of birth control, and in every other matter f public interest he was a conspicuous character.

On the occasion of his seventieth birthday and each year since, he was especially honored by the medical profession.

Dr. Jacobi was in good health up to but a day before his death. In September, 1918, he had a narrow escape from death when his house at Lake George burned. This year, on his return to Lake George, he occupied the residence of his great compatriot, Carl Schurz, and it was in the house of this famous advocate of human freedom that the great and beloved physician died.



Abraham Jacobi, M.D., 1830-1919

Clement Andariese Penrose ⊕ **Major, M. C., U. S. Army,** Baltimore; Johns Hopkins University, Baltimore, 1897; aged 45; died in the Church Home and Infirmary, Baltimore, July 4, from the effects of septic bronchitis. Major Penrose served as resident physician in Johns Hopkins Hospital in 1897 and 1898, and was on the staff with William Osler, Howard Kelly and W. S. Halstead. He was a specialist in dietetics and functional disorders. He served as surgeon in chief and vice director of the Bahama Expedition in 1903, and as chairman of the food economy commission in 1907. He entered the United States service, Sept. 4, 1917, and served with the British and American Expeditionary Forces, giving especial attenten to sanitary conditions in army hospitals and at the front. While engaged in this study in the training camps of the Allies he contracted septic bronchitis, from the effects of which he died.

John Harris Duncan, St. Louis; University of Missouri, Columbia, 1874; Bellevue Hospital Medical College, 1875; aged 66; a member of the Missouri State Medical Association; vice president of the St. Louis Medical Library Association in 1898, and president of the Kansas City Academy of Medicine in 1892; a specialist in dermatology; professor of physiology in the University of Missouri from 1875 to 1883; professor of physiology and dermatology in the University Medical College of Kansas City from 1883 to 1893; then for one year professor of the same subjects in St. Louis College of Physicians and Surgeons; professor of physiology in the Barnes Medical College, St. Louis, from 1898 to 1901, and since that time professor of diseases of the skin and syphilis in the Marion-Sims-Beaumont Medical College, St. Louis; died at his home, June 22.

Frank M. Donohue ⊕ New Brunswick, N. J.; New York University, New York City, 1881; aged 59; died at his summer home, Cedar Crest, near Bound Brook, N. J., June 28, from heart disease. Dr. Donohue specialized in surgery, and was surgeon to the John Weld Memorial Hospital, consulting surgeon to the Somerset Hospital, surgeon to the Pennsylvania system, and one of the founders and chief surgeon to St. Peters Hospital. He served as president of the Middlesex County Medical Society in 1884, 1912, 1914 and 1915, and was a director of the Peoples National Bank, and a trustee of the New Brunswick Trust Company and New Brunswick Savings Institution.

Nathaniel Bowditch Potter ⊕ Santa Barbara, Calif.; Harvard Medical School, 1896; aged 49; died at his home, July 4. Dr. Potter was a specialist in internal medicine; and prior to his removal to California, was professor of clinical medicine in his alma mater, chief of the medical department in St. Mark's Hospital, New York City, and consulting physician to the French, New York Nose, Throat and Lung, and the Central Islip State hospitals. He was a fellow of the

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⊕ Indicates "Fellow" of the American Medical Association.

New York Academy of Medicine. He went to California in 1918, where he established the Memorial Laboratory and Clinic for the Study and Treatment of Nephritis, Gout and Diabetes, at the Cottage Hospital, Santa Barbara.

George Osborne Hughes, Winnipeg, Man.; University of Virginia, Charlottesville, 1897; L.R.C.P. (Lond.), L.R.C.S. (Eng.), and M.R.C.S. (Eng.), 1899; aged 48; president of the St. Davids Welsh Society; a member of the staff of the Pilgrims' Hospital, Winnipeg, and the Winnipeg Free Dispensary; one of the founders and promoters of the *Western Canada Medical Journal;* died at his home, May 11, from typhoid fever.

Henry Simon Oppenheimer ⊕ New York City; College of Physicians and Surgeons in the City of New York, 1874; aged 75; a member of the American Ophthalmological Society, the American Congress of Physicians and Surgeons and a fellow of the New York Academy of Medicine; ophthalmologist to the Montefiore Home; died at his home, July 5.

Anna Howard Shaw, New York City and Washington, D. C.; Boston University, 1885; aged 72; a leader in woman suffrage; president of the National Women's Suffrage Association in 1904 to 1915; who was given the honorary degree of D.D. by the Kansas City University in 1912; died, July 2, at Moylan, Pa., from pneumonia.

Elizabeth Merritt Hooper, Port Huron, Mich.; Woman's Medical College of Pennsylvania, Philadelphia; 1883; aged 59; supreme medical examiner and chairman of the supreme medical board of the Woman's Benefit Association of the Ladies' Order of Maccabees of the World since 1902; died at her home, June 25.

William Wesley Houser, Lincoln, Ill.; Eclectic Medical Institute, Cincinnati, 1859; aged 81; acting assistant surgeon, U. S. Army, and later major, U. S. V., during the Civil War; for seven terms president of the Illinois State Eclectic Medical Society; was struck and instantly killed by a street car in Lincoln, June 23.

Harry S. Jarrett ⊕ Towson, Md.; College of Physicians and Surgeons, Baltimore, 1884; aged 58; a charter member and once president of the Baltimore County Medical Society; physician to the Baltimore County Jail; died in Mercy Hospital, Baltimore, June 27, from heart disease.

Elizabeth R. Bundy ⊕ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1884; aged 70; associate professor of anatomy in her alma mater, and for sixteen years visiting physician at the Woman's Hospital, Philadelphia; died in that institution, July 2.

Samuel Malcolm Evans, Bloomfield, Mo.; Kentucky School of Medicine, Louisville, 1898; aged 44; a member of the Missouri State Medical Association; died, May 13, at the Touro Infirmary, New Orleans, after an operation for obstruction of the gallbladder.

Frederick Day Marshall, Chicago; College of Physicians and Surgeons in the City of New York, 1868; University of Michigan, Ann Arbor, 1868; aged 78; a member of the Illinois State Medical Society; a veteran of the Civil War; died at his home, July 6.

Carol Goldenthal ⊕ New York City; University of Vienna, Austria, 1906; aged 38; a specialist in dermatology; assistant dermatologist to the City Hospital, and assistant surgeon to the Harlem and Bronx Dispensary; died at his home, July 2, from septicemia.

Frederick Stanton Songer ⊕ Kinmundy, Ill.; Marion-Sim College of Medicine, St. Louis, 1897; aged 44; a member of the Association of Military Surgeons of the United States; major, M. C., Ill., N. G., assigned Fifth Infantry; died at his home, July 4.

George Hoffman Parker ⊕ Trenton, N. J.; University of Pennsylvania, Philadelphia, 1896; aged 56; visiting physician to Mercer Hospital, Trenton; local surgeon for the Philadelphia and Reading System; died at his home, June 25.

John Reynolds, Salem, Ore.; Miami Medical College, Cincinnati, 1874; University of California, San Francisco, 1876; aged 82; for many years a member of the board of trustees of Willamette University; died at his home, June 22.

John Nesbit Black, Perry, Ohio.; University of Wooster, Cleveland, 1889; aged 59; a member of the Ohio State Medical Association; for two terms coroner of Lake County, Ohio; died at his home, June 23, from pneumonia.

Joseph T. Rice, Texarkana, Ark.; University of Alabama, Mobile, 1872; aged 67; in November, 1876, town marshal of Texarkana, Texas; later a clergyman of the Baptist Church; died in a hospital in Texarkana, June 23.

Adam S. Todd, Manning, S. C.; College of Physicians and Surgeons, Baltimore, 1891; aged 66; a member of the South Carolina Medical Association; died in the Columbia Hospital, Columbia, S. C., June 26.

Charles B. Hough, Ambler, Pa.; Jefferson Medical College, 1878; aged 64; a member of the Medical Society of the State of Pennsylvania; died from heart disease, July 2, while making a professional call.

Washington Dodge, San Francisco; University of California, San Francisco, 1884; aged 60; one of the survivors of the *Titanic* disaster; died at his home, July 2, from the effects of a gunshot wound.

Dillard Estep Samuell, Wilmington, Ill.; University of Illinois, Chicago, 1908; aged 42; died in St. Mary of Nazareth Hospital, Chicago, June 2, after an operation for appendicitis.

Walton Preston, San Francisco; Rush Medical College, 1881; aged 68; a member of the Medical Society of the State of California; died at his home, July 1.

Julius Parks Clements, Atlanta, Ga.; Medical College of the State of South Carolina, Charleston, 1861; a Confederate veteran; died at his home, June 3.

Charles McMunn Slease, Turtle Creek, Pa.; University of Pittsburgh, Pa., 1905; aged 54; died suddenly in the railway station at Turtle Creek, June 21.

Joseph Marshall, Durand, Mich.; Detroit Medical College, 1878; aged 73; a veteran of the Civil War; died in a hotel in Leavenworth, Kan., June 25.

John Francis Potter, Dow City, Iowa; St. Louis College of Physicians and Surgeons, 1893; aged 62; died at his home, June 22, from diabetes.

William B. Kennedy, Guelph, Ont.; Queens University, Kingston, Ont., 1878; aged 62; died at his home, March 17, from angina pectoris.

John Taylor Tweedy, Tabor, Iowa; Louisville (Ky.) Medical College, 1890; aged 64; died in Mercy Hospital, Council Bluffs, Iowa, June 19.

Virginia Wickliffe Smiley, Carmel, Calif.; Woman's Medical College of Pennsylvania, Philadelphia, 1887; died in San Francisco, July 2.

Walter Junius Hildebrand ⊕ Gonzales, Texas; Jefferson Medical College, 1896; aged 45; died at his home, May 20, from pneumonia.

David E. Smalley, Rich Hill, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1873; aged 74; died at his home, June 29.

James Lamar Codie, Lynchburg, Tenn. (license, Tennessee, 1889); a practitioner for thirty-one years; died at his home, June 20.

I. W. Perkins, Jackson, Tenn.; University of Nashville, Tenn., 1882; aged 84; died at his home, June 19.

Marriages

CYRIL AMOS YOUNGS, Lieut. (j. g.), U. S. Navy, to Miss Hazelle McCall, both of Kalamazoo, Mich., June 28.

CHARLES ALLEN GRIFFITH, Oak Park, Ill., to Miss Rhod Marguerite Phillips of East Chicago, Ind., June 18.

HERBERT CHARLES ALLISON, Major, C. A. M. C., London Ont., to Miss Ruth H. Davies of Chicago, recently.

JOHN RADWAY LECOMTE, New York City, to Mrs. Mar Semple Brandt, at Asbury Park, N. J., June 26.

CHARLES DANIEL MCCARTHY, JR., Malden, Mass., to Mis Mary Margaret Gallivan of Boston, June 21.

FRANK BARRETT LIVEZEY, Philadelphia, to Miss S. Elsi Nice of Germantown, Philadelphia, June 28.

EDGAR ROY BRIGHAM, Mosinee, Wis., to Dr. Adella Rub Black of Washburn, Ill., recently.

ARTHUR THEODORE JOHNSON, Neenah, Wis., to Miss Sara Bjoraker of Minneapolis, June 20.

JOHN HANCOCK MCCLELLAN, Chicago, to Miss Julia Good man of Hamilton, Ohio, July 3.

WILLIAM PURNELL YERGER to Miss Helen Young, both Mound, La., May 14.

MORRIS SCHANER to Miss Esther Antin, both of Toled Ohio, recently.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

DR. DE SANCTIS' RHEUMATIC AND GOUT PILLS

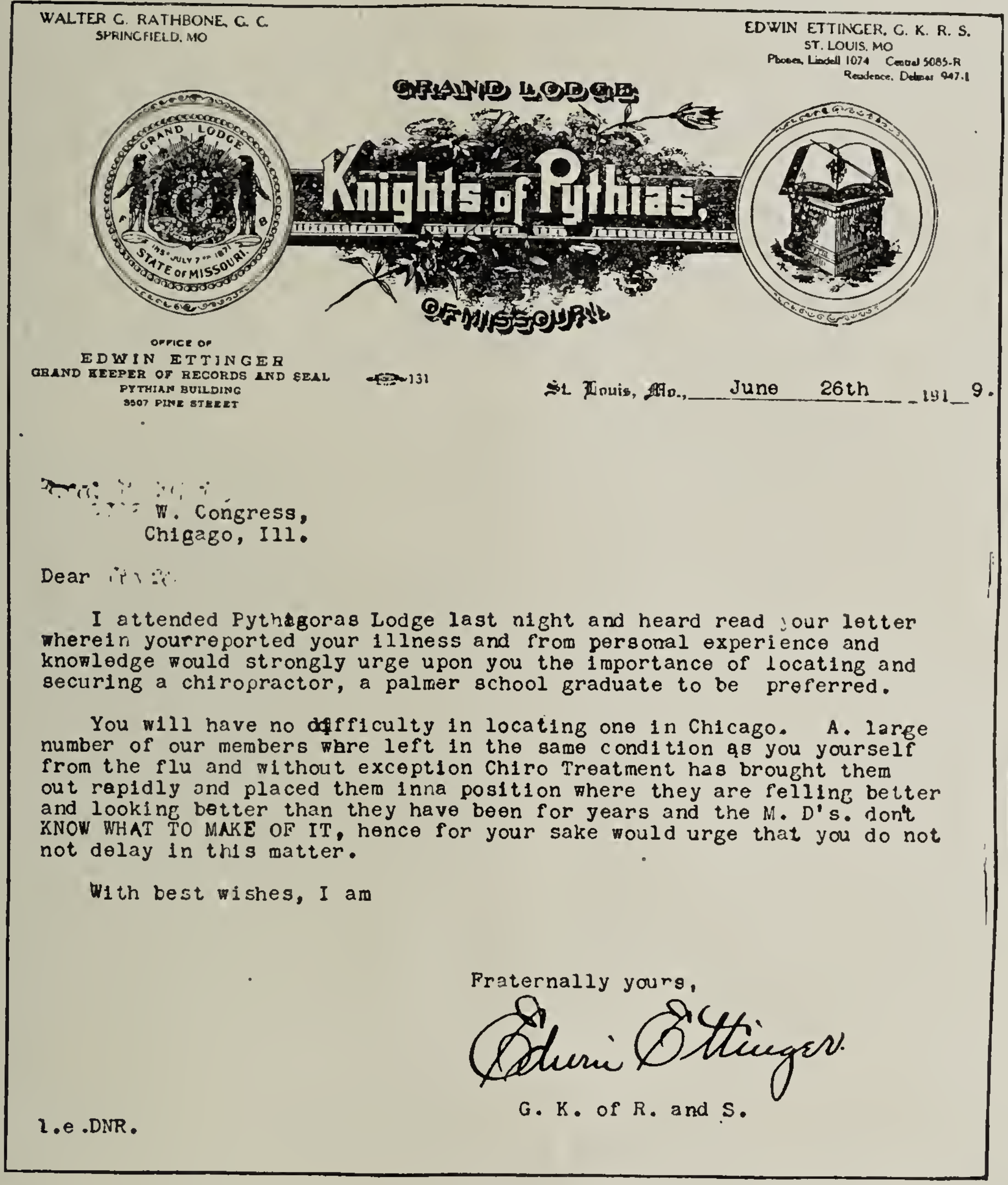
A Dangerous, Colchicum-Containing Nostrum

"Dr. De Sanctis' Rheumatic and Gout Pills" are put on the market by Edward Cleaver of London, England. The American agents are E. Fougera and Co., Inc., New York. During the past few years, The Journal has received a number of inquiries regarding the composition of these pills, and in every instance has had to acknowledge that it was unable to furnish this information, as no analysis had been made in the Association's chemical laboratory, and available references failed to show that they had ever been analyzed elsewhere. For this reason an investigation of the pills was made and the chemists of the A. M. A. Chemical Laboratory have reported, in part, as follows:

CHEMISTS' REPORT

The various specimens of De Sanctis' pills that were purchased for analytical purposes were found o be round, uncoated, and light brown in color. There was some variation in the color of different lots. A little arrowroot starch was found in each box, used as a dusting powder. The pills were very hard, rather brittle, but quite difficult to powder. The pills were not readily disintegrated by water or dilute acids, even when warmed; when warmed with a dilute sodium hydroxid solution, they readily disintegrated.

The average weight of a pill was 0.3213 gm., or 5 grains. A microscopical examination of the pills (after they had been educed to powder) showed powdered colchicum seed in abundance and also traces of arrowroot starch, no doubt from he dusting powder. Since colchicum seed was so abundant, he powder was assayed by the U. S. Pharmacopeial method or colchicum seed (U. S. P. IX, p. 120). In one assay .75 gm. gave 0.0204 gm. colchicin, or 0.54 per cent. In a duplicate 5 gm. gave 0.0234 gm. colchicin or 0.47 per cent., average, 0.5 per cent. The alkaloid obtained had the characteristic appearance and odor of colchicin when separated rom the seed under these conditions. From 1 gm. of the powdered pills there was obtained 0.0425 gm. ash, or 4.25 per ent. There were also found about ¼ grain benzoic acid nd about ½ grain milk sugar to each pill.



WALTER G. RATHBONE, G. C.
SPRINGFIELD, MO

EDWIN ETTINGER, G. K. R. S.
ST. LOUIS, MO
Phones, Lindell 1074 Central 5085-R
Residence, Delmar 947-L

GRAND LODGE
Knights of Pythias,
OF MISSOURI

OFFICE OF
EDWIN ETTINGER
GRAND KEEPER OF RECORDS AND SEAL
PYTHIAN BUILDING
3507 PINE STREET

131

St. Louis, Mo., June 26th 1919.

[illegible]
[illegible] W. Congress,
Chigago, Ill.

Dear [illegible]

I attended Pythagoras Lodge last night and heard read your letter wherein yourreported your illness and from personal experience and knowledge would strongly urge upon you the importance of locating and securing a chiropractor, a palmer school graduate to be preferred.

You will have no difficulty in locating one in Chicago. A. large number of our members whre left in the same condition as you yourself from the flu and without exception Chiro Treatment has brought them out rapidly and placed them inna position where they are felling better and looking better than they have been for years and the M. D's. don't KNOW WHAT TO MAKE OF IT, hence for your sake would urge that you do not not delay in this matter.

With best wishes, I am

Fraternally yours,

Edwin Ettinger

G. K. of R. and S.

l.e.DNR.

The reduced reproduction above is of a letter sent us by a Chicago physician. The patient who gave him this letter and who received it from the "Grand Keeper of Records and Seal" is suffering from pulmonary tuberculosis.

From this examination we conclude that De Sanctis' pills contain powdered colchicum seed, benzoic acid, and sugar of milk. There was also present fatty material which resembled the fat of colchicum seed, but might be, in part, added fatty acid. The percentage of colchicin found indicated that a colchicum seed of high alkaloidal content was used in their manufacture or the possible reinforcement of the pills with colchicum extract or colchicin. De Sanctis' pills are essentially 5 grain doses of powdered colchicum seed.

From the chemists' report it will be seen that the only drug in De Sanctis' pills (present in therapeutic quantities) is powdered colchicum seed. The ½ of a grain of milk sugar is doubtless merely an excipient. The fatty acids or fatty matter from colchicum seed that were present are inert, at least in the quantities found in the pills. The only office which fatty acids might perform would be to give the pills an enteric quality, preventing their absorption until they reach the intestines. Although the entire pills only average 5 grains each in weight, there was present the equivalent of 5 grains of powdered colchicum seed. This indicates, as the chemists have stated, either that a seed of high alkaloidal content is used, or else that the strength of the pills is augmented by the addition of the alkaloid colchicin or, possibly, of colchicum extract.

Here then, we have sold for self-medication an extremely poisonous drug, with no warning of the risk the public runs in using it. While the directions call for "one pill every 8 hours until relieved," it is notorious that the public takes the attitude toward "patent medicines" that, if a little is good, more is better, and the average user of remedies for self-treatment is likely, unless there is some warning, to use his own discretion as to the amount taken. The individual dose is above that of the average recommended in the United States Pharmacopeia. Colchicum or its alkaloids—or for that matter, any drug as toxic as colchicum—have no place in preparations of the home-remedy type. In the case of all "patent medicines," public interest demands that the full quantitative formula of the therapeutically active ingredients should be given on the label, for when the public prescribes for itself, it has a right to know what it is taking. Unfortunately, public interest clashes with vested interests and, as usual, vested interests get the better of it. In the case of such dangerous preparations as De Sanctis' pills, if their sale is to be permitted at all, not only should the names and quantities of all therapeutically active ingredients in the mixture be given, but the law should require that the word Poison be plainly printed on the label.

Correspondence

MEDICAL SOCIETY VISITORS

To the Editor:—The county medical society is the basis of our professional organization. To make it more attractive and more effective strengthens the American Medical Association. It is benefited largely by giving opportunity for interchange of thought among its members. The larger its membership, the more and broader the opportunity; but even the largest society is helped by the presence and words of professional colleagues from outside its own membership.

A good talker, with something of value to talk about, is able to add greatly to the interest and profit of the meetings of any medical society where he is known by name and valuable papers he has published. There are leaders and teachers in medicine who write a few papers of the highest value, who are not often heard in their own local societies, but who might repeat their papers or lectures in a dozen different cities with the highest benefit to the profession. Exchange of lecturers among universities is coming to be practiced more and more, with quickening of interest among students and fuller utilization of the ability of the lecturer. It is time to provide for such exchanges in that educational institution of highest value to the medical profession, the county society.

Nor are the benefits confined to the hearers alone. The lecturer or reader of the paper is benefited by free discussion of the ideas he has to advance. He may be much better posted on his subject than any of his hearers; yet through some different point of view brought out in the discussion, he may get new light on problems to which he has given long and close study. Thinkers welcome the opportunity to place their thoughts before hearers that will be interested in them.

By visitors from outside, many a county medical society, small or large, has found the attendance at its meetings increased, the interest in them quickened, and the literary activity of its own members stimulated, besides getting the benefit of new ideas that might reach it through this channel. If some of the papers crowded into the section meetings of the American Medical Association could be used to stir up local society meetings, both organizations might be benefited. How can such a desirable change in the literary atmospheric pressure be brought about?

Fellows of the American Medical Association travel a good deal, and many of them would be ready to address a medical society of the region visited, if they only were sure of being wanted to do so, and knew when and where such society would meet. What is needed is some agency by which a willing speaker and an interested audience can be brought together.

In the past, certain members of the medical profession have done some of this peripatetic teaching or promulgating of their views. But it has not always been the most modest members of the profession or those to whom the distant medical society would be most glad to listen that have put themselves in touch with the officers of societies to proffer such services. The lack of any coordinated plan for the impersonal offering of such services has left the matter in the hands of "pushing," not to say self-advertising writers, and those who are able to get a hearing in medical societies through the activity of personal friends.

Will not some organized body, representative of the American Medical Association, take up the important function of bringing speaker and audience in relation with each other? The Council on Medical Education, now becoming active with regard to graduate teaching of medicine, might invite a number of those who by papers they have published have proved that they can produce what is worth reading or hearing, to notify a central bureau when they expect to travel and could address medical societies in other parts of the country.

On the other hand, such societies as would like to hear colleagues from a distance could keep the central bureau informed of that desire and of the times at which regular or special meetings could be held. Then the societies, kept informed of whom they might secure to address them, could extend a personal invitation to those whom they really desire to hear. With such an assurance that his help is desired by the profession in the city or state to which he is going, many a member would be glad to give his services, who would be very slow to proffer them unasked. The situation is calling for some official body to take cognizance of this need of local societies, and meet it by a proffer of the moderate service required to meet the need.

The need for something of this kind has been forced on my attention in arranging programs for the Denver County and Colorado State Medical Societies.

Edward Jackson, Denver.

USING VARICOSE VEINS FOR INTRAVENOUS INJECTIONS

To the Editor:—In a recent issue of The Journal (May 31, 1919, p. 1613), Dr. Kaliski, after enumerating the difficulties encountered in finding suitable superficial veins in some subjects and the practical obliteration of veins in others that have been repeatedly injected, advises the use of the superficial jugular vein for the introduction of saline solutions, arsenical preparations or therapeutic serums. It has been my misfortune after repeated efforts in a number of cases to abandon the intravenous route as I was unable to locate the vein successfully. The situation is a trying and embarrassing one, particularly when the patient has been keyed up to the belief in the potency of the intravenous route. No doubt those physicians that have been in a similar predicament will readily sympathize with their equally unfortunate colleagues.

In a large number of intravenous injections of the arsphenamin preparations personally administered, my failures to find the veins have been in women only. All of my male patients have been easily and successfully injected in veins at the bend of the elbow. Therefore the advice of Dr. Kaliski to make use of the superficial jugular veins in those patients in whom other sites are not available is an excellent one. I have had no experience with it, but will take the liberty to submit a method of my own which I have used with success in three cases.

My first case was that of a very obese woman in whom I made several ineffectual attempts to inject an arsenical preparation in the veins at the bend of the elbow. I was about to abandon the administration altogether when I recalled that this particular patient had a number of very prominent varicose veins in the lower extremities. I immediately directed my attention to these and selected one that was quite prominent and apparently free in its entire peripheral course. This vein was injected with the solution without incident. The same patient received two more injections in the same vein. There was no local or general reaction. Subsequently two other patients with poorly developed superficial veins at the elbow and who fortunately possessed varicose veins were readily injected. Of course it is obvious that the success of the procedure depends on the presence of varicosities in the lower extremities and the selection of one that has not suffered thrombotic occlusion from a preexisting phlebitis. As women in the main are prone to varicose veins, these should be made use of for intravenous administration when it is impossible to locate a vein in other localities. I have also found that if the varicose veins are not very prominent they can readily be made so by constricting the site above the vein with the cuff of a blood pressure instrument properly inflated.

Charles Rosenheck, M.D., New York.

Signs of Physical Fitness.—A feeling of being refreshe and recuperated on rising in the morning after a customar night's rest, and a feeling of healthy fatigue as bedtim approaches is a sign of physical fitness. The hangover o fatigue in the morning, experienced by so many students an teachers, should be escaped from as fast as possible. On th other hand, a feeling of intellectual keenness and brillianc in the late evening should be viewed with suspicion. It is a autointoxication of the nerves.—Thomas D. Wood, M.D.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THOMAS G. MORTON'S METATARSALGIA

To the Editor:—Who was Morton of Morton's disease fame? Where can I find a short medical biography and other facts concerning his medical activities?

Thomas Truelsen, M.D., Tampa, Fla.

Answer.—Dr. Thomas G. Morton described metatarsalgia in an article published in Philadelphia in 1876 under the title "A Peculiar and Painful Affection of the Fourth Metatarso-phalangeal Articulation." A biography appears in The Journal, May 30, 1903, p. 1521.

Medical Education and State Boards of Registration

HOSPITAL STANDARDIZATION IN TEXAS

The report of a special committee of the Texas State Medical Association, consisting of Drs. A. C. Scott, chairman, Temple; J. E. Thompson, Galveston, and W. B. Thorning, Houston, appears in the *Journal* of that association of June, 1919. The report follows:

We, your committee, after much study and very careful consideration of the subject, recognize the futility of attempting to lay down hard and fast rules governing the standardization of hospitals in Texas.

We therefore offer the following suggestions as constructive criticism with the hope that future communities will be enabled to still further crystallize opinions of hospital boards and eventually bring about that degree of perfection which is so ardently desired by all.

It is probably beyond argument that the hospital with a "closed staff," i. e., a staff composed entirely of recognized specialists in their respective lines, is the ideal; but as this is manifestly impossible in the majority of Texas hospitals, we make the following recommendations:

First, that where a hospital is operated on the method of the "open staff," or, in other words, where it is open to all doctors in its immediate locality, that its board of directors shall appoint a staff, of a workable number, which shall, from a medical point of view, be known as the governing body of the hospital.

Second, that this staff shall divide itself into committees, for the conduct of the several departments of the hospital. In this connection, we suggest:

(*a*) That a comittee of three compose an operating room committee, whose duty it shall be to acquaint themselves with the character and quality of work being done by different operators, and if, in their judgment, this work is of questionable character or quality, it shall be their duty to report same to the board of directors, with the recommendations that the party in question be denied further privileges of the hospital.

(*b*) That a like number constitute a committee on x-ray and general laboratory equipment whose duty shall be to see that adequate facilities are afforded for the investigations necessary for correct diagnoses.

(*c*) A committee should be appointed whose duty shall be to see that all records are kept in a scientific and business-like manner, contain all information pertaining to the welfare of all patients and that all physicians who patronize the hospital shall be required to comply with the regulations regarding the keeping of records.

(*d*) Another committee should have supervision over the duties of interns and see that they receive adequate instructions.

(*e*) Another committee should have the duty of aiding the hospital in providing adequate nursing for patients.

(*f*) In the event of a dissenting voice in any committee, the matter should be submitted to the entire staff, whose final conclusion, by majority vote, should be the recommendation to the board of directors.

(*g*) We further recommend that all privately owned and conducted hospitals desiring classification should possess adequate equipment for scientific work, a complete system of records, a staff in proportion to their capacity and should invite investigations of their claims for recognition.

Wyoming February Examination

Dr. H. E. McCollum, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Moorcroft, Feb. 12-14, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10, including one osteopath, passed and one, an osteopath, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett Medical College	(1915)	88.1
Chicago Hospital College of Med.	(1918)	82, 82.7, 84.8, 85.1.
Jenner Medical College	(1914)	81.2
Kansas City College of Medicine and Surgery	(1918)	76.2
St. Louis College of Physicians and Surgeons	(1917)	74.8
University of Nebraska College of Medicine	(1919)	84.7

Book Notices

Abnormal Psychology: Interpretations and Investigations; Containing an Experimental Study of Sleep. By Boris Sidis. Experiment to Determine Co-Conscious (Subconscious) Ideation. By Morton Prince. Colored Thinking. By Fraser Harris. Experiments in Psycho-Galvanic Reactions from Co-Conscious (Subconscious) Ideas in a Case of Multiple Personality. By Morton Prince and Frederick Peterson. Rationalization of Every Day Life. By Ernest Jones. Personal Impressions of Sigmund Freud and His Work. By James J. Putnam. Dreams and Their Interpretations as Diagnostic and Therapeutic Aids in Psychopathology. By B. Onuf. The Conception of the Subconscious. By Bernard Hart. And Seven Other Original Articles, Twenty Abstracts, Twelve Book Reviews. Cloth. Price, $3. Pp. 388. Boston: Richard G. Badger.

This is a compilation of monographs, views and abstracts from the *Journal of Abnormal Psychology* for 1908, 1909 and 1910. Boris Sidis has a series of articles in an experimental study of sleep. Two articles on colored thinking by Fraser Harris are especially interesting, presenting a series of clinical reports on individuals who visualize figures, letters, days of the week, months, hours and other time and space conceptions in terms of color. Especially interesting to the reader of today are the personal impressions of Freud and his work by James J. Putnam. Most of the abstracts and practically all of the reviews are now out of date. The book would have been better suited for the average reader if the different articles on the same subject had been collected and printed as monographs rather than in the form of a bound volume of the *Journal of Abnormal Psychology.*

The Child's Unconscious Mind: The Relations of Psychoanalysis to Education. A Book for Teachers and Parents. By Wilfrid Lay, Ph.D. Cloth. Price, $2. Pp. 325. New York: Dodd, Mead & Co., 1919.

The title page states that his book is intended for teachers and parents. But it is also of absorbing interest to any one interested in mental development in the light of the newer psychology. How much of the present day speculation regarding the methods of mental growth will remain is difficult to say. That newer methods of study are substituting the clinical for the old speculative and philosophic method is in itself a promise of better things. In the introduction, Lay discusses the point of view, concluding that the deeper knowledge of the nature of the individual, now for the first time available for teachers and parents, takes into consideration the workings of the unconscious mental activity, and that a knowledge of these processes as well as the order and manner in which they appear in the child development is an essential part of the training of all those who have to do with children. The influence and importance of unconscious desires and impulses, the interplay of the conscious and unconscious, the origin of specific thought in the unconscious mind, and the mechanism by which thoughts and impulses come into being are discussed clearly and interestingly. The relation of the scientific method of study of the unconscious mind to medical research, and the fact that a modern psychology has developed almost entirely through the efforts of neurologists rather than the old school psychologists, are clearly shown. The blunders and shortcomings of present day educational methods, especially in the light of our recent acquired knowledge of mental processes, is made clear as well as the fundamental principles on which real education should be based. To those who have been following the development of knowledge in this field, the book will be a welcome addition. To others, it may come as a surprise, but it will be a beneficial one.

The Adventure of Life. By Robert W. Mackenna, M.A., M.D. Cloth. Price, $1.25. Pp. 233. New York: The Macmillan Company, 1919.

The author, a physician in the Medical Department of the British Army, endeavors to formulate a scientific interpretation of life. "Begun on a winter night in a little bell-tent in the north of France within sight of the firing line," it was written during the leisure moments of a busy medical officer's life in the midst of the closing year of the great war. Unable to accept the purely materialistic explanation of life, the author holds that the indomitable logic of facts drives one to the conclusion that behind all and above all there is an intelligent and beneficent Mind immanent in nature and in the life of man. The book is written in the hope that it may help to illumine the clouds of perplexity with which many an earnest seeker after the truth finds himself surrounded. The writer believes that the goal of nature is life, the aim of life is the development of intelligence, and the object of intelligence is a knowledge of God.

The Disabled Soldier. By Douglas C. McMurtrie, Director, Red Cross Institute for Crippled and Disabled Men. With an Introduction by Jeremiah Milbank, Vice-Chairman, Committee of Direction, Red Cross Institute for Crippled and Disabled Men. Cloth. Price, $2. Pp. 232, with illustrations. New York: The Macmillan Company, 1919.

This is an account of the methods used in rehabilitating disabled soldiers who after previous wars would have been condemned to a life of uselessness and pauperism. While much of this work is still in an experimental stage and it remains to be seen how much reconstruction is possible and what are the most effective methods to employ, yet any account of the plans being followed either in this country or abroad for the rehabilitation of crippled or disabled men is of interest. The material has been collected from the Red Cross, the Medical Departments of the Army and Navy, and military and civilian workers in this country and in Europe.

Diet List of the Presbyterian Hospital, New York City. Compiled, with Notes, by Herbert S. Carter, A.M., M.D., Consulting Physician to the Lincoln Hospital. Second edition. Cloth. Price, $1.25 net. Pp. 165. Philadelphia: W. B. Saunders, Company, 1919.

This little book of diets contains an excellent and well-rounded list, of particular value for institutions and men who know how to diet patients, but who are, perhaps, too busy to work out what to give them. It is to be regretted that Joslin's summary of Allen's treatment for diabetes is quoted from the early edition of his book and, therefore, omits Joslin's very important modification regarding the reduction of fat intake preliminary to fasting in certain groups of diabetes.

Infant Mortality.—The number of infants under 1 year of age per thousand born alive throughout the birth registration area as a whole was 93.8 in 1917, as against 101 in 1916 and 100 in 1915. This is equivalent to saying that in 1915 and 1916, of every ten infants born alive one died before reaching the age of 1 year, whereas in 1917 the corresponding ratio was a trifle more than 1 in 11. The rate for male infants in 1917, 103.7 per thousand living births, was nearly 25 per cent. greater than that for female infants, which was only 83.3. A minimum of 66.2 per thousand births is shown for infants with mothers born in Denmark, Norway, and Sweden, and a maximum of 172.6 for infants with mothers born in Poland, while for negro children the rate was 148.6.

Medicolegal

Location of Pesthouse by Board of Health

(Birchard et al. v. Board of Health of City of Lansing et al. (Mich.), 169 N. W. R. 901)

The Supreme Court of Michigan reverses a decree that dismissed the bill filed in this case to restrain the maintenance in a residential district of a pesthouse or detention hospital for the treatment of infectious diseases. The court says that the question involved here was the protection of private rights by injunction against a public board authorized and required by the charter of the city to perform certain duties. The board of health was acting under charter provisions of the city, which not only authorized, but made it the duty of the board to locate and maintain such an institution; and it was the opinion of the trial judge that such provisions justified and authorized the board to select the site in question, and there maintain the institution in the absence of arbitrary action in so selecting it, which was not found to exist. There was much testimony tending to show that a pesthouse may be so conducted, and well-regulated ones are, as to cause no actual danger to nearby residents. But substantially all the experts who testified to this effect agreed that their opinion was not shared by the general public, and that the normal person has a horror and dread of a pesthouse, and a fear of infection from proximity to it. The court was not dealing with an emergency caused by an epidemic of an infectious disease. The detention hospital, or pesthouse, here involved, was permanent in character and the injury caused continuous. The court concludes that the provisions of the charter did not vest in the board of health the power to locate a pesthouse in a thickly settled residential district, where, by reason of its location, it would be a nuisance, and where its permanent maintenance would work continuing damage to adjoining and nearby property and would result in the destruction of the home in its comfort and well-being; and that the discretion lodged in the board was a discretion to be exercised by it in determining between different lawful locations.

Operating on Pregnant Woman for Supposed Tumor

(Johns v. Pond (Calif.), 177 Pac. R. 293)

The District Court of Appeal of California, First District, Division 1, affirms a judgment against the defendant, a physician, for damages in an amount not stated, for having, as was alleged, negligently, and without occasion therefor, performed a surgical operation on the plaintiff, a married woman, 22 years old. The court says that the plaintiff alleged in her complaint that the defendant informed her that she had a fallopian tumor, and operated on her for its removal, when in fact the symptoms diagnosed as indicating the presence of a tumor were caused by pregnancy, and five months later she gave birth to a baby weighing 9½ pounds. She testified that when she first called the defendant she told him that she had been having severe pains in her back and head and also in the pelvic region, was having a scanty menstruation for almost a day each month, and informed him that another physician had said he thought she was pregnant five or six weeks. She further testified that at one time after the incision she heard the defendant make a statement, with reference to the operation, in which he said he had made a mistake, as to which last statement by her, and in some other respects, she was corroborated by other witnesses. The defendant testified that in addition to the symptoms related by the plaintiff she told him that she had been having hemorrhages between menstrual periods and suffered some dizziness; that she did not suspect pregnancy; that her condition was nothing like it had been with the first child; that considering the history of the case as related by her she was suffering from a fibroid tumor; that her condition was serious and required the performance of an operation; that the operation consisted of an incision about 2½ inches long, on making which he discovered that she was pregnant and there was no condition of tumor, whereupon he concluded that she had given him an incorrect history of the case, sewed up, dressed, and bandaged the incision. According to the testimony of several medical witnesses produced by the plaintiff, based on the history of the case as claimed by her to have been furnished to the defendant, he should have kept her under observation for at least six weeks before operating, when he would have discovered the error in his diagnosis. According to the testimony of nine experts called for the defendant, he was justified in making an immediate operation for tumor only in the event of the presence of hemorrhages between regular menstrual periods; otherwise he should have kept the patient under observation and awaited developments.

From a résumé of the evidence, the court thinks it quite clear that, if the jury believed, as it appeared it did, the testimony of the plaintiff as to what she told the defendant relating to the history of her case, then the operation was unnecessary, and the verdict in her favor could not be disturbed.

The plaintiff having closed her case without introducing any expert evidence, the defendant moved for a nonsuit, arguing that the mere statement by him to the plaintiff and her mother that he had made a mistake in diagnosing the plaintiff's case as one of tumor rather than pregnancy was not sufficient to establish negligence, in the absence of testimony that such incorrect diagnosis was arrived at by reason of negligence. Assuming this to be true, it was sufficient that evidence was introduced later in the case which tended to supply this defect, it not appearing that the defendant was prejudiced thereby.

The court committed no error in refusing the defendant's requested instruction that, if there is more than one method of treatment recognized by the medical profession, a physician may adopt either, for the reason that the instruction was substantially given when the court told the jury that if the defendant applied reasonable skill and judgment with ordinary care, he was not liable for any damages or injuries consequent on an honest mistake or error in making a diagnosis, in prescribing treatment, or in determining on an operation; and if what he did appeared to be in accordance with recognized authority and good current practice, a verdict must be found for him. Rehearing denied by supreme court.

Full Release to Employer Available to Physician

(*Hooyman v. Reeve* (*Wis.*), *170 N. W. R. 282*)

The Supreme Court of Wisconsin, in this action for alleged malpractice, reverses an order that sustained a demurrer by the plaintiff to the defendant's answer setting up as a defense that the plaintiff, in consideration of $3,000 paid to him by his employer, had given the latter a release in full satisfaction and discharge of all claims, accrued or to accrue, in respect to all injuries or injurious results, direct or indirect, arising or to arise from the accident which he had suffered. The court says that it was insisted by counsel for the plaintiff that it appeared from the facts pleaded in defense and demurred to that two separate torts or wrongs were committed, and that settlement for one did not settle the other, and that the principle of release of joint tort-feasors or wrongdoers did not apply. But the rule invoked did not apply in this case. Whether the master and the physician were in a technical sense joint tort-feasors was not material here, because it was clear on the allegations of the answer that all damages sustained by the acts of the master and the defendant physician were settled for and satisfied. The malpractice, if any, contributed to produce the injury settled for and satisfied by the master; hence such cause of action against the defendant was compensated for and extinguished by the settlement made. Clearly the settlement covered all damages sustained, including injury caused by the alleged malpractice. The damages sustained by the acts of the defendant concurred or were connected with the negligence of the master in producing the injury and damages settled for by the master. The receipt given by the plaintiff, which was not questioned, was broad, and showed full settlement for injuries received through the negligence of the master, as well as on account of the alleged malpractice of the defendant. The alleged wrong of the defendant in treating the injury contributed in large part to the injury sustained by the plaintiff. The injury caused by the malpractice would not have occurred but for the original injury, and resulted because of such injury, and was a proximate result thereof. The plaintiff, having been paid for all damages which he sustained, had no cause of action against the defendant physician for the same claim or any part of it.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirty-First Annual Meeting, held in Atlantic City, N. J., June 16-18, 1919

(*Continued from page 140*)

Certain Aspects of Cutaneous Hypersensitiveness

Dr. E. C. Fleischner, San Francisco: Experimental proof demonstrates that cutaneous hypersensitiveness is not present in sensitized uninfected guinea-pigs. A study of cutaneous hypersensitiveness in the chronic diseases of guinea-pigs, including tuberculosis, abortion disease, rodent paratyphoid and undulant Malta fever, indicates that cutaneous hypersensitiveness is always an indication of the presence of a focus of infection. We find no evidence of its being an indication of immunity. We have been able to demonstrate the similarity of *B. melitensis* infection and that of *B. abortus* in guinea-pigs, the evidence being based on pathogenicity, apparently identical microscopic findings and gross changes involving the viscera, cutaneous hypersensitiveness, and some evidence of a positive serologic relationship. We have never been able to demonstrate that hypersensitiveness was developed in the offspring. Dr. Theobald Smith has looked over the microscopic specimens, and states that the lesions in the spleen, lymph nodes, and liver of animals infected with *B. melitensis* are absolutely indistinguishable from those of abortion disease.

Quarantine and Disinfection in Scarlet Fever

Dr. J. Claxton Gittings, Philadelphia: In U. S. Army General Hospital No. 9 it was possible to secure absolute lack of contact between patients and the healthy, except in the inevitable instances in which orders were not obeyed. In one case that developed in an attendant, the agency of an infected blanket was strongly suggested. A uniform minimum length of quarantine of forty-two days from the day of entry into the camp hospital was enforced. On the fortieth day, each patient was carefully examined. All those who showed any evidence of abnormality in the throat, nose or ears were inspected by the nose and throat specialist, who decided whether or not the patients gave any evidence of being potential carriers of the disease. At the end of the quarantine period, 59 per cent. of the patients were ready for discharge; 41 per cent. required more or less treatment. At the conclusion of quarantine, each patient was given an orthodox bath, shampoo and change of clothing, and was then transferred to a clean ward in another part of the building. All soiled linen was soaked in a 2 per cent. solution of cresol for two hours or longer before being sent to the laundry. Shoes, hats and leather belts were exposed to formaldehyd in sealed closets for twenty-four hours. Blankets and woolen clothing were sterilized in the autoclave. The floors of the wards and halls were mopped freely with a 2 per cent. solution of cresol, and all flat surfaces were wiped with the same solution. Mattresses and pillows were aired for three days with all windows open. Within two weeks the wards were again occupied, and there were no further cases of scarlet fever for a period of nearly a year. Until the infecting organism of scarlet fever is demonstrated, the proper length of quarantine always will be open to argument. In accounting for the spread of this disease, the chronic carrier would seem to be the most likely agent. *A priori*, the unhealthy nasopharynx and throat may be under the suspicion of harboring the infection. Examination by a throat specialist may enable us to prevent the discharge of the potential carrier and possibly to hasten the discharge of the healthy person. In mild cases with healthy throats, thirty-five days or less may cover the danger period. It is much better to err on the side of safety than to run the risk of a premature discharge. The factor of the human carrier in the etiology of contagious disease is being accepted to such extent as to make it extremely questionable whether any measure other than thorough cleansing is necessary after infection. Formaldehyd in proper concentration and with sufficient moisture probably will destroy the organism of scarlet fever; that this optimum result is obtained is extremely doubtful. Disinfection of linen and woolens and disinfection and removal of the dust which accumulates on floors and furniture, followed by thorough sunning and airing, appear to be the actual requirements for safety.

DISCUSSION

Dr. D. J. Milton Miller, Atlantic City, N. J.: There are those who believe that the desquamation from the epidermis in scarlet fever is not contagious, and if that is the case what is to be our belief in reference to quarantine? When desquamation continues indefinitely, of course, we cannot continue to keep the patient in quarantine indefinitely; on the other hand, catarrhal symptoms often disappear in a mild case after the acute stage of the disease is past, so that the duration of catarrhal symptoms cannot serve as a guide to the period of quarantine. Until we have more definite information, desquamation should continue to determine the period of quarantine, and quarantine should be continued until desquamation is complete.

Dr. J. P. Crozer Griffith, Philadelphia: I do not think that desquamation is a criterion as to the period of time during which scarlet fever is contagious. I can cite a number of instances in which it had continued for a longer period than forty-two days. It must also be remembered that there are other skin diseases besides scarlet fever in which desquamation may occur, and such diseases may exist coincidentally with scarlet fever.

Dr. Henry Heiman, New York: I am glad we are getting away from the superstition that scarlet fever is carried by clothing. To acquire the disease one must come in contact with a person who has the disease or with a carrier. The disease is conveyed more easily by a person ill with the infection than by a healthy carrier of the disease.

Dr. J. H. Mason Knox, Baltimore: I should like to ask if any one has data to show how long scarlet fever patients continue to have sore throats. The sore throat appears before the eruption, and I have seen epidemics started by early cases before the eruption appeared. Where there is any suspicion of the possibility of scarlet fever, it is more important to isolate the patient early in the course of the disease than later.

Dr. J. C. Gittings, Philadelphia: While thirty days' quarantine in scarlet fever may perhaps be sufficient, six weeks was required in the camps. If a child or a susceptible person is likely to come into contact with a person just convalescent from scarlet fever, it is better to err on the side of safety and maintain quarantine for six weeks.

Cholesterol Metabolism of Infants

Drs. K. D. Blackfan and J. L. Gamble, Baltimore: Cholesterol, which is an important constituent of tissue cells, may also bear important relations to certain physiologic processes. Cholesterol or substances nearly identical with it are present in all natural foods. If cholesterol is not synthesized in the body, an adequate amount must be provided in the food in order to maintain the chemical structure of the tissue cells and provide for growth. In the food of an infant the amount of cholesterol is roughly proportional to the amount of fat present. No coprosterol was detected in the stools of infants. Apparently none of the cholesterol excreted by the infant underwent reduction in the intestinal tract. This fact made it possible to study the cholesterol balance in infants. It was assumed that the finding of a consistently negative cholesterol balance in normal gaining infants would indicate cholesterol synthesis. In order to determine with accuracy the cholesterol content of milk and stools, it had been necessary to modify considerably an existing colorometric method. The cholesterol balance of several infants has been determined. With one exception, a large negative balance was found. The results so far obtained suggest that cholesterol is synthesized within the body. The relation of cholesterol to maintenance and growth apparently do not depend on the amount of cholesterol in the food.

Certain Nutritional Disorders in Infants Associated with a Proteolytic Intestinal Flora

Dr. Langley Porter, San Francisco: Investigation of many stools evacuated by healthy infants and children showed that there is a standard flora in the intestines of healthy babies and children. Examination of stools of children suffering from different types of nutritional disorders demonstrated that in such cases the flora in the intestine departed from the normal. The normal stool showed a flora composed almost equally of aciduric and protein-splitting organisms. In the nutritional disorders studied, the flora all showed a predominance of proteolytic types of bacteria. These children all showed clinical disturbances evidenced by symptoms of toxemia. They all responded to limitation of milk, meat and egg white, together with a diet high in lactose and dextrins, by a swing of the intestinal flora to a predominance of preventive forms. Coincidentally with this change there was an amelioration of the clinical symptoms. On a rational diet, well-being has been maintained and the stools have remained at a floral balance approaching the normal. No claim is made to having established an etiologic relationship between alimentary intoxications and the flora of the intestine, but our investigations point to the possibility of such a relationship, and to the need of further and more intensive investigation.

DISCUSSION

Dr. Henry Koplik, New York: Without wishing to criticize the milk which Dr. Porter used, I wish to point out that a great deal depends on how protein milk is made. Unless it is made properly it rather hurts the baby and may cause bloody diarrhea. Finkelstein realized how important it was to have the milk properly prepared, and he installed his own apparatus. Again, milk may be stored too long before being prepared, and here we are in the hands of the purveyors of milk. In cases such as Dr. Porter described I have been accustomed to eliminate the sugar from the diet. Dr. Porter gave lemonade, while I eliminate all sour foods. However, Dr. Koplik has obtained good results by following his method, and I obtain good results with mine.

Dr. E. C. Fleischner, San Francisco: Any method which offers us some criterion on which to base feeding of the type of infants Dr. Porter described is acceptable. It is better to have a method based on a logical foundation than to proceed in an empiric way. Where butyric acid fermentation is concerned it is better to leave the fat out of the diet, and I think that is the method Dr. Porter has followed. If the etiologic factor is the proteolytic anaerobes, as it frequently is, then to get at the root of the evil the protein element must be considered and both fats and proteins must be reduced or eliminated, at least temporarily. Dr. Porter has offered us a tangible basis on which to feed this type of patients.

Dr. Langley Porter, San Francisco: Any one who has studied the subject must have been struck by the fact that we cannot feed high fats when the protein is low, as is shown by the soapy stools that resulted when we followed this method; that was the reason Finkelstein resorted to the albumin milk.

Transfusion in Infants and Children

Dr. Henry Koplik, New York: Transfusion in the newborn is applicable in (1) cases of uncontrollable hemorrhage from wounds, umbilicus or scalp hematoma; (2) forms of frank melena with hemorrhage from the intestine and subacute or gastric hemorrhages; (3) concealed melena in which the outward objective signs of hemorrhage are slight, such as occasional ecchymosis on the surface but in which the evidence of internal hemorrhage is great, and (4) cases of severe and continued hemorrhage in the new-born from surgical wounds, such as circumcision. There are before us two methods of transfusion from which to choose, and the time is scarcely ripe to decide in favor of either. These methods are the Unger and syringe method (Lindemann) and the so-called citrate method (Lewisohn). I have used both methods and found them applicable. Cases have come under my observation in which the subcutaneous injection of serum had absolutely failed to control hemorrhage, or even the subcutaneous introduction of whole blood. In these cases, a single definite transfusion succeeded in combating symptoms which the serum and subcutaneous injection of blood failed to control. Temperature elevation is not a contraindication to transfusion, nor is congenital syphilis. In hemophilia in late infancy and childhood, transfusion was uniformly successful in combating the hemorrhages even when large amounts of blood had been lost. In a case of pernicious anemia, a very rare condition in childhood, two transfusions of 140 and 120 c.c. of citrated blood initiated an improvement, and the child went on to recovery. Transfusion is useful in acute diseases with a tendency to hemorrhage. Acute and chronic leukemia are not benefited permanently by transfusion, and purpuric conditions of all varieties are not improved by transfusion. Henoch's purpura is particularly rebellious to treatment. In several patients who had a low temperature with endocarditis crises due to an infectious endocarditis, transfusion was employed without success. There was one form of streptococcus invasion which if transfused intensively and repeatedly might improve after the introduction of new blood, and this was the form of blood sepsis which did not affect the heart itself. In certain septic infections it was advisable to remove blood in order to make way for the introduction of new blood. In a case of influenzal nephritis I employed blood transfusion when the patient was sinking fast and the urine showed the presence of blood. Not only did the transfusion of blood in this case cause a cessation of the bleeding, but there was complete recovery from the nephritis. On the other hand, many patients with the same affection were transfused without success, possibly because the physician waited too long. There should be a definite idea or indication for the performance of transfusion, since its indiscriminate use may bring the whole method into disrepute.

Postinfluenzal Encephalitis

Dr. Henry Heiman, New York: From a study of the relations of this condition to influenza, I am of the opinion that the most appropriate designation is "postinfluenzal encephalitis." We have been able to differentiate three main forms depending on the severity and the most prominent symptoms. These may be grouped into (1) irritable, (2) lethargic and (3) lethargic with paralysis. The irritable type is characterized by marked restlessness, excitability, and almost continuous crying. In the lethargic type, as the name implies, the most prevalent feature is a drowsy state. The facial features are expressionless, resembling the Parkinson syndrome. There may be convulsions or twitching of the face muscles. There is frequently moderate rigidity of the neck. Most of the cases fall into the third group of lethargy with paralyses. In this type we find, in addition to the stuporous state, some form of paralysis and frequently convulsions. There may be an involvement of the extremities or cranial nerve palsies. All of these cases gave a history of previous influenzal infection. In one child the nervous syndrome followed immediately, and in another as long as four months had elapsed. The average was about two weeks. Convulsions were the first manifestation in three cases, stupor in four. Drowsiness and stupor continued as prominent symptoms throughout the course of the disease. Fever played a small part in all the cases. The fundi were examined in all these cases, but showed nothing characteristic. Of eight specimens of cerebrospinal fluid, only one showed definite changes. There were 80 cells per cubic centimeter, albumin was present, and there was a definite reaction to Fehling's solution. There were no uniform changes in the blood picture. The prognosis was better than the alarming state of the patient would indicate. There was no specific therapy. In the irritable type, mixed bromids and chloral were of some value. Lumbar puncture had not proved of special benefit.

DISCUSSION

Dr. Henry Koplik, New York: We all saw cases of this kind throughout the epidemic of influenza in New York. These cases were quite similar to the cases of poliomyelitis that have been described on both sides of the Atlantic. They appear to be of the hemorrhagic type affecting the brain and not the cord. There are ophthalmoplegia, facial paralysis, a rigid neck, and Macewen's and Kernig's signs, all being quite marked. The lethargic cases may resemble tuberculous meningitis, and some physicians have made the diagnosis of tuberculous meningitis to find that at the end of a week or ten days the patients were on the road to recovery. We have performed lumbar puncture in some cases of this type, but find that the patients do well without resorting to this procedure. There were different types of encephalitis following influenza; not all were of the lethargic type.

Dr. I. A. Abt, Chicago: Not all the cases of encephalitis which we have been seeing are necessarily due to influenza. Encephalitis may follow pneumonia, typhoid or whooping cough. Encephalitis includes a group of diseases. The disease has a selectivity for certain portions of the brain. In a number of cases the anterior motor areas were affected, and in some there is a one-sided paralysis. The prognosis is good so far as life is concerned, but a number of those affected remain paralyzed.

Dr. Richard M. Smith, Boston: In one case of encephalitis in a child 4½ months old, all the symptoms mentioned were present, and in addition the child was still unable to cry after the condition had lasted a week.

Dr. Fritz B. Talbot, Boston: Have you had any reports from adults as to whether double vision was among the early symptoms in encephalitis following influenza?

Dr. Henry Heiman, New York: I have not seen diplopia, but I have seen ophthalmoplegia.

Cause of a Sporadic Case of Cerebrospinal Meningitis

Dr. Henry L. K. Shaw, Albany, N. Y.: An infant on a farm developed cerebrospinal meningitis. There was no record of any previous cases in this locality, and the case was definitely traced to a soldier who had visited the home and fondled the child, January 28. The soldier said that to his knowledge he had never seen or been in contact with, or known of a case of meningitis in his regiment. He was found to be a meningococcus carrier. Nasal cultures from all other persons who visited the farm were negative. June 10, the organism still persisted, though the man had been under treatment and had used irrigations of all kinds.

As the disposition of carriers is very largely a public health measure, a questionnaire was sent to the various state departments of health in order to ascertain their mode of procedure regarding carriers of meningitis. The answers revealed very little uniformity in the isolation of patients and in dealing with carriers. There were no provisions for the detection of healthy carriers and the compulsory bacteriologic examination of contact. Public health legislation on this subject is imperative if we are going to limit the spread of communicable disease. It is the duty of the pediatrician to keep abreast of public health progress and to assist in educating our communities in the new order of things.

DISCUSSION

Dr. Fritz B. Talbot, Boston: Dr. Shaw's report is important and timely, and serves to bring out the susceptibility of the young. The practice in the army in Europe when they found a carrier was to send him to a place where there was below a certain number of carriers, and in that way they diluted the quantity of infection. If the infection was sufficiently diluted, an epidemic did not result. Dr. Shaw's case is very suggestive of what would happen if that plan were tried in civil life.

Dr. L. Emmett Holt, New York: I can cite a case which parallels Dr. Shaw's. In this instance the husband, who brought the disease to his wife, was advised to take a long sea voyage. He was gone several months, but when he returned he was still a carrier of the disease. After treatment by a skilled nose and throat specialist, he was freed from the organisms. It is important that we recognize the fact that thousands of returned soldiers are distributed through the community and that undoubtedly a number of them are carriers of disease, and as a consequence we are likely to see many of these cases cropping up.

Dr. Henry Koplik, New York: I also have observed an instance almost exactly like that described by Dr. Shaw.

Dr. Henry Heiman, New York: A case has been reported of a child, 6 weeks old, that had never left home and was in the hands of a nurse, but nevertheless contracted meningitis and died. It is our practice to make two nose and throat cultures of those who have come in contact with cases of cerebrospinal meningitis, so that we can label the carriers. That is about as much as we can do for them, as it is very difficult to get rid of the organisms. My attention has recently been drawn to another condition that is being brought back by the soldiers, and that is trench mouth.

(To be continued)

AMERICAN SURGICAL ASSOCIATION

Fortieth Annual Meeting, held at Atlantic City, N. J., June 16-18, 1919

The President, Dr. Lewis S. Pilcher, in the Chair

General Considerations as to the Treatment of War Wounds

Dr. Antoine Depage, Brussels, Belgium: The majority of war wounds are infected or, at least, contaminated. In consequence of this, débridement became a formal indication of the first rank. Our procedure is as follows: On admission of the patient, the injured region is shaved, and then washed with a neutral solution of sodium oleate. Débridement and épluchage of the wound are practiced immediately thereafter. At the same time the Carrel tubes are introduced to the bottom of the wound so as to permit the irrigation of the entire wound surface. To the entire surroundings of the wound are applied compresses smeared with petrolatum in order to prevent irritation of the skin. The wound is dressed with compresses of absorbent material. After the return of the patient to bed, the Carrel tubes are connected with the receptacle containing the surgical solution of chlorinated soda, and irrigation is carried on every two hours, controlled by a simple pressure forceps of Mohr. The dressings are renewed every day, careful lavage of the wound being made with sodium oleate. One must not allow the slightest concretion to remain on the skin about the wound lest colonies of microbes be hidden. We were not able, however, to derive from the Carrel method all its benefits until we made a regular determination of the abundance of the micro-organisms in the wound exudates. This bacteriologic control was repeated in the same wound every two days, and tracings were made of the microbic strength. Infected wounds were rendered sterile by the Carrel treatment in from six to eight days. Bacteriologic evolutions in a wound may be considered under the three periods of acute infection, attenuated infection and sterilization. These periods correspond to three periods in the organic reaction of tissues. In deciding the moment of suture we have recognized that: (1) wounds slightly infected by ordinary microbes may be sutured with every chance of success; (2) the presence of staphylococci does not contraindicate suture; (3) the perfringens organism remains enclosed in the wounds only a very short time, but until these microbes disappear it is dangerous to suture; (4) a wound should not be sutured in the presence of even a slight streptococci infection.

To determine better the moment most favorable for suture, we have supplemented the counting of the microbes on the smears subjected to bacteriologic examination by cultures instituted regularly after débridement and before the suture, and conclude that: (*a*) For wounds feebly infected from the first day with ordinary microbes we may proceed to suture when at the second examination the smear yields only one microbe in a visual field. (*b*) For wounds strongly infected by ordinary microbes, we may resort to suture from the moment the curve comes down to one microbe in four fields. (*c*) For streptococcic infection we should never suture, but submit the wound to adequate treatment, preferably that of Carrel, and wait until the streptococci have disappeared, or become sufficiently attenuated to permit primary union. Streptococci vaccination may here render the greatest service. Immediate primary suture may be made immediately after débridement or from two to four days after débridement. Delayed primary suture or early secondary suture is done without refreshing wound surfaces, by simply approximating them. The suture may be made in the course of the granulation of the wound when sterilization is assured. Secondary suture always necessitates the refreshing of the wound surfaces. The objective toward which we direct the surgical treatment of open fractures, apart from the orthopedic treatment, is the transformation of an open fracture into a closed fracture. In joint wounds our results show the superiority of immediate suture after wide arthrotomy, closing of the joint cavity, over any other method of treatment. In wounds of the elbow and shoulder, however, the Carrel treatment followed by secondary suture or by cicatrization by second intention is evidently indicated.

Most Important Factor in Treatment of War Wounds in Civilian Surgery

Dr. George W. Crile, Cleveland: After four years of intensive study, from the conflict of views regarding the treatment of war wounds, there is emerging a universal recognition of the one agent of successful military surgery—the good surgeon. Thus, our vast experience in traumatic surgery has taught us the same lesson we had already learned in civil surgery, that sound surgery only will bring success. The good surgeon considers the wound as well as the patient; respects the tissues of the anesthetized man as well as of the unanesthetized man; heeds all the defenses and reparative forces of the patient, and is the exponent of no single method, but adapts his methods to the military situation, the possibilities of after-care, the type of transport—seeing clearly the tomorrow of the wound and weighing accurately his chance for success.

Problem of the "Slightly Wounded" in Military and in Civilian Practice

Dr. William E. Lower, Cleveland: The great war supplied to medical officers a postgraduate course in organization, transportation, sanitation, hospital construction, management of supplies, treatment of every kind of wound by every variety of method, and in noting what not to do. One of the problems was that presented by the slightly wounded man, the "walking wounded." The tendency in rush periods to leave the slightly wounded to the attention of the less trained men proved a dangerous hazard to the man power of the army and the time factor in the return to the line became of supreme importance. The problem is of equal importance in civilian practice. This is especially true in the smaller manufacturing plants; the larger industries appreciate the value of the time loss of their employees. Many of our hospitals also refer to inexperienced operators the cases of minor injuries. We are all familiar with serious results following inexpert treatment of minor conditions, both in accident work and in the operating theater. The economic loss of time, as well as the too frequent performance of these minor operations under untrained anesthetists, has been too long endured. This association should call attention to the need of proper organization to assure better care for the lesser as well as for the greater injuries, to the minor as well as to the major operations.

What Would Be the Benefit to the Civilian Surgeon of the Experience Gained by Our Military Surgeons in the Recent World War?

Dr. Edgar A. Vander Veer, Albany, N. Y.: Early in the war the attempt at aseptic technic broke down, fully 85 per cent. of the wounds having suppurated and there being very many cases of tetanus. The system of treatment of fractures by the allied surgeons revealed great confusion. In the treatment of wounds, army surgeons were obliged to return to antiseptic methods, and the experiments in this direction led some of the British surgeons almost entirely to abandon the use of strong germicidal solutions, finding that sterile water alone kept the wounds in satisfactory condition for healing. While the Carrel-Dakin method accomplished much, it is an expensive, painful and somewhat protracted line of treatment. The antiseptic treatment was employed, however, to a great extent in the third and fourth years of the war. It has been demonstrated that wounds must be handled with great care, and dressed sufficiently often, but not too frequently and with a minimum of distress. An excellent system of transportation was developed, and the short history accompanying the patient has saved much suffering. The standardization of splints in the treatment of fractures has been of great benefit, and their proper application, with the use of tetanus antitoxin has lowered the mortality. I believe that ether and chloroform will continue to be our most reliable anesthetics.

No Flap or Guillotine Amputation: An Unfortunate Resurrection

Dr. John H. Gibbon, Philadelphia: Because of the frequent secondary hemorrhages, the slow healing extending over months, the painful dressings and the numerous secondary operations after the no flap amputation, this method is designated an unfortunate resurrection. The reflected skin flap amputation obviates these complications. The additional time required for making the reflections of the flap occupies only a few minutes and cannot add to the shock. As soon as the wound has become clean, the flaps are ready to cover it; whereas, in the flapless method a second operation or the employment for a number of weeks of some applicance to draw down the skin is necessary, and these in many instances fail. One reason for doing the no flap operation is that it gives a good stump for the wearing of an artificial limb. It is my belief that the reflected skin flap amputation gives exactly the same kind of stump, but gives it earlier and with less pain and less danger. If this is not so, the guillotine must then be employed in civil practice, which procedure I doubt any one would be willing to inaugurate.

DISCUSSION

Dr. John H. Gibbon, Philadelphia: I want to express the obligation which I think every surgeon who has worked in France owes to Dr. Depage. We owe to him more than to any other man what we were able to accomplish in the treatment of war wounds. I have seen no benefit from blood transfusion in acute infection. I have seen transfusion done a number of times in men badly shocked. They would be braced up for three or four hours and then die. I am speaking particularly of men in the advanced hospitals. With reference to the individual reaction of the patient to infection, I saw many wounded in Belgium under the worst conditions of winter, and I saw many wounded in a much pleasanter part of the world in the spring and summer and fall of the next year, and I cannot say that I observed any decided difference in the reaction of the individual patients to infection. While we have been taught that in the treatment of wounds the first operation should be thorough and complete, I do not believe that the use of antiseptics can be eliminated in the sterilization of infected wounds.

Dr. Thomas W. Huntington, San Francisco: I want to emphasize the value of the trained nurse in war surgery. In Italy, where it was first thought that the trained woman nurse could not be placed in hospitals, it came to be the opinion of those in authority that they were helpless without her.

Dr. Alexis V. Moschowitz, New York: In the treatment of wounds the question is not between surgery and the Carrel-Dakin treatment because you all know that the Carrel-Dakin treatment will never take the place of good surgery. It is, however, of wonderful assistance in the treatment of infected wounds. If of these two agencies I could have but one, it would be good surgery by all means; but if I could have good surgery with the Carrel-Dakin treatment, I should feel well equipped.

Dr. Henry H. M. Lyle, New York: We should emphasize the fact that the general employment of nitrous oxid is dangerous, except in the hands of men experienced in its use.

Dr. George E. Brewer, New York: The most important occurrence during the war in the treatment of shock was the organization of the shock team. This consisted of two men expert in the treatment of shock cases, from two to four nurses and the same number of orderlies. Appliances for blood transfusion and other means of stimulation were provided. The teams were installed in every front area hospital, and so far as I know continued until the end of the war.

Dr. Howard Lilienthal, New York: My experience in transfusion in the front area differs from that of Dr. Gibbon in that when a patient had come in who had lost blood, no matter whether or not he was septic, the most powerful influence for his good was the replacement of that blood. There is no doubt about it; it is a matter of mathematics. As to the sepsis, you do not know when you get a septic man how much blood may have been lost before he reaches you. It is my opinion that there is nothing quite so good in profound anemia with sepsis as blood transfusion.

Dr. A. P. C. Ashhurst, Philadelphia: Dr. Depage pointed out in 1915 that if in the first six hours the red blood count fell below 4,000,000, practically all the wounded died unless transfused. It is well to remember war surgery and to learn the full truth about it.

Treatment of Recent Wounds of Knee Joint

Drs. Eugene H. Pool, New York, and John H. Jopson, Philadelphia: The principles of treatments may be summarized as follows: Complete débridement of the tract of the projectile through the soft parts and bone; removal of foreign bodies; thorough irrigation of the joint; distention of the joint with ether; absolute closure of the joint by suture; primary or delayed closure of the superficial parts according to the rules laid down for primary suture of the soft parts alone; finally, early active motion. In extensive involvement of the articular surfaces an effort should be made to save the joint, provided the conservable articular surfaces and soft parts are sufficient to warrant the hope of a useful joint. It must be remembered that stability in the knee is essential. When the joint cannot be saved, the question of extensive resection and amputation must be weighed carefully. Early active mobilization is the rule. With suspicion of infection, aspiration should be done at once and a culture made. In suppurative arthritis the important feature is early drainage, which is best instituted by lateral incisions well back, though occasionally an incision elsewhere may be employed. No drains should be used. Splints are dispensed with or arranged for support without joint fixation. Free mobility every two hours so that the active movements evacuate the joint should be enforced. Early, nonvirulent infections with little or no bone involvement usually do well.

The Willems Treatment in Knee Joint War Injuries

Dr. Clarence A. McWilliams, New York, and Dr. William B. Hetzell, Pittsburgh: The plea is made that the old immobilization treatment be discarded for the Willems immediate, continuous, active mobilization procedure. In thirty-two of eighty-two cases no fracture was present; in eight there were simple fractures, while in the remaining forty there were combinations of comminuted fractures, eighteen of the patellae, twenty-nine of the femora, twelve of the tibiae and one of the fibula. Fifty-seven cases, or 78 per cent., remained clean. In seventy of seventy-six cases the synovial membrane was completely closed, while in twenty-six the external tissues leading down to the closed capsules were left open. In six only were the joints drained. In thirty-six of the clean cases, only nine patients had perfect function finally; three joints were ankylosed, while in twenty-four there were varying degrees of motion. Of these seventy-three cases, sixteen became infected, of which four finally became ankylosed; one joint was resected; three patients had amputations; four died of the infections; one had flexion of 90 degrees, while the results in three cases are unknown. Compared with these melancholy results of immobilization, Willems gives the following statistics in the final outcome of 100 consecutive knee cases, 18 of which became infected. There were no deaths and no amputations; there were one resection and two stiff joints.

Transthoracic Laparotomy

Dr. Willy Meyer, New York: In cases of injury, operating by way of the chest to reach organs in the vault of the diaphragm, it has been found best to attend first to the damage wrought in the chest and then try to reach and deal with the injured abdominal organs by a transthoracic laparotomy, either by deliberately incising the diaphragm or by enlarging the wound in it. Sauerbruch reports three operations successful, in all of which a differential air pressure apparatus was employed. He lays stress on the importance of incising the diaphragm transversely or obliquely to the direction of its fibers, not parallel, in order to avoid injury to the phrenic nerve. From my own experience and from the literature I believe that bullets in thoracic as well as abdominal organs are probably best removed; that the question of whether operation should be done immediately after the accident or later depends on the seriousness of the concomitant symptoms, and that simultaneous injuries to chest and abdomen, as also injuries to the convexity of the liver or the spleen, without previous penetration of the chest, if not accessible from below, render the indication for transthoracic laparotomy. Involvement of intra-abdominal organs can be determined before or during thoracotomy. These operations are best done with the help of some differential pressure apparatus. I further believe airtight and watertight drainage of the chest (Kenyon's) to be the safest procedure for the after-treatment.

Treatment of Gunshot Wounds of Chest

Dr. Ellsworth Eliot, Jr., New York: The treatment of gunshot wounds of the chest is either conservative or radical; the former is almost always the rule in civil practice; the latter is occasionally justifiable for overcoming infection, especially in the chest wall. It should be emphasized that this dreadful complication becomes less frequent as the lung is approached and is uncommon in wounds of that viscus, even in the presence of hematoma or hemothorax. Whether this is due to the removal of foreign and infectious material from the surface of the projectile as it passes through the chest wall or to the inherent greater resistance of the lung to certain forms of pyogenic infection, or to both factors, is yet to be decided. The result of secondary operation, should infection develop, is much more favorable because of the improvement in the general condition of the patient and the fact that formation of adhesions has limited infection to a segment of the pleural cavity, thereby greatly diminishing the operative risk.

DISCUSSION

Dr. Howard Lilienthal, New York: A developing pneumonia of the opposite lung has been the cause of very bad statistics in gunshot wounds of the chest. Such a pneumonia will come on whether you operate or not. I have seen fatal pneumonia after a perforating machine gun bullet wound in which nothing could be found to kill the patient except the pneumonia of the opposite lung. In making the aspiration I use instead of a needle a fine trocar and cannula to which a rubber bag is attached so that the fluid will siphon out. To prevent a pneumothorax it is only necessary to have the patient, after you have finished the aspiration, by expiration force the lung into contact with the pleura while you have the other end of the tube under water. If at the cessation of the expiration the cannula is withdrawn, the roentgen ray will show little or no pneumothorax whatever, the lung being in absolute contact with the chest wall.

Dr. Ellsworth Eliot, Jr., New York: It was for the prevention of the high mortality in gunshot wounds of the chest that the conservative procedure was followed in every instance, and in no instance during the entire campaign in the evacuation hospital was exploration of the chest made. Our results by the conservative treatment were so uniformly good that we did not regard the radical treatment necessary or advisable.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

July, 1919, **18**, No. 1

*Precipitin Reaction in Infant Stools. L. Hektoen and C. G. Grulee, Chicago.—p. 1.
Studies of Mammary Gland from Earliest Appearance Until Pregnancy. J. A. Myers, Minneapolis.—p. 5.
*Bacillus Tuberculosis in Tonsils of Children Clinically Nontuberculous. R. S. Austin, Chicago.—p. 15.
Clothing of Infants in Summer and Winter. L. W. Sauer, Chicago.—p. 21.
*New Stain for Diphtheria Bacillus. R. M. Greenthal, Ann Arbor, Mich.—p. 25.
*Antiscorbutic Property of Fruits. M. H. Givens and H. B. McCluggage, Rochester, N. Y.—p. 30.
Acidotic State of Normal New-Born. M. Seham, Minneapolis.—p. 42.

Precipitin Reaction in Infant Stools.—The technic in the work reported by Hektoen and Grulee was the same as that used by Hektoen, Fantus and Portis, except that tests were made with both antihuman and antibeef serum. One hundred and thirty-three stools of thirty-four newly born infants were examined. Of these, thirty-two stools from nineteen infants gave positive reactions to antihuman serum; two were positive to antibeef serum and one was questionably positive. All stools were examined with both antibeef and antihuman serum. Of the positive reaction to antibeef serum, in the two instances in with a reaction to antibeef serum occurred, and also in one doubtful case, there was no record of cow's milk having been given. The examination in the case of older infants was carried out on 407 stools from forty-eight different infants, varying in age from 5 days to 22 months. Here the reaction to antihuman serum was positive in 115 stools, and to antibeef serum in sixty-three stools. In only fourteen stools were both reactions positive. The tests were made in cases without selection. The infants were fed on albumin milk and mixtures of cow's milk in which the percentage of protein was rather high. In a careful survey of the cases the authors were unable to determine any connection between the type or frequency of stool or the character of the food and the reaction in the stool. The work is being continued with particular reference to tests for casein and also other substances.

Bacillus Tuberculosis in Tonsils of Children Clinically Nontuberculous.—The excised tonsils from forty-five children were examined by Austin for the presence of tuberculosis by means of the inoculation test on guinea-pigs, histologic examination of sections, cultures on Dorsett egg medium and direct smears. In all cases the histologic examinations showed no evidence of tuberculosis, and no tubercle bacilli were demonstrated in any of the cultures or direct smears. The inoculation test yielded a positive result for tuberculosis in only one of the forty-five cases. The bacillus was of the human type. The child was 4 years of age; the father and mother were living and well; there was no evidence of tuberculosis in the past history of the child; a previous admission to the hospital had been for feeding. Otitis and enteritis had developed, but no tuberculosis had been detected and a von Pirquet test had been negative. At the time of removal of the tonsils the child was well developed and well nourished, and had no palpable cervical lymph nodes. The children in this series came from a community where the supply of cow's milk was far less likely to be contaminated with the tubercle bacillus. Furthermore, but two children in the group were from families in which there were cases of tuberculosis, and none of the children gave clinical evidence of tuberculosis. It is stated by Austin that although tuberculosis of the tonsils in children is not rare, yet most of the cases occur when there are tuberculous lesions to be found elsewhere in the body, especially in the cervical lymph nodes. The occurrence of the tubercle bacillus in the tonsils of children without clinical evidence of tuberculosis, however, is not frequent.

New Stain for Diphtheria Bacillus.—The stain used by Greenthal is made as follows: Kresylecht-violet, 0.07 gm.; methylene blue, 0.1 gm.; glacial acetic acid, 3.00 gm.; water, 100 gm. Dissolve the dye in the acetic acid and water solution, and filter. In a drop of water on a cover glass, make a smear of the growth with a platinum wire. Dry gently over a flame. Place one drop of the stain on the cover glass. Allow it to remain for from one to two minutes, and then shake off the excess of stain. Place a drop of water on the cover and make a hanging mount with a well slide. The preparation can be sealed with the excess of the water. The polar granules are purplish red and the cell body is greenish blue. Most of the other organisms stain very lightly, excepting a few strains of cocci. The hanging drop method makes the organisms appear much larger than they do in the ordinary preparation; a single bacillus is easily seen and differentiated from the surrounding organisms. The stain can also be used with the usual slide method. The polar granules by this method are purplish red and the cell body is light blue, and the contrast is a little better. Greenthal says that this stain is the most successful he has used in searching for diphtheria bacilli in a throat smear preparation.

Antiscorbutic Property of Dried Orange Juice.—Evidence is presented by Givens and McClugage to the effect that orange juice can be dried so that it retains a significant amount of antiscorbutic vitamin. The most satisfactory process for drying orange juice is the one in which the temperature of drying is not unduly high and the duration of drying is very short. If the orange juice is submitted to a temperature of from 55 to 60 C. for forty hours or more, a part of the antiscorbutic vitamin is destroyed. The dried orange juice investigated by the authors was active after three months storage. It is suggested that the dried orange juice will serve as a convenient antiscorbutic for use in infant feeding, on polar expeditions, in the navy and for soldiers during the war.

American Journal of Ophthalmology, Chicago

June, 1919, **2**, No. 6

Congenital Eye Conditions Affecting Vision Among Troops Examined at Camp Travis, Texas. A. B. Middleton, Pontiac, Ill.—p. 377.
Clinical Observations in Ophthalmic Service at Camp Sevier, S. C. W. E. Kershner, Bath, Me.—p. 389.
Tuberculosis Iridokeratitis; Some Features in Its Pathology. F. T. Tooke, Montreal.—p. 395.
Hereditary Congenital Ptosis; Report of Sixty-Four Cases Conforming to Mendelian Rule of Dominance. H. H. Briggs, Asheville, N. C. —p. 407.
Development of Tonometer. W. McLean, New York.—p. 416.
Fluctuations of Refraction in Developing Cataract. C. Zimmerman, Milwaukee.—p. 420.
Nonoperative Treatment of Senile Cataract. A. S. Green and L. D. Green, San Francisco.—p. 420.
Optotype for Young Children. J. N. Evans, Broooklyn.—p. 423.
Unilateral Optic Neuritis. C. A. Veasley, Spokane.—p. 429.
Differential Mydriasis; Atropin, Cocain and Euphthalmin. G. C. Albright, Iowa City, Iowa.—p. 428.

American Journal of Physiology, Baltimore

June 1, 1919, **49**, No. 1

*Quantal Phenomena in Muscle: Methods, with Further Evidence of All-or-none Principle for Skeletal Fiber. F. H. Pratt and J. P. Eisenberger, Buffalo.—p. 1.
*Functional Correlation of Hypophysis and Thyroid. J. A. Larson, San Francisco, Calif.—p. 55.
*Circulation in Shock after Abdominal Injuries. J. Erlanger, R. Gesell and H. S. Gasser, St. Louis.—p. 90.

Quantal Phenomena in Muscle.—A complete account is given by Pratt and Eisenberger of the method for photographically recording the contraction of muscle fibers on excitation with the pore electrode. By the use of the apparatus an experimenter is enabled to watch through a demonstration ocular the movements of the recording mercury globule on the surface of the muscle, while these are being automatically recorded, and at the same time register on the plate, by turning a lever, the actual extent of movement of a secondary coil. Thus the continuity of stimulus variation is shown in a curve coordinate with that which reveals the quantal or discontinuous character of contraction gradients. Full details of principles and construction are shown in drawings, and a number of graphic records are reproduced, illustrating the different phases and capabilities of the method. On these records further and more complete evidence is based with respect to the "all-or-none" behavior of the skeletal muscle cell in simple contraction, tetanus and staircase and fatigue effects; and the significance of latent periods as obtained by the method is briefly discussed. Emphasis is laid on the opportunity for analysis of mechanical effects which the method furnishes, since the continuous gradients can thereby be differentiated readily from the discontinuous—functions which must always tend to confusion or obscurity in gross muscular action.

Functional Correlation of Hypophysis and Thyroid.—Clinical evidence points to hypertrophy of the hypophysis as a result of thyroid deficiency. The literature clearly establishes the fact that removal of either the hypophysis or the thyroid causes definite changes in the structure of the remaining gland. In the cases of thyroidectomy the consensus of opinion is that the hypophysis undergoes hypertrophy. As to which portion enlarges the most—the anterior lobe is indicated wherever a specific region is mentioned. Larson claims that the administration of the anterior lobe of the hypophysis has a very beneficial action on the maintenance and growth of thyroidectomized rats. Aside from the ameliorating effect on the general condition of the animal, life is definitely prolonged. Larson suggests that the beneficial effect might indicate a direct substitution in which the pituitary autocoid takes the place of the thyroid hormone in a compensatory effort to establish normal metabolism. Or the results obtained might be due to a stimulation effect on the total metabolic processes. A definite decision can only be obtained by extensive study of the various factors involved.

Circulation in Shock After Abdominal Injuries.—In an investigation made by Erlanger, Gesell and Gasser the changes in circulation occurring during the development of shock brought on by exposure and manipulation of the tubes are as follows: The arterial pressure at first may be lowered but little, if any. After some time, it may be after some hours, the pressure begins to fall, and this fall continues more or less steadily, though often slowly, until the animal dies. The changes occurring in the systemic venous pressure have been so small that they cannot be regarded as significant, excepting, perhaps in demonstrating that cardiac failure has little, if anything, to do with the failure of the circulation. The portal venous pressure falls continuously, though slowly, during the first two or three hours. It then ceases to fall or actually rises slightly until the arterial pressure has reached a comparatively low level, when the porta pressure again begins to decline. The peripheral resistance, both somatic and splanchnic, at first practically invariably is increased. At about the time the arterial pressure begins to fall, or starts on its steady decline, and also at about the time the portal pressure starts to rise, the peripheral resistance begins to diminish and by the time the arterial pressure has reached the vicinity of 50 mm. Hg, the peripheral resistance practically invariably is below normal. But up to the time of death the vessels and the vasomotor center preserve some residual tone, though slight reactivity. In this respect the findings of Bartlett are completely confirmed. A considerable loss of fluid from the exposed bowel occurs as a result of transudation through the serous surface, and presumably into the tissues also. The capillaries and veins of the intestinal villi are greatly distended and tightly packed with red corpuscles. No positive evidence has been obtained that the efficiency of the heart is impaired during the development of shock. Nevertheless, although the heart is capable of raising the arterial pressure as high as the normal heart can, the authors are inclined to believe that the heart in shock cannot maintain high pressures as long as the normal heart can. The initial changes in the circulation can be explained best on the assumption that the effective blood volume is reduced. The loss of fluid into and through the tissues of the bowel and the sequestration of blood in the intestinal capillaries and venules suggest a mechanism through which a reduction in blood volume might occur.

American Review of Tuberculosis, Baltimore

June, 1919, **3**, No. 4

*Lymphatics and Lymph Flow in Human Lung. W. S. Miller, Madison, Wis.—p. 193.
*Rest and Exercise in Treatment of Pulmonary Tuberculosis. H. M. Kinghorn, Saranac Lake, N. Y.—p. 210.
Physical Examination in Diagnosis of Early Pulmonary Tuberculosis. L. Namman.—p. 233.
*Production of Pulmonary Tuberculosis in Guinea-Pigs by Means of Finely Divided Droplets of Sputum. J. B. Rogers, Cincinnati.—p. 238.

Lymphatics and Lymph Flow of Lung.—This description of the lymphatics and of the lymph flow of the lung, according to Miller, represents the results of his studies up to the present time. The normal flow of the lymph in both pleura and lung is toward the hilum. Lymphatics form a rich plexus in the walls of the bronchial tree. They possess occasional valves which open toward the hilum. No lymphatics have been seen in the walls of air spaces beyond the ductuli alveolares. The plexus of lymphatics about the pulmonary artery communicates freely with that in the walls of the bronchial tree. Valves have only been seen near the hilum and they open toward the hilum. The pulmonary veins are surrounded by a plexus of lymphatics. The bronchial plexuses of lymphatics are connected by lymphatics which follow those branches of the pulmonary vein which have their origin from the bronchial tree. No valves have been found in the lymphatics situated within the lobule (secondary lobule) of the lung. There is a rich plexus of lymphatics in the interlobular septums and about those branches of the pulmonary vein which are situated in these septums. Such valves as have been found in the lymphatics about the pulmonary vein have been found in the neighborhood of the hilum and they open toward the hilum. In the pleura there is a rich plexus of lymphatics which is provided with numerous valves. In the collecting trunks leading from this plexus all the valves open toward the hilum. The deep lymphatics and the superficial (pleural) lymphatics are connected by a short vessel which follows that branch of the pulmonary vein which takes its origin from the pleura and passes along the interlobular septum. Between the pleura and the point where the first branch of the pulmonary vein coming from the bronchial tree joins that branch of the pulmonary vein situated in the interlobular septum valves are found in the connecting lymphatics which open toward the pleura. These valves also prevent the flow of the lymph from the pleural lymphatics into the deep lymphatics. The short lymphatic which connects the superficial and the deep lymphatics furnishes a by-path for the lymph in case there is obstruction to its free flow toward the hilum near the entrance of the second branch coming from the bronchial tree into that branch of the pulmonary vein situated in an interlobular septum. No lymphatics unconnected with lymph nodes have been seen leaving the lung.

Rest and Exercise in Treatment of Pulmonary Tuberculosis.—The proper employment of rest, in Kinghorn's opinion, is greater than any other single factor in the modern treatment of pulmonary tuberculosis. Almost all physicians advise their lung patients to take plenty of good food and plenty of fresh air, but there are still many physicians who at the same time advise them to take plenty of exercise. This last advice, if given at the beginning of treatment, Kinghorn points out usually does much harm. When the diagnosis of active pulmonary tuberculosis is made, patients are, of course, suffering from active symptoms. At this time the patient should have no exercise, but should have either the reclining rest treatment, or absolute rest in bed, whichever form of rest treatment is indicated. The physician should remember that there is no other disease accompanied by fever in which he advises his patient to exercise. With all other diseases, when there is fever, he at once puts the patient to bed. He knows that if he does not conserve the patient's strength when fever is present, the course of the disease will be bad. No better example of this is seen than in the cases of typhoid patients who walk around with fever for a considerable time before being put to bed. The same great medical principle of conserving the strength of the patient applies to the patient with pulmonary tuberculosis.

Production of Pulmonary Tuberculosis by Means of Droplets of Sputum.—Twenty healthy guinea-pigs were kept in an atmosphere saturated with a spray consisting of a solution of tuberculosis sputum in sterile water in the proportion of about 1 to 100, for about five minutes. The pigs were then removed, and the mouth and nose thoroughly exposed and swabbed with alcohol. They were then given a complete bath in a 1 : 5,000 solution of mercuric chlorid. This process was repeated at irregular intervals, usually about seven days, over a period of from six to nine weeks. At the end of this time the pigs were etherized and examined. Rogers found that such an exposure of the nasal passages of guinea-pigs to sprays of finely divided particles of sputum invariably resulted in the development of pulmonary tuberculosis. Other viscera were generally involved, but less uniformly; the mesenteric glands were involved in only 10 per cent. of the cases. On the basis of these findings, Rogers believes, that the probability of bacilli having entered the esophagus and having been swallowed and absorbed from the intestinal mucosa, can practically be discarded. The cervical glands showed tuberculosis changes in 60 per cent. of the cases, and the fact cannot be overlooked that the infection might have entered through the nasal mucous membrane.

Boston Medical and Surgical Journal

July 3, 1919, **181**, No. 1

Delayed Infection or Irritation and Concomitant Metabolic Errors. W. A. Lurie, New Orleans.—p. 1.

Bulletin of Johns Hopkins Hospital, Baltimore

July, 1919, **30**, No. 3411

Development of Johns Hopkins University Medical School and Osler's Advent. H. M. Thomas, Baltimore.—p. 185.
Osler as Chief of a Medical Clinic. L. F. Barker, Baltimore.—p. 189.
Some of the Early Medical Work of Sir William Osler. W. T. Councilman, Baltimore.—p. 193.
Osler as a Pathologist. W. G. MacCullum, Baltimore.—p. 197.
Osler, The Teacher. W. S. Thaycr, Baltimore.—p. 198.
Osler and the Student. T. R. Brown, Baltimore.—p. 200.
Osler and Patient. T. McCrac, Philadelphia.—p. 201.
Osler and Tuberculosis Work of Hospital. L. Hamman, Baltimore.—p. 202.
Osler's Influence on Relation of Medicine in Canada and United States. T. B. Fletcher, Baltimore.—p. 204.
Osler as a Citizen and His Relation to Tuberculosis Crusade in Maryland. H. B. Jacobs, Baltimore.—p. 205.
Osler's Influence on Other Medical Schools in Baltimore. His Relation to Medical Profession. E. N. Brush, Baltimore.—p. 208.
Osler's Influence in Building up the Medical and Chirurgical Faculty. H. Woods, Baltimore.—p. 209.
Osler and the Book and Journal Club. J. A. Chatard, Baltimore.—p. 211.
Osler's Influence on the Library of Medical and Chirurgical Faculty of the State of Maryland. M. C. Noyes, Baltimore.—p. 212.
Some Early Reminiscences of William Osler. H. M. Hurd, Baltimore.—p. 213.
Osler as I Knew Him in Philadelphia and in the Hopkins. H. A. Kelly, Baltimore.—p. 215.
Osler as a Bibliophile. T. R. Boggs, Baltimore.—p. 216.
Osler's Literary Style. E. N. Brush, Baltimore.—p. 217.

Journal of Orthopedic Surgery, Boston

July, 1919, **17**, No. 7

Readjustment of Changing Conditions. H. P. Galloway, Winnipeg, Can.—p. 395.
*Pott's Disease and Albee's Spinal Graft. G. R. Girdlestone, Oxford, England.—p. 401.
Internal Derangements of Knee Joints. C. F. Painter, U. S. Navy.—p. 416.
*Standardization of Joint Records. J. A. Nutter, Montreal.—p. 423.
Case Recording of Spinal Curves. E. H. Bradford, Boston.—p. 429.
Mesial Triprism. W. J. Merril, Philadelphia.—p. 434.
*Simple Splint for Treatment of Fractures of Clavicle. R. L. Hodge.—p. 439.

Pott's Disease and Bone Graft.—Speaking of the use of the autoplastic intraspinal bone graft, Girdleston says that emphasis must be placed on the preoperative and postoperative treatment; although the operation is in some cases the deciding factor in attaining complete immobilization, and always is most effective in shortening the period of confinement to bed; nevertheless, its success depends on the efficiency of the associated treatment. During this period the operation is added to, but in no way a substitute for, the regular treatment. The graft is only an effective splint when firm bony union is attained. Fifty cases are reported.

Standardization of Joint Records.—Nutter urges that records of joint motion and deformity should be absolutely intelligible, as they are most important in the treatment of the extremities, hence, positions from which measurements are to be taken should be standardized. Diagrams are shown to illustrate the methods advocated by the author.

Splint for Fractures of Clavicle.—Hodge's splint is T shaped. When applied, the cross piece rests as high as possible along and above the superior borders of the scapulae, while the stem extends almost vertically from the body. It is secured in place with bandages. . The splint is suitable for both bilateral and unilateral fractures. The fracture is reduced painlessly, and the arms are left free, thus muscular atrophy is avoided. The patient can use the arm on the injured side for any ordinary purposes, such as writing, feeding, etc. Accurate apposition of the fragments of the bone is obtained. Open wounds are easily accessible for treatment without disturbing the apparatus.

Military Surgeon, Washington, D. C.

July, 1919, **45**, No. 1

Typhoid Mary. G. A. Soper, U. S. Army.—p. 1.
Resection of Head of Femur in Certain Gunshot Wounds of Hip Region. R. B. Pratt and J. F. Park, U. S. Army.—p. 16.
Ordinance and Its Effects. C. R. Snow, U. S. Army.—p. 22.
Structure and Systematic Relationships of "Iodin Cysts" from Human Feces. C. A. Kofoid, S. I. Kornhauser, U. S. Army and O. Swezy.—p. 30.
Lecture on Field Hospitals. B. K. Ashford, U. S. Army.—p. 44.
Problems in Control of Infectious Diseases at Replacement Depots. O. G. Brown, U. S. Army.—p. 59.
Gas Warfare—Its Aftermath. J. Catton, U. S. Army.—p. 65.
Blood Transfusion as a Therapeutic Aid in Subacute Sepsis Associated with War Injuries. A. Zingher, U. S. Army.—p. 75.
*Trench Nephritis at British Hospital in France. R. Fitz, U. S. Army.—p. 80.
Susceptibilities of Recruits to Disease. G. Draper, U. S. Army.—p. 99.
Bladder Stutterers (Nocturnal Enuresis). R. L. Hoffman, U. S. Army.—p. 107.

Trench Nephritis at British Hospital in France.—A statistical study of the cases admitted to one hospital during the summer of 1917 was undertaken by Fitz in order to determine (1) the relative frequency of this type of nephritis among the medical casulties; (2) the age of nephritis patients as compared with patients with other medical casualties; (3) whether relatively new and untrained troops were more susceptible to nephritis than older and more seasoned troops, and (4) whether evidences of an epidemic form of the disease could be discovered. From the findings which are tabulated, certain deductions may be drawn: Trench nephritis is a form of acute nephritis of unknown origin occurring among troops. It is characterized by the rapid subsidence of well marked renal dropsy, the frequent presence of bronchitis and dyspnea, the suddenness of onset of uremic manifestations, and rarity of occurrence of inflammatory complications, and by an extraordinarily low mortality. It accounts for about 5 per cent. of the medical admissions to a general war hospital and is strikingly more frequent than acute nephritis in a general civilian hospital. It occurs most commonly among relatively older soldiers who have seen service for short periods of time. It occurs to a less extent among the younger and more seasoned troops. It appears to be pandemic and not limited to any single group or groups of soldiers. The dyspnea is not due to acidosis, though slight acidosis is common. Urea retention is found in the majority of cases, and it is most marked in the severest.

The edema is intimately related to chlorid retention and is independent of high blood pressure, albuminuria, or urea retention. Epileptiform convulsions occur in relatively mild cases without abnormal kidney functions and are not associated with urea retention, oliguria or anuria. Cases complicated by convulsion usually have hypertension of varying degree, and all show more or less chlorid retention. It is possible that the convulsions are not "uremic" in nature, but depend on some circulatory disturbance or cerebral edema. Fever at onset in seven cases suggests an infectious origin, an impression confirmed by the tendency to relapse. Two types of relapse are encountered, one febrile in character and associated with symptoms of trench fever, the other having in addition to fever a definite impairment in renal function. The immediate prognosis of trench nephritis is most accurately obtained by determining the accumulation of urea in the blood and in the urea index. These vary from normal in direct ratio to the patient's condition, tend to approach normal as the albuminuria and hypertension diminish, but are independent of edema and chlorid retention. The ultimate prognosis of the disease is less certain. No relationship is demonstrated between the apparent severity of the disease at onset (as judged by functional tests, physical signs and clinical symptoms) and the length of time necessary for recovery. The indications for treatment depend on the abnormalities in function. As edema is associated with chlorid and water retention, and in the severer cases with urea retention, it is reasonable to restrict fluid intake and to give diets low in chlorid and nitrogen. When the blood urea concentration has become normal and the edema has disappeared, cases should be managed as cases of chronic nephritis and observed carefully until they are well.

Modern Medicine, Chicago

June, 1919, **1**, No. 2

Physical Education and National Growth. L. Wood, U. S. Army.—p. 97.
Syllabus of Activities for Protection and Promotion of Nation's Health. S. S. Goldwater, New York.—p. 109.
Opportunities for Industrial Surgeons. R. M. Little, New York.—p. 118.
Health Service, Hammerhill Paper Company. M. Harrison, Erie, Pa.—p. 121.
Health Hazards and Afflictions of Soft Coal Miners. E. B. Hayhurst, Columbus, O.—p. 127.
Education in Industrial Medicine. O. P. Geier, Cincinnati.—p. 133.
Lead Poisoning, Symptoms. R. P. Albaugh, New York.—p. 137.
Typhoid Immunization of Hospital Nurses. H. B. Wood, New York.—p. 140.
Fourth Great Plague. M. K. Clark, New York.—p. 143.
Coordination of Health and Social Agencies. G. T. Palmer, Springfield, Ill.—p. 151.
Occupation Therapy in Civilian Hospitals. G. C. Robinson, St. Louis.—p. 159.
Medical School and Child Welfare. F. B. Sherbon, Lawrence, Kan.—p. 163.
Law for the Doctor; His Liability for Failure to Diagnose Dislocation of Fracture. L. Childs, Indianapolis.—p. 167.

Southern Medical Journal, Birmingham, Ala.

June, 1919, **12**, No. 6

Significance of Signs and Symptoms of Heart Disease. P. S. Roy, Washington, D. C.—p. 289.
Diagnosis of Tuberculosis. H. Boswell, Sanatorium, Miss.—p. 292.
Food Conditions and Nutritional Diseases in Europe. Etiology of Pellagra. S. Harris, Birmingham, Ala.—p. 294.
*Studies on Malaria Control. V. Importance of Disinfecting All Cases Treated as Factor in Malaria Control in Locality of Great Prevalence. C. C. Bass, New Orleans.—p. 306.
Report of State Health Officer. W. Welch, Montgomery, Ala.—p. 310.
Surgical Treatment of Tic Douloureux. J. S. Horsely, Richmond, Va.—p. 319.
Abdominal Surgery in Civil and Military Hospitals. G. W. Crile, Cleveland.—p. 323.
Peripheral Nerve Injuries. W. L. Powell, Roanoke, Va.—p. 329.
Bronchoscopic Side Lights on Bronchoscopic Cases. J. W. Jervey, Greenville, S. C.—p. 333.
Standardization of Tonsillectomy. F. D. Sanger, Baltimore.—p. 336.
Mastoiditis Without Involvement of Middle Ear; Complicated by Malaria. L. N. West, Raleigh.—p. 339.

Malaria Control: Disinfecting all Patients Treated.—Bass emphasizes the point that if 20 per cent. of the cases of malaria were disinfected during a given year, it would reduce the cases of relapse that would occur during the following year 20 per cent., which would represent 10 per cent. of the total amount of malaria that would otherwise be expected to occur. Not only would it do that, but it would also reduce the chances of transmission and occurrence of new cases to the same extent, or approximately 10 per cent. of the total number of cases that would otherwise occur. It would appear, therefore, that if all doctors in a given locality disinfected all of their patients by efficient treatment, there would be a reduction of 20 per cent. in the total amount of malaria each year. It would take about four years to reduce the prevalence 50 per cent. if the physicians disinfected all of their malaria patients. The chief causes of failure at the present time are believed to be (*a*) spectacular methods of treatment, (*b*) not giving patients convincing advice as to the nature of the disease and necessity for proper treatment, and (*c*) not advising efficient treatment.

Surgery, Gynecology and Obstetrics, Chicago

July, 1919, **229**, No. 1

*Tuberculosis of Cervix Uteri; Report of Case. G. A. Moore, Brockton, Mass.—p. 1.
*Choice of Operations on Pituitary Body. C. H. Frazier, Philadelphia.—p. 9.
Surgical Treatment and Prognosis of Empyema Following Influenza. L. Leyva and Dr. Legendre.—p. 11.
*Study of Bladder Function. A. H. Curtiss, Chicago.—p. 24.
*Vesical Diverticulum: Modified Technic of Surgical Attack. N. P. Rathbun, Brooklyn.—p. 28.
*Traumatic Rupture of Normal Spleen. A. M. Wills, Richmond, Va.—p. 33.
*Malignant Leiomyomata (Fibroid). M. S. Proper and B. T. Simpson, Buffalo.—p. 39.
*Clinical Efficiency and Terminology in Cancer of Breast. W. C. MacCarty and H. M. Connor, Rochester, Minn.—p. 44.
*Irritation of Dura. C. C. Rogers, Chicago.—p. 52.
*Surgery of Tendon Transposition with Special Reference to Importance of Tendon Sheath. M. A. Bernstein, Chicago.—p. 55.
Gunshot Fracture of Femur. J. B. Buchbinder, Chicago.—p. 70.
*Intrinsic Trifid or Double Hour Glass Stomach. J. Burke, Washington.—p. 75.
*Surgery of External Carotid Artery. W. M. Nicolson, Atlanta, Ga.—p. 77.
New Straight Prostatic Tractor. W. O. Wilder, Baltimore.—p. 80.
Scalpel Sharpening. G. G. Little, Rochester, Minn.—p. 81.
*Prostatectomy Combining Advantages of Suprapubic and Perineal Methods. A. J. Ochsner, Chicago.—p. 84.
Operating Room Technic and After Care of Patients. C. G. Buford, Chicago.—p. 86.
*Use of Automobile Inner Tubes to Provide Lung Exercises and to Make Esmarch Bandages and Tourniquets. C. Smith, St. Louis.—p. 92.
Epinephrin, an Adjunct to and an Antidote for Apothesine. H. C. Hamilton, Detroit.—p. 92.

Tuberculosis of Cervix Uteri.—In Moore's case the disease involved the tubes, fundus and cervix of the uterus. The process was oldest in the tubes where there was caseation in addition to giant cell formation and an accumulation of many endothelial cells. In the uterus and cervix the process was limited to the mucosa and consisted of the formation of fairly numerous miliary tubercles. The underlying muscle tissue was not involved in the slightest degree.

Choice of Method in Operations on Pituitary Body.—The essential difference between the two methods described by Frazier is that in the original, the approach to the sella was extradural, whereas as now practiced, the approach is intradural. This modification introduces a T-shaped incision in the dura with its horizontal limb on a level with the supra-orbital ridge and the vertical limb extending down toward the sella turcica. By this slight change in technic, the frontal lobe is elevated with greater facility and the view of the sella region is very much more satisfactory. Furthermore, the intradural route avoids the necessity of removing the roof of the orbit, a rather tedious step in the original technic.

Study of Bladder Function.—A study of the effects of noncatheterization of the paralyzed bladder was made by Curtiss in the case of twenty-two male rabbits. Extreme distention occurred thirteen times, with spontaneous rupture of the bladder in one instance. Nine showed extensive vesical erosions or ulceration. Back pressure with ureteral and kidney pelvis dilatation was usually present; in six cases this caused wide paths of almost complete destruction of kidney tissue. Bacterial invasion of the urinary tract was demonstrable in ten of the twenty-two animals operated on. These experiments on rabbits indicate that the unrelieved paralyzed bladder offers a twofold menace to health: first, through frequent infection of the urinary tract due to contamination of static urine; second, through back pressure which distends the ureters, seriously interferes with kidney function and damages the kidney tissue. It would appear advisable, therefore, to maintain the paralyzed bladder in a state of freedom from residual urine, thus minimizing the damage of kidney involvement. Observation in surgical cases in military service has convinced Curtiss that postoperative retention in men is quite infrequent as compared with women. It is further probable that the latter develop a higher percentage of infections. Except in instances of bladder paralysis or obstructed outflow, the problem of vesical retention is, therefore, chiefly concerned with the female sex. Curtiss emphasizes that irregularly performed catheterization for retention of urine is unsatisfactory. Carefully managed catheterization of the bladder which fails to empty spontaneously yields excellent results; but the catheter should be passed regularly and often enough to prevent vesical distention, and its use must be persisted in until daily tests show that residual urine is no longer being retained in the bladder.

Exsection of Vesical Diverticulum.—Rathbun urges the removal of the whole diverticulum, not merely its mucous membrane. He does a two-stage operation. In the first stage he stretches the orifice of the diverticulum to provide better drainage and in the second stage, the diverticulum is excised.

Traumatic Rupture of Normal Spleen.—Four cases are cited by Willis. The patients were all males. A blow on the left side of the body in the splenic region caused the rupture, but there was no external evidence of injury of the body; rigidity and tenderness of the abdomen were present. All of the patients had shock following the splenectomy. In each case all the spleens were practically normal in size with short pedicles and without any history of previous disease of the organ. Three of the four patients had agonizing pain in the left shoulder, which was promptly relieved by splenectomy. Three patients were operated on twenty-four hours after the injury. In two of the cases a marked increased leukocytosis persisted after the operation over a period of from two to four weeks. These three patients had a satisfactory convalescence. One patient died eight days after operation. In this case there was a continuous fall in hemoglobin and a decreasing leukocyte count. In the first two cases operation was followed by direct transfusion, with apparently good results. The fourth patient, a child, could not be operated on because of coexistent concussion of the brain.

Malignant Leiomyomas.—Malignant leiomyomas, according to Proper and Simpson, are not infrequent and if a more careful examination of all "fibroids" were made they believe that the statistics reported in the literature would be greatly increased. They report twenty-two cases in which the diagnosis was based on careful microscopic examination.

Terminology in Cancer of Breast.—This paper is based on a study of 2,100 specimens of breasts received for various reasons. The inaccuracy of clinical diagnosis and the necessity and value of microscopic diagnosis are emphasized. MacCarty and Connor urge the adoption of terms which are not only descriptive and correct but which can be used with facility by both the pathologist and the clinician, in other words, a common pathologic language. The basis of such a language is described and terms are proposed.

Irritation of Dura as Cause of Headache.—Rogers is convinced that chronic irritation of the dura is a common cause of headaches. The most frequent irritation in his experience has been the deposit of lime salts in organized extradural or, strictly speaking, subperiosteal blood clots. After the acute hemorrhagic condition subsides the patient may apparently be well for weeks, months, or even years before any localized symptoms manifest themselves. The symptoms are pathognomonic and can be recognized easily. There is usually a history of a previous injury which may have been considered trivial by the patient at the time, and has long been forgotten until headaches appear. They are always localized in a definite area on the skull. The headaches may be constant but more frequently they are paroxysmal. They are exaggerated by bodily and mental fatigue, and are more frequent at night. They are agonizing, of a gnawing, tearing character, and often associated with dizziness and vomiting The pulse, temperature and respirations may be normal and the blood count negative. During the attacks the cerebration is slow. The attacks may be epileptoid in character, and the patient may be mentally irresponsible for his acts an deeds. It is not uncommon for these people to become heav drinkers, using profane and most vile language during th seizures. They become adept liars and may resort to pett thievery. As the attacks become more and more frequent and severe, it is not at all unusual to find these persons declared insane and sent to sanatoriums for treatment. The insanity disappears after the removal of the irritant and the patient becomes normal mentally in his acts and habits. Cases are cited.

Tendon Transposition.—The results of experimental work done in connection with the surgery of tendon transplantation and tendon transposition are detailed by Bernstein. He points out that the function of a surgically transposed tendon separated from its normal surrounding structures is interfered with (1) by disturbances of its nutrition; (2) by mechanical obstructions to its motion, i. e., adhesions; (3) by a change in the nature of its regenerated tissues. The true physiologic method of transferring the function of a tendon to a new insertion is to transpose it with all its necessary peritendinous structures and with the minimum amount of surgical traumatism. The proliferative and infiltrative changes observed by Bernstein when an exposed tendon is transposed directly to a new insertion leads him to believe that these changes are permanent, and although not marked enough to destroy the vitality, they are such as might interfere with the functioning of the tendon. Transposing a tendon to a new insertion stripped of all its surrounding tissues therefore appears to be unphysiologic, because (1) it deprives a tendon of its nourishment and (2) exposes a susceptible tissue to irritation and thence to the formation of adhesions. In a second series of experiments the tendon was transposed through the sheath of another tendon. In this method the tendon sheath is opened and the tendon separated from its surroundings (mesotenon, etc.). Sutures are inserted in the distal end. This forms a more or less thick rough stump. The tendon is now forced through the sheath of the paralyzed tendon. The final results obtained are an improvement on the older methods of transposition. The results are shown by the histologic findings. There are no inflammatory processes between the tendon and the sheath, and no opportunity for the occurrence of adhesions. The epitenon and endotenon remain unimpaired. Such reaction as is observed has very little effect on the functional action of the transposed tendon. This method of transposition also avoids the possibility of fibrosis of the tendon, a condition which was observed in other methods. This fibrosis is a nutritional disturbance of the tendon and is brought about by separating the tendon from its blood supply, the mesotenon and its surrounding connective tissue structures. Bernstein's method of transposing a tendon, preserving its normal anatomic surroundings and obtaining results by which the tendon in its new position fulfils its normal functions is claimed to be the true method of transposing tendons. Bernstein advocates a special method of inserting the sutures, one which avoids fraying or tearing of the end of the tendon.

Intrinsic Trifid or Double Hour Glass Stomach.—Burke reports a case of true intrinsic trilocular stomach due to cicatricial contraction of chronic gastric ulcers which he believes to be the only genuine intrinsic double hour glass stomach on record.

Surgery of External Carotid Artery.—Nicolson claims that in the average hands ligation is a simpler procedure than Crile's compression; that it controls the same area of arterial distribution, and carries less risk of cutting off circulation from the brain. He describes his method of ligation.

Prostatectomy.—In Ochsner's method with the patient in the lithotomy position, a grooved sound is introduced into the urethra down to the perineum. An incision is then made corresponding to the lateral incision formerly practiced in the operation of perineal lithotomy, extending from a point half way down the scrotum and anus, to a point half way between the left tuber ischii and the anus, and extending down into the membranous urethra which is opened at this point sufficiently to admit the point of an old fashioned lithotomy knife. The sound, together with the lithotomy knife, are passed into the bladder, care being taken to carry the sound along the pubic bone to prevent the knife from cutting into the rectum, thus splitting the membranous and prostatic urethra posteriorly. The knife is then withdrawn and the operator's finger is carried through the incision along the sound into the bladder. The finger is now precisely in the same position as it would be if a suprapubic opening had been made, and in this fact, Ochsner says, lies the important advantage of this over the other methods of operation, because beginning from above and entering the capsule of the prostate through the urethra, one is in a position to enucleate the prostate precisely as though the bladder were entered from above through the usual suprapubic incision and the prostate were to be enucleated according to the Freyer method. This step of the operation should be carried out with the utmost care in order not to disturb the bladder or urethra unduly. The index finger of the left hand is then introduced into the neck of the bladder, and the capsule of the prostate is caught by means of fine toothed forceps, one being applied to the right and one to the left, and a drainage tube consisting of an inner tube 1 centimeter in diameter and covered in its middle portion by a second rubber drainage tube just large enough to slip over the first one, is introduced into the bladder, the inner tube extending into the bladder, and the outer tube into the capsule. The double tube prevents collapse, and offers a sufficient amount of resistance to make the tamponing effective for controlling the hemorrhage. The rubber tube is held in place by means of silkworm-gut sutures which pass through the edge of the wound and the outer rubber tube. Two days after the operation the tube and packing are removed.

Use of Automobile Inner Tubes to Provide Lung Exercise.—Smith instructs his empyema patients to blow up an old inner tube from which the valve has been removed. This exercise should be done several times daily after the acute symptoms have passed.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal

June 14, 1919, No. 3050

*Physical State of Blood Serum in Relation to Its Agglutinin and Antibody Content. C. J. Bond.—p. 729.
Two Cases of Lethargic Encephalitis. C. W. J. Brasher, J. R. Caldwell and E. J. Coombe.—p. 733.
*Hypnosis, Suggestion and Dissociation. W. Brown.—p. 734.
*Transvenous Aneurysmorrhaphy. W. Pearson.—p. 736.
Abdominal War Surgery. E. S. Molyneux.—p. 737.
Suggestion for a Health Census. F. H. Morison.—p. 738.

Physical State of Blood Serum in Relation to Its Agglutinin and Antibody Content.—By submitting blood serum and other body fluids to a mechanical process, which includes friction combined with pressure, Bond claims, physical changes can be brought about in these fluids which throw some light on the condition in which hemagglutinins, bacterial agglutinins, complement, complement deviating substances and antibodies exist in the blood serum. They suggest that the blood serum and the body fluids, the secretions and excretions, form a graded series with the blood serum at one end, and the excretions, such as the urine, at the other. The hemagglutinins seem to be present for the most part in a free state in the blood serum, and in a more or less combined form in the transudates and exudates, while in excretions, like the urine, the hemagglutinins when liberated and recovered in the free state are found to have lost their specific character. This is shown by testing the agglutinative capacity of the fractional series of liquors and sediments to the same varieties of washed cells. Not only do the hemagglutinins show marked differences of composition in the different liquors and sediments, but they also vary according to the extent to which the fluid has been submitted to the mechanical fractional process. This is also true of the bacterial agglutinins contained in blood serum, and it has been found possible by these means to increase considerably the agglutinating titre of a blood serum to a given organism while retaining at the same time the specificity of the reaction. This suggests that it may be possible to raise the agglutinating capacity of a serum by a mechanical process in vitro for therapeutic purposes. These observations also show that the complement deviating factor in positive syphilitic serums passes over along with the hemagglutinins and bacterial agglutinins into the liquor, and is not thrown down with the sediment.

Hypnosis in Treatment of Mutism.—One hundred and twenty-one cases of mutism were treated hypnotically by Brown. Every one of the patients spoke when made to live again through their terrifying experiences. Some of them stammered, but these were a small minority. Brown did not need to give a specific suggestion that they would be able to speak. Cardiovascular and secretory changes (tachycardia, hyperhidrosis, etc.), dependent on disturbances of the sympathetic nervous system, showed alteration under the same method of treatment. Curiously enough, paralysis of the voluntary muscles (apart from those concerned with the voice) diminished less readily than other symptoms. On the other hand, voluntary paralysis cleared up, sometimes quickly, sometimes slowly, under the influence of suggestions and persuasion, without the need of hypnosis.

Transvenous Aneurysmorrhaphy.—The method employed by Pearson to introduce the suture to close the arteriovenous communication is as follows: The needle is first passed through a small portion of the fibrous tissue which binds the vessels together at one end of the communication, on the external aspect (that is, entirely outside the vessels and between the two), and does not penetrate the intima of either vessel; it thus resembles the commencement of the outer row of sutures in a gastrojejunostomy. This stitch is immediately tied and the needle is then passed obliquely from without inward, emerging on the inner surface of the vein close to the extremity of the stoma. The extreme edges of this are then brought together by fine continuous sutures through intima and media until the opposite end is reached, when the needle is again passed out from the lumen of the vein obliquely through its wall and the overlying tissue which binds it to the artery, so as to emerge between the two, when it is secured in a similar manner to the other end. There is no knot projecting in the lumen of either vessel, and if the stitches are placed accurately and drawn taut throughout they do not present in the lumen of either vessel any more than in the case of ordinary through and through stitches which produce eversion of the edges in vascular suture. The closure of the incision in the vein is effected by the method advocated by Carrel.

June 21, 1919, No. 3051.

Feeding of Nations: Study in Applied Physiology. E. H. Sterling.—p. 757.
Significance of Cerebral Cortex. G. E. Smith.—p. 758.
*Osteoplastic Closure of Cavities in Bone. D. J. Marshall.—p. 749.
*Chronic Bony Fistulas. R. A. Stoney.—p. 760.
*Method of Securing Rapid Healing of Bone Sinuses. D. K. M. Henry.—p. 762.
Radical Cure of Femoral Hernia by Inguinal Route. P. P. Cole.—p. 763.
Bacteriologic Qualities of Roof Collected Samples of Rain Water. A. Houston.—p. 766.
*Operative Treatment of Tuberculosis of Larynx. T. Ruedi.—p. 764.

Osteoplastic Closure of Cavities in Bone.—Marshall is convinced that bipp filling of bone cavities is in every case a successful method of treatment provided always that the preparation is thorough. There are types of cases: (A) The larger group—where a sufficient thickness of soft tissues is present to cover the opening—here simple filling is adequate. (B) Where no soft tissues can be placed over the opening which lies flush with the skin: These cases can be treated successfully by covering with a skin and bone flap and filling the cavity with bipp. The advantages are: Less extensive disturbance of tissues than in any other operative procedure for closure of the cavity—no small consideration in war scars. Anatomic restoration of the bone is achieved; strengthening and not weakening results; fresh osteogenetic surfaces are exposed; a good cosmetic result is obtained. The objections are: A foreign body is left in the tissues; but it (*a*) combats infection, (*b*) stimulates osteogenesis, and (*c*) it is removed naturally when these ends have been attained. Sepsis is neutralized by adequate preparation, careful technic and bipp. A plastic bone operation is not to be approached lightly in the presence of the slightest sepsis; but (*a*) the bone used is more vascular than normal; (*b*) the exceedingly vascular bone at muscular insertions can be used; bipp smearing prevents infection.

Chronic Bony Fistulas.—Stoney uses bipp in these cases. The operation must be planned after the results of roentgen-ray examination are known. If possible the fistulous track should be excised right down to the bone, and the more of the fibrous scar tissue used the better. When the bone is reached, the periosteum should be raised for some distance all round the opening. The whole infected area of the bone should be explored thoroughly and laid open, all sequestrums and foreign bodies should be taken away, all overhanging walls removed by forceps or chisel, until the walls of the cavity in the bone slope gradually to the deepest point. If possible the bony walls should be gouged away till healthy bone is reached, as is shown by free oozing from the cut surface. The whole wound is now dried and swabbed with ether or methylated spirit and packed for a couple of minutes with gauze wrung out of one or other of these liquids. Modified bipp (iodoform, 2; bismuth, 1, and petrolatum, 12) is then rubbed into the walls of the bony cavity, which finally is filled with it. If the cavity is small and regular, and it has been possible to remove its original walls fairly completely, and if there is a good depth of healthy tissue between it and the skin, the wound may be closed in layers, using one or two layers or even more of catgut for the periosteum and muscles, and silk impregnated with bipp for the skin and superficial fascia with a few sutures of fine silkworm gut to obtain good coaptation of the skin edges. Gauze smeared with bipp is placed over the wound and a thick layer of wool and a firm bandage is applied. If all goes well, the dressing need not be changed till the stitches are removed about the tenth day, when the wound will be found fairly healed. Eighty-eight per cent. of cures are claimed.

Method of Securing Rapid Healing of Bone Sinuses.—Immediate success was secured by the Henrys chiefly by instillations every two hours of Daufresne's standardized solution of hypochlorite, after the method of Carrel. Another postoperative treatment which occasionally gave good results was the daily injection of iodoform and bismuth subnitrate suspended in liquid petrolatum used alone or alternately with Carrel instillations.

Operative Treatment of Tuberculosis of Larynx.—Rüedi claims that tuberculosis of the larynx is curable. Spontaneous improvement as well as cure can be observed repeatedly in Davos under the influence of general treatment, but it is denied that improvement in the pulmonary condition has a favorable effect on the laryngeal lesion. In several cases the fresh air cure, as also the usual local conservative treatment, in particular heliotherapy, were in sufficient or ineffectual, notwithstanding improvement in the pulmonary condition. A considerable proportion of these patients could be cured by operation. According to Rüedi operative treatment of tuberculosis of the larynx should be undertaken only in cases in which there is no fever and the pulmonary condition is stationary, exception being made for cases in which urgent symptoms demand interference. The best method is electrocauterization (Mermod-Seibenmann's method) with its broad and deeply destructive radical effect. Only in cases of tuberculosis of the epiglottis did curetting prove itself better than resection or amputation. Operative treatment resulted in cure in a little more than a third of the number of cases followed and checked. The best results (62 per cent. of cures) were obtained in the electrocauterization of the cords. Operative treatment exercised in several cases a very favorable influence on the lungs and on the general condition. The contention that a stay at a high altitude is contraindicated for tuberculosis of the larynx Rüedi claims is wrong. Even in cases of pulmonary tuberculosis complicated by laryngea tuberculosis a stay in the high mountains is indicated in accordance with modern experience of both. When the alti tude has a favorable influence on the pulmonary, withou being able to ameliorate the laryngeal lesions, one mus employ local treatment by electrocauterization according to Mermod-Seibenmann's method which can bring about a par ticularly rapid cure under the favorable influence which the climate of the high mountains exerts on the vitality of the organism.

Glasgow Medical Journal

June, 1919, **91**, No. 6

Investigation into Phenomena of "Serum Disease": Relation Between Its Various Forms and Proteins of Horse Serum. W. T. G. Davidson.—p. 321. (To be cont'd.)
Treatment of Syphilis. I. Mackenzie.—p. 332. (To be cont'd.)

Japan Medical World

June, 1919, No. 8

Treatment of Scrofula. S. Uyeno.

Lancet, London

June 21, 1919, **1**, No. 25

*Treatment of Syphilis. O. T. Dinnick.—p. 1055.
Invalidism Caused by P. U. O. and Trench Fever. D. S. Lewis, A. J. Blake, and M. Foster.—p. 1060.
*Analysis of Symptoms in Cerebrospinal Fever. A. H. Carter and J. T. Boyes.—p. 1065.
Anesthesia for Ophthalmic Operations. C. T. W. Hirsch.—p. 1068.
*Diaphragmatic Hernia; Report of Cases. R. Warren.—p. 1069.
*Results of Bone Grafting Operations in Ununited Fractures of Mandible. A. D. E. Shefford.—p. 1070.
Pseudoparatyphoid Fever. R. Paton.—p. 1071.

Syphilis: When Is the Patient Cured.—Dinnick says that if after an intensive course of arsenical medication and the continuous exhibition of mercury for two years, a patient can show two years' freedom from physical signs of disease, has a persistently negative blood serum, a spinal fluid which shows no variation from normal in either pressure, globulin content, or cellular count, and which gives a negative Wassermann in amounts of 2 c.c.; and if after a period of freedom from treatment these conditions are still present and persist in spite of provocative treatment, it is justifiable, in our present state of knowledge, to presume that the patient is cured. Finally, should this patient subsequently develop a fresh chancre at a site differing from the first, this would be a reinfection. For syphilis does not confer immunity, and the real interpretation of all alleged immunity is that the so-called immune person is an active syphilitic.

Cerebrospinal Fever.—One hundred cases of epidemic meningitis chiefly due to the meningococcus were analyzed by Carter and Boyes. The average age of these patients was 23.05 years. Certain camps, without a necessarily larger body of troops present, furnished a larger number of them, and more fatal cases, spread over the whole period. No satisfactory reason for this is forthcoming. No seasonal or meteorologic condition can be shown to have influenced the incidence or death rate, except that the larger number of cases occurred in the three winter months, December, January and February. No single symptom can be considered pathognomonic of the disease, and even a combination of the principal symptoms may not be positive. A positive bacteriologic finding alone is conclusive. No treatment appears to be so effectual as early continued lumbar puncture and injection of serum. Wherever possible a serum of the particular type affecting the patient is preferred. The most frequent and the most fatal type was Type 2.

Diaphragmatic Hernia.—Of seven cases analyzed by Warren three were the result of gunshot wounds of the chest and abdomen, a fourth had suffered from fractured ribs on both sides in a buffer accident. Of the other three, two were young people, with no history of injury, and probably due to congenital defects; the last case was a female, 68 years of age, with a long history of failing and vomiting, with no history of injury, and so it may also have been of congenital origin. In four cases the opening was about 2 inches in front of the esophageal opening, in the other two the position is not mentioned. In three cases the contents of the hernia were stomach; in two, large gut; in two, small gut. In five cases there were acute obstruction and strangulation, and in one case subacute obstruction of a recurrent type, in one case no obstruction but an associated pyloric ulcer, laparotomy for which led to the discovery of the more rare condition. Diagnosis was only made during a laparotomy done for treatment of the obstruction, or in one case to treat a pyloric ulcer.

Bone-Grafting Operations in Ununited Fractures of Mandible.—According to Munby and Shefford bone-grafting operations give the best results when there are teeth in both fragments, which can then be controlled by a splint. In nine cases of such a nature, all except one were united at the end of ten months, giving 69 per cent. of complete successes. In those cases where there is an absence of teeth in the posterior fragment the operation is only indicated when the pseudoarthrosis is very lax, and marked improvement can be obtained, even if union of the graft is imperfect. Where there is already firm fibrous union causing little or no disability, the operation is not indicated. There were eight such cases in this series; in two cases bony union was obtained; three patients were considerably improved, and two remained in statu quo. Better results are obtained by the use of pedicled grafts than by free grafts. Certain cases where there is a large gap between the fragments are not suitable for a pedicle graft, especially when both ends of the fragments are pointed. In such instances a free graft is preferable. In free grafts the best results are obtained when the graft can be wedged into position and the periosteum stitched with fine catgut. Absence of wound infection is an essential in order to secure satisfactory results.

Medical Journal of Australia

May 10, 1919, **1**, No. 19

Tropical Australia and Its Settlement. A. Breinl and W. J. Young. —p. 375.
The Iniquitous Trade Name. S. H. Stroud.—p. 382.
Chemical Testing of Barium Sulphate for Use in Roentgen Ray Diagnosis. H. Priestley and H. G. McQuiggin.—p. 383.
*Myomectomy During Pregnancy. G. Farmer.—p. 384.

Case of Myomectomy During Pregnancy.—Because of intense pain in the right iliac region, Farmer operated on a woman, three months pregnant, for fibroid. The mass was shelled out. A fairly deep crater was left, but the urterine cavity was not exposed. The muscular walls of the crater were closed up by catgut mattress sutures and then the peritoneal cuff was inverted and closed by a continuous Lembert suture of cotton thread. The abdominal wall was closed in the usual way. The growth removed weighed 425 gm. The patient made a perfect recovery and was delivered of a healthy boy.

May 17, 1919, **1**, No. 20

Tropical Australia and Its Settlement. A. Breinl and W. J. Young. —p. 395.
Two Cases of Severe Injury to Eye. W. Hoare.—p. 404.

May 31, 1919, **1**, No. 22

*Auricular Flutter and Other Cardiac Cases. M. D. Silberberg, Melbourne.—p. 435.
Modern Treatment of Disease and Disorders of Heart. R. R. Stawell, Melbourne.—p. 439.

Auricular Flutter and Other Cardiac Cases.—According to Silberberg, auricular flutter is not uncommon in old people. The persistent, rapid pulse rate, with periods of irregularity and occasionally doubling of the speed from exertion or excitement, should suggest a possible flutter. The electrocardiogram is the surest means of diagnosis. Treatment by digitalis is satisfactory. The electrocardiogram reveals characteristic curves in the hypertrophies. It gives positive evidence of dextrocardia, because the curve is completely reversed in Lead I. In lesions of the branches of the conduction system it gives clear evidence of myocardial degeneration, an important sign with serious outlook. Cases of auricular fibrillation are quoted to show various possibilities and the great value of digitalis therapy.

Sei-I-Kwai Medical Journal, Tokyo

April 10, 1919, **38**, No. 4

Antibody Production in Rabbits Following Injection with Pancreatic Ferments. H. Wago.—p. 11.

Archives Médicales Belges, Liége

February, 1919, **72**, No. 2

*Plastic Motor Amputations. P. Pellegrini.—p. 113.
*Meningococcus Septicemia. A. Colard.—p. 122.
*Ignored Syphilis. B. Dujardin.—p. 138.
Influenza in Belgian Army. Nolf, Spehl, Colard and Firket.—p. 149. Cont'n.
Surgery During the War. P. Derache.—p. 168.

Plastic Motor Surgery After Amputation.—Pellegrini has now a record of twenty-seven cases in which he adapted the stump after amputation to ensure more or less volitional control of the prosthesis. The outcome is regarded as a success in all but three cases. He discusses technical points, much the same as in his previous articles abstracted in The Journal, **71**, 1173 and 2029, 1918, and brings the history of kinetic plastics down to date.

Meningococcus Septicemia.—Colard classifies seven different forms of meningococcus septicemia, and then emphasizes the inefficacy of ordinary methods of treating it. The tendency to relapses is pronounced. In one of his cases there were five relapses, the cerebrospinal fluid becoming clear and sterile in the intervals. Septicemia was evident in 25 per cent. of his sixteen cases of epidemic meningitis, and the importance of giving the antiserum by the vein is emphasized by his experience, as also the necessity for supplementing the serotherapy with an autogenous vaccine. His experience in Nolf's service has confirmed the advantages of giving the autogenous vaccine by the vein, beginning with small doses. He injected thus every fourth day 1 c.c. of an autovaccine obtained from a culture killed by heat at 55 C. for half an hour, with addition of 0.5 per cent. of phenol. The initial dose was 50,000 microbes, then 100,000, 200,000 and so on per c.c., progressively increasing if there were no phenomena of a general reaction. This intravenous bacteriotherapy seems to be the necessary complement to serotherapy when the latter alone does not suffice. One of his patients developed a phase of anaphylactic symptoms eight days after an injection of the antiserum but it yielded to epinephrin.

Ignored Syphilis.—Dujardin relates that pupil anomalies first gave the clue in 95 of his 216 cases of ignored syphilis. Anomalies in the reflexes gave the clue in 35; usually the Achilles reflex was the one at fault first, but unequal abdominal reflexes were also instructive. Leukoplakia of the tongue is almost a certain sign of syphilis, but in 28 of 80 cases of leukoplakia elsewhere in mouth or lips, nothing suggesting syphilis could be detected. Dizziness or nervous deafness gave the clue in 5 cases, and laryngeal lesions in 3. Vitiligo and alopecia were found in 4 and 6 cases, mostly with inherited syphilis. Zona of the lower half of the body was generally found associated with a chronic syphilitic meningitis.

Bulletin de l'Académie de Médecine, Paris

May 20, 1919, **81**, No. 20

- *Filarial Chyluria; Recovery Under Neoarsphenamin. M. Deschamps.—p. 655.
- *Arsphenamin Prophylaxis of Syphilis. A. C. Magian.—p. 657.
- *Organized Prophylaxis at Paris. Sieur and Marchoux.—p. 678.
- *Retention of Chlorids and Urea in Nephritis in Children. P. Nobécourt.—p. 683.
- War Radiotherapy. H. Bordier.—p. 688.
- Discordance between Subjective and Organic Symptoms with Stomach Disease. L. Pron.—p. 690.

Neo-Arsphenamin in Filarial Chyluria.—Deschamps reports a second case of this kind, the injections of neo-arsphenamin resulting in the disappearance of the filaria from the urine. The urine coagulated in the bladder to such a degree that it clogged the urethra. This was overcome by giving sodium citrate, after which the urine seemed to become more fluid.

Arsphenamin Apparently Wards Off Syphilis.—Darier tells how Dr. Magian, chief of the French hospital at Manchester, inoculated himself, March 21, 1918, in the presence of twenty physicians, with a little serous fluid from a syphilitic chancre. In less than an hour afterward he was given an intravenous injection of 0.6 gm. of arsphenamin. No local or general symptoms of any kind followed, and the Wassermann test applied every month since has been constantly negative.

Organized Prophylaxis at Paris.—Sieur describes the work of the preventoriums against tuberculosis and against venereal diseases in the Paris district during the war, and also the crèches and various other welfare institutions for factory workers and children, all organized by the military medical department.

Retention of Chlorids and Urea in Nephritis in Children.—Nobécourt explains that the different types of nephritis observed in adults are encountered also in children, in both the acute and chronic form. Study of the elimination through the kidneys enables the different phases of the kidney disease to be followed. It shows the different retention at different periods, and explains the brief course in some acute cases and the latent or intermittent character in certain cases. Persisting retention of chlorids or urea, even if slight, is a warning sign. Modification of the diet usually puts an end to the retention; if the edema does not subside, small doses of digitalis or theobromin kept up for five to ten days usually stimulate diuresis. His dose of theobromin is below 0.6 gm. for large children. It loses its efficacy in about a week; if kept up too long, it is liable to bring on or increase albuminuria. In certain acute or chronic cases of nephritis with chloridemia, the edema is irreducible. In 12 cases of acute nephritis there was strong azotemia (1 to 6 gm.) in 5, plus chloridemia in 3; moderate azotemia plus chloridemia in 3, and in the 4 others there was chloridemia but no azotemia. In 10 chronic cases of nephritis the urea was less than 0.5 gm. per liter in 7, while it was from 0.5 gm. to 1 gm. per liter in the others.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 2, 1919, **43**, No. 15

- *Fatal Poisoning from Contrast Meal. R. Bensaude and E. Antoine.—p. 369.
- *The Temperature Range with Unstable Heart. C. Laubry and C. Esmein.—p. 376.
- *Tuberculin Tests in Control of Tuberculosis. P. Pruvost.—p. 383.
- *Medical Treatment of Purulent Pleurisy. P. Emile-Weil and Loiseleur.—p. 387.
- Improved Oscillometer-Sphygmograph. A. Mougeot.—p. 391.

Fatal Poisoning from Barium Salt.—Bensaude and Antoine some time ago extolled the great advantage of barium sulphate as an opaque substance, harmless to man while extremely useful for roentgen work. Bensaude published in 1917 his endorsement of the barium sulphate contrast meal. He now emphasizes that the fatalities which have followed its use are due to the druggist's having blundered and dispensed the carbonate or sulphide in the place of the ordered sulphate. Two fatal cases are described, the patients a woman of 27 and man of 37. The robust woman died ten minutes after ingestion of the suspension of a tablet of 40 gm. of barium polysulphid. The man took 80 or 100 gm. of barium carbonate and vomited part of it the third hour. He was given sodium sulphate and magnesium sulphate which combined with part of the barium salt to form an insoluble compound so that death did not occur until the thirty-fifth hour. A number of other mishaps of the kind are on record, for all of which the pharmacists' blunders were responsible, dispensing the chlorid, sulphid or carbonate of barium in place of the insoluble and stable, harmless, chemically pure barium sulphate.

Persisting Subfebrile State with Unstable Heart.—Summarized in the Paris Letter, p. 1929.

The Intradermal Tuberculin Reaction.—Pruvost reports the repeated application of the intradermal test to eighty-three persons suspected of tuberculosis. The most instructive response was obtained with 0.1 c.c. of a 100,000 or 200,000 dilution of the tuberculin.

Medical Treatment of Purulent Pleurisy.—Weil and Loiseleur expatiate on the advantages of repeated punctures, injection of air, and possibly injection of methylene blue in treatment of purulent pleurisy. Eleven of the twelve patients treated in this way recovered, but seven of them required operative measures finally. The delay did not seem to have done any harm, while it permitted those capable of recovering under medical treatment alone to get a chance to do this. This occurred in two cases of total purulent pleurisy and in four with localized processes. There is no need for operative intervention if the pus forms again very slowly and the amount is found less at each puncture, and the intervals between punctures can be lengthened while the general con dition improves to correspond. If the weight increases, this is a further sign of general improvement. Their medical patients gained from 10 to 25 pounds while the suppuration was gradually subsiding.

Journal de Médecine de Bordeaux

. May 25, 1919, **90**, No. 10

*Chronic Lamblia Enteritis. J. Carles.—p. 187.
*Bone, Gland and Skin Tuberculosis. A. Chenut.—p. 191.
Surgical Treatment of Purulent Pleurisy. H. C. Schultz de Brun. (New York).—p. 202.
Thymol for Expulsion of Tapeworm. X. Arnozan.—p. 205.

Lambliosis.—Carles emphasizes the chronic and tenacious character of lamblia enteritis. Some of his patients had been treated long for enteroneuroses, insufficiency of the liver, or even intestinal tuberculosis, and the lambliosis had been overlooked. One young man had been affected with this chronic enteritis from early childhood, and it had impeded both physical and mental development. The lamblia may be found in the mucopus from the rectum, but usually it can be discovered only after purging and centrifuging the sieved and homogenized stools. Sulphur has proved most effectual in his experience, from 2 to 6 gm. a day, in three doses, kept up for ten days. By repeating this course every month for a time, recurrence is warded off. Other parasites require their special treatment. Every recurring enteritis should suggest lambliosis.

Treatment of Bone, Gland and Skin Tuberculosis.—Chenut describes the fine results he has obtained with sun baths and sea baths in what used to be called surgical tuberculosis.

Journal de Radiologie et d'Electrologie, Paris

May, 1919, **3**, No. 5

*Accessory Focal Spots in Roentgen Tubes. A. Lumière.—p. 193.
*Comparative Value of Roentgen Ray Tubes. H. Guilleminot.—p. 205.
*The Resistance of the Human Body to the Electric Current. A. Strohl. —p. 207.
*Professional Radiodermatitis. P. Aubourg.—p. 217.
Roentgen Examination of the Spine. H. C. Gage.—p. 219.
Roentgen Localization of Sequesters in the Skull. R. Pecker.—p. 222.
Magnet for Extraction of Scraps in the Brain. Costantini and Gosselin.—p. 224.

Accessory Focal Spots for Rays Discharged by Tubes Used in Radiology.—Lumière cites those who have been making a study of the accessory sources of the roentgen rays, and then describes similar research undertaken with the tubes as usually employed in radiology and also with all the sources of the principal or parasite rays discharged by the apparatus producing the roentgen rays. Some of the radiograms were taken with the tube turned completely around, the exposures made through the thin plate of the anticathode, directly opposite to the usual direction of the rays. The roentgenogram was as perfect (with the Muller tube) as when the routine conditions had been exceptionally favorable.

Comparative Tests of Roentgen Tubes. — Guilleminot describes how to compare the sharpness of the images, the total output of rays per current, and the endurance of the tubes. The fluorometer is the main reliance in the tests.

Electrodiagnosis.—Strohl remarks that most of the methods of electrodiagnosis presuppose an invariable resistance on the part of the tissues to the electric current. But this resistance is not invariable. It depends on a number of variable factors, as he explains in detail, with suggestions how to eliminate various causes of error.

Cure of Radiodermatitis with Carbon Dioxid Snow.—Aubourg reports the case of a radiologist who had always used most scrupulously the current means of protection in his thirteen years of roentgen work, even to a doubly protected glove for the left hand. But in 1912 chronic lesions developed on his hands. He kept at his work during the war, often making long exposures in restricted quarters. In two years he had thus aided in extraction of 4,000 foreign bodies. The chronic dermatitis was then treated once a month with carbon dioxid snow, applied for forty seconds at each sitting to one, two or three of the foci. The focus was then treated with bismuth held in place with a gauze bandage. This dressing was left undisturbed for ten or fifteen days. The eschar dropped off the fifteenth to the seventeenth day, and by the end of two months there was not even a trace of a scar. During the entire course of treatment the hands were kept well greased at night with a soothing salve. In thirteen months twenty-three lesions were thus treated and twenty-one subsided smoothly; one started to suppurate but this was at once aborted with magnesium chlorid, according to P. Delbet's technic. One other lesion returned at the end of three months as a wart on the spot that had been treated and had disappeared. This recurring lesion rapidly progressed but was treated and soon healed like the others. There was also a warty growth on the left forearm which looked so suspicious that excision was recommended for this, but it disappeared spontaneously while the other lesions were being treated. One would have to look close now to suspect that the hands were the hands of a radiologist. The carbon dioxid treatment did not interfere with his continuing his work; its efficacy is apparently established by the year and a half that has elapsed since. The case teaches further that the most painstaking care to avoid danger is not always effectual, as we cannot rely implicitly on the protecting devices at our disposal.

Lyon Médical

May, 1919, **128**, No. 5

Dysentery and Edema. Martin and Debard.—p. 225. Cont'n.
*Eosinophilia. E. Deglos.—p. 231.
Case of Fatal Gonococcus Septicemia. Lefèbure.—p. 238.
*Pathogenesis of Fever. Widmann.—p. 241.

Eosinophilia.—Deglos comments on the local eosinophil reaction often observed in effusions of traumatic origin and exudates, subcutaneous or conjunctival, as also the general eosinophil reaction in the blood in various conditions of infections or of purely toxic origin from microbian or parasitic toxins. The reaction seems to be more to the toxins than to the microbes or parasites themselves. The eosinophilia persists long into convalescence and may aid in the retrospective diagnosis in connection with the tracheobronchial gland changes. One patient with severe enteritis and intense anemia had pronounced eosinophilia for which no cause could be discovered until it was casually learned that during his visits home, twice a week, he was subjected to severe carbon monoxid poisoning from a charcoal stove. The cases of eosinophilia hitherto classed as nonsymptomatic are being cleared up by such discoveries, and especially by the research of Weinberg and Seguin reported recently in the *Annales de l'Institut Pasteur.*

Pathogenesis of Fever.—Widmann is now convinced, for reasons which he enumerates, that fever in most cases is a defensive reaction by means of production of sugar to an extent far above normal, plus an intense utilization of the sugar thus elaborated. In every fever the first thing to be done is to ascertain the condition of the liver and to improve its functioning by every means in our power. This should include (1) copious drinking of sweetened beverages while (2) alcoholic drinks should be taken with extreme caution. Another indication (3) that Widmann emphasizes is to make the patient vomit if not too much enfeebled by the malady. And also (4) to give quinin, 10 grains at a time, every three hours until the stools are diarrheic in case of cholera. And finally (5) not to allow him to walk about. The bases for these directions are (1) because sugar given by the mouth reaches the liver, by the portal system, and helps the liver in the production of glycogen; (2) because alcohol, possibly useful at first as a general stimulant and hence a stimulant of the liver, soon displays a paralyzing action on the central nervous system, and this has a grave depressing influence; (3) because emetics have a stimulating action on the liver; (4) because quinin stimulates secretion of bile and probably also the secretion of glycogen, as all of the liver functions seem to be closely connected, and finally (5) because walking about uses up glycogen and throws an extra task of glycogen production on the liver. Typhoid fever is peculiarly dangerous in a diabetic as the liver is already below par. The sugar may disappear from the urine as the fever rises but the patient soon dies. The sugar from the food is transformed into glycogen owing to the intense stimulation of the liver, but this stimulation is more than the diabetic can bear, and he succumbs. The article is to be continued.

Paris Médical

May 24, 1919, **9,** No. 21

*Measures for Aiding Tuberculous Ex-Soldiers. L. Bernard.—p. 405.
*Psychic Symptoms with Recent Brain Wounds. B. J. Logre and H. Bouttier.—p. 408.
*Neoarsphenamin in War Surgery. A. Bréchot.—p. 414.
Physiopathology of the Bladder Sphincter. R. Uteau.—p. 416.

Tuberculous Ex-Soldiers.—Bernard reviews the history of what has been done in the past to aid the tuberculous discharged from the army. He refers especially to the work of the Comité départemental of the Seine district founded in 1916 which included children also in its welfare work.

Psychic Reactions to Brain Trauma.—Logre and Bouttier remark that the varied war traumatisms affecting the brains of strong young men induced a special reaction, evidencing the autonomy of traumatic mental pathology and the marked difference between this and all other modes of diffuse psychopathic reaction such as emotions, mania, melancholia, toxic-infectious confusional states, etc. The dissociations induced have a decided diagnostic value and form a guide to treatment, especially in the line of surgical neuropsychiatry. This special pathology determines the remote prognosis by the modifications more or less profound and durable in the entire personality which may be entailed by the diffuse cerebral microtraumatism. The mind gives evidence of mental paresis corresponding to what in the muscles is lax or spastic paralysis, with or without ataxia. There are no hallucinations, no tendency to ataxia; the trouble is in the intelligence and the affections. The anatomic processes responsible for this mental paresis are generally paralleled by changes in the cerebrospinal fluid, an albuminosis with dissociation or inversion of the albumin and cell count. This may subside or last for weeks or months. Toxic-infectious injury of the brain, that is, a chemical lesion of the brain, manifests itself in a set of symptoms of the confusional type. Diffuse traumatic injury of the brain, that is, a mechanical lesion of the brain, manifests itself in the mental processes as a kind of sluggishness in the mind, a mental paresis. An initial loss of consciousness is the rule with this diffuse traumatism from concussion of the brain. When there are localized wounds besides, the set of symptoms from the diffuse concussion and those from the localized trauma should be estimated separately, when they will serve as a guide to treatment, as they explain in detail.

Neo-Arsphenamin in War Surgery.—Bréchot has been giving neo-arsphenamin by the vein after war wounds to ward off or cure septicemia and to aid in the healing of wounds. The action became manifest by the third day and was most marked in acute septicemias without important local lesions; also, in recent and gangrenous infected wounds of soft parts. No benefit was apparent in massive gangrene and advanced suppurative processes. A single intravenous injection of 0.3 gm. neo-arsphenamin was followed by a surprising change for the better when any effect was apparent. Three typical cases are described.

Progrès Médical, Paris

April 19, 1919, **34,** No. 16

Refrigeration of Meat and Milk. L. Lortat-Jacob.—p. 149.
*Cancer of the Pancreas. M. Loeper.—p. 151.
*Bone Grafts. Barbier.—p. 153.
Intramuscular Injections of Turpentine. G. Huillet and A. Crémieux.—p. 156.

Cancer of the Pancreas.—Loeper describes the features which distinguish jaundice with cancer of the pancreas from that with gallstones, especially the large dilatation of the gallbladder testifying to complete obstruction of the common bile duct. This is the rule with cancer of the pancreas but is comparatively rare in cholelithiasis. The stools will decide the question by the high content of nontransformed neutral fats, when compression from the pancreas is responsible for the obstruction of the bile duct. When the obstruction is close to the ampulla of Vater, it is impossible to decide before operating, although an increase in amylase in the blood and urine with its absence from the stools is a sign of obliteration of the pancreatic duct, just as the increase of bile salts in blood and urine and their absence from the stools points to obliteration of the biliary passages.

Bone Grafts.—Barbier makes out the balance sheet for bone grafting operations, the outcome showing there is still much uncertainty in regard to the inner physiology of a bone implant. The balance to date seems to be in favor of living bone for the implant. Conditions are entirely different with dead bone from those with dead nerve implants. Further study of the biology of the bone implant will solve these various problems. Heitz-Boyer has reported twenty-five cases of massive bone implants to correct ankylosis. In the eight aseptic cases success was complete in 75 per cent., as also in 69 per cent. of the seventeen cases in which there was more or less infection. The intervention was a failure in only one case; four are too recent for judgment.

April 26, 1919, **34,** No. 17

Refrigeration of Meat and Milk in Hospitals. L. Lortat-Jacob.—p. 159.
*Gummatous Sporotrichosis. L. Ramond.—p. 160.
Hot Springs in Treatment of Syphilis. L. Bory.—p. 162.

Sporotrichosis.—Ramond warns that lesions in the form of a gumma in skin, bone or viscus should always suggest the possibility not only of syphilis and tuberculosis but also of sporotrichosis. In a case described, on account of the gummas on the trunk and arms, the man of 57 had been given a course of mercurial treatment but without effect. As intense pains finally developed in the lumbar spine, the diagnosis was changed to tuberculosis, and incipient Pott's disease was suspected. The indolence of the gummas, their rapid development, the absence of fistulas and the arrangement of the gummas along the lymph routes finally corrected the diagnosis to sporotrichosis, confirmed by cultivation of the pus, the macroscopic aspect of the cultures being unmistakable once seen. Agglutination tests, as for typhoid, were still further evidence, sporoagglutination occuring at 1/200 or 1/500. The most conclusive evidence, however, is the rapid retrogression of the lesions under potassium iodid. He gives it by the mouth in a large amount of fluid (beer or Vichy water), beginning with small doses and increasing to a daily dose of 4 gm. Only exceptionally is more than this required, to a maximum of 8 gm. In the case described, the man was unable to bear the iodid by the mouth and it was given by the rectum. When the intolerance is absolute, other iodids should be tried. The earlier this treatment is begun, the more effectual its action, and it should be long continued.

Revue Neurologique, Paris

September-October, 1918, **34,** No. 9-10

Cerebellar Seizure. E. Schulmann and L. Pradal.—p. 57.
Paralyses with Hypothyroidism in Woman. J. C. M. Fournier.—p. 62.
Albuminuria After Epileptic Seizure. Papastratigakis.—p. 65.
Postconfusional Dementia Praecox. Hesnard.—p. 68.

Policlinico, Rome

May, 1919, **26,** Surgical Section No. 5

*Gastric Tuberculosis. G. Razzaboni.—p. 153.
*Cicatricial Stenosis of Esophagus. A. Austoni.—p. 161. Conc'n.
Obstruction of Bile Duct from Cyst. E. Oliani.—p. 177.

Gastric Tuberculosis.—Razzaboni gives the microscopic findings in a case of tuberculosis of the stomach in a woman of 60, with complete recovery after subtotal gastrectomy. The symptoms from the stomach had first been noted about two years before the operation. The process was of a neoplastic type along with diffuse inflammatory lesions. When last seen, three years and a half later, she was still well.

Cicatricial Stenosis of the Esophagus.—Austoni discusses the indications in cases of this kind and describes four personal cases. He insists that absolutely impermeable stenosis is extremely rare. It is almost invariably possible to work something through it, and when this can be done, no matter how old or how tight the stenosis, a cure can be counted on by gradual dilatation. This offers less risk and is more certain of a cure than by any other measures. The technic is practically the same as for urethral stenosis; if the stenosis is low down it may be advisable to introduce the bougie through an opening into the stomach. In adults, permanent, interrupted progressive dilatation with the aid of a guiding thread is the simplest means of cure. For children, on the other hand, and for stenosis high in the esophagus, it is more convenient to apply instrumental dilatation, very slowly and progressively, just as for urethral stenosis, and with the same instruments, but proceeding very gradually, not attempting to spread the branches more than 2 or 3 more millimeters at a sitting. Even with intervals of eight or nine days, the course takes less time than with gradual dilatation with bougies. In the two children whose cases are described there were no complications of any kind, and the esophagus had become amply permeable by the end of three months. He gives a preparation of thiosinamin to aid in softening up the tissues, and the effect impressed him very favorably. He gave it even to children in quite large doses at first, about every fifth day, and later, following each dilatation. Guisez advises against this for fear that with the softening of the tissues the tip of the bougie might go astray, but there is no danger of this if the drug is given only after the dilating procedure.

Anales de la Facultad de Medicina, Montevideo

January-February, 1919, **4**, No. 1-2

*Hysteria and Hysteroid Syndrome. A. Austregésilo.—p. 1.
*Roentgen Treatment of Uterine Fibromas. E. A. Weil.—p. **21**.
*The Gastric Mask of Liver Colic. F. Soca.—p. 31.
Anatomy of the Peritoneum in the Liver Region. L. Mérola.—p. 61.
General Conceptions of Endocrinology. P. E. Núñez.—p. 69.
*Spontaneous Cytolysis in Cerebrospinal Fluid. J. Bonaba.—p. 111.
*Serodiagnosis of Syphilis. A. Scaltritti.—p. 125.

Hysteroid Syndrome.—Austregésilo remarks that up to twelve years ago every case of more or less systematized delirium, with ideas of persecution or grandeur was labeled paranoia. But now we classify them as paranoid dementia, etc., and he insists that the same should be done for hysteria. We must classify the cases presenting true hysteria and cases with symptoms resembling those of true hysteria but for which some organic or functional other affection is responsible. He describes six cases to show the necessity for being alert to detect this hysteroid syndrome and to interpret it aright. In two of the cases the course confirmed that the supposed hysteria was incipient dementia praecox. In another case manic-depressive insanity of the melancholia type began with symptoms suggesting hysteria, such as sensory disturbances, anesthesia of eyeballs and pharynx, attenuation of the pharynx reflex, and ideas of negation which suggested simulation, but there were no hysterogenous zones. In another case of apparently typical hysteria, necropsy disclosed a brain tumor. The tendency to a childish point of view was marked in this case, but puerilism is a feature of hysteria as well as of some brain tumor cases. Alcoholism may also induce a hysteroid set of symptoms as in a case described in which hysteria had been diagnosed from the paresthesia, from the *automatismo ambulatorio,* absence of the pharynx reflex, and the occasional hallucinations with a vague persecution tinge, and lapses of memory.

Roentgen Treatment of Uterine Fibroma.—Weil remarks that no one thinks of holding modern surgery responsible for the mishaps before the asepsis era. But many medical men still hold aloof from roentgen treatment of uterine fibromas on account of mishaps they have heard of occurring in the early days of roentgen work. He claims that F. de Courmelles of France was the first to report (Jan. 11, 1904) the application of the roentgen rays in this field, and time has demonstrated the value of cross-fire exposures from a dozen different points more or less. Each field is about 10 cm. and the distance from the anticathode is 20 or 22 cm. at least. He filters through aluminum at least 1 cm. thick, utilizing only the shortest possible waves of the Coolidge tube. His smallest dose is 10 H units of the hardest possible rays, with a 22 or 24 cm. spark. The chromometer gage is 11 Benoist. He marks each field with a demographic pencil and exposes each field once or twice, going over them all successively on consecutive days. Then he recommences the exposures after an interval of at least a month. The most puzzling problem is when to recommence the exposures. He usually gives four series of exposures, but after the first two he leaves an interval of at least five weeks. The course thus lasts six months, but the menopause becomes installed and the pains much improved during the second month. He cites Pfender's statistics showing that less than 2 per cent. of uterine fibromas display a tendency to malignancy, while the global mortality from operative treatment of uterine fibromas is at least 5 per cent. He reiterates that roentgen therapy should now be the rule and operations the exception for all uterine fibromas, even the painful and the hemorrhagic ones, except that easily removable pedunculated myomas and those of exceptionally rapid growth should be removed without delay.

The Stomach Mask of Gallstone Disease.—Soca emphasizes that the radiating pain from liver colic may extend to quite a distance, and at some of the remote points thus reached it may set up a set of secondary symptoms which are liable to mask the primary disturbance and mislead the physician. The most frequent and the most dangerous form is when the secondary phenomena occur in the stomach. Even experienced and cautious physicians often yield to suggestion in such cases as readily as a hysteric girl. The patient's statements deal only with the stomach, and his description of his symptoms may fit some well defined stomach affection. In short, Soca reiterates, when confronted with any painful stomach symptoms, do not pay any heed to the stomach until the liver can be definitely excluded. The phrenic and scapular tender points with biliary lesions are often misleading, as also the costal, the shoulder and the pancreatico-duodenal points. The gallbladder may not be tender on superficial examination, but if the finger is dug in deep, and the patient is told to breathe deep, in the midst of the inspiration the patient stops it short and makes an exclamation of pain. Soca calls this the *signo del grito,* as the patient utters a cry. Another instructive sign is elicited by holding up the liver from below, placing the hand just below the ribs, as the patient takes a deep inspiration. The diseased liver thus is compressed as the diaphragm descends, and an intense pain is felt throughout it. Soca has named this the *signo del torno* as the liver is thus held in a vise, as it were. He illustrates his remarks with numerous instructive case histories. One shows that pain in the scapular region, with nothing to be found in the pleura or lungs, should suggest liver disease. Periodical vomiting first gave the clue in some cases. In one case the liver colic took the form of typical tabetic gastric crises; in other cases the gastric mask simulated nervous motor dyspepsia or the clinical picture of simple gastric or duodenal ulcer. The gastric or duodenal pain of biliary origin may assume the true rhythmic type of simple ulcer for days at a time. Even hematemesis may occur from cholelithiasis alone. One woman of 54 nearly died from the recurring hematemesis but the stomach was found normal and the gallbladder full of stones. Ingestion of bismuth may relieve the gastric pains even when they seem to be due exclusively to the biliary apparatus.

Spontaneous Destruction of Cells in Cerebrospinal Fluids.—Bonaba found in the seventy-four specimens of fluid he examined that the leukocytes became all destroyed in from three to sixty-three days. Even within twenty-four hours the figure dropped from 392 to 6 in one case, regardless of the temperature. This spontaneous destruction seems to be a manifestation of the universal process of autolysis which occurs spontaneously in every organ kept absolutely aseptic, but he found that it could be prevented by changing the reaction of the fluid from alkaline to acid. Addition of 3 drops of acetic acid to each 5 c.c. cerebrospinal fluid has preserved the leukocytes in it in their original numbers and proportions for several months to date in all his tests. It also has a sterilizing action. The hemolysis of the red corpuscles proceeds as usual. Unless this precaution is taken at once after the puncture fluid is obtained, no reliance can be placed on the leukocyte count a few hours later. The amount of this spontaneous destruction varies in different cases. The drop was from 369 to 148 in one case of tuberculous meningitis in twenty-four hours. The details are given of the seventy-four cases and also of thirty-three cases of meningitis in which the leukocytes preserved in the spinal fluid have kept unmodified during the months since.

The Wassermann Reaction.—Scaltritti calls attention to the specific action and always identical constitution of the lipoids obtained with cadmium chlorid, especially lipoids from heart tissue, for use in the Wassermann test.

Anales del Inst. Modelo de Clín. Méd., Buenos Aires

July-December, 1918, **3**, No. 2

*Pathogenesis of Gallstones. L. Agote.—p. 205.
High Laparotomy Star Incision. J. Arce.—p. 220.
Classification of Gastro-Intestinal Disease in Infants. J. C. Navarro.—p. 224.
Catalytic Action of Copper on Oxidation Processes. H. Damianovich.—p. 233.
Mechanism of Wassermann Reaction. E. Lorentz.—p. 239.
*Cholesterol in the Blood in Cholelithiasis. A. Galindez.—p. 255.
*Fistulas from Peptic Ulcers. R. F. Vaccarezza.—p. 264.
*Pott's Disease in a Humpback. J. Arce and G. Zorraquín.—p. 283.
*Regeneration of Peripheral Nerves. L. Merzbacher.—p. 293.
*Cyanid Poisoning. H. Damianovich.—p. 306.
The Pericardiac Epithelium in the Cock. P. Rojas.—p. 311.
Modification of McBurney's Incision. A. Galíndez.—p. 322.
History of Transfusion of Blood. D. Dameno.—p. 323.

Pathogenesis of Cholelithiasis.—Agote emphasizes that while the gallstones develop only in the biliary apparatus, the symptoms from them appear principally in the gastro-intestinal apparatus. Liver colic, with or without obstruction of the bile ducts, is merely an additional episode and does not modify the clinical conception that the manifestations of cholelithiasis are gastro-intestinal on the whole.

Cholesterolemia in Cholelithiasis.—Galindez tabulates the cholesterol content of the blood in large numbers of gallstone cases as well as in other patients. His final conclusions are that hypercholesterolemia is not constant in cholelithiasis, and that there does not seem to be any constant relation between the cholesterol content of the blood and of the bile. The age seems to influence the cholesterol content, possibly from the defective functioning of the endocrine system. His conclusions thus from 153 analyses are directly at variance with those of the French school in regard to the importance of hypercholesterolemia in gallstone disease.

Peptic Ulcers.—Vaccarezza tabulates the details of twenty-seven cases, including one from his own service, in which a peptic ulcer after gastro-enterostomy had entailed a fistula between the jejunum, stomach and colon. Eleven of the twenty-seven patients succumbed to peritonitis; no attempt at operating had been made in three of the fatal cases. In conclusion he recalls that ulcer of the jejunum was known twenty years before gastro-enterostomy was invented. It may occur spontaneously and be a primary lesion. There are cases on record in which the primary operation revealed an ulcer in both stomach and jejunum.

Pott's Disease in Congenital Kyphosis.—Arce and Zorraquín report a case which has broadened their conception of the efficacy of orthopedic treatment of Pott's disease. The kyphosis was of 92 degrees and this was corrected by 44 degrees and the paraplegia subsided. The "Albee implant" was 17 cm. long, with an angle of 136 degrees. The patient was an adult woman, and the seat of the implant showed trophic changes from the extinct tuberculous process. The implant and the technic were all that could be desired but the bed and asepsis were far from perfect. No plaster cast was used, merely four broad strips of adhesive plaster, 3 inches wide, two of them horizontal, two passing from the buttocks like suspenders over the shoulders, to the chest. The transverse strips pass just above and below the hump, and do not meet in front. The case is illustrated. The kyphosis modified the tuberculous vertebral process so that there was no pain nor stiffness but lax paraplegia developed and an abscess in the psoas. Only staphylococci were found in the abscess.

Regeneration of Peripheral Nerves.—Merzbacher has been continuing his experimental research on the degeneration and regeneration of peripheral nerves, and illustrates some of his specimens. They seem to open a new field for research on means to increase the vitality of a nerve, severed from connection with the trunk nerve, so that the peripheral stump escapes degeneration. He accomplished this by placing in contact with the stump triturated brain tissue. This seemed to maintain its vitality and aid materially in its regeneration. The severed and newly sutured peripheral nerve was invaginated in a segment of the jugular vein, taken from the same animal, and filled with triturated brain substance. This prevented the formation of a neuroma; the brain substance showed a tendency to prompt organization and numerous intact cylinder-axes and nerve sheaths were found later in the peripheral stump, demonstrating that part at least had escaped degeneration.

Potassium Cyanid Poisoning.—Damianovich's experiments apparently demonstrate that potassium cyanid forms quite a stable association with blood serum. Certain plant extracts likewise attenuate its activity.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

March, 1919, **2**, No. 3

Rational Dietaries in General. J. G. Ocaña.—p. 129. Cont'n.
*Syphilitic Perihepatitis. T. Hernando.—p. 145.
Dipylidium Parasites of Human Intestine and in Domestic Animals. C. R. L. Neyra.—p. 153.

Syphilitic Liver Disease.—Hernando reports another case in which the symptoms from syphilitic perihepatitis had been ascribed for years to duodenal ulcer or other cause and everything done except the right treatment. The man of 48 recovered almost complete health and returned to business from which he had been debarred by his illness for several years. The first symptoms had been noted twelve years before and the disease had assumed a progressive course after seven years. During these last three years there had been fever, but the symptoms from the stomach, the hyperchlorhydria, the duodenal symptoms had completely misled the diagnosis, nothwithstanding brief intermittent jaundice. The ascites had plainly been due to compression from gummas. As these retrogressed under specific treatment, there was no further trouble from this or from the previous intolerable pruritus. The fever for three years had been almost daily and remittent, the temperature normal or subnormal in the morning and running up to 38.1 or 38.6 C., or even higher in the latter part of the day. Hernando is inclined to attribute this fever to the action of the syphilis toxin on the vegetative nervous system.

Brazil-Medico, Rio de Janeiro

May 10, 1919, **33**, No. 19

*Medical Ethics. J. A. G. Fróes.—p. 145.
Epinephrin in Pediatric Practice. A. Galvani.—p. 147. Cont'n.

Medical Ethics.—This is Fróes' inaugural lecture in the clinical medicine course at Bahia. He says that he was impelled to select this theme by the report in the local lay press last year of a medical meeting in which dozens of vituperative epithets were exchanged; he quotes the long list. In the course of his aphorisms he remarks in regard to the tendency to charlatanism, "It was the original sin of the medicine of old; it is the shame and disgrace of the medicine of the day, and it is urgent to banish it from the medicine of tomorrow."

Medicina Ibera, Madrid

May 3, 1919, **7**, No. 78

The Immovable Image and Psychanalysis. A. S. Herrero.—p. 81.
*Acid in Filtered Stomach Contents. A. T. López.—p. 82.
Traumatic Shock. E. Diaz y Gómez.—p. 85. Cont'n.

Acid in Filtered Gastric Contents.—López tested the gastric contents for acidity before and after filtering, and tabulates the findings in fifty cases. They show that the acid content is higher in the homogeneized gastric contents than when filtered. In four cases the difference in the total chlorhydria amounted to 1,204 and 1,105. There were only ten cases in which no difference was apparent in the free hydrochloric acid before and after filtering; in the others it amounted sometimes to as much as 0,730 and 0,708.

May 10, 1919, **7**, No. 79

*Treatment of Leishmaniosis. F. F. Martínez.—p. 104.
Generalized Psoriasis. Sicilia.—p. 106.

Treatment of Leishmaniosis.—Martínez has had much experience with kala-azar in children and Oriental sore in adults, and here says that the efficacy of tartar emetic in treatment seems to be now established beyond all doubt. The urine and bowel movements should be supervised. The only mishap in his experience was an attack of severe diarrhea in one case, an actual antimony cholera. The usual dose is 3 cg.

of the tartar emetic, and the intervals between doses are from two to six days. He has found that the preferable method is to have three ampules, two containing each 2 c.c. of physiologic saline; the third ampule contains 3 cg. of the tartar emetic in 1 c.c. of twice distilled water. The injection is made in the vein at the elbow: first one of the ampules of saline, then the ampule of the tartar emetic, concluding by injecting the second ampule of saline. By this means the needle is rinsed out and none of the drug comes in contact with the tissues, as this is liable to induce an abscess. Improvement in kala-azar is evident by the second or third injection; the fever declines and the child recovers its appetite. By the end of the month, recovery is generally complete but he keeps up the injections of the antimony and potassium tartrate for a time.

Repertorio de Medicina y Cirugía, Bogotá

May, 1919, **10**, No. 8

*Torsion of Ovarian Cysts. A. Fajardo.—p. 397.
*Transfusion of Blood after Hematemesis. J. Bejarano.—p. 406.
Treatment of Cerebrospinal Syphilis. E. Campo.—p. 416. Conclusion.

Torsion of Ovarian Cysts.—Fajardo emphasizes that the surgeon should always be prepared for any surprise when confronted with symptoms of torsion of the pedicle of an ovarian cyst. Immediate intervention should be the rule. The clinical picture is often mistaken for appendicitis, but the palpation of a tumor suggests preferably a median incision, as in a successful case described.

Transfusion of Blood.—Bejarano reports that he successfully tided a young woman past the danger of intense anemia from a bleeding gastric ulcer by transfusion of blood from a niece. He reiterates the importance in hospitals of preliminary testing of the blood, and states that the anticoagulating action of the citrate need not be feared in hemorrhage cases.

Revista Médica, Puebla, México

May 15, 1919, **1**, No. 10

*Malaria and Mosquitoes in Mexico. E. Torres.—p. 217. Cont'n.
*Genital Prolapse at Delivery. J. J. Izquierdo.—p. 226.
Medical Ethics. (La inmoralidad médica reinante.) S. Ramírez.—p. 230. Conc'n.

Malaria in Mexico.—In this instalment of his article, Torres discusses with thirty-three illustrations the anatomy and biology of the mosquitoes found in Mexico that have been incriminated in the spreading of malaria.

Genital Prolapse at Delivery.—In the case illustrated by Izquierdo, during labor at term the uterus prolapsed suddenly and the vertex of the fetus presented at the os. The fetal heart beat could not be heard and amniotic fluid mixed with meconium was escaping. The rigid cervix seemed to be incapable of dilating further, and he delivered the living child by slitting the anterior cervix for 5 cm. on the median line, two hours after the total prolapse had occurred.

Revista Médica del Rosario

May, 1919, **9**, No. 2

José Penna. J. B. Valdés.—p. 112.
*Chronic Intestinal Stasis. L. O. Zeno.—p. 118.
*Serotherapy. Ruben Vila Ortiz.—p. 166.
Megacolon. F. Chiossone.—p. 169.

Chronic Intestinal Stasis.—Zeno has been working with Lane in England and describes with numerous illustrations Lane's theories in regard to chronic intestinal stasis and its causes. He criticizes Lane's ideas, and presents arguments to the effect that the avascular bands are found in the majority of persons, and have no pathologic significance. The same is true of the vascular membrane, Jackson's membrane. This represents relics of the direct prolongation of the great omentum in fetal existence. In studying these bands and membranes we must not be misled by the multiplicity of names that have been conferred on them. The surgeon in particular should familiarize himself with the various aspects which these normal formations may assume. Zeno found the so-called duodenojejunal band in 60 per cent. of forty child cadavers, the ages ranging from 2 months to 10 years. He also noted that when the bismuth suspension reached the point of the angulation it seemed to slip through the kink as readily as through the wide lumen above. The bands do not always occur at points where they can by any possibility serve as supports, while they may be conspicuous by their absence at other points where they would certainly develop if Lane's theory were sound.

Serotherapy.—Ortiz protests against the custom in Argentina of dispensing antiserums in such small doses that fifty-six vials had to be used, for instance, in one case of tetanus, to give 84,000 units of antiserum. The small number of units per vial renders treatment unnecessarily expensive. He urges that ampules should be available containing 100 c.c. of the antiserum.

Revista de Medicina y Cirugía, Havana

May 10, 1919, **24**, No. 9

Technic for Operative Treatment of Trachoma. R. Guiral.—p. 235.

Revista Médica del Uruguay, Montevideo

April, 1919, **22**, No. 4

Case of Cicatricial Stenosis of the Esophagus. J. M. Alonso and E. Regules, Jr.—p. 291.
*Induced Pneumothorax . J. B. Morelli.—p. 293.
Psoriasis in Inherited Syphilis. J. Rosende.—p. 324.

Induced Pneumothorax.—Morelli sketches the history of induced pneumothorax and the experiences in various clinics. He insists that in spite of all the work that has been done, artificial pneumothorax is still in the formative period. Notwithstanding the remarkable results attained with it in some cases, there are still many obscure points in the mechanism of its action and in its applications, as well as inexplicable irregularities in its therapeutic results. By perfecting it further we may be able to multiply the "marvelous resurrections" which have been sometimes realized to date. Strict knowledge of all factors that enter into play in the organism during the application of the procedure will permit a more perfect adaptation of the pneumothorax to the organic conditions of each patient. The question is to obtain the maximum results with the minimum of disturbance.

Rev. Sud-Amer. de Endocrinología, etc., Buenos Aires

May 15, 1919, **2**, No. 5

*Antagonism between Microbes. C. Spada, Jr.—p. 149.

Microbian Antagonisms.—Spada noticed that anthrax infection ran an exceptionally mild course in persons infected with staphylococci. Similar antagonisms between microbian infections has been noticed, he recalls, with malaria and tuberculosis, while malarial subjects are peculiarly susceptible to dysentery and smallpox. On the other hand, the malarial parasites disappear from the blood during intercurrent smallpox and, as Aynaud reports, during grave influenza. Spada's experimental work on guinea-pigs confirmed the attenuation of anthrax infection when the *Staphylococcus aureus* was inoculated subcutaneously along with the anthrax germs. The results were more striking with rabbits; one survived for thirteen days and none died in less than eighty hours. The injected staphylococci induce the formation of an abscess at the point of injection and the accumulation of leukocytes at the point aids in the defense. This assumption was confirmed by the negative results when the inoculation was done by the vein. The five rabbits in this group all died in about two days. Some other experiments were less conclusive, but anthrax bacilli cultivated in vitro with the diplostreptococcus isolated from cases of influenza, seemed to have their virulence utterly annulled.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 5, 1919, **1**, No. 14

The Language of Medical Writings. III. A. Kluyver.—p. 1061.
Medical Education in England. G. van Rijnberk.—p. 1065.
*Metastasis with Cancer. W. M. de Vries.—p. 1068.
*The Misplaced Fear of Cachexia Thyreopriva. O. Lanz.—p. 1086.
Tennis Leg. E. H. van Lier.—p. 1088.
*Contusion of the Pancreas. J. M. van Dam.—p. 1091.

Metastasis with Cancer.—De Vries found cancer at 518 of 3,700 necropsies, and he here discusses the metastases found with them, and the frequency and distribution with different types and locations of the cancers, and compares his findings with those on record. The liver cancers entailed metastasis in a surprisingly large proportion of the cases, and lung cancers in a surprisingly small proportion. The metastatic lumps are also at correspondingly opposite extremes in size with lung and liver cancers. He was impressed further with the frequency of metastases in bones, 53 out of the 518 cases, and the whole of the skeleton was not examined so that other instances of this may have escaped detection. In some cases there were multiple metastases in the skeleton, suggesting a blood-borne origin. Metastasis in the skeleton was noted in 7 of the 19 cases of mammary cancer and in 5 of the 19 cases of prostate cancer. There were only 2 cases of thyroid cancer in his material, but in one of these there was metastasis in the skeleton. The metastases develop readily also in the suprarenals and ovaries, but not in the spleen, heart and muscles. In 69 cases of cancer in the esophagus, metastasis occurred in the liver in 26 per cent., the larger proportion with low seated cancer. The longer survival with the latter may explain this. Mechanical factors alone are unable to explain metastasis with malignant disease, especially the preference for certain organs. The size of the cancer cells does not explain this either. Cancer cells probably circulate freely in the blood stream but die off readily. Chemical factors may aid in their destruction in certain organs in which metastasis seems to occur rarely. This suggests the possibility of treating cancer with extracts of these organs. Attempts in this line with spleen tissue and extract have given negative results to date as far as he knows. In Kaufmann's 1,078 cases of cancer (Basel) there was metastasis in the spleen in 8; in these the primary lesion was in the uterus, penis, thyroid, kidney, gallbladder or stomach. In Mielecki's 487 cases the frequency of metastasis in the skeleton with mammary and prostate cancer was as marked as in De Vries' Amsterdam cases (8 in 18 and 11 in 30). Comparison with other statistics confirms the greater prevalence of primary cancer of the thyroid in Switzerland, and of the lungs at Berlin, but with all the statistics the percentage of organs affected with metastasis is proportionately about the same. The fact that metastasis is so rare with cancers in the larynx and upper esophagus may be explained by the comparatively early fatal temination. The exemption of the muscles from metastasis, the exemption of the brain from metastasis with gastric cancer (no signs of metastasis in the brain in Kaufmann's 227 cases of gastric cancer and only in one of Mielecki's 156 cases), and the predilection of the liver, skeleton and suprarenals to metastasis are insoluble mysteries at present.

The Fear of Cachexia Thyreopriva.—Lanz emphasizes that surgical relief is imperative when a person with goiter has a hoarse voice, an aphonic cough, stridor or difficulty in inspiration when climbing stairs. Indications for operative measures are still more common with toxic disturbances, hyperthyreosis or dysthyreosis, and if sufficient of the excessively functioning gland is removed, he declares, a complete cure may be counted on even in extreme cases of exophthalmic goiter. General practitioners do not realize the full efficacy of operative treatment in such cases, while they have an exaggerated dread of cachexia thyreopriva. They do not realize that surgery has progressed far beyond the point of operations which permitted this to develop. Surgeons are able now to discriminate and to spare sound thyroid tissue, but general practitioners are still advising their exophthalmic goiter patients against an operation. Lanz reiterates that nowadays there is no reason for this; the collar incision leaves only an unnoticeable scar; part of the capsule is left, thus precluding injury of the recurrent nerve; the parathyroids are not molested and hence there is no danger of tetany, while enough thyroid tissue is always left so that cachexia thyreopriva is no longer encountered. Notwithstanding all this, surgeons still hear the same old story, "My doctor says this is a very dangerous operation," or "My doctor told me that this operation would make me an idiot." Even on the operating table, the question comes, "Are you sure that I won't turn into an idiot?" The trachea flattened by the goiter will resume its shape when the pressure has been removed, and the toxic symptoms will subside when the poison-generating tissue is no longer there to cause trouble. Practitioners generally should appreciate this, and should overcome their misplaced fear of cachexia thyreopriva.

Contusion of the Pancreas.—In van Dam's case the contusion was from the horn of a bull and the young man died about a month later, the pancreatic duct having been lacerated. The condition at first did not seem serious but laparotomy the third day showed the escape of pancreatic juice into the abdominal cavity through the foramen of Winslow, and into the bursa omentalis. Notwithstanding thorough drainage, symptoms of ileus developed and the man died the day after entero-anastomosis. Van Dam has found twenty-five cases on record of isolated open injury of the pancreas and sixty-two of isolated contusion of the pancreas. Trauma seems to be an important factor in the development of cystic disease of the pancreas.

Hospitalstidende, Copenhagen

May 21, 1919, 62, No. 21

*Roentgen Therapy of Cancer. T. Eiken.—p. 641.

Roentgen Therapy of Cancer.—Eiken reports from Rovsing's private clinic the complete cure of a woman of 46 who in the course of fifteen months had had a mammary carcinoma removed and also two recurrences at its site, and during the last six months had been having pains in the femur on that side, and a large metastatic tumor developed here. This tumor subsided completely under vigorous roengen treatment. The pains were relieved after the first application (30 H. through 6 mm. aluminum), and by the end of the month she could take a few steps without support. The results were as complete as with excision of the focus, but this treatment, as too often happens, was not applied until the malignant disease had invaded practically the whole body, and the patient succumbed to metastasis elsewhere. In another case a large mammary cancer subsided to a clinical cure under one exposure (50 H. 8 mm. aluminum, ninety minutes) with a second exposure after a month's interval. All his other patients succumbed sooner or later to metastases probably already installed.

Ugeskrift for Læger, Copenhagen

May 15, 1919, 81, No. 20

*Gastric Achylia; Treatment with Hydrochloric Acid. V. Bie.—p. 825.

Gastric Achylia; Treatment with Hydrochloric Acid.—Bie reports a case of gastric achylia with enteritis and anemia for many years, refractory to all treatment. The patient was a physician of 34, and Bie treated him with hydrochloric acid in doses large enough to supply the proper proportion for normal digestion. He gave at first 1 c.c. in 250 c.c. water once a day, increasing this gradually to 5 c.c. in 250 c.c. water and keeping up this dose at intervals for nearly three months. The acid was administered through a stomach tube, 6 mm. in diameter. The effect on the enteritis was prompt and decisive, and by the fourth month the patient had recovered his strength and was able to resume his practice. There was no doubt that the cure of the enteritis and the anemia was the result of the hydrochloric acid treatment, administered in doses larger than are usually given. In conclusion, Bie remarks that the advantage of kefir treatment in pernicious anemia may be due to the lactic acid in it which supplies the lacking acid in the stomach to a certain extent. It might be feasible to give hydrochloric acid with it. This treatment is not suited, of course, for all cases of gastric achylia, just as kefir has not always a favorable action in pernicious anemia. It might be advisable to give it a trial at least in every case. He tabulates the dates of the treatment in his case. The hydrochloric acid was not given every day, only nine times in the first month and six times in the second month, the doses ranging from 1 to 8 c.c. of the acid in from 250 to 500 c.c. of water. The aim was to provide the acid in the same amount and fluid contents as in the natural reaction. The stomach secretes a 4 or 5 per thousand solution of the acid which corresponds to a dilution of the hydrochloric acid of the pharmacy of about 1 : 50. The acid was given fasting once a day.

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SPIRIT OF THE PHYSICIAN IN WAR AND PEACE*

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PITTSBURGH

Students of enterology today have behind them two decades of organized effort replete with valuable research and knowledge of disease in this line of medical and surgical endeavor; so that when our efforts were sufficiently recognized as a section in the greatest medical organization in the world, our programs and discussions reflected the wisdom of the departure.

Responsibility was no doubt keenly felt this year by officers of all the sections, since we were in the throes of war and not a few of our leaders were in commission to serve the nation. The programs, however, have proved our misgivings unfounded.

What a year this has been! A year of swift, startling, far-reaching changes; a year that brought the great war to a climax and then, with a sweep and a rush, to its close; a year when the cause of freedom and justice and humanity touched the lowest depths of doubt and reached the highest pitch of triumph; the most decisive and dramatic year in modern history. This year is a record of the life and work of this section during these critical twelve months. It shows how we have played our part; and we have a right to be thankful rather than ashamed, as we look over the record. This section could have a service flag that would stand for real service. Our men have been in the fighting line and in the base hospitals. We can point with pride to Harris, Hirschman, Pilcher, Hanes, Graham, Lyon, Lynch and others who have served the nation with devotion. We welcome your return. Those of us who have remained at home have steadily served the same great cause. Our regular work has been maintained, substantially unimpaired, often at the cost of greatly increased labor on the part of a depleted corps of workers. It has been a year of good service and hard work, richly worth while. Of our section it may be said, "Their line has gone out through all the earth." This being a victory year, your chairman thought it appropriate to speak briefly of our profession in war and peace.

HEROISM OF PHYSICIANS IN WAR

Accustomed to service in civil life, the physician, with little or no persuasion, enlisted in the war activities of the nation enthusiastically and with the sacrificial spirit. He frequently sacrificed the large emoluments of civil practice and position for the modest compensation offered by the government, eschewing all thought of rank as a reward, but with an altruism imbued with the idea of doing his bit to make the world a decent place in which to live. He accepted the challenge of war. Thus, the war emphasized in the physician anew the spirit of sympathy and courage.

Having made the initial sacrifice of leaving home and practice, he is preeminently fitted to sympathize with and relieve the suffering of the nation's defenders. We read of the rare courage frequently evinced by the army surgeon, under clandestine attack, while performing his duty, not only in the advanced stations but also in the base hospitals. Forgetful of self, his high purpose to relieve the stricken soldier was executed with a will that neutralized a sense of danger, and led him into the conflict with a heroism well nigh transcendental.

But war and the excitement of battle give immunity from much pain, because one is buoyed by the glamour and the excitement of conflict coupled with the supreme thought of doing something worth while for humanity. This state of mind is the basis of true heroism, and is shared alike by the physician and the soldier; besides, their relations as medical officer and patient melt in the crucible of sympathy, merging into the higher relationship of brotherhood. As our illustrious President has said on occasion:

> The sympathy that has the slightest touch of condescension in it has no touch of helpfulness about it. If you are aware of stooping to help a man, you cannot help him. You must realize that he stands on the same earth with yourself and has a heart like your own, and that you are helping him, standing on that common level and using that common impulse of humanity.

The men on this program who have served the colors are able to relate first-hand experiences that are thrilling, for they have been in contact with the ebbing lives of thousands who made the supreme sacrifice; yet the service in ministrations of surgical relief does not attract the crowds, or win their acclamations in the same degree that they are vouchsafed to the commanding general, whose business is to kill. The physician is not a killer, but a saver of life. The altruism of the age is well illustrated in the physician in civil life and in times of peace. The doctrine of service never was better exemplified in the world than by the medical profession today. Why are physicians not as enthusiastically received as would be as many military captains of high renown? Simply because the idea of service is not yet comprehended; simply because the older trade of taking life still holds more glamour than the newer one of saving life.

Physicians are not inferior in heroism, personally or as a class, to the soldiers of the world. They take more chances in their everyday practice than ever a general officer of an army encounters. The sacrifice of life and health made by the modern physician, in his work for humanity, are not less real, only less dramatic, than the sacrifice in war.

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* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

General Pershing said of the physicians in the army:

> Many of them have shared with the line troops the hardships of campaign conditions, and have sustained casualties and privations with fortitude that is beyond praise. No labor has been too exhausting and no danger too great to prevent their full discharge of duty.

REWARDS IN THE SERVICE

The physician will come into his own. His heroism will get its reward, for, in the final test, men will give all they have for health. The most remarkable developments of medicine and surgery are sealed books to the public. They are not translatable into the vernacular. But more remarkable still than all the improvements in surgery, the roentgen ray, and all the germ-fighting discoveries, is this vastly greater and more comforting discovery of the spirit of service in the profession itself.

Not all physicians accepted in the service received the same rank (it was impossible that they should), nor was the distinguished service cross pinned to every breast that deserved one. Some may have received them without having fully earned them. But, be that as it may, every medical officer deserving special distinction will be rewarded by his inner consciousness of having given the best that was in him for his country. The great mobilization of the times graciously included in its plan a neatly executed certificate for those of us who were just as patriotic, but who were unfortunately born too early to meet the age requirements.

PROGRESS THROUGH RESEARCH

To approach the highest efficiency in his ministrations in war and peace, the physician must have the spirit of research.

Knowledge and skill are needed in addition to sympathy and sacrifice. Not content with his attainments in civil practice, he willingly doffed civilian garb and donned the military, to become a part of the organized and disciplined bodies and souls of men whose achievements are objects of the nation's acclamation.

The physician who is wholly bound by tradition is a failure. His profession requires the open-minded, inquiring and adventurous spirit which makes for progress. With these facts in view, thousands of the guild, regardless of position or attainment in civil life, assumed the rôle of pupils and sat at the feet of instructors chosen by the government to direct their energies in military channels. The procedure was not easy either for the government or for the new medical officer, since it involved the law of selection as to the adaptability and the fitness of the applicant for new and responsible duties. The results reflected the wisdom of the authorities who established the training camps for the army surgeon in the making.

The camp was in effect a postgraduate school, wherein the physician was standardized both mentally and physically and in the art of medicine and surgery. He was given a new vision and enthusiasm. He was drilled in surgical technic to the minutest detail. He was taught to command, to know his place, and to have proper respect for authority, as well as to command respect for himself.

Fortunate is he whose personality passed through this ordeal, for it has evolved the new physician, better equipped for the era of peace now dawning. He has emerged with higher attainments and greater experience than he could ever have enjoyed otherwise, which fit him for leadership in medical thought and practice. He will reflect the new standards in peace times that will inure to the advantage of the men who remained at home, as well as of the general public. But we must not be satisfied, on the other hand, to linger with these achievements, but must use them as stepping stones toward a higher goal; for "Art is long, time fleeting, and judgment difficult."

Modern medicine has evolved from an art of observation and empiricism, approaching an applied science based on research, divorcing itself from the cobwebs of tradition and sagacity and substituting therefor analysis and law.

THE SPIRITUAL ELEMENT IN TREATMENT

Proficiency in the physician requires development in the direction of spirituality.

It is not enough to make research into the material factors in recovery. There is a curative force which is moral and spiritual, an intimation of which is seen in the cult of Aesculapius, of whom the gods were jealous because of his acquirements in the use of hidden forces in the healing art, a rediscovered truth in modern days.

Medical science should not become wholly materialistic, since our knowledge is applied to a composite entity which is moral and spiritual as well as physical. Nor is it well to divorce these higher forces from the physical.

The good physician sets in motion the obscure and subtle forces which play on the sensibilities of the patient. He himself radiates health of body and of mind, and cooperates with the experts in the realm of the spirit.

CONCLUSION

The battle with the sword has been fought. Peace once more hovers over the earth. Nations again will direct their energies in the channels of trade, arts and science, and industrial life. The lessons of cooperation learned in war will be projected into civil life, ushering nations and individuals into a new era fraught with new problems and new relationships.

The spirit of the physician in this new age must be alert and able to interpret the stately steppings of progress, in order that his guild may keep abreast of the times with the other lines of activity. We must meet the challenge of peace as well as that of war.

901 Bessemer Building.

Is Your Community Fit?—Do you know how many of the registrants from your community were rejected by the medical examining boards as unfit for military duty on account of tuberculosis? Has a campaign for the relief and prevention of tuberculosis been organized? If not, as a minimum requirement, provision should be made for the proper reporting of all cases of tuberculosis and for health instruction of families and patients, especially in families where there is a patient with advanced disease. Where the patient requires hospital care, is provision made for such care, either through city institutions or by arrangement for bed space in state or district tuberculosis hospitals? It is highly desirable to provide special clinics for the diagnosis and care of cases of tuberculosis before the disease has progressed too far.—*Pub. Health Rep.*, April 25, 1919.

THE TREATMENT OF GAS BACILLUS INFECTION *

FREDERICK T. VAN BEUREN, Jr., M.D.
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Statistics in regard to gas bacillus infection are relatively rare. It has been possible to gather only a few, yet those few seem to reveal that both its morbidity and mortality lessened very appreciably in the latter years of the great war. I dare only say "seem to reveal," for the reports are both fragmentary and occasionally contradictory. I have selected the following as those most fairly comparable regarding morbidity, mutilation and mortality.

MORBIDITY

Early in 1916, Gross[1] had 2,796 wounded men pass through his ambulance, of whom 101 (3.6 per cent.) developed gas gangrene. In late 1916 the same man treated 1,676 wounded men,[2] thirty-three of whom (1.9 per cent.) developed gas gangrene. In October, 1918, Sieur and Mercier[3] reported that fewer than 0.5 per cent. of the wounded developed gas gangrene in the advanced and intermediate zone.

MORTALITY

Lardennois,[4] in 1916, reported 500 cases of gas bacillus infection with 15 per cent. mortality; and Ivens,[5] in 1917, 460 cases with 9.5 per cent. mortality.

Regarding definite gas gangrene, as distinguished from gas bacillus infection in general, Gross, in 1916, listed 101 cases with 56.5 per cent. mortality, while Ivens, in 1917, reported 107 cases with a mortality of 26.4 per cent. It must be emphasized here, however, that of the cases reported by Gross, those which were treated within twelve hours after the wound was received had a mortality of only 10.9 per cent. This indicates more clearly than any description could the importance of early treatment.

MUTILATIONS AND MORTALITY

In 1916, Gross reported seventy-two amputations (71.3 per cent.) among his 101 cases of gas gangrene, with a mortality of 52.7 per cent. following amputation, while, in 1917, Ivens reported sixty-five amputations (60.7 per cent.) among his 107 cases, with a mortality of 26.2 per cent.

Is it fair to bellieve, then, that even before serotherapy was added to operation, some improvement had been shown in the results obtained by surgical treatment? I think that perhaps it is.

Let us now examine the later reports, made after the serologic work of Leclainche and Vallée,[6] Sacquépée,[7] Weinberg,[8] Bull and Pritchett[9] and others had begun to be applied in war wounds infected with the gas bacillus. Again the reports are comparatively few, and generally of a small series of cases. In 1917, Duval and Vaucher[10] reported fifty instances in which a combination antiperfringens, antiedematiens and antivibrion septique serum prepared by Weinberg and Séguin, was injected prophylactically.

In none of the patients did gas gangrene develop, although all were of the most severely wounded type. Twenty-five died as a result of severe multiple wounds without any signs or symptoms of gas bacillus infection.

In 1918, the same authors[11] reported 281 cases in which severely wounded patients were injected with serum from the Pasteur Institute, a pooled serum of antiperfringens, antiedematiens, and antivibrion septique. Eighteen cases of gas gangrene developed (6.4 per cent.), resulting in ten deaths, so that the mortality rate of 3.5 per cent. thus established, after prophylactic injection, was lower than that which these authors call the usual mortality rate from gas gangrene (16 per cent.) among those severely wounded.

Mairesse and Regnier,[12] in the same year, reported that of 1,016 wounded men examined bacteriologically, 297 showed gas bacillus infection. These were given prophylactic injections of antigangrenous serum, either antiperfringens, antivibrion septique or antiedematiens, as required by the bacteriologic report. In thirty instances, 10 per cent. of the cases, gas gangrene developed.

As regards mutilation, Ivens,[13] in October, 1918, using the triple serum of Weinberg and Séguin reported 222 cases in which use was made of the prophylactic injection, and among which no deaths resulted from gas gangrene, and fourteen amputations for gas gangrene without a fatality. In 154 other instances he gave a prophylactic injection of the Leclainche and Vallée polyvalent serum. There were fifteen cases of amputation for gas gangrene among these. Four patients died, a mortality of 26.6 per cent. In fifty-seven other cases, injections of both Weinberg and Séguin's and Leclainche and Vallée's serum were given. In ten of these, gas bacillus infection was already evident; but in the whole series of fifty-seven there were only two deaths (3.5 per cent. of the whole number, or 20 per cent. of those with evident infection at the time of injection).

Marquis and others,[14] in 1918, reported fifteen cases in which prophylactic injections were employed, and in none of which did gas gangrene develop.

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* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Gross, G.: Gaseous Gangrene: Statistical Documents, Bull. de l'Acad. de méd. **76:** 586 (Dec. 26) 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

2. Gross, G.: One Hundred and Thirty-Four Cases of Gas Gangrene, Bull. et mém. Soc. de chir. de Paris **43:** 636, 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (Sept.) 1917.

3. Sieur and Mercier: Gas Gangrene in 1918, Bull. de l'Acad. de méd. **80:** 394 (Oct. 29) 1918; abstr. J. A. M. A. **71:** 2181 (Dec. 28) 1918.

4. Lardennois and Baumel: The Malignant Infections of War Wounds by Anaerobic Microbes, Presse méd. **24:** 506 (Nov. 16) 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

5. Ivens: A Clinical Study of Anaerobic Wound Infection: An Analysis of One Hundred and Seven Cases of Gas Gangrene, Med. Press. & Circ. **103:** 12, 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

6. Leclainche and Vallée: Specific Serum Treatment of Wounds, Bull. et mém. Soc. de chir. de Par., **42:**1804, 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (Jan.) 1917.

7. Sacquépée, E.: Researches on Gaseous Gangrene of War Wounds, Presse méd. **26:** 197, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **27:** 315 (Oct.) 1918.

8. Weinberg: Bacteriological and Experimental Researches on Gas Gangrene, Proc. Roy. Soc. Med. **9:** 119, 1916; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (June) 1917.

9. Bull and Pritchett: Toxin and Antitoxin of and Protective Inoculation Against B. Welchii., J. Exper. Med. **26:** 119 (July) 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (Nov.) 1917.

10. Duval and Vaucher: Antitoxic Serum for Gas Gangrene, J. A. M. A. **71:** 991 (Sept. 21) 1918.

11. Duval and Vaucher: First Results of Systematic Trials of Antigangrenous Preventive Serotherapy, Bull. et mém. Soc. de chir. de Paris **44:** 1535, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28:** 326 (April) 1919.

12. Mairesse and Regnier: Serotherapy of Gangrene in War Wounds, Presse méd. **26:** 461, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28:** 152 (Feb.) 1919.

13. Ivens, F.: Preventive and Curative Treatment of Gas Gangrene by Mixed Serums, Brit. M. J. **2:** 425 (Oct. 19) 1918; abstr. J. A. M. A. **71:** 1861 (Nov. 30) 1918.

14. Marquis and others: Antigangrenous Serotherapy by the Injection of Antibellonensis and Antivibrion Septique Serums, Bull. et mém. Soc. de chir. de Paris **44:** 1522, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28:** 325 (April) 1919.

Referring to mortality, Duval and Vaucher,[11] in 1918, reported seventy-seven cases of gas gangrene in which the patients were given curative injections. Sixteen died (20.7 per cent.). There were only eight amputations in this series, with no resulting deaths. Marquis and others,[14] in the same year, reported ten cases of gas gangrene in which curative injections were used. Two patients, whose second dose had been delayed, died, a mortality of 20 per cent.

Rouvillois, Guillaume, Louis, Pedeprade and Thibierge,[15] late in 1918, reported twenty-five cases in which curative injections were employed. Six patients, of whom three were already moribund, died, so that the mortality was from 12 to 24 per cent., according as one views it.

Mairesse and Regnier,[12] in the same year, gave curative injections in thirty cases, with a mortality of 16.6 per cent. If we compare the lowest mortality from gas gangrene treated by operation alone (23.4 per cent.) with the average mortality of cases treated by operation plus serotherapy (18.3 per cent. of a total 142 cases given curative injections) we find the latter to be somewhat lower.

CAUSES OF LATER IMPROVEMENT

There are a number of factors which may be responsible for the lower incidence of, and lessened mortality from, gas bacillus infection in the latter part of the war. For example, the ground on and in which the soldiers fought had not received its annual bath of manure for some time. Then, too, the weather was far less severe in 1918 than in the preceding year. Doubtless, also, the camp, field and trench hygiene was better regulated, and facilities for bodily cleanliness and garment renovation had been widened. But of all activities the bettered effectiveness of which increased the wounded man's chance of recovery, rapid transportation holds, perhaps, the premier place. So startling is the difference between the mortality percentage of those men operated on early and those operated on late, that I think we can agree to give rapid transportation of the wounded soldier to the hospital, where he can properly be operated on, an important place under the broad heading of the treatment of gas bacillus infection.

Earlier diagnosis of cases developed in the hospitals came with greater experience in the symptoms of the disease, and brought with it earlier operation and improvement in the operative results. Better fixation of fractures, especially lower extremity fractures, lessened the laceration of tissue and, consequently, the susceptibility to infection. Experience taught that the prolonged application of tourniquets was dangerous, and greater precautions were taken in their sometimes necessary use. Clothing fragments and rough missiles came to be recognized as the infection carriers, and an attempt at their careful removal became routine practice.

It is easy now, in the light of four years experience, to give a moderately adequate reply to the primary question, "What have we here to treat?" But, in the early part of the war, there was a complete, though a natural, ignorance, as a consequence of inexperience, that required time to be supplanted by education. Surgeons began by simple incisions and drainage. They tried out many more or less fantastic methods that the active imaginations of certain praiseworthy enthusiasts had advocated, and arrived with rather creditable rapidity, I think, at the fairly standardized procedure which obtained later on among those who had been well taught. But, as inexperience must still exist today among many who had not the good fortune to participate in the overseas surgery, let us answer our own question and, in the answer, find the modern treatment of gas bacillus infection.

PROBLEMS OF THE PATIENT AND THE INFECTION

We have, then, the problems of the patient, of his environment and of his infection to consider. I will dodge the question of environment by reiterating the importance of such predisposing factors as bad weather, contaminated soil, dirty skin and clothing, poor sanitation, rough missiles, and prolonged exposure before, and slow transportation after, wounding, a few of which are partially under practical human control. As for the patient, his general and local conditions are, of course, interdependent, but for the sake of clearness must be considered separately. He is often in a condition of shock, more or less profound. He may have been partially starved or dehydrated, as well as chilled and severely bled. If his infection has already developed, he is suffering from toxemia and acidemia. He is like a man on a balanced plank, with one end over a bottomless abyss. Remove some of the weight at his end of it, and he walks to safety; add to it, and he slips off, irrecoverably lost. No one but God or experience can give the good judgment required of a surgeon in deciding what and how much operative interference such a patient will stand, and when he will stand it best. The instructed shock team man will tell you that there is a peak in the curve of many a doubtful case at or near which whatever operation is to be made ought to be performed. Nothing takes the place of operation in this disease-injury complex, and it is probable that nothing ever will. For we have to meet not only the toxemia, which may be combated by serum, and the acidemia, which is correctable by alkalization, but the local condition as well, a condition of wide tissue destruction and rapidly spreading infectious process.

Gas bacillus infection can, of course, occur in any wound; but it is almost invariably in severe wounds that it does occur, and particularly in those of the lower extremity, associated with fracture, vascular injury and muscle damage. Such a wound is always far larger beneath than in the skin, and of surprising irregularity. Its depths hide one or more rough missiles and bits of clothing or equipment. Its crevices are filled with blood clots, large and small, and it is walled by muscle, fascia and aponeurosis, shockingly torn, contused and loaded with indriven fragments of comminuted bone and with extravasated blood.

The regional blood supply is locally or massively interfered with by pressure obliteration, or by tearing of the vessels with thrombosis.

Even if it is sterile, such a wound presents many dangers and difficulties. But added to devitalized tissue and blood clot we have infection, usually with a varied flora, particularly the gasogenic, saphrophytic anaerobes. No matter what variety of anaerobic saphrophyte it may be, here we have all the conditions necessary for its rapid and successful growth: warmth, moisture, darkness, abundance of suitable nourishment, and a minimum of oxygen admissible from air or blood supply. It is no wonder that the gas infection runs up within a damaged muscle sheath like flame up a flue, and follows the vessel sheaths and blood-filled intermuscular spaces as a river follows its banks.

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[15] Rouvillois, Guillaume, Louis, Pedeprade and Thibierge: Treatment of Gaseous Gangrene by Antigangrenous Serums, Bull. et mém. Soc. de chir. de Paris 44: 1226, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. 28: 65 (Jan.) 1919.

TREATMENT

Once the general and local condition of the patient is well understood, the principles of the treatment inevitably suggest themselves: shock treatment by heat; detoxication by serum; alkalization by intravenous injection of sodium bicarbonate; removal of all dead tissue, infectious agents and foreign bodies by operation; and assurance against further tissue injury or infection by splints, dressings and Carrel treatment. But while these principles are sufficiently simple, the method and the extent of their application in the individual case are to be weighed always in the judgment of the individual operator; and only general rules for operation can be given.

1. Operate as early as possible.
2. Use nitrous oxid-oxygen anesthesia if possible.
3. Prepare the part with the minimum amount of delay and trauma.
4. Avoid tourniquets.
5. Make incisions longitudinally and half again as long as you think they need be, both in skin and fascia.
6. Leave as much skin as you dare, in your débridement.
7. Go between, rather than through, normal muscles, and do not cut across them unless you have to (better a long separation between two than a short cut across one).
8. But open the wound as thoroughly and freely as you possibly can.
9. Excise all torn, crushed, discolored, noncontractile muscle, until you have left only that which is firm, of normal color, actively contractile, and which bleeds readily.
10. Make a careful and conscientious search for and remove all loose bone and foreign bodies, especially clothing and blood clots.
11. Stop the bleeding; leave the wound wide open, and separate its walls with wet gauze, *laid* in, not *packed* in.
12. Use Carrel tubes, if you know they will be properly cared for. Otherwise omit them.
13. Use plenty of dressings and make careful splint fixation of the part.
14. Do it all as rapidly as you possibly can.

These, in substance, were the instructions given us when we started in, back of the Château Thierry business, last July, and I have found little to add to them from the literature. One may excise a part or the whole of a muscle, or of a group of muscles, or one may have to amputate; but the principle remains the same and the limitation of its application continues always a matter for one's own judgment.

Carrell-Dakin instillation is very generally agreed on as the best postoperative local accessory, when properly used. Wright's hypertonic salt and other solutions have been proved less successful. Nacciarone's[16] multiple deep incisions with iodin irrigation would have to be seen to be judged fairly. I confess that the abstracted reports of it do not impress me as convincing.

SEROTHERAPY

Serotherapy remains to be considered, and in that I have had no personal experience, as we had no antigas serum in any of the seven different advanced hospitals to which our team was assigned. Every one, however, who has been interested in this subject has heard or read of the serum work of Leclainche and Vallée,[6] Weinberg, Sacquépée,[7] and Bull and Pritchett.[9]

In a general way, it may be said that while serotherapy promises much for the future, it has not had much opportunity for performance in the past; or, if it has had, the reports are not yet available. A brief search of the recent literature netted a few reports, some of which I have already quoted; but the reports of the large series of cases in which serotherapy was tried out by the British last spring, and that of the smaller series in which it was tried by the Americans last autumn, I have been unable to secure, and can submit only a general brief of them as given me in a personal communication from Lieut.-Col. William Elser of our Medical Corps.

In the spring of 1918, the British made a considerable test of serotherapy, using a weak, polyvalent serum containing antitoxin against *B. welchii, B. edematiens, Vibrion septique* and *B. tetani.* Prophylactic doses were given to 15,000 soldiers; 15,000 controls were selected, and records were kept of those developing gas gangrene in both groups. Week by week, as the reports came in, it appeared for some time as if a success were to be scored for serotherapy. But, when all the reports were in, both those of the controls and those of the group given prophylactic treatment, a careful review showed that there was not sufficient difference in the incidence rate to warrant any definite declaration as to the protective value of the serum used. Apparently, however, the investigators were favorably impressed; for they laid the failure to secure positive results to the weakness of the serum that was then available.

Early in the spring of 1918, bacteriologists who had been working in France on the gas bacillus infection problem were sent back to the United States to start the manufacture, on a considerable scale, of antigangrenous serums. Several serums were planned, (1) an antiwelch, (2) an antiedematiens, (3) an antivibrion septique, and (4) a polyvalent combination against these three organisms. All were to be secured from animals immune to tetanus.

For several reasons the manufacture progressed slowly; but, in the fall of 1918, about 5,000 doses of serum reached the central laboratories of the American Expeditionary Forces, and preparations were made to test it in the wounded. Because conditions of weather and soil, the type of projectile and the elapsed time after wounding all act as modifying factors in the incidence of gas gangrene in wounds, controls were selected from the same groups of wounded (and on the same days) as those to whom the antiserum was administered. In all, about 2,500 were treated and 2,500 controls selected in October, 1918. It must be remembered that the injections, to be administered early, had to be given as near the front as possible, sometimes under fire, and that intravenous administration was out of the question. They were, therefore, injected into the deep muscles, if possible, or subcutaneously; and, when time and place permitted, into the region of the principal wound. On the whole, the results were encouraging, and it is believed that if the armistice had not interrupted the progress of the test, a very favorable report might finally have been rendered, which would have dictated the employment, as a routine measure, of the antigas serum in that great spring drive of 1919 for which our armies were then preparing.

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[16] Nacciarone, A.: Gas Gangrene and Phlegmons, Riforma med. 33:772 (July 21) 1917; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. 69:1119 (Sept. 29) 1917.

Dr. Elser advises the following routine for the serum treatment:

1. A prophylactic dose of polyvalent serum, given as early as possible after the receipt of the wound, combined with tetanus antitoxin.
2. Bacteriologic examination of the wound and establishment of the presence of gas bacillus infection and determination of the variety of the bacteria. The determination can be made in about twenty-four hours.
3. Administration of specific serum, either single or polyvalent or "pooled," according as there are one or more gas formers found and also antistreptococcus serum.

It is emphasized that serotherapy is entirely auxiliary and in no way replaces operative treatment of the wounds. Quénu, for example, in advocating the use of Leclainche and Vallée polyvalent serum, declares that "the mechanical early and complete clearance of the wound is essential to success;" while Rouvillois and others,[15] using antivibrion septique and antibellonensis serum, "practice the surgical technic exactly as if there were no question of serotherapy." And Marquis[14] concludes that, "although curative serotherapy assures recovery in the great majority of cases, it is only an aid to the necessary surgery."

In November, 1917, the third Interallied Surgical Congress for the Study of War Wounds[17] reported that antiperfringens serum seemed to have given favorable results as a preventive injection, and that the antivibrion septique and antiedematiens serum had given very appreciable results, both from a preventive and a curative standpoint. In November, 1918, the same conservative body announced[18] that preventive serotherapy in the French Army had reduced the frequency of gas gangrene, and that curative serotherapy had given equally encouraging results. But they added that these should never be regarded as more than an adjuvant to surgery which, as they put it, "is still indicated and in no way modified". The specificity of antibodies, of course, complicates the problem. It is like a lock which can be opened only by one key, and consequently the administration of the serum in its preventive and its curative uses must be governed accordingly. Since any of the three common organisms, *B. perfringens, Vibrion septique,* or *B. edematiens,* may be the infecting agent, a polyvalent or pooled serum must be used preventively, unless early bacteriologic examination has identified the bacteria present. But, in curative therapy, on the other hand, in which there is always time for the identification of the infecting agent, the specific antiserum or antiserums are preferably employed.

The various reports generally agree that intravenous injection (while not always possible) is to be preferred, in combination with deep muscular injection, proximal to, but in the vicinity of, the wound. Ivens[13] diluted the serum and gave it subcutaneously for fear of the so-called "anaphylactic shock." But, as comparatively few instances of this have been observed to occur, the later practice tends to concentrated serum and larger doses. Sacquépée[19] used from 40 to 80 c.c. of each serum (antivibrion septique and antibellonensis), injecting half into the muscles near the wound and half subcutaneously, at a distance from it, in preventive therapy; and repeated the administration after twelve hours. For curative purposes, he used (in the edematous form) 80 c.c. of antibellonensis (half subcutaneously and half intravenously) and 20 c.c. of antivibrion septique, subcutaneously, the injection repeated in from four to six hours, and again in from sixteen to twenty hours. In the gaseous form of the disease he used from 30 to 50 c.c. of each serum, half intravenously and half subcutaneously.

Duval and Vaucher[10] gave a preventive injection of from 30 to 100 c.c. of triple or pooled serums, prepared by Weinberg and Séguin, injecting it as early as possible (within six hours of wounding) into the muscles above the wound, and advised its administration at the triage.

Ivens,[13] in his most successful series, used an initial preventive dose of 10 c.c. Leclainche and Vallée polyvalent serum, with 30 c.c. of Weinberg and Séguin's triple mixed serums, and followed it up repeatedly if symptoms developed.

The Rouvillois group,[15] following Sacquépée, used the antivibrion and antibellonensis serums in doses a little smaller than Sacquépée and repeated them daily in toxic cases.

Mairesse and Regnier,[12] after establishing by bacteriologic examination the presence of *B. perfringens* in their wounded men, gave an immediate preventive injection of from 20 to 40 c.c. of antiperfringens serum. *Vibrion septique* or *B. edematiens* was found in the wounds of twenty-five of these men, as well as *B. perfringens.* From 10 to 20 c.c. of the proper antiserum as well as of the antiperfringens serum were given in these cases. Those whose wounds developed gas gangrene were given secondary doses of serum, varying from 80 to 100 c.c.

Marquis[14] gave a preventive injection, into the muscles, of antivibrion septique and antibellonensis (20 c.c. of each), if the time was within ten hours of wounding. Patients seen later received 40 c.c. of each. The larger doses were repeated, after twelve hours, in those cases which clinically appeared infected.

The curative doses he gave were intravenous, 60 c.c. of antibellonensis and 20 of antivibrion septique, repeated after six hours and again in twenty-four hours, followed by daily injections of 20 c.c.

The encouraging results of the later work incline one to feel that future improvement in the results of treatment for gas bacillus infection will rest on preventive and curative serotherapy, as well as on observance of the correct operative procedure and on earlier operation.

812 Park Avenue.

Personality of the Physician.—The personal character and habits of the physician are only second in importance to intellectual ability and professional training. The physician should be well mannered, discreet and of good repute; wise in judgment, temperate and self-controlled. Honorable in all his dealings, he should unite firmness with gentleness and should avoid luxury and display, frivolity and levity. He should not be greedy of gain, but should accommodate his fees to the circumstances of his patient, and, if necessary, render his services gratuitously. He should think more of his honor than of profit, and rather run the risk of incurring the ingratitude of a patient he has treated than add to the distress of a sick person by bargaining about fees during illness.—Tweedy, *Brit. M. J.* 2:598 (May 17), 1919.

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[17] Sacquépée, Wright and Fleming: Report of the Third Interallied Surgical Congress for the Study of War Wounds, Arch. de méd. et pharm. mil. **69:** 18 (Jan.-Feb.) 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. (July) 1918.

[18] Conclusions adopted in November, 1918, at the Fifth Interallied Surgical Conference for the Study of War Wounds, Arch. de méd. et pharm. mil. **70:** 705, 1918; abstr. Surg., Gynec. & Obst., Int. Abstr. Surg. **28:** 416 (May) 1919.

[19] Sacquépée, E.: Antitoxin Treatment of Gas Gangrene, Paris Letter, J. A. M. A. **70:** 554 (Feb. 23) 1918.

THE BASAL METABOLISM AND HYPERGLYCEMIC TESTS OF HYPERTHYROIDISM

WITH SPECIAL REFERENCE TO MILD AND LATENT CASES *

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A recent writer[1] has remarked that our position in the study of thyroid disease is about what it would be in regard to diabetes if we were without our laboratory data relative to the urine and the blood. It is well known[2] that in some very severe cases of thyrotoxicosis the thyroid gland is not definitely palpable, or at most not more so than in very many presumably healthy persons. This emphasizes the fundamental importance, if any emphasis were needed, of looking beyond the goiter for clinical data more distinctive and more strongly diagnostic than the clinical signs and symptoms usually present in thyroid intoxication.

Recent observations have confirmed the suspicion long entertained that other endocrine glands besides the thyroid play a more or less important rôle in exophthalmic goiter. This is especially true with reference to the thymus, the importance of which would almost seem to justify the term "thyroid-thymus syndrome" for this condition. Whether or not this term is too cumbersome, or possibly might too much exaggerate the relative importance of the thymus, it reflects a point of view which needs emphasis at the present time. For instance, Blackford and Freligh,[3] on the basis of seventy-four necropsies, conclude that an enlarged thymus is present in 100 per cent. of patients under 40 years of age, and in about 50 per cent. of those above 40, in whom the average weight of the thymus was 13 gm. Matti[4] says that the monopoly enjoyed by the thyroid in exophthalmic goiter is at an end. Halsted[5] on the basis of a very large experience concludes that the important rôle played by the thymus in exophthalmic goiter is demonstrated beyond question by animal experimentation, and especially by the cures resulting from primary thymectomy and also from secondary thymectomy following thyroidectomy which alone had been unsuccessful.

There are two pressing needs in the study of thyroid disease. The first of these is the differential diagnosis of the so-called borderline cases and the determination of the toxicity of an existing definite goiter. Practically all cases of thyroid disease belong to this group at the outset for a variable period, which may be very short or very long—may in fact be measured by days or by years. A group of more or less vague symptoms, which might be either constant or intermittent, and consisting for the most part of tachycardia, nervousness, and hyperidrosis, and a trifle later varying grades of debility and digestive disorders, and perhaps a little later still, mild, irregular febrile disturbances, formed the basis of the clinical diagnosis. These symptoms are, obviously, the expression of a toxemia with somewhat variable group reactions, and which may in many cases easily be due to any one of several different causes, and especially chronic infections.

The second pressing need is something besides the subjective sensations of the patient and the ordinary clinical manifestations, to enable us more accurately to measure the actual rise and fall of the thyrotoxic state, just as by the rise and fall of hyperglycemia and glycosuria in diabetes we follow the course of that disease. Owing to the neuropsychopathic character of so many of these thyrotoxic patients, it is essential that it should be objective in its nature. In my opinion the recent clinical application of the basal metabolism and alimentary hyperglycemia tests has very satisfactorily met these demands and marks an epoch in the study of hyperthyroidism.

BASAL METABOLISM

We will first consider the basal metabolism which is by far the more important of these two methods. By basal metabolism is meant that minimal quantity of metabolic change essential to the neuromuscular and secretory phenomena of what might be called the basal and necessarily continuous organic functions—respiration, circulation and secretion. Rest and food abstinence approximately eliminate all other metabolic activities. It has been well known since the classical work of Friedrich Müller[6] and Magnus-Levy,[7] about twenty-five years ago, that one of the most characteristic phenomena of hyperthyroidism was an increase in general metabolism, while hypothyroidism produced exactly the opposite result. This, of course, depends on the regulatory action of the thyroid secretion on metabolic processes, which apparently bear a direct relationship to each other. It is perfectly evident, therefore, that the optimum conditions of body function are dependent on a definite quantity of thyroid and synergistic secretions which can only vary within narrow limits without producing more or less serious disturbance.

Since that time a great deal of work has been done by various investigators in confirmation and elaboration of these facts. This work has for the most part been done in well-equipped hospitals and institutions with large and complicated apparatus requiring, for instance, the services of an expert gas analyst and, therefore, not at all practical for general clinical purposes. Taking advantage of the fact that heat production could be measured equally well if not more accurately by oxygen consumption alone than by direct calorimetry, Dr. F. G. Benedict[8] has devised a portable and comparatively inexpensive apparatus which can be operated in any small hospital or office by any one reasonably familiar with laboratory technic. The introduction of this apparatus, which can be placed in the corner of any convenient room, the only accessory being a couch, places the entire medical profes-

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[1] Du Bois, E. F.: Metabolism in Exophthalmic Goiter, Arch. Int. Med. **17**: 915 (June) 1916.

[2] McGarrison, Robert: The Thyroid Gland in Health and Disease, New York, William Wood & Co., 1917.

[3] Blackford, J. M., and Freligh, W. P.: The Thymus in Adults with Especial Reference to Goiter, Collected Papers of Mayo Clinic **8**: 507, 1916.

[4] Matti, H.: Die Beziehungen der Thymus zum Morbus Basedowii, Berl. klin. Wchnschr. **51**: 1365 (July 20) 1914, abstr. by J. A. M. A. **63**: 812 (Aug. 29) 1914.

[5] Halsted, W. S.: The Thymus in Exophthalmic Goiter, Bull. Johns Hopkins Hosp. **25**: 223, 1914.

[6] Müller, Friedrich: Beiträge zur Kenntniss der Basedowischen Krankheit, Deutsch. Arch. f. klin. Med. **51**: 335, 1893.

[7] Magnus-Levy: Gaswechsel bei Thyroidea, Berl. klin. Wchnschr., **32**: 650, 1895.

[8] Benedict, F. G.: A Portable Respiration Apparatus for Clinical Use, Boston M. and S. J. **178**: 667 (May 16) 1918.

sion under additional obligation to this distinguished investigator.[9]

The estimation of metabolism by measuring the units of heat production is made possible by the application of Rubner's law, that it is proportional to the body surface from which, with some exceptions, all heat not actually expended in energy production is radiated. The basis of this law is, of course, the universally accepted laws of the conservation and transmutation of energy and the radiation of heat. The chemical forces of the body, which represent the sum total of metabolism, are transmuted into heat, the excess of which over body requirements is radiated from the surface. The standard chosen is the number of calories per square meter of body surface per hour. The body surface is determined very simply by what is known as the "height-weight formula" based on two factors: namely, the height in centimeters and the weight in kilograms. By the use of the chart, plotted from this formula, as worked out by Du Bois,[10] and the two factors of weight and height, the body surface expressed in square meters is instantly read without any calculation whatever. In the determination of oxygen consumption the patient is made to fast overnight and then to lie on a couch for thirty minutes or more to get rid of the respirable products of all metabolism other than basal, resulting especially from the voluntary musculature. The patient breathes through the mouth-piece connected with the open air for a few minutes in order to establish quiet normal breathing, after which the breathing is in and out of a spirometer bell. The oxygen and nitrogen only are rebreathed, for the carbonic acid is entirely removed from the expired air by being passed through an absorbent (soda-lime). The scale on the side of the spirometer bell is read at the beginning of the observation and again at the end of whatever period is chosen (usually ten minutes), both observations being made at the same point of time; that is, at the end of expiration. Since the carbonic acid gas has disappeared and the nitrogen is not influenced, the difference in the readings on the spirometer scale accurately represent the amount of oxygen consumed. The volume of gas is then corrected for barometric pressure and thermometer readings in order to bring it to the standard of sea-level and zero centigrade. This corrected volume which is obtained by the use of logarithms, but which could undoubtedly be determined on the percentage basis with sufficient accuracy for all clinical purposes, is used as the basis of the indirect calorimetric calculation. Each liter of oxygen gas, with the above mentioned corrections, represents 4.825 calories of heat. From this the calories are calculated for one hour. By dividing the calories per hour by the body surface, determined as above indicated, we have the final result of calories per square meter per hour.

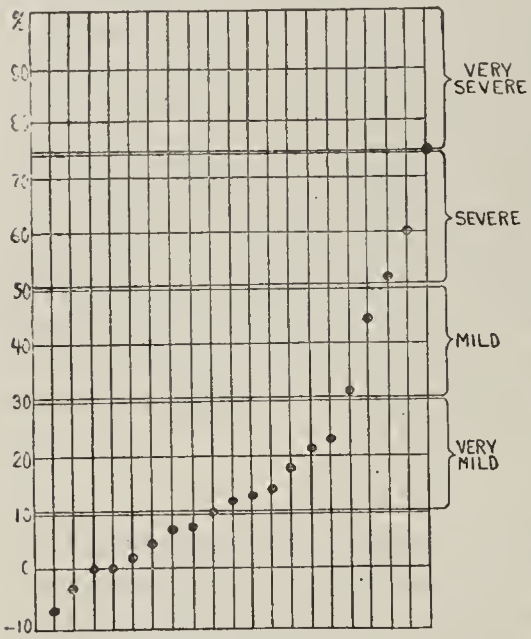

Chart 1.—Basal metabolism in actual and suspected hyperthyroidism.

The number of calories per square meter of body surface per hour varies normally with sex and age and perhaps other physiologic conditions. By the Du Bois or "height-weight" formula, the average figure for men is 39.7; for women, 36.9. In pathologic conditions and conspicuously in disturbances of thyroid secretion, these figures are subject to numerous variations. In hyperthyroidism the increase is striking; very mild cases, including the borderline group, and frank cases of thyrotoxicosis in the quiescent state, may show an increase up to 30 per cent.; mild cases, 30 to 50 per cent.; severe cases, 50 to 75 per cent., and very severe cases, 75 to 100 per cent. or more, following the classification of Du Bois excepting that the "mild" cases of Du Bois (below 50 per cent. increase of basal metabolisms) are subdivided into "mild" and "very mild" to correspond with his "severe" and "very severe" cases above 50 per cent. increase.

TABLE 1.—PARALLEL OBSERVATIONS ON BASAL METABOLISM AND BLOOD SUGAR IN ACTUAL AND SUSPECTED CASES OF HYPERTHYROIDISM

					Blood Sugar		
Case		Age	Calories per Sq. Meter per Hour	Percentage of Variation from Normal	Fasting	First. Hour	Second Hour
1. Mrs. M.	1263	60	35.2	— 4.6	0.125	0.140	0.119
2. Mr. S.	1775	44	37.9	— 4.5	0.089	0.105	0.093
3. Mrs. F.	1765	63	36.5	0			
4. Mrs. T.	1455½	38	37.2	0	0.770	0.090	0.136
5. Mr. S.	1747	38	40.7	+ 2.5	0.087	0.226	0.258
6. Miss J.	1776	24	39.0	+ 5.7	0.078	0.120	0.110
7. Miss K.	1727	27	39.9	+ 8.1	0.112	0.129	0.113
8. Mrs. R.	907	..	40.0	+ 8.4	0.089	0.139	0.113
9. Mr. R.	1778	33	43.7	+10.0			
10. Mr. S.	8	54	45.0	+13.3	0.090	0.150	0.121
11. Mrs. K.	1378	25	42.0	+13.8	0.071	0.072	0.092
12. Mrs. E.	1582	50	42.1	+14.0			
13. Mrs. E.	1740	34	43.7	+18.4	0.110	0.146	0.138
14. Mrs. Y.	1761	41	45.1	+22.2	0.084	0.194	0.072
15. Miss W.	1723	35	45.9	+24.4	0.094	0.233	0.161
16. Mrs. Y.	1700	43	48.3	+30.9	0.120	0.140	0.132
17. Mr. B.	1726	28	56.3	+41.9			
18. Mrs. C.	1708	32	55.9	+51.5	0.065	0.210	0.167
19. Mrs. H.	1752	35	59.0	+60.0	0.092	0.195	0.178
20. Mrs. B.	1549	29	64.8	+75.6	0.090	0.220	

Table 1 and Chart 1 illustrate the range of cases studied and give the general grouping of the cases. Perhaps the most important feature is the relatively large proportion of cases belonging to the mild and very mild or borderline group. As indicated above, the main purpose of this clinical study was the differential diagnosis and positive identification of the cases in this group, which frequently cannot be done by the ordinary clinical methods. There will be found, with some exceptions, a striking parallelism between the percentage increase of basal metabolism and the relative intensity of the thyrotoxicosis. This parallelism is so close that the percentage increase of the basal metabolism seems to serve as a reliable guide in the classification of the cases and an accurate measure of the fluctuations that may occur either spontaneously or as a result of treatment.

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[9] Dr. Janney of New York in his discussion of this paper raised a question which I overlooked in the closing discussion, and which I think deserves attention. He said that the metabolism observation even with the Benedict portable respiration apparatus was not easy. Certainly it is not easy. The greatest care and accuracy are required. For example, if the patient after resting half an hour should, without the knowledge of the clinician, arise from the couch and walk, say 20 feet, and close a window, it would raise basal metabolism about 15 per cent. If the metabolism observation was made after instead of before the 100 gm. of glucose, in the technic described in this paper, this would cause an increase of 5 per cent. The slightest error in measuring exactly the duration of the observation, or escape of air or oxygen around the mouth piece, would introduce substantial error. A failure to correct volume of oxygen to zero C. and sea-level barometric pressure, if such carelessness were conceivable, would make another increase of from 10 to 15 per cent. It will thus be readily seen that if careless or incompetent work should find its way into literature, under a mistaken impression of the simplicity of this procedure, it would be very deplorable.

[10] Du Bois, Delafield, and Du Bois, E. F.: A Formula to Estimate the Approximate Surface Area if Height and Weight Be Known, Arch. Int. Med. **17**: 863 (June) 1916.

In the study of basal metabolism it is important to remember that like all physiologic processes in either normal or pathologic conditions, it is subject to marked variations. This variation, however, offers no greater difficulties here than in other procedures, such as the tests for albuminuria, glycosuria, the Wassermann test, variations in temperature, etc. When properly correlated with the general clinical syndrome it may be regarded as one of the most reliable and scientifically accurate aids available in any field of diagnosis, and is of inestimable value not only in establishing the diagnosis but in studying the clinical course of this disease.

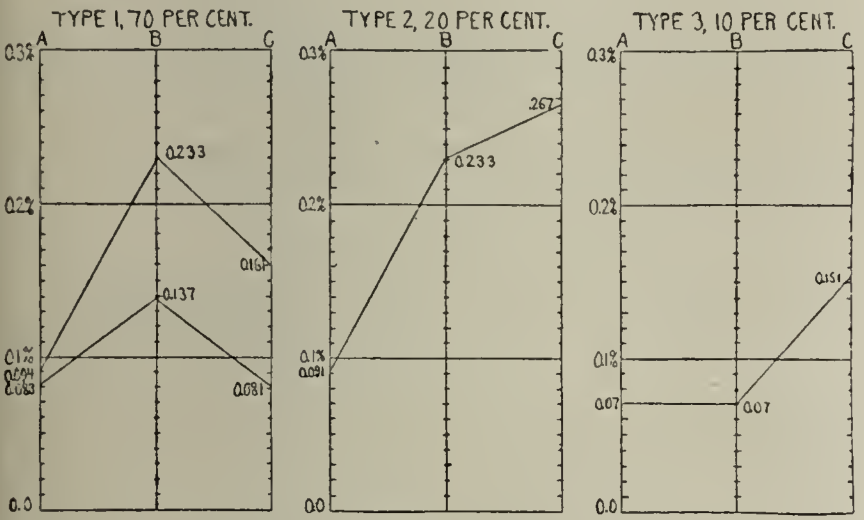

Chart 2.—Sample curves illustrating types of alimentary hyperglycemia in thirty-one cases of hyperthyroidism: *A*, blood sugar fasting; *B*, blood sugar one hour after 100 gm. of glucose; *C*, blood sugar two hours after 100 gm. of glucose.

ALIMENTARY HYPERGLYCEMIA

The occurrence of alimentary hyperglycemia in hyperthyroidism has been known since the work of Tachau[11] in 1911. At that time and until quite recently, the methods of blood analysis were too cumbersome for clinical use. The recent investigations of Lewis and Benedict,[12] Myers and Bailey,[13] and others, however, placed this work on an entirely different and clinically practical basis, and stimulated both experimental and clinical investigations along this line. With the aid of these very simple and accurate colorimetric methods the entire subject of blood sugar content has been worked over afresh within the last few years.

Living in a thyroid zone and confronted almost daily by the diagnostic difficulties above mentioned, I was attracted by the method described in the paper by Denis, Aub, and Minot.[14] This method seemed entirely practical. The test, as outlined by them, can be completed in a little more than two hours, or if immediately preceded by the basal metabolism observation, which is my method of choice, the entire procedure will require less than three hours, most of this time being spent in waiting.

The fasting blood is first taken; then the patient is given 100 gm. of glucose. In one hour a second blood specimen is taken, and in another hour a third, which by this technic completes the blood study. The urine also is examined at the end of the first and second hours, and may be examined for several hours longer, although the glycosuria is a question involving the renal glucose threshold rather than the thyroid question.

Under normal conditions, in the average person in the fasting state, 100 gm. of glucose does not produce a hyperglycemia lasting as long as one hour. At least, this was the result in fourteen of my own cases, and in sixteen of those recorded by Denis, Aub, and Minot.[14] Hamman and Hirschman,[15] however, obtained an alimentary hyperglycemia in normal persons following 100 gm. of glucose, the crest of the wave occurring in from twenty to forty minutes but still remaining to some extent at the end of one hour or longer. In view of these facts, it must be regarded as possible that a transient hyperglycemia occurred during the first hour in observations made according to the methods used in this paper, disappearing at the end of the first hour.

Whatever may be the fact in regard to normal persons, there seems to be no question that in hyperthyroidism after the ingestion of 100 gm. of glucose there is almost invariably a marked hyperglycemia, the crest of the wave occurring at the end of the first hour, or at least recognized then by this method, with a sharp fall in 70 per cent. of my cases by the end of the second hour. This curve was found in twenty-two of thirty-one cases (about 70 per cent.) of hyperthyroidism. In six cases (20 per cent.) the hyperglycemia continued to rise until the end of the second hour. In three cases only (or about 10 per cent.) the hyperglycemia did not occur until the end of the second hour. These curves are represented graphically in Chart 2, based on Tables 3 and 4. The delayed hyperglycemia shown by the curves represented in Types 2 and 3 is probably the result of retarded absorption due to gastro-intestinal conditions. It suggests the possibility of a belated hyperglycemia occurring in some of the cases in which it does not appear within the two hour period. This is apparently a valid criticism of this technic. My answer is that in the forty-five cases of actual or suspected hyperthyroidism forming the basis of this section of this paper, there were thirteen (Table 2) which did not show a hyperglycemia within two hours, and in none of these could the diagnosis of hyperthyroidism be established on other grounds, although two or three still look suspicious.

TABLE 2.—EVIDENCE OF NO HYPERGLYCEMIA IN NON-HYPERTHYROID CASES

Case		Fasting	After 100 Gm. Glucose		Remarks
			1st Hour	2d Hour	
Mr. F.	1655	0.065	0.080	0.107	
Mr. S.	1775	0.098	0.105	0.093	Doubtful
Miss A.	1175	0.125	0.100	0.100	
Mrs. H.	1386	0.096	0.094	0.095	
Miss M.	1627	0.095	0.090	0.100	
Mr. B.	1660	0.077	0.080	0.082	
Mr. S.	1711	0.065	0.065	0.060	
Mr. M.	1608	0.073	0.081	0.087	
Miss K.*	1727	0.112	0.129	0.113	
Mrs. A.	1751	0.089	0.097	0.091	
Miss R.	1707	0.090	0.091	0.088	
Mrs. M.*	1263	0.125	0.140	0.119	
Mrs. K.	1378	0.071	0.072	0.092	

* Cases 1263 and 1727 show an absolute hyperglycemia, but it will be noted that the fasting blood sugar is quite high, raising a question of an associated pathology.

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[11] Tachau: Deutsch. Archiv. f. klin. Med. **104**: 445, 1911.

[12] Lewis and Benedict: J. Biol. Chem. **20**: 61, 1915.

[13] Myers and Bailey: J. Biol. Chem. **24**: 147, 1916.

[14] Denis, W.; Aub, J. C., and Minot, A. S.: Blood Sugar in Hyperthyroidism, Arch. Int. Med. **20**: 964 (Dec.) 1917.

[15] Hamman, L., and Hirschman, I. I.: Studies on Blood Sugar, Arch. Int. Med. **20**: 761 (Nov.) 1917.

In practically every case in which the diagnosis of hyperthyroidism seemed to be reasonably well established on other grounds, including the basal metabolism observations, a definite hyperglycemia occurred not later than the second hour, and in 90 per cent. of the cases within the first hour. As a routine procedure, therefore, I believe that the two hour period is sufficient.

In doubtful cases, and especially when the determination of basal metabolism cannot be made, the alimentary hyperglycemia test, as above outlined, may prove to be of considerable value. Of course diabetes, alcoholism, etc.,[16] must be excluded.

SUMMARY

The differential diagnosis of many mild, atypical or very early cases of thyrotoxicosis by means of the ordinary clinical signs and symptoms can only be made with varying degrees of probability. The need is, therefore, very great for definite objective data, either decisive or very strongly corroborative, not only to determine diagnosis, but to estimate therapeutic results. The clinical application of basal metabolism and alimentary hyperglycemia satisfies these demands in a very scientific, practical and satisfactory manner.

Basal metabolism, or the metabolism of the fasting body in the resting state, can be quickly and accurately determined by measuring the oxygen consumption with the Benedict portable respiration apparatus. The average normal heat production, which is an accurate index of metabolism, is about 39.7 calories for men and 36.9 for women by the "height-weight" formula per square meter per hour under the conditions indicated. Physiologic variations of not more than 10 per cent., and nearly always much less than this, may occur in either direction.

TABLE 3.—EVIDENCE OF HYPERGLYCEMIA IN LATENT BUT SUSPECTED HYPERTHYROIDISM

Case		Fasting	After 100 Gm. Glucose		Remarks
			1st Hour	2d Hour	
Miss H.	766	0.086	0.190	0.118	
Miss S.	1602	0.075	0.190	0.210	
Miss H.	1654	0 070	0.140	0.128	
Mrs. F.	1616	0.070	0.140	0.140	
Mr. A.	1570	0.900	0.168	0.146	
Mrs. H.	1640	0.080	0.200	0.100	
Mr. W.	1641	.....	0.116	0.174	
Mrs. T.	1644	0.066	0.122	0.134	
Mr. B.	1664	0.091	0.233	0.267	Maximum increase
Mr. B.	1663	0.070	0.070	0.151	
Miss B.	1673	0.075	0.081	0.131	
Mrs. P.	1721	0.132	0.191	0.138	
Mrs. F.	1612	0.060	0.149	0.144	
Mr. B.	1724	0.096	0.200	0.175	
Mrs. G.	1699	0.099	0.138	0.088	
Mrs. S.	1733	0 083	0.137	0.081	
Mrs. Y.	1761	0.084	0.194	0.072	
Mrs. R.	907	0.089	0.139	0.113	
Mrs. T.	1455½	0.077	0.090	0.136	
Mr. S.	1747	0.087	0.226	0.258	
Mrs. F.	1740	0.110	0.146	0.138	Minimum increase, 33%

In hyperthyroidism there is an increase up to 100 per cent. or more, according to the severity of the intoxication, which varies in different cases, and in the same case at different times.

In hyperthyroidism there is a diminished tolerance of carbohydrates with alimentary hyperglycemia, and also with glycosuria whenever the hyperglycemia exceeds the renal glucose threshold of the individual case.

In every case of hyperthyroidism studied (thirty-one cases) the blood sugar content was increased within two hours from 50 to 200 per cent.

In 70 per cent. of thirty-one cases the maximal rise occurred at the end of the first hour, with a more or less sharp decline at the end of the second hour, proving that the crest had been reached and passed.

The very few cases in which hyperglycemia is highest at the second hour may be explained by gastric hypomotility and slow intestinal absorption.

TABLE 4.—EVIDENCE OF HYPERGLYCEMIA IN FRANK HYPERTHYROIDISM

Case		Fasting	After 100 Gm. Glucose		Remarks
			1st Hour	2d Hour	
Mr. C.	1649	0.060	0.128	0.080	
Mr. S.	1684	0.065	0.086	0.065	Postoperative
Mr. S.	8	0.090	0.150	0.121	
		0.078	0.176	0.113	
		0.090	0.220		
Mrs. B.	1549	0.054	0.180	0.076	Highest increase 233%
Mrs. G.	1597	0.090	0.126	0.129	Postoperative
			0.063	0.100	At end of rest treatment period
Miss C.	1708	0.065	0.210	0.167	
Mrs. L.	1719	0.083	0.157	0.135	
Miss W.	1723	0.148	0.203		
		0.094	0.233	0.161	
Miss H.	1752	0.092	0.195	0.178	
Miss J.	1776	0.078	0.120	0.110	
Mr. C.	1649	0.089	0.165	0.130	
		0.070	0.096	0.075	Postoperative
Mrs. G.	1597	0.054	0.180	0.076	

The failure of the hyperglycemia to rise proportionately to the increased metabolism and to bear any direct relationship to the intensity of the thyrotoxicosis suggests that it is an indirect phenomenon due perhaps to overexcitation of other organs, for example, the pancreas, which in exceptional cases fails to respond to the thyroid stimulation.

The application of these tests will probably reveal a much greater incidence of hyperthyroidism than has formerly been recognized, and will especially enable us to make a clear diagnosis between toxic and nontoxic goiters. While a final diagnosis is altogether a question of clinical judgment, and should not be made exclusively in the laboratory; and while neither increased metabolism nor alimentary hyperglycemia is pathognomonic of hyperthyroidism, yet, when rationally correlated with the remaining clinical data, they together make as clear-cut a diagnosis of hyperthyroidism as a positive Wassermann does of syphilis in a suspected case.

ABSTRACT OF DISCUSSION

Dr. John C. Hemmeter, Baltimore: It is a great pleasure to listen to a paper that aims to have physiologic facts for its foundations. Dr. McCaskey's aim is simply to afford a new and practical method of diagnosis in doubtful cases of diseases of the thyroid. He assumes that the processes of oxidation in hyperthyroidism are increased and that there is a hyperglycemia two hours after 100 gm. of glucose are injected into the circulation and that this hyperglycemia is pathognomonic. I have seen the apparatus Dr. McCaskey employed for the respiring of a measured amount of oxygen by a resting subject. I saw no means for the absorption of the humidity that the patient himself gives off to the expired air. It makes a good deal of difference in the carbon dioxid absorbed by lime and the patient's own humidity. If it increases that of the respired gas to 80 it will increase the percentage of blood sugar by 13 per cent. of the normal. I would suggest some provision to account for this change in the blood sugar due to the humidity gradually accumulating in the spirometer, i. e., if the expired air actually reenters the spirometer. I do not wish to go through all the arguments of sugar metabolism from Claude Bernard, Pavy and Otto Cohnheim and our own men down to Folin, Frederick M. Allen and others, but I hold that when you inject 100 gm. of sugar into an individual, a hyperglycemia two hours thereafter is physiologic. Therefore the method requires revision and further investigation. H. J. Hamburger (Groningen, Holland) in the most recent investigations which have come to me in the last ten days is opposed to this view of colloidal blood sugar. He says that all sugar when injected into the animals that have a separate circulation in the glomeruli from that of the renal tubules, as in the frog, behaves like sodium chlorid, and he gives further evidence that sugar exists in the blood just like sodium chlorid—not in combination. Postprandial hyperglycemia can be found in 90 per cent. of normal people. That there is an excess of blood sugar that can be caused by injecting 100 gm. of dextrose directly into the circulation can be ascertained by using several of the most modern methods for blood sugar determination. The whole matter has been gone over by McCleod in his recent book on biologic chemistry as applied to medicine. The excessive oxidation in hyperthyroidism appears to be well established by many biochemists. But in this very fact when associated with hyperglycemia we have a paradox and that paradox is one of the most puzzling things in medicine. Here we have a furnace that will burn anthracite coal and refuses to burn paper although you blow in pure oxygen. Of all the foods the carbohydrate molecule is the easiest to split up under above conditions, and the organization splits up the protein molecule, the most difficult, and even oxidizes the carbohydrate molecule moiety of the proteid molecule. It reminds one of a simile from a verse in the "Ancient Mariner"—"Water, water, every where, nor any drop to drink"—"Sugar, sugar every where, and not a milligram to oxidize."

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[16] In view of Pemberton's very valuable contribution made at this session, we must add arthritis to the list, and further studies may possibly add still more. The alimentary hyperglycemia test can only be regarded, then, as confirmatory, our main reliance being placed on basal metabolism.

Dr. Lewellys F. Barker, Baltimore: These two tests—that for measuring basal metabolism and that for measuring the glucose content of the blood—are certainly valuable tests in clinical diagnosis, especially for deciding upon the existence of what we call "overactivity of the thyroid gland." The methods, to the uninitiated, sound complex. They are, in reality, fairly easy to perform; and it is interesting that clinical men have devised simple modes of making measurements that formerly involved a very complicated technic. The basal metabolism is certainly increased in severe forms of exophthalmic goiter, and the sugar content of the blood, also, seems to be increased. Dr. Hemmeter has suggested that the existence of a hyperglycemia implies a state in which the body cannot split the carbohydrate molecule. May it not rather be simply that the sugar molecule, in some states at least, is mobilized more quickly than under normal conditions. For if the body, in the state under consideration, can split, as he says, the protein molecule and can burn the carbohydrate moiety of this protein molecule, why should it not be able, in the same state, to split the sugar molecule itself. The hyperglycemia might then be looked upon as the result, merely, of a sudden and rapid mobilization of sugar. Whether the increased basal metabolism and the hyperglycemia are due to the direct action of thyroid products, or are indirect results of thyroid activity, remains to be seen. We must think of the influence of the thyroid products on the cell metabolism all over the body, on the one hand; and, on the other, we must keep in mind the influence of the thyroid products on the activity of the other endocrine glands. I would mention one relationship, especially that of the thyroid to the suprarenal gland. Many of the phenomena that we speak of as hyperthyroidism may, in reality, be due to hypersuprarenalism, and it may be that some of our clinical tests for thyroid activity measure directly rather the suprarenal activity, and only indirectly the thyroid influence. I simply point out some of the difficulties, though I think that the tests are really valuable in internal medicine and I hope that they will be much more employed, and that we may come to some agreement as to what the results they yield may mean.

Dr. Nelson W. Janney, New York: With regard to the blood sugar tolerance test it has been the experience of myself and co-workers that by standardizing the technic it is possible to get more definite and accurate results than previously obtained. We now give, as already reported, 1.50 gm. sugar dissolved in 2.5 c.c. of water per kilogram of the patient's body weight, adding the juice of one lemon for flavoring. The fasting blood sugar value is obtained immediately before and one and two hours after taking the sugar lemonade. We thus find the normal blood sugar level to run from 0.12 to 0.14 per cent. without glycosuria. I wish to call attention to a very important point not yet presented in this discussion, namely a criticism of the value of the blood glucose tolerance test in diagnosis. Its value in this respect is problematical for myself and others have repeatedly observed abnormally high blood sugar curves in various conditions, i. e., pituitary disorders, Addison's disease, and other less clearly defined endocrinopathies. Unfortunately, therefore, this test, though frequently indicating an abnormal carbohydrate metabolism in hyperthyroidism, is by no means pathognomonic of that condition. We should, I feel, await with caution and patience more extended observations in this most interesting field.

Dr. George W. McCaskey, Fort Wayne, Ind.: In regard to Dr. Hemmeter's remarks, no matter whose figures he quotes, 0.3 per cent. as the normal blood sugar has certainly been discredited entirely. This figure was obtained by imperfect methods in use at that time. It has only been possible in the last few years by the use of the colorimeter to clinically determine the blood sugar content accurately. I believe we can do it now very closely. As to the factor of humidity in metabolism observations, I am not a physicist, but have made all the corrections indicated by Dr. Benedict. The fact that in forty-five consecutive cases the fasting blood sugar content is about what it ought to be, shows that there was no gross error, and even admitting any error, this error will be the same in both fasting and alimentary glycemic test, and that is all that is really necessary for the purposes of this clinical study, as it makes the comparative values reliable. Dr. Barker, I think, hit the nail on the head when he said that the hyperglycemia is not directly caused by the thyroid excess. I believe that the thyroid with other synergistic members of the endocrine system may modify other functions, such as the internal secretion of the pancreas, or the glycogenic or storage function of the liver, and in that way account for changes in blood sugar content. It is not simply a question of oxidation. It may be, among other things, mobilization, as Dr. Barker said. A failure on the part of the storage function of the liver or the voluntary musculature may account for the hyperglycemia. Dr. Jamey's criticism that a certain amount of glucose should be given per kilogram of body weight is well taken and is probably important. As a matter of fact, however, it did not seem to modify clinical results. Dr. Geyelin found glycosuria when the glucose intake exceeded 1.8 gm. per kilogram of body weight per hour. This is not a thyroid question at all, but a question of the renal glucose threshold, which Denis, Aub and Minot have established at about 0.17 or 0.18 per cent. blood sugar. Undoubtedly the scientific way to do this is to give a certain amount of sugar per kilogram of body weight, although in none of my thirteen normal cases did a hyperglycemia occur with a uniform intake of 100 gm. of glucose irrespective of body weight, unless the fasting blood sugar was already high. This is probably best accounted for by the enormous reserve function which apparently enables a patient weighing, say one hundred pounds, to promptly metabolize 100 gm. of glucose as readily as a patient weighing 150 pounds. It is perfectly obvious that if the glucose were increased, a point would be reached at which one patient could metabolize it and the other could not.

War Diet and Diabetes.—Bouchardat in France and Klemperer in Germany, reported at the time of the Franco-Prussian war in 1870, that under the dietetic restrictions entailed by the war, the course of diabetes was as a rule less severe. Elias and Singer have recently published similar observations. In the *Wiener klinische Wochenschrift* they state that classifying their cases by age and grade and comparing the course before and since the war began, demonstrate an unmistakably favorable influence from the war diet.

COMPATIBILITY OF LONG LIFE WITH LOW RENAL FUNCTION *

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It is customary to consider chronic nephritis as a steadily progressive, degenerative process. As a rule, we do not think of the possibility of a stay in its progress when the disease has reached an advanced stage. One would certainly predict in such a case that the duration of life, with renal function near zero, must be extremely short. And yet, at the Peter Bent Brigham Hospital we have observed several patients who have lived for three or four years with such a low renal function. I wish here to report two such cases.

In the time allotted, no complete study or detailed description of the cases is possible. In order to tell as much as possible I have tried to make the chart self-explanatory.

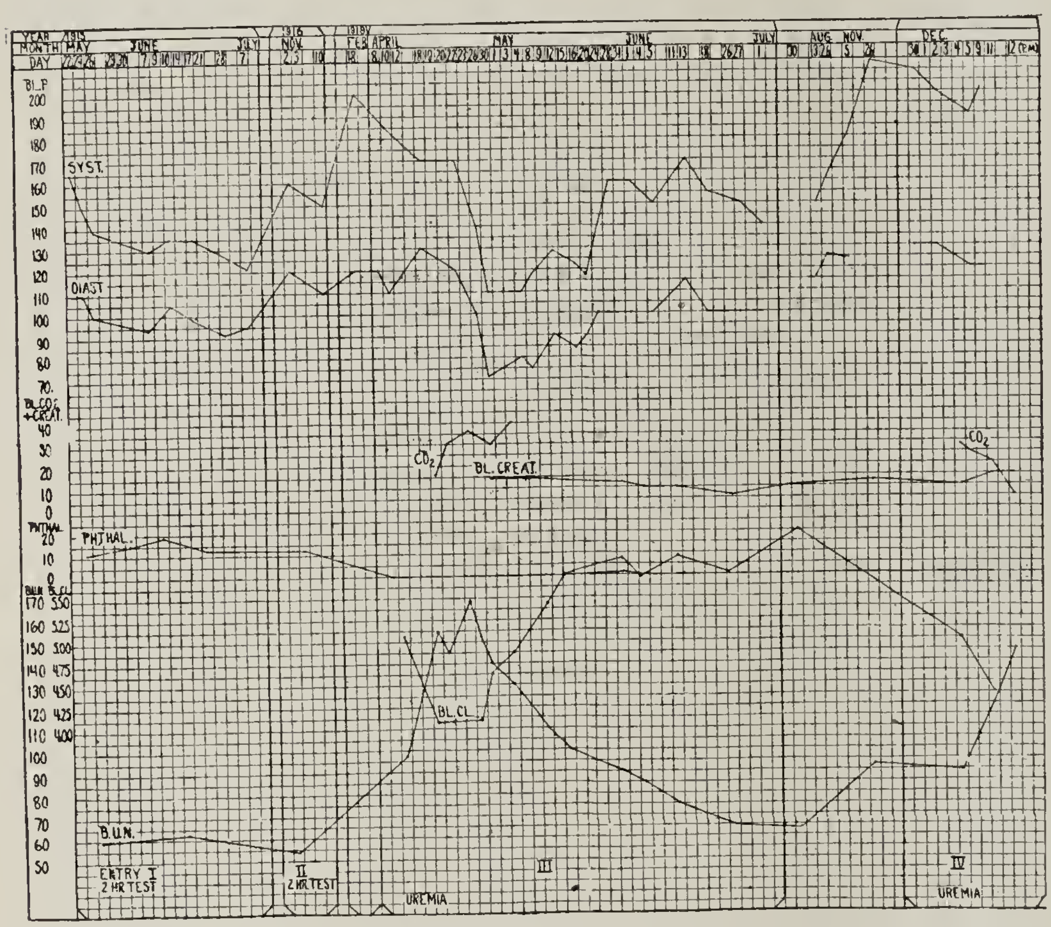

Chart 1.—Case 1: *Syst.*, systolic blood pressure; *Diast.*, diastolic blood pressure; CO_2, bicarbonate combining power of the plasma; *Bl. Creat.*, creatinin of the blood; *Phthal.*, phenolsulphonephthalein excretion; *N. P. N.*, nonprotein nitrogen of the blood; *Cl.*, or *Bl. Cl.*, blood chlorid; *B. U. N.*, blood urea nitrogen.

REPORT OF CASES

Case 1.—A girl who, at 9, had scarlet fever without known sequelae; at 18 and 19 had a severe anemia necessitating her being in bed for three months and one month, respectively. In view of subsequent events I think we can fairly assume that our patient had an unrecognized acute nephritis following her scarlet fever, and at 18 and 19, acute exacerbations of a chronic nephritis. So far as we could learn, there was no other possible etiology.

About this time she began to develop vascular symptoms which took the following forms: spasmodic blurring of sight; cramps in legs and fingers, and occasional dizzy spells. Morning headaches then began to appear with increasing frequency, severity and duration. In addition there were occasional drowsy spells. Apart from the latter, our patient's symptoms had been entirely vascular and not at all renal. At the age of 23 (in May, 1915) she entered the hospital for her headaches.

Physical examination at that time revealed a moderate secondary anemia; a normal heart; no evident sclerosis of peripheral or retinal vessels; a blood pressure of 165—110; no edema, and negative eye grounds.

The urine was of low gravity, and contained a slight trace of albumin, but no casts. (It is important to note that at no time during our three and one-quarter years of observation did the urine show any sign of an active degeneration in the kidney. Hyaline casts even were very rare.) The phenolsulphonephthalein excretion was only 12 per cent., instead of the normal 60 to 80 per cent. The blood urea nitrogen was 59 mg. per hundred c.c., about four times the normal. The renal test diet showed a marked inability on the part of the kidneys to handle water, salt and nitrogen.

During the patient's six weeks' stay in the hospital, her general condition improved, the headaches were relieved, and the blood pressure fell to normal. Her renal condition, as far as we could measure it, did not change.

It would seem fair to conclude that the vascular condition with intermittent hypertension was responsible for the chief symptom—headache—and that at this time the kidneys, though markedly sclerosed, were giving her comparatively little trouble in spite of their low function. I do not believe, however, that any of us felt at the time that the patient would live for three and one-quarter years with such a low renal function.

In the sixteen months previous to her second entry in November, 1916, the patient was fairly well. Her headaches, however, returned; nosebleeds were common, and there was an occasional drowsy spell. Her symptoms were still largely vascular. She came back to the hospital chiefly for study.

This showed the following changes: (1) definite cardiac hypertrophy; (2) a return to her hypertension; (3) some sclerosis of the retinal arteries (though none could be detected in the radials and brachials), and (4) a few white spots (probably degenerative) in the retina. The urine and all of the functional tests were identical with those at the previous entry. There was no evidence of active renal degeneration, and renal function was near the minimum.

It would seem fair to conclude that the vascular disease was progressing with an effect on the heart and retina but no measurable change in the kidneys.

During 1917 the patient was not seen, but was apparently very well except for her headaches. She went about, took long walks, danced, etc. In December she had the grip, apparently without much effect. In February, 1918, she had an attack suggesting renal colic with hematuria. About the first of April she caught a severe cold, which was followed by a very severe headache, vomiting, much blurring of vision and edema of face, neck and upper sternum.

At entrance this time she showed the following new findings: (1) the tender edema mentioned above; (2) a heart of the same size but with more signs of hypertrophy; (3) definitely palpable radials; (4) greater sclerosis of retinal arteries with small hemorrhages in each eye; (5) a higher blood pressure, 190 and 120; (6) the phenolsulphonephthalein excretion had dropped to 0, where it stayed until her death, eight months later, and her blood urea nitrogen had climbed to 98 mg.

In the hospital she began to improve rapidly. Her blood pressure began to fall. She then developed an acute infection of the antrum, and with this went immediately into uremia with drowsiness, twitching, two severe convulsions and coma. Her blood pressure did not rise and soon after showed a fall to a very low normal. There was a marked acidosis, the blood carbon dioxid reaching a level of 16 mm. The blood urea nitrogen rose rapidly to 168 and the blood chlorid fell from

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* From the medical clinic of the Peter Bent Brigham Hospital.

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

5.05 gm. liter to 4.20. This drop may have been due to an infusion of sodium bicarbonate, although we know that the blood chlorid is frequently low in uremia. With the improvement in the acidosis, the blood chlorid rose to a high level. The patient then began to improve, although she was restless and twitched for three weeks. The acidosis quickly disappeared and the blood urea nitrogen fell very gradually to near its former level—70 mg. It is of interest to note that the creatinin of the blood at this time was high, 14 mg. This is supposed to indicate death within a short time, and yet the patient lived eight months. Before her discharge in July her blood pressure gradually rose, with the improvement in her general condition, to a level slightly above normal.

We can reasonably infer that at this entry her renal function, which had been sufficient up to now, had begun to give way as a result of an acute infection. She entered in impending uremia but started to improve until a new infection plunged her into an outspoken severe uremia.

In the five months previous to her last entry, Nov. 30, 1918, the patient was fairly well. Her old symptoms persisted and her blood pressure climbed rapidly to well over 200. Then to her vascular renal symptoms she began to add cardiac ones—dyspnea and angina pectoris. There were occasional periods of low grade uremia, too, and her strength was poor. On reporting to our renal class in November, her blood urea nitrogen was found to be over 90 mg., and she was consequently sent to the hospital.

The findings at this time were similar to those at her last entry except that the radials were very tortuous; the retina showed fresh exudate and hemorrhages; blood pressure was much higher and there was twitching of the arms and legs. All of the laboratory findings were the same except that the blood urea nitrogen was higher. The blood chlorid had fallen considerably from the last estimation in July.

In the hospital she steadily went down hill. Twitching became more prominent, but there were no convulsions. Nausea and vomiting became extreme. Edema developed around her jaws. We noted a pleurisy (which was found to be superimposed on a pneumonia), and noted also what seemed to be a pericardial rub. This proved to be endocardial and due to fresh vegetations on the aortic and mitral valves. In the meantime the blood pressure had dropped some. Acidosis, as indicated by the blood carbon dioxid, developed. The blood chlorid fell (as a result either of her pneumonia or her uremia), and her blood urea nitrogen rose to 120 mg. before death.

At necropsy the kidneys were the smallest we had ever seen. The two together weighed about 60 to 65 gm. They showed a well marked vascular nephritis. The renal arteries were not abnormal except that the aortic orifices were almost closed by atheroma; but the vessels within the kidney were quite prominent. The cortex was only 2 mm. in thickness.

Under the microscope there was practically no kidney substance left. The arteries, large and small, were all affected, showing thickening, narrowing and even obliteration of many of the smaller ones. The glomeruli were extremely rare and showed all sorts of changes from slight hyalinization of the capillary wall to complete thrombosis of the whole tuft. Some were just compact masses covered with epithelium. The subtended tubules were mostly atrophied. There was much connective tissue. The sclerosed areas alternated with those where the glomeruli, though few, were fairly normal and connected with hypertrophied, apparently functioning, tubules.

Here, then, is presented a case of nephritis which, starting presumably from scarlet fever at 9, had gone on for eighteen years, passing through various phases. Nine and ten years after the assumed onset the patient had what we believe to have been acute exacerbations of a chronic nephritis. Coincidently with, or subsequent to, these attacks the vascular apparatus of the body—including the kidney—began to play an ever-increasing part. When the patient first came under our observation, fourteen years after the onset of the disease, she had a markedly sclerosed kidney with a very poor renal function. Just how poor this was can be readily seen. Three years before her death the two hour renal test showed very advanced disease in the kidney. Her excretion of phenolsulphonephthalein in these years has only once been as high as 18 per cent., and for the last year of her existence has been practically 0. Her blood urea nitrogen has always been over 50 mg., about four times the average value. During the last year her blood creatinin has always been around 10 mg. And yet, in spite of this extreme renal impairment, she got along very well with these kidneys for three and one-quarter years. This was undoubtedly due to the fact that the process in the renal parenchyma had become inactive and that nothing happened to light it up. The only possible changes within the kidney were the slow intravascular ones which could not be measured. By living carefully within the low limits set by the few functionating glomeruli and tubules, our patient lasted much longer than could have been expected.

The important thing to bear in mind is that for the last ten years of the patient's life, the disease had been almost entirely a vascular one with greater vascular change outside the kidney than within. The renal function, while low, was sufficient until infections broke the narrow thread by which it maintained itself.

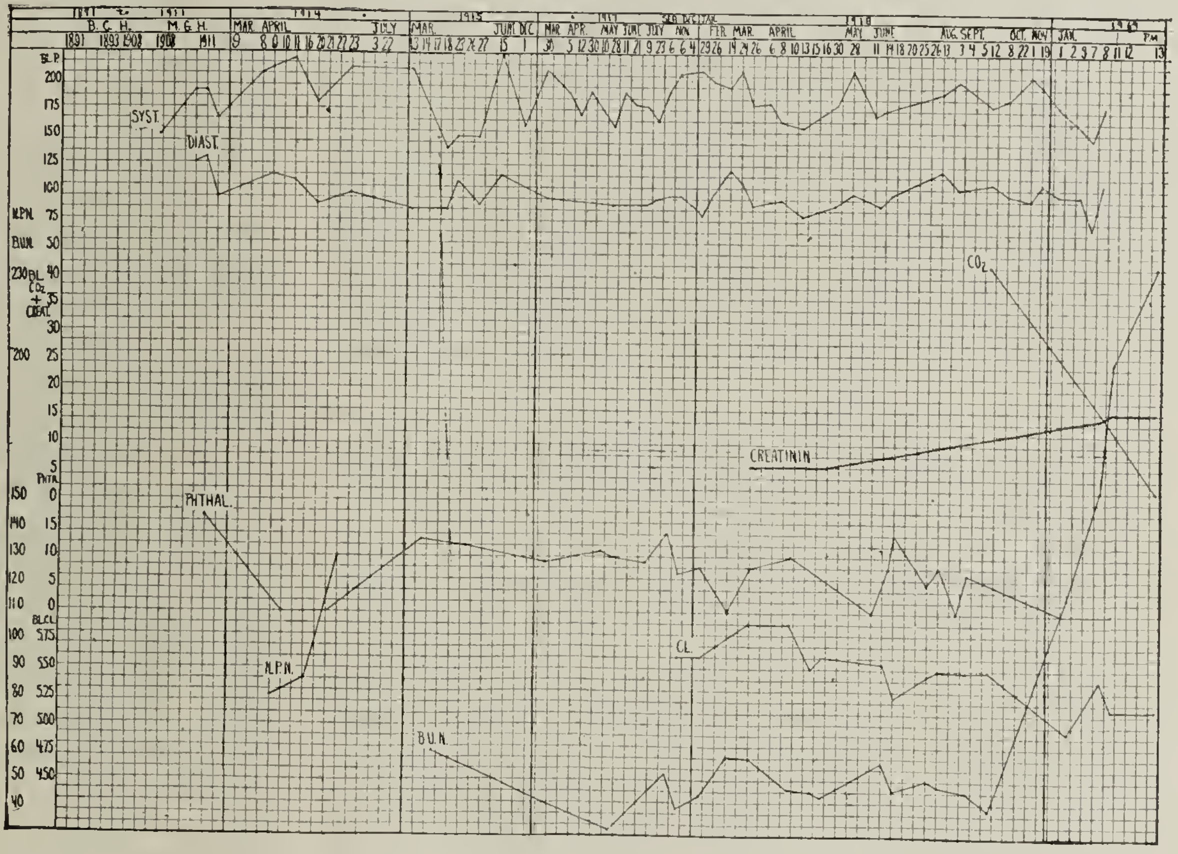

Chart 2.—Case 2; abbreviations same as in Chart 1.

Case 2.—An old man on whom we have data for eleven years before his death in 1919 (in fact, we have records of normal urinalyses at the Boston City Hospital as far back as 1891 and 1893) on account of his age, arteriosclerosis, and other complicating factors, presented symptoms that were more complex and the development of which it was more difficult to trace. The apparent onset of his nephritis was in January, 1908, when he was 62 years old. He had a "bad cold" followed by swelling of his eyes and face. He was in bed intermittently for eight weeks, part of the time in the Boston City Hospital. Here the records showed albuminuria and hematuria. About the first of June the edema had increased, and there were dyspnea and orthopnea. This necessitated his entry into the Massachusetts General Hospital, where he stayed for two weeks. The diagnosis of subacute glomerulonephritis, ascites, double hydrothorax and cirrhosis was made. The urine showed a large trace of albumin, a few hyaline and granular casts, and a moderate number of red and white cells. The blood pressure, determined for the first time, was found to be 150.

The patient was not seen again for three years, but was apparently well until just before his next visit to the Massachusetts General Hospital in October, 1911. At this time the diagnosis was chronic nephritis and cardiac decompensation. His urine still showed signs of some renal activity. His blood pressure, as can be seen on the chart, had increased to 190—125. The first phenolsulphonephthalein test showed an excretion of 17 per cent. in one hour.

The patient was seen a few times in the outpatient department of the Massachusetts General Hospital in 1911 and 1913. In 1914 he had a flareup of his nephritis following an acute diarrhea.

Shortly afterward, in April, 1914, he first entered the Brigham Hospital (Chart 2). His condition was very poor. There was an acute exacerbation of his nephritis, and uremia was impending. He was stuporous, drowsy, nauseated and had headaches. His blood pressure was over 200. His phenolsulphonephthalein excretion was 0, and his nonprotein nitrogen climbed to 130 mg. per hundred c.c., about five times its average amount. Furthermore, his added urea and salt test showed marked inability to handle these two substances.

The outlook with such findings was without doubt grave. Certainly one could not expect him to live five more years, as he did.

He was seen a few times in 1914 in the outdoor department for headache, weakness, dyspnea and drowsiness. In March, 1915, he entered our hospital a second time for these symptoms. He seemed to be in a state of low grade uremia. His urine was about the same, except that there was no activity. His blood pressure was still over 200, but rather promptly fell to normal, as can be seen on the chart. The phenolsulphonephthalein had improved a bit, but was still extremely low (13 per cent.). The blood urea nitrogen was over 60 mg. Without doubt, at this time the patient's kidneys were markedly sclerosed.

He appeared at the outdoor department occasionally during 1916, 1917 and early 1918. During this time his urine showed but slight activity. His pressure varied from 225 to 160 systolic, with the diastolic more steady around 100. The phenolsulphonephthalein excretion was only once as high as 14 per cent., and the blood urea nitrogen was between 40 and 60 mg. In the early part of 1918, a two-hour renal test showed a marked fixation of all elements.

In April, 1918, he entered the Brigham Hospital the third time for slight toxic symptoms. He was not very sick and his stay was short. His urine showed no change. His blood pressure had dropped to nearly normal, his phenolsulphonephthalein and blood urea nitrogen were about the same as before. He returned in June for two weeks because of a "convulsion" and great drowsiness. There was little new, however, to be found. His urine was no different. His blood pressure was a little higher, around 175.

In September of that year he was admitted for the fifth time for severe dyspnea, palpitation and occasional twitching. The dyspnea was due to a chest full of fluid and was relieved by tapping. His blood pressure was again over 200, his phenolsulphonephthalein practically 0, and the blood urea nitrogen between 40 and 50 mg.

Between the fifth and last entries there was nothing especially new except that his heart began to give more trouble, with occasional sudden dyspnea and tightness in his chest. In November, definite alternation of the pulse was noted.

Dec. 21, 1918, he entered for the sixth time, because of precordial distress. He did not seem awfully sick but quickly became more and more drowsy. His respirations grew gradually slower and deeper. He became irrational, semiconscious and finally comatose. Twitching of hands, feet and mouth occurred, but no convulsions. There was anuria for three days. In the meantime the blood pressure dropped, as it frequently does before death. A marked acidosis developed, the blood urea nitrogen mounted quickly to 200 mg. and the phenolsulphonephthalein was, of course, 0.

At necropsy the kidneys were very small (62 and 70 gm.) red and granular. The cortex measured only 2 to 3 mm. The renal artery and larger branches were not abnormal. Microscopically, however, the vessels within the kidney showed marked arteriosclerotic changes. Many of them showed all stages of obliteration. There was very little kidney parenchyma left. The intact glomeruli were extremely scarce. Many showed recent infarction from thrombosis of the vessels leading to them. Tubules had disappeared in great numbers. Those that were left showed degeneration of all kinds. The connective tissue was particularly prominent.

COMMENT

Here, then, is a case of chronic nephritis which, starting apparently with an acute process in 1908, had active flareups during 1911 and 1914. By the latter year the process was a very severe one with the function of the kidney practically nil. After that the activity of the degenerative process was comparatively slight.

I want especially to call attention to the fact that during these five years the phenolsulphonephthalein excretion was never over 14 per cent., and most of the time much nearer 0, and that the blood urea nitrogen was consistently four or five times the average normal.

It is difficult to determine just why this patient survived for five years with such an extremely low function. In contrast to the carefully regulated life of the first patient, who lived within the low level set by her renal function, this patient did everything that a renal patient should not do—at least up to 1917. He was just a tramp, who ate whatever he could get and, before 1918, drank heavily. He was, however, surprisingly free from infections which might break down what little functioning tissue remained. One must conclude that the small amount of renal tissue which the patient had during the last five years was sufficient to keep him alive until the vascular disease within the kidneys had progressed to such an extent that in the last few weeks many of the small vessels became thrombosed, and with this the glomeruli supplied were put out of commission.

These two cases, then, demonstrate the possibility of prolonged existence with an exceedingly small amount of renal tissue and an extremely low renal function. The only possible explanation is that the disease during this time was a purely vascular one. The pneumonia played directly or indirectly an important part in the death of the first patient. The thrombotic obliteration of essential glomeruli was responsible for that of the second.

It can hardly be said that the true prognosis was in any way indicated by the tests performed.

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ABSTRACT OF DISCUSSION

Dr. Herman O. Mosenthal, New York: The cases Dr. O'Hare described are of great interest and importance. He made mention of the fact that most of us would not have expected these patients to live as long as they did and I believe we can readily agree with that statement. The problem before us is to find out what factors determine the prognosis in nephritis and to apply this knowledge in the treatment of our patients. The expectancy of life of the sufferer with chronic nephritis may be regarded as being measured by three possible terminations: First, factors which may be considered to be entirely extrarenal, of which heart failure, apoplexy and intercurrent infections constitute those most constantly met. It is our inability to gage their progress satisfactorily that is largely responsible for the uncertain prognosis in chronic nephritis. Second, many patients with chronic nephritis die of uremia before renal function has diminished to such a degree as to render renal insufficiency any more than a contributing factor. Often the phthalein excretion lies between 20 and 30 per cent. and the blood urea nitrogen at a level of from 40 to 50 mg. per hundred cubic centimeters of blood. It is probable that this state of affairs is a toxemia, but from what tissue this poison originates, what its nature is, and what the exact conditions are that call it into action are all open questions. The sudden rise of blood nitrogen seen in one of Dr. O'Hare's cases may possibly indicate an excessive protein destruction which I believe is characteristic of certain phases of the toxemia under discussion. Third, if all the above vicissitudes leave the subject of chronic nephritis alive he finally develops an increasing renal insufficiency to which he succumbs. This is a very prolonged process and it is almost incredible how low renal function may drop and the patient maintain at least fair health. Dr. O'Hare's report illustrates this very well. I have seen some similar cases though more of them were followed for as long a period. In another condition, polycystic kidney, in which an uncomplicated renal insufficiency develops, the same phenomenon of prolonged life with a maximal impairment of renal function is often found. As far as prognosis is concerned, it becomes evident that only very few nephritic patients really die as the result of renal insufficiency but that most of them cease to live because of extrarenal influences.

Dr. Edward F. Wells, Chicago: Satisfactory management of the patient depends largely on taking him into full confidence as to the diagnosis, the prognosis, and the general plan of treatment. Chronic interstitial nephritis is not a disease of the kidneys alone, but the blood vessels, heart, lymphatics, and other tissues are so essentially implicated that it is impossible to separate them. It takes a profound clinician to estimate within wide limits, the excretory capacity, under stress, of the interstitial nephritic kidney; and it requires a wiser physician than most of us to state how long any one of these patients may live. I have seen patients in whom the output of urea was extremely small for many successive months, in whom, when placed on some extra strain the kidneys have passed such quantities of urea as are beyond ordinary credence. Therefore, our prognosis should be extremely circumspect. Our first examination of a chronic interstitial nephritic patient should be made with painstaking care, and accuracy. The renal capacity should be estimated as closely as possible from several points of view, as, e. g., the excretion of water, of salt, the rapidity and completeness of the passage through the circulatory system, including the lymphatic circulation, of titratable solutions, and of the output of some of the waste products of metabolism. I value highly the measurement of the capacity of the kidneys to excrete urea, and always include this as an important feature of the investigation. The dietetic, regimental and medicinal measures which we employ may, probably, assist the kidney in its functions. However, some adventitious conditions are beyond our control as, e. g., the entrance into the system of an acute infection. In my own experience these most frequently transform, by disturbing the circulatory balance, a satisfactory progress to a condition from which the patient rarely completely recovers, and is often the beginning of a more or less prolonged downward course, ending fatally. Under these circumstances the patient will become dyspneic, and apneic; dependent edema will attract attention. It is absolutely necessary for the patient to maintain a posture as nearly horizontal as possible for a prolonged period, at least six weeks.

Dr. Lewis A. Conner, New York: The second of Dr. O'Hare's cases illustrates a point which is of great practical importance. That is, that in aged people the usual standards of normal kidney function are not applicable. If we attempt to prognosticate, in the case of people of 70 or 80 years of age, in terms of the standards of renal function which we apply to younger people, we are likely to make embarrassing mistakes. In such patients very low readings of the phthalein test and very high figures for blood nitrogen, creatinin, etc., are compatable with fairly good health and with many years of life.

Dr. James P. O'Hare, Boston: This type of case is a rare condition. We do not see it very often but we do see it often enough to warrant hesitancy in making a prognosis in a chronically sclerosed kidney. We have had also a few cases of the edematous chronic glomerular nephritis and the patients have lived for quite a considerable period, that is, for months, with a very low renal function, and then have died from a pneumonia. I was glad to hear Dr. Mosenthal comment on the fact that death in the nephritic is very frequently due to causes not essentially nephritic but to other conditions like cardiac failure and infection. I have often been very much disappointed in cases that we had studied for a long time to find the patient dying of an acute infection or a cardiac complication when we were looking for a pure nephritis at necropsy. It is important for all of us to make records of our observations on these cases so that if a patient does live for a longer period than we expected, we can analyze the data obtained. Most of us do not do that. In fact, there has been no opportunity to do that until now because the renal tests were unknown until a few years ago. But now we have tests which are easy to make, and it is important to use them and make observations of these patients. Bear in mind, however, that even with our functional tests we are unable at present to make accurate prognoses. We make them with a fair degree of accuracy, but that degree of accuracy is often brought about by the fact that the patients die of an intercurrent infection or of cardiac failure rather than from the kidney disease.

THE TREATMENT OF CHEST INJURIES *

MARION A. BLANKENHORN, M.D.
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The treatment of penetrating wounds of the chest early in the war was an unsatisfactory venture offering little prospects of development, but at the end was a very satisfactory procedure promising much in the improvement of its technic and the enlargement of its scope.

Methods of examination of a wounded chest are precise; and in contrast to the abdomen or head, the damage done by a foreign body can be estimated and the treatment indicated. Foreign bodies entering the chest usually continue moving in straight lines; they produce discoverable lesions and can be located accurately by the roentgen ray. With proper appliances and training, the surgeon can invade the thorax to make anatomic repairs and remove infecting foreign substances. The effect of various infecting organisms in chest wall, pleura and lungs is still the greatest unknown quantity of the problem and the one that has yielded the least to our efforts.

It is with little satisfaction that I review the statistical reports of the various surgeons in France and England, and with even less satisfaction that I inspect my own records during two summers in forward area hospitals and one winter at the base. There were no invariable concomitants—warfare and its wounds,

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hospitals, surgeons and surgeons' ideas changed with kaleidoscopic rapidity. It would be inaccurate history to collect and attempt to coordinate the case records made by the various surgeons in France and England, and futile to recommend anything for the future.

The generalizations dealing with the pathology of penetrating wounds of the chest, and the principles of treatment here given, constitute the lesson learned from various British and American surgeons in handling approximately 500 cases.

Chest wounds in patients coming to forward area hospitals can be divided into five main groups on a basis of their gravity and the urgency of their surgical treatment: (1) open pneumothorax, the so-called sucking wound; (2) extensive parietal wounds involving ribs and muscles; (3) large retained foreign bodies; (4) infected hemothorax, and (5) simple hemothorax.

OPEN PNEUMOTHORAX

It was apparent that there is no spontaneous cure for open pneumothorax. Anatomic repair is clearly indicated at once and is followed by almost miraculous, immediate relief. Patients who suck and blow a considerable volume of air through the wound were very uncomfortable, dyspneic and cyanotic, with a rapid, arrhythmic and irregular pulse of small volume. If untreated, they rapidly failed and died apparently from asphyxia. Simple stopping of the wound with a plug of gauze would revive a man in a few hours to the point at which he could undergo an extensive revision of his wound and closure. Patients who were so stopped up in advanced dressing stations arrived in good condition, frequently ready for immediate operation.

PARIETAL WOUNDS

Parietal wounds, penetrating or nonpenetrating, demanded the same consideration that wounds did anywhere else, with the additional reason that indriven bone fragments became a source of infection. Broken ends of ribs projecting into the chest lacerate the lungs with each respiration, and occasionally do extensive damage to the heart and pericardium. Parietal wounds of less extent are a continuous source of infection to an adjacent hemothorax. A wound that connects with the pleural space by ever so small a sinus cannot be drained externally. As long as the aspirating effect of respirations is operating, the drainage is inward as well as outward. Such wounds, therefore, must be revised and completely closed. It was found preferable to convert a parietal wound into an open pneumothorax if necessary to make a thorough revision and a good closure.

Opening the chest freely has been found to be an easy and safe surgical procedure, well tolerated by a wounded man and causing very little shock. A very necessary part of the equipment needed to do surgery of the chest is a good nitrous oxid machine and a good anesthetist. When gas is given with a close fitting face mask and made to flow at considerable pressure, the lungs do not collapse when the chest is opened, and respirations and pulse are undisturbed. Furthermore, if anatomic repair of the chest wall and lung can be accomplished, the lung continues to function normally after operation.

RETAINED FOREIGN BODIES

Retained foreign bodies are dangerous as a source of infection and of mechanical erosion of large vessels. Bullets and shrapnel balls that have not been deformed by impact with the soldier's equipment or bones, especially bullets, are surprisingly harmless. Shell fragments are invariably wrapped about with bits of clothing, and if they have one diameter as great as an inch, were almost never tolerated. To prevent empyema or lung abscess, they must be removed as soon as possible. Usually a man with a large retained foreign body is unfit for immediate operation on account of hemorrhage or shock or both. If considerable hemorrhage persists, he probably will never be fit to operate; resuscitation methods were unavailing, and it was not possible to operate for hemorrhage unless the hemorrhage was from a parietal vessel. Transfusion or infusion was distinctly detrimental if there was present a large hemothorax; for it could be clearly seen that the hemothorax was rapidly made larger, and the patients died suddenly with angina. The volume of fluid free in the chest apparently crowded the heart and lungs out of function.

Rest in a warm bed with plenty of fluids and morphin, usually restored these men to a condition that would tolerate an extensive operation. Removal of the foreign body was frequently an extensive operation. It required rib resection long enough to admit the hand into the chest. The fourth or fifth rib in the axillary space was best. The entire lung and chest could then be explored. The lung could be delivered down to the resection wound, and the foreign body with its pieces of clothing removed. If it was removed through healthy pleura, the pleura had to be sutured. If the foreign body was removed through a field of carnified lung, caused by the wound, it was usually unnecessary to make any closure or hemostasis, for this was quite well established by the process of carnification. How much should and can be done to carnified lung is a much disputed point. To me it was apparent that after gross contamination and necrotic tissue were removed, the less done the better. It was surprising how well such operations were tolerated, especially when done with gas given under pressure. Even the process of pulling on the lung caused very little change in blood pressure, pulse or respirations. After extensive lung injury and lung surgery, it was frequently impossible to maintain such a lung distended by the gas machine during operation or after closure; but gas pressure did prevent collapse of the sound lung during the operation, and prevented any disturbance of the heart and mediastinal vessels. Also it was not essential to a patient's well-being to have the wounded lung fully expanded after operation. In fact, it was thought by many that the lung should be kept collapsed and at rest after injury. But to accomplish this, collections of air or fluid in the pleural space was necessary, which introduced a new difficulty. One ingenious American surgeon accomplished partial collapse and rest by paralyzing the diaphragm with an injection of procain in the phrenic trunk, which was a rational and satisfactory procedure. Accumulations of blood were removed by pumping off the fluid and picking or wiping out all clot. The original wound of entry was revised, and when possible both wounds were closed tightly.

Infection of the pleural sinus was the greatest foe to the man who survived his anatomic injury. It was a surprise to all who observed it how able the pleural membranes are to combat infection. In all cases, whether operation was or was not performed, the degree of contamination must have been very great, for gross dirt could be seen and removed; but these very chests could frequently be closed and occasionally remain closed with no other help than aspiration. Pleural membranes combat infection best when in their natural position and condition. For this reason, it is essential to prevent accumulations of air or fluid.

After operation and closure, serous exudates appeared which had to be tapped. Sometimes aspiration, two or three times repeated, finished the course of treatment. In others, the fluid continued to reaccumulate and finally became purulent; but by this time the lung had become adherent to the chest wall in its upper portions, and we then had a small empyema cavity localized at the base of the chest. Stitches were removed from the resection wound, and drainage was easily accomplished. Introducing air or antiseptic solutions into the pleura to keep the lung at rest puts the pleural membranes at a disadvantage, and infection is invariably more severe.

HEMOTHORAX

The remaining two groups, infected and uninfected hemothorax, were at first indistinguishable and were managed alike. The degree of contamination and the amount of free fluid are the principal determining factors. The bacteriology of these infections, like the bacteriology of other wounds, is unsatisfactory and incomplete, providing help for some cases but rules for none. Each case must be judged individually and then chiefly on clinical evidence, temperature and pulse being of the greatest help to determine when a hemothorax is infected and drainage is necessary. Streptococci and gas-forming organisms, when found in specimen fluids, invariably foretold or indicated drainage; but even these organisms were known to have disappeared from a pleural cavity after one or two tappings.

It was a practice in forward areas to hold all uncomplicated hemothorax cases when possible for observation, and after three days if there was only moderate fever and specimens showed no growth to evacuate the patient down to the base. It was observed that infections sometimes lay dormant for much longer periods than three days. Presumably the blood retarded the growth of organisms, or colonies were included in the clot and had to digest their way out into the fluid. The natural culture medium in such condition is the hemorrhagic fluid, and the resistance to infection is at the pleural membrane. It was best, therefore, to reduce the medium and increase the resistance relatively by tapping off fluid and keeping it tapped off. It was seldom that hemorrhage was lighted up by tapping, and it was quite certain that empyema was prevented and sometimes cured by tapping. Occasionally, clot interfered with tapping, and the convalescence of such an individual was much prolonged. Usually almost the entire volume could be drawn off as a fluid which would not clot. In every case in which I have seen operation performed, clot either of whole blood or of almost pure fibrin has been found, so that it is my opinion that clot forms in all cases, but that defibrination is accomplished occasionally by some means.

Many uninfected hemothorax patients made rapid and complete recovery without any interference whatsoever.

Infected hemothorax must as a rule be drained freely; but drainage which causes complete collapse of a lung with the formation of a large cavity is very undesirable, for the collapsed lung frequently remains collapsed and the patient dies from a prolonged pyogenic infection of a large area of pleural membrane.

If free drainage can be delayed by repeated tappings until the partly expanded lung has established adhesions to the chest wall and only a small cavity is formed, the results are uniformly good. But there are certain cases, mostly when streptococci and gas-forming organisms are present, that become very septic and require drainage at once. Here a closed system of drainage by air-tight tubes and suction expands the lung, and provides the necessary adhesions to obliterate the empyema cavity. Irrigations of empyema cavities were generally practiced and found to be of considerable value—mostly to remove mechanically the accumulations of pus and clotted blood, and to diminish the number of organisms present.

Patients with free drainage usually did very well and could be evacuated to the base.

By the time patients arrived at the base in France, they had progressed to a stage that determined them either as having or not having empyema, provided medical lines of communication were normal. Frequently they were abnormal, and then all preconceived plans of management had to be revised, usually much to the detriment of patients.

For cases without drainage, the management at the base was much the same as in forward areas.

For cases with drainage, the management was much the same as practiced in civil surgery, except that in some cases empyema cavities were treated by the Carrel-Dakin method and closed very promptly, frequently with very good results.

I had little opportunity to see patients treated by this plan, for it was done chiefly by the French or in England.

ABSTRACT OF DISCUSSION

Dr. Ernest Zueblin, Cincinnati: I am very much interested in Dr. Blankenhorn's paper, particularly from the standpoint of ordinary civil medicine. I would like to ask the doctor about the frequency of bilateral hemothorax, pneumothorax or hydrothorax. In a recent communication published in The Journal of the American Medical Association, Captain Green makes the statement that contrary to leading conceptions the simultaneous tapping of both pleural cavities is attended by hardly any harmful consequences. Of course, this is very important, and I would like to know whether Dr. Blankenhorn's experience along this line confirms such a view. Also of practical interest would be the recommended irrigation of the pleural cavity in case of emypema. I am curious to know what solution military surgeons advocate, particularly if two cannulas are introduced, one above and one below, in order to provide for a proper elimination and a clearing up of the purulent fluid.

Dr. Marion A. Blankenhorn, Cleveland: In reply to Dr. Zueblin's question about double pneumothorax, I have seen quite a few cases of double pneumothorax, but, of course, not double open pneumothorax. Closed pneumothorax was almost always the rule in chest wounds. What I might say about double hemothorax would explain double pneumothorax. Bullets frequently traversed both chest cavities, producing double pneumothorax and large or smaller double hemothorax, and if infection did not follow, the results were quite good. As to irrigations: We were using irrigations principally for mechanical reasons, and we used the surgical solution of chlorinated soda mainly. This solution dissolves fibrin from the pleural membrane and dissolves fibrin away from the opening of the tube into the wound, and we thought we were able to get rid of the original hemothorax more quickly by that process. Also, if organisms of putrefaction occurred, the odor was very promptly diminished, and we were also sure that the number of organisms was kept down. The plan of the management followed was to lay tubes along the walls of empyema cavities and give them routine irrigations, and when the bacterial count fell to a certain figure, close those cavities. I have not seen the statistics of those methods. Others have reported that if they did close in the presence of impending empyema, they would have to reopen, but if closure restored the normal condition to allow absorption of air and expansion of the lung, then they would have a smaller empyema. Frequently they would close and reopen a number of times. They considered this a much better method than to make no effort to expand the collapsed lung. The whole treatment was designed to obliterate the pleural sinus.

PERICARDITIS AS A COMPLICATION IN PNEUMONIA

BASED ON THREE HUNDRED NECROPSIES *

WILLARD J. STONE, M.D.
TOLEDO, OHIO

Records of 300 necropsies on pneumonia patients from the Medical Service of the U. S. Army base hospital at Fort Riley, Kan., are available for the purpose of this study. Among this number, pericarditis was found to have occurred in seventy-two, or 24 per cent. The types of pericarditis, as a complication in pneumonia encountered at necropsy, are shown in Table 1.

TABLE 1.—TYPES OF PERICARDITIS IN PNEUMONIA

	Number	Per Cent.
Acute serofibrinous pericarditis	14	19.4
Acute purulent pericarditis	44	61.1
Subacute fibrinoplastic and purulent pericarditis ("shaggy heart")	14	19.4
Total	72	

In addition, hydropericardium, without apparent inflammatory change, had occurred in twelve instances, or 4 per cent. Empyema was present in sixty-three of the seventy-two instances of pericarditis, or 87.5 per cent.

ACUTE SEROFIBRINOUS PERICARDITIS

In approximately 5 per cent. of the pneumonia patients on whom necropsy was performed, acute serofibrinous pericarditis had occurred. Among the fourteen instances, lobar pneumonia had occurred in eleven, and bilateral bronchopneumonia had occurred in three. This form of pericarditis was characterized by the presence of a flaky pericardial fluid, which was cloudy in appearance and which contained strings of fibrin adherent to the epicardium and pericardium. The quantity of fluid varied from 250 to 1,000 c.c.

ACUTE PURULENT PERICARDITIS

In approximately 15 per cent. of the pneumonia patients on whom necropsy was performed, acute purulent pericarditis had occurred. Among the forty-four instances, lobar pneumonia had occurred in thirty, bronchopneumonia had occurred in eleven, while a combined form of lobar and bronchopneumonia had occurred in three. The amount of pus in the pericardium varied from 100 to 1,000 c.c.; the average in twenty-six instances in which the amount was recorded was 350 c.c.

SUBACUTE FIBRINOPLASTIC AND PURULENT PERICARDITIS

In approximately 5 per cent. of the pneumonia patients on whom necropsy was performed, the subacute form of pericarditis, characterized by a fibrinoplastic or villose and purulent exudate, had occurred, leading to the pathologic picture of the "shaggy heart" or cor villosum. Among the fourteen instances, lobar pneumonia had occurred in eight, and bronchopneumonia in six. The pericardium in all instances was lined by a partly organized villose exudate adherent to the epicardium. The amount of free purulent fluid usually associated with the fibrinoplastic exudate varied from 15 c.c. to 600 c.c., the average being about 250 c.c.

In Table 2 is shown the extent of the associated pneumonia incident to the three types of pericarditis.

TABLE 2.—PERICARDITIS AND THE EXTENT OF THE ASSOCIATED PNEUMONIA

		Pneumonia					
		Both Lungs		Right Lung		Left Lung	
	No.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Acute serofibrinous pericarditis	14	7	50.0	4	28.6	3	21.4
Acute purulent pericarditis	44	21	47.7	9	20.4	14	31.8
Subacute fibrinoplastic and purulent pericarditis	14	5	35.7	5	35.7	4	28.6
Total	72	33	45.8	18	25.0	21	29.1

The importance of empyema as an associated complication in the pericarditis of pneumonia is shown in Table 3.

TABLE 3.—EMPYEMA AND PERICARDITIS IN PNEUMONIA

		Empyema					
		Bilateral		Right		Left	
	No.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Acute serofibrinous pericarditis	14	4	28.6	5	35.7	1	7.1
Acute purulent pericarditis	44	8	18.2	9	20.4	24	54.5
Subacute fibrinoplastic and purulent pericarditis	14	5	35.7	3	21.4	4	28.6
Total	72	17	23.6	17	23.6	29	40.3

TYPES OF INFECTION

A large proportion of the types of the pneumonia encountered were due to mixed infection by pneumococcus and streptococcus (usually one of the hemolytic varieties). When complications occurred in pneumonia, the predominating infection encountered was usually a hemolytic streptococcus; that is, 72.5 per cent. of 251 empyemas, in which the infection was known, were due to the streptococcus, while 27.5 per cent. were due to the pneumococcus. Such was the relative proportion also in pericarditis. In 75 per cent. of the cases, the cultures revealed hemolytic streptococci. In general, the type of infection corresponded to the type isolated from the pleural fluid.

COMMENT

In Table 2 it will be noticed that in seventy-two instances of pericarditis, both lungs were involved in the preceding or accompanying pneumonia in 45.8 per cent., while the left lung was involved in 29.1 per cent. and the right lung in 25 per cent. McPhedran[1] has

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* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] McPhedran, Alexander: Diseases of the Pericardium, in Osler: Modern Medicine, Philadelphia, Lea & Febiger 4: 41, 1908.

mentioned thirty-one cases of pericarditis from Osler's service at the Johns Hopkins Hospital, and has stated that both lungs had been affected in 41.9 per cent., the right lung in 41.9 per cent., and the left lung in 16.1 per cent. From these figures, and from the experience of himself and others, he concluded that pericarditis occurred more frequently in association with affections of the right lung than of the left. This has not proved to be the case in the series here reported, which showed an almost equal proportion for the two lungs.

The most important factor in the development of pericarditis appeared to be the occurrence of empyema. Reference to Table 3 discloses the fact that pericarditis, especially the acute purulent form, occurred more frequently with empyema of the left pleural cavity (54.5 per cent. with left empyema, and 20.4 per cent. with right empyema). For all three forms of pericarditis described, it will be seen that this complication occurred with left empyema in 40.3 per cent., and with right empyema in 23.6 per cent. Pericarditis occurred more frequently in association with left empyema than with bilateral empyema. This may be explained by the fact that the development of empyema on the right side occurred, in a number of instances, as a late complication subsequent to the empyema on the left side. Pericarditis was one of the principal causes of death in empyema. Among forty-eight empyema patients who died subsequent to operation, extensive pericarditis, usually of the purulent form, was present in fifteen, or 31.2 per cent., while among 100 empyema patients who died without operation, pericarditis, usually of the purulent form, was present in 46 per cent.

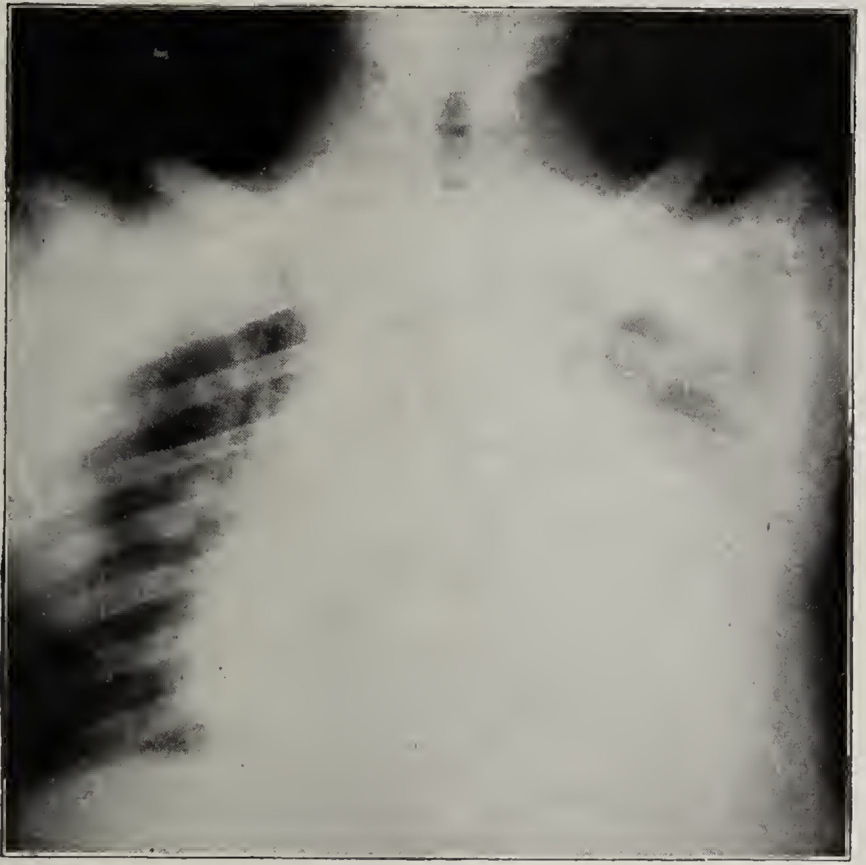

Fig. 1.—Pericarditis following pneumonia. Three aspirations of serofibrinous fluid. Recovery.

DIAGNOSIS

In the diagnosis of pericarditis, the clinical sign of greatest importance was a to and fro friction sound, not transmitted beyond a limited area, which was usually first heard over the base of the heart or in the fourth or fifth interspace close to the sternum, and which was practically synchronous with the heart beat. It possessed a distinct rubbing quality, not unlike but less perceptible than a pleural friction sound. The fremitus of the rub could in some cases be detected by palpation. Its duration was transitory if effusion occurred rapidly, when the heart tones became distant or muffled, and obliteration of the cardiac impulse occurred. The differentiation of the pericardial friction sound from a pleural or pleuropericardial friction rub, in a patient with dyspnea due to pneumonia, empyema or a partially collapsed lung, was a matter of great difficulty in numerous instances. In some patients, the friction rub could best be heard below the angle of the left scapula, because of the transmission through a portion of consolidated lung. The heart was in some instances distinctly rotated on its long axis toward the posterior chest wall, because of mediastinal adhesions arising from earlier mediastinitis. With effusion into the pericardium, the area of heart dulness increased to the right beyond the sternum, and to the anterior axillary line on the left. With marked effusion reaching 500 to 800 c.c., the area of dulness occupied a large portion of the left anterolateral chest wall. This area of dulness was often confusing if associated with the presence of fluid in the left pleural cavity. The roentgenogram was of great assistance in confirming the diagnosis of pericardial effusion in patients with increased area of heart dulness and with muffled heart tones, who also had walled-off fluid in the left lateral pleural cavity.

With marked distention of the pericardium, the veins of the neck distended, and in some instances a positive venous pulse in these vessels was evident, owing to the overfilled right auricle. At necropsy, dilatation of the right side of the heart was frequently mentioned in the necropsy notes. The myocardial changes, viewed microscopically, consisted of cloudy swelling and fatty degeneration, with fragmentation of the muscle bundles.

Since pericarditis occurred, in our experience, only one-eighth as frequently in patients without empyema as in patients with empyema, the occurrence of a possible purulent pericarditis was suspected in every empyema patient who presented, after pleural aspiration or drainage operation, a rapid pulse and a septic type of temperature. Dyspnea was so common a symptom in patients with an extensive pathologic condition of the chest associated with empyema that, by itself, little reliance could be placed on it.

In the diagnosis of small amounts of purulent material in the pericardium, the clinical signs were in numerous instances untrustworthy, and the roentgenograms of little assistance. It was not at all uncommon to see at necropsy the normal amount of pericardial fluid replaced with thin fibrinopurulent fluid. If the process had existed a number of days, as judged by the clinical history, fibrin organization had taken place in some instances, with firm villose adhesions between pericardium and epicardium, producing the pathologic picture of the "shaggy heart." There was usually a small amount of unorganized, thin pus in the pericardial cavity. This form of pericarditis was undoubtedly such from the beginning. In the presence of an empyema the condition appeared to have resulted from an extension by contiguity to the pericardium. In only two of the forty-four instances of purulent pericarditis did empyema not exist as an associated or antecedent condition, and in one of these a fibrinoplastic pleuritis was present, cultures from which revealed streptococcus infection.

The infection either reached the pericardium through the lymphatic vessels draining the parietal pleura, or extension occurred by contiguity of tissue from purulent accumulations beneath the sternum, which we have described as subcostosternal pus pockets, or from walled-off pockets occupying the left anterolateral portion of the chest cavity. In many of the patients with purulent pericarditis, the area of heart dulness was not increased by percussion, nor did the roentgenogram show cardiac enlargement, since distention of the pericardium had not taken place. There had merely been a change from a serous to a purulent fluid in the sac, with a subsequent partial organization of the exudate. The distant or muffled heart tones characteristic of considerably increased fluid in the pericardium could not be relied on for the diagnosis of the condition in such instances. A left-sided, closed pneumothorax, with collapse of the lung and retraction of the heart by adhesions toward the posterior chest wall, so muffled the heart tones in some patients as to lead to suspicion of pericardial effusion, when such a condition did not exist. A hemorrhagic pericardial fluid was obtained on aspiration in but one patient, who had undoubted tuberculosis with tuberculous pericarditis.

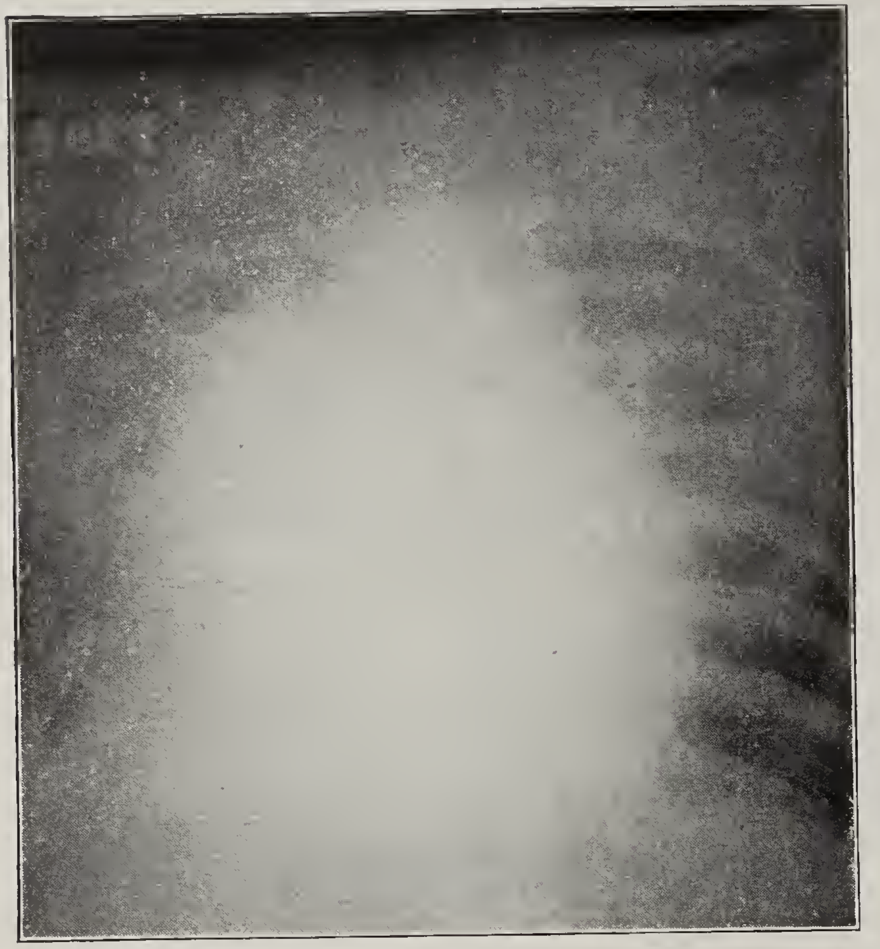

Fig. 2.—Hemorrhagic pericardial effusion following tuberculous pneumonia.

TREATMENT

Since a large proportion of the deaths in this series occurred in patients with an extensive pathologic condition of the chest due to empyema, it was impossible to consider any more radical procedure than paracentesis in dealing with pericardial effusion, whether serous or purulent. In the acute, purulent form, as well as in the subacute fibrinoplastic and purulent form in which, in many instances, distention of the pericardium had not taken place, little could be expected from paracentesis or, for that matter, from free incision and drainage, because of the presence of the associated pulmonary and pleural pathology.

Pericarditis occurred as an early and as a late complication in pneumonia. As an early complication it was found at necropsy in patients who so quickly succumbed to a rapidly spreading pneumonia with empyema that the presence of pericarditis was unsuspected. As a late complication it occurred subsequent to operation for the relief of empyema. In not one instance among 275 operations for empyema was purulent pericarditis recognized, or believed to be coexistent with the empyema at the time of operation. It was many times suspected, but on evidence insufficient in the presence of pleural sepsis to warrant radical exploration of the pericardium. Subsequent events proved the wisdom of conservatism in the method adopted. In a strict sense, pericarditis developed, as did nephritis, subsequent to empyema and, as such, contributed largely as a cause of death in empyema, in many instances weeks after pleural drainage was established. If one might be so fortunate as to recognize purulent pericarditis coexistent with or subsequent to empyema, and the condition of the patient was such as to warrant further interference, free incision and drainage of the pericardium would be indicated. It has not fallen to my lot to be placed in such a position.

In performing paracentesis pericardii, local anesthesia of the skin and the deeper tissues was employed. Two points of election were available: A point outside the nipple, in the left fourth interspace, was the first selected. If the needle was inserted in an inward and backward direction toward the spine, keeping within the area of dulness and assisted by the roentgenogram shadow, there appeared to be little danger of puncturing the myocardium of the right ventricle, which occupied the greater portion of the heart surface proximal to the chest wall. The other point selected was immediately beneath the costal margin, in the narrow angle formed by it and the xiphoid cartilage on the left side This point was available only if the diaphragm on the

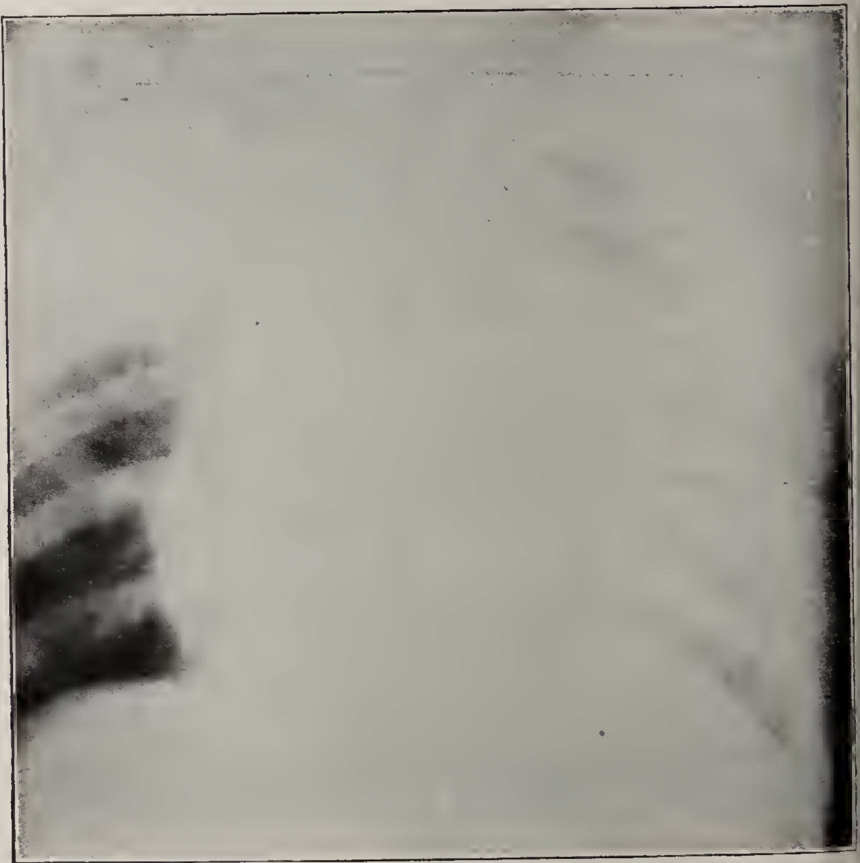

Fig. 3.—Pericardial effusion and left encapsulated empyema. Operative Series II, No. 3. Recovery.

left side was in normal position. In many patients with empyema, the diaphragm was higher than normal on the affected side. In inserting the needle for aspiration at this point, it should be inclined so as to hug the under surface of the costal cartilage, and be pointed slightly to the left toward the nipple until it enters the pericardium.

A fairly good sized needle for attachment to the aspirating syringe should be selected. For persons with thick chest walls, the needle should be about 3½ inches long. When the point of the needle touched the myocardium, a distinct thrust, due to the cardiac systole, was evident.

In the treatment of pericarditis, the ice bag and morphin were used to control pain. Antistreptococcus serum, injected intravenously in from 50 to 100 c.c. daily doses, was used to combat the general sepsis in patients with streptococcus infection. Serums known to agglutinate, in dilutions of from 1 : 60 to 1 :80, the strains of streptococci encountered, were used so far as possible. It is possible that recovery in some instances of empyema sepsis, with which suspected pericarditis was associated, was secured through its use.

SUMMARY

1. Pericarditis was found to have occurred in seventy-two, or 24 per cent., of 300 patients who succumbed to pneumonia.

2. Acute purulent pericarditis occurred in 61.1 per cent. of the seventy-two instances, acute serofibrinous pericarditis in 19.4 per cent., while the subacute fibrinoplastic and purulent form producing the "shaggy heart" occurred in 19.4 per cent.

3. The quantity of pericardial fluid present in acute serofibrinous pericarditis varied from 250 to 1,000 c.c. With this form, pneumonia of both lungs was present in 50 per cent. of the patients, of the right lung alone in 28.6 per cent., and of the left lung alone in 21.4 per cent.

4. In acute purulent pericarditis, the quantity of pus in the pericardium varied from 100 to 1,000 c.c. The average in twenty-six instances in which the amount was recorded was 350 c.c. Pneumonia involving both lungs had occurred in 47.7 per cent. of the cases, involving the left lung alone in 31.8 per cent., while in 20.4 per cent. the right lung was alone involved. In 54.5 per cent. of these instances, empyema of the left pleural cavity was present.

5. In the subacute form of fibrinoplastic and purulent pericarditis, producing the so-called "shaggy heart," pneumonia of both lungs had occurred in 35.7 per cent. of the cases, of the right lung in 35.7 per cent., and of the left lung in 28.6 per cent. Bilateral empyema had occurred in 35.7 per cent. of these instances, right empyema in 21.4 per cent., and left empyema in 28.6 per cent.

6. The type of infection isolated from the pericardial fluid corresponded generally to the type of infection isolated from the pleural fluid. In about 75 per cent. of the patients streptococcus infection (usually one of the hemolytic varieties) was present.

7. The most important factor in the development of pericarditis appeared to be the occurrence of empyema. Pericarditis appeared to have resulted by contiguous extension from an empyema in many instances. Pericarditis and the associated myocardial changes were important contributory causes of death in empyema, both prior to and subsequent to operation.

8. In the diagnosis of pericardial effusion in amounts varying from 300 to 500 c.c., the physical signs and the roentgenograms were fairly dependable, despite the extensive, associated pathologic condition which confused the picture. In the diagnosis of smaller amounts (from 10 to 150 c.c.) of purulent material in the pericardium, the clinical signs were untrustworthy and the roentgenograms of little assistance.

9. Paracentesis of the pericardium was an important diagnostic and prognostic procedure. In acute serofibrinous pericarditis with large effusion, aspiration of the fluid was an important means of securing relief for the cardiac embarrassment.

10. The more radical procedure of incision and drainage of the pericardium in purulent pericarditis was not considered advisable in any of these patients, in which the condition was suspected, because of the extensive, associated pathologic condition.

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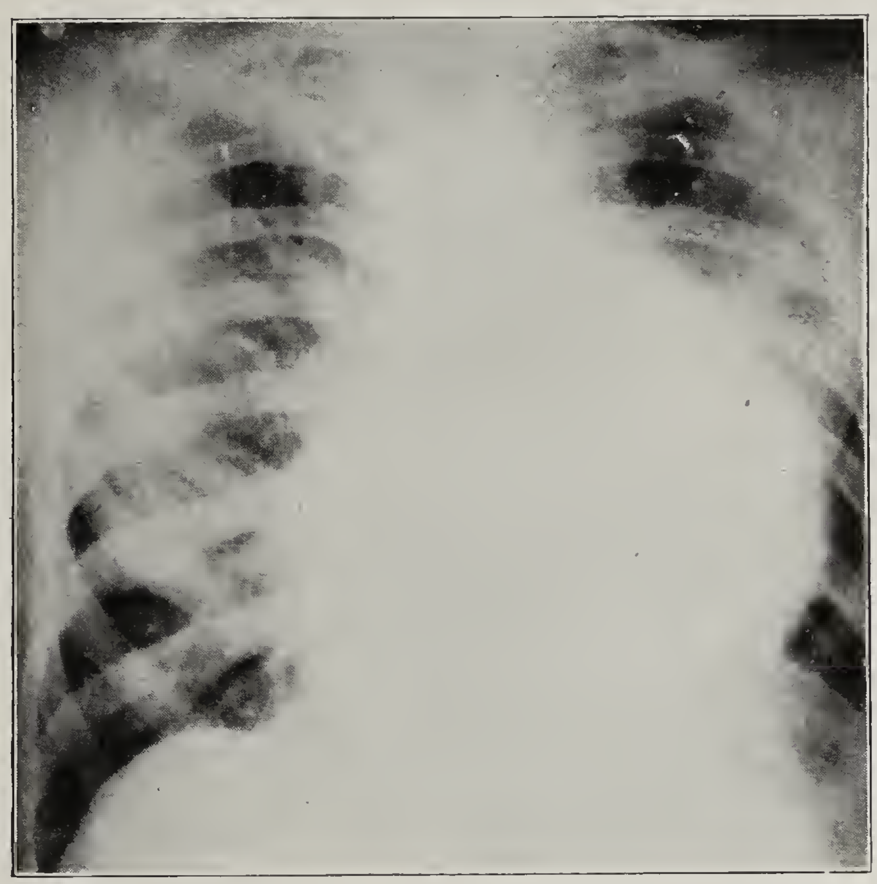

Fig. 4.—Purulent pericarditis with rotation of heart toward posterior chest wall, due to adhesive mediastinitis. Five aspirations. Recovery, but with marked disability.

ABSTRACT OF DISCUSSION

Dr. Charles Spencer Williamson, Chicago: Just before the entrance of the United States into the war I was engaged in the experimental study of pericarditis and to this end injected gelatin agar mixtures into the pericardial cavity of thirty-three fresh cadavers, and then made casts from them. These casts were exhibited at the New York meeting of the American Medical Association in the scientific exhibit. To one of these cases I wish to refer since it was a unique opportunity. A patient with an upper lobe pneumonia developed a pericardial rub and shortly afterward we made the diagnosis of fluid being present. The following day, hearing that the patient was rapidly growing worse, I went to the hospital and found him with a very rapid, weak pulse and in a dying condition. Before we could make plans to aspirate the patient died. A few minutes after death I made a small incision in the costoxiphoid angle, inserted a long needle and aspirated 270 c.c. of turbid fluid containing pneumococci. I immediately injected exactly the same amount of gelatin agar solution and twenty-four hours later removed the pericardium en masse. This was frozen and a cast and model made. The size of the exudate as measured on the model was 405 c.c. The important point is that even with this small exudate the great veins and the auricles were absolutely flattened. Practically we had a repetition of the animal experiments of Francois, Franck and Starling. The fluid had accumulated so rapidly that the pericardium did not distend sufficiently and in my judgment the patient died from the mechanical interference of the circulation due to pressure on the auricles. The important therapeutic indication is to remember that when an effusoin is poured out rapidly the condition of the patient may suddenly become alarming and aspiration of even a very small quantity of fluid may be lifesaving. In other words, a small effusion accumulating rapidly may kill the patient where a large effusion accumulating slowly may be well borne.

Dr. C. F. Hoover, Cleveland: Paracentesis may be done for relief of infection of the pericardium or for relief from pressure within the pericardial sac. Whenever there is a question of performing paracentesis for the relief of pressure within the pericardial sac I am guided by the movements of the costal borders from the subcostal angle to the eighth rib. When the subcardial part of the diaphragm is flattened there will be inspiratory narrowing of the subcostal angle. If the subcardial portion of the diaphragm is not flattened then there will be no need of relieving the pericardial pressure. Another sign I have found very valuable in estimating the need of paracentesis of the pericardial sac is pallor of the lips. When the circulation is failing on account of pressure in the sac the lips are pale and the pulse small. Pallor of the lips is not caused by failing circulation when the myocardium is at fault. Distension of the pericardial sac causes greater hepatic displacement than any other intrathoracic disease. The liver is rotated downward on a transverse axis which is located at that part of the liver not covered with peritoneum. Seven hundred cubic centimeters of fluid in the sac was sufficient on one occasion to rotate the liver downward until the lower border was in the iliac fossa.

Dr. William H. Robey, Jr., Boston: I have been very much interested in the remarks of the speakers, especially in what Dr. Hoover said, because I think that any light which can be thrown on the diagnosis of fibrinous, serous or purulent pericarditis is of great value. I have noted in the plates which Dr. Stone showed that the cardiohepatic angle was not obtuse. It is more often obtuse in large serous effusions than in small purulent ones. I do not think it is the opinion of observers that relatively large amounts of fluid in the pericardial sac produce signs of pressure. It is only when the fluid is first forming before the distensible pericardial sac has accommodated itself to the increased pressure or when the amount is very large that there are signs of discomfort. At the meeting last year Dr. Christian reported some interesting cases of posterior accumulations of fluid which caused signs of compression of the left lung within the angle of the scapula, known as "Ewing's sign." I recently saw in France a case with thirty-two ounces of pus in the sac and because the cardiac impulse was perfectly distinct the surgeons would not believe that the pus came from the pericardial sac even after operation. In another case with pericardial rub followed by increasing cardiac area, Ewing's sign was present. There was a dry tap and at the necropsy the pericardial surfaces were adherent. Ewing's sign failed in this instance. I notice that Dr. Stone and some others caution physicians not to puncture the heart wall in aspiration. I have often gone into the heart wall and have never seen it do any harm. In looking through the literature I have found only one case where the patient bled to death because the needle entered the ventricle. Indeed, in small amounts of fluid, the pericardial space being purely potential it is almost impossible not to strike the heart wall. One of my friends told me that he has given immediate relief to cases of marked cyanosis and dyspnea by aspirating the embarrassed heart and has never seen anything but good come from the operation.

Dr. Henry Sewall, Denver: A pericardial effusion may affect the welfare of the individual in two ways, namely, through the quality of the fluid, its infectiveness, or through its amount. A noninfective effusion works its harm by preventing full diastolic distension of the heart. The restraint thus offered depends on the relation of two factors, namely, volume of the fluid and capacity of the pericardial sac. The latter factor is itself variable but data on the conditions of pericardial distensibility seem to be wanting. It is conceivable that a pericardial effusion of moderate amount may cause sudden death by pressure on the great veins entering the right auricle while the patient lies on his back. In such a case the obstructive pressure might presumably be relieved by turning the patient on his face. Some of the speakers are to be congratulated on their immunity from harm in puncturing the heart itself during paracentesis. It seems to be a question of luck. I recall a case of cardiovascular disease in which the left pleural cavity was tapped by a well known surgeon for removal of serous exudate. The patient died in a few hours; the necropsy disclosed a pericardial sac distended with blood. The aspirating needle had cut into a superficial coronary vessel on the left ventricle and the patient bled to death into her pericardium. We all remember Kronecker's demonstration of the localized coordinating center in the middle of the anterior surface of the right ventricle, irritation of which, in the dog, produced fibrillation of the heart.

Dr. Willard J. Stone, Toledo, Ohio: I have never seen displacement of the liver downward in extensive pericardial effusions because practically all of our cases, at least seven-eighths of them, were associated with empyema in which high fixation of the diaphragm had occurred on the affected side. Such high fixation would operate to prevent downward displacement of the liver if associated with rightsided empyema. In connection with the description which Dr. Robey mentioned of Dr. Christian's paper last year before this section, one of the plates this morning showed a distinct rotation of the heart toward the posterior chest wall. In that case the signs of effusion and dulness were very marked in the back. We have believed in such cases that an adhesive mediastinopericarditis had occurred which had caused rotation of the heart toward the posterior chest wall accounting for the physical signs which were found in the back. These signs were accentuated if transmitted through a portion of contiguous consolidated lung. I do not believe that the sign described by Ewing is of any great significance in connection with pericarditis, except as it explains the associated chest pathology. I am sure, in doing paracentesis of the pericardium, that I have punctured the ventricle of the heart a number of times. I do not know that any particular harm has followed the incident, but believe, of course, that it is just as well to avoid puncturing the ventricle if it is possible to do so. To carry a needle through a thickened septic pericardial membrane, through the ventricle and into the blood stream is hardly a very desirable surgical procedure. If one uses the roentgenogram as a guide and keeps within the area of heart dulness, a point to the left, below and just outside the nipple, is on the whole the most satisfactory point for aspiration. The angle between the xiphoid and the left costal border was rarely available in our series because of the high diaphragm associated with empyema. I should like to ask Dr. Robey if he has ever seen any harm come from puncturing the ventricle in pericardial paracentesis.

Dr. William H. Robey, Jr.: Not in my experience or in that of my friends, and I have found but one case in the literature where any harm seemed to have come from it.

Deaths from Disease and War in Great Britain.—The statement that the devastations produced by disease in times of peace are even greater than the loss of life from war may be illustrated by the experience of England and Wales. In the four years, 1911-1914, immediately preceeding the world war, 2,036,466 persons died in England and Wales, while, according to official figures, the total loss of men during the four and one-fourth years of war was 835,743, including 161,800 presumed dead. The war figures give the entire loss for the British empire; but it cannot be far from the truth to state that war on the gigantic scale of the war from which we have just emerged has killed in Great Britain about one-third as many as have died in the civilian population in a corresponding period.

HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY (BAMBERGER-MARIE DISEASE)

REPORT OF A CASE FOLLOWING LUNG ABSCESS *

SEWARD ERDMAN, M.D.
Major, M. C., U. S. Army; Chief of the Surgical Service, Base Hospital

WITH ROENTGENOGRAMS BY

WALTER A. OSTENDORF, M.D.
Captain, M. C., U. S. Army
FORT SAM HOUSTON, TEXAS

In the surgical service of the U. S. Army Base Hospital at Fort Sam Houston, Texas, I became deeply interested in a case of draining lung abscess associated with enormous enlargement of the hands and feet, with ossifying periostitis of certain long bones and with fluid in the knee joints, evidently a case of subacute infectious osteo-arthritis.

REPORT OF CASE

Clinical Picture.—March 20, 1919, I found a young man having the appearance of a chronic invalid, but he was not confined to bed. He was rather pale and slightly emaciated. His facial expression was listless and dejected. Speech and mentality were rather slow. He had a chronic cough which occurred in paroxysms with the production of moderate amounts of thick, tenacious, mucopurulent sputum, at times streaked with blood, with a musty but not offensive odor. Most striking was the enlargement of the hands and feet, the hands resembling huge, clumsy paws. The wrists were enlarged after the manner of the hands. The fingers were generally thickened and sausage-shaped, but were not "clubbed"; indeed, the greatest enlargement was over the proximal interphalangeal joint. The finger nails were large, square and flat, smooth and without any of the curving seen in "simple clubbed fingers"; the large nails were only in proportion with the huge fingers. The elbows were slightly enlarged. The feet and toes were correspondingly enlarged, and there was moderate edema of the legs, with pitting on pressure. The knees were markedly swollen and contained fluid. There was slight tenderness to pressure over the affected bones and joints, but there was no redness. The bones of the skull and the face did not appear to be affected. From the surgical wound over the ninth rib in the posterior scapular line, there was slight purulent drainage, and examination revealed that the sinus communicated with a bronchus. In walking, the gait was clumsy and shuffling; the head was held slightly forward and the shoulders drooped, but no kyphosis nor scoliosis was detected.

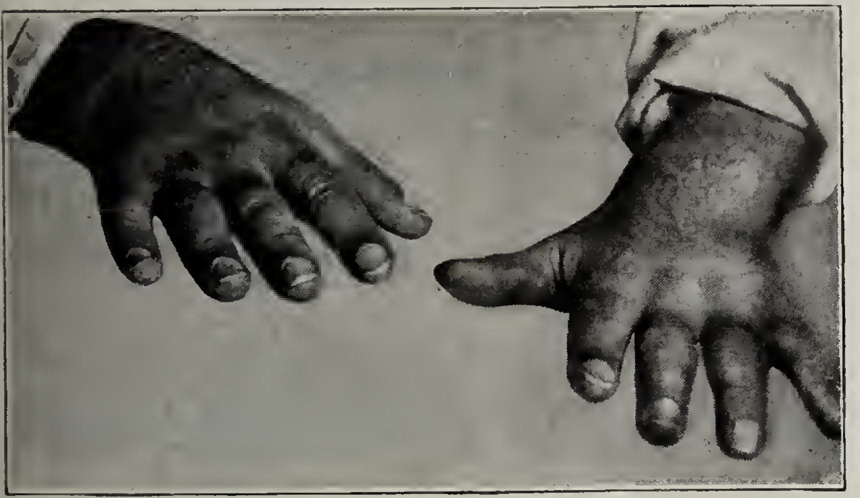

Fig. 1.—Condition of the hands.

History.—B. M. W., aged 24, first lieutenant, Flying Detachment Air Service, was admitted, Aug. 1, 1918, to the base hospital.

Family history: His father was alive, aged 54. He had had glycosuria for one year. His mother was alive and well, aged 43. All brothers and a sister were alive and well. There was no history of tuberculosis or cancer.

Personal history: The patient had had measles and mumps in infancy, and scarlatina at the age of 6. He gave a vague history of "rheumatism," saying that his feet had been swollen at times, but he was never confined to bed on this account. He had had occasional colds, but had never had tonsillitis until December, 1917. He had had no other illnesses. He stated that he had had no venereal disease.

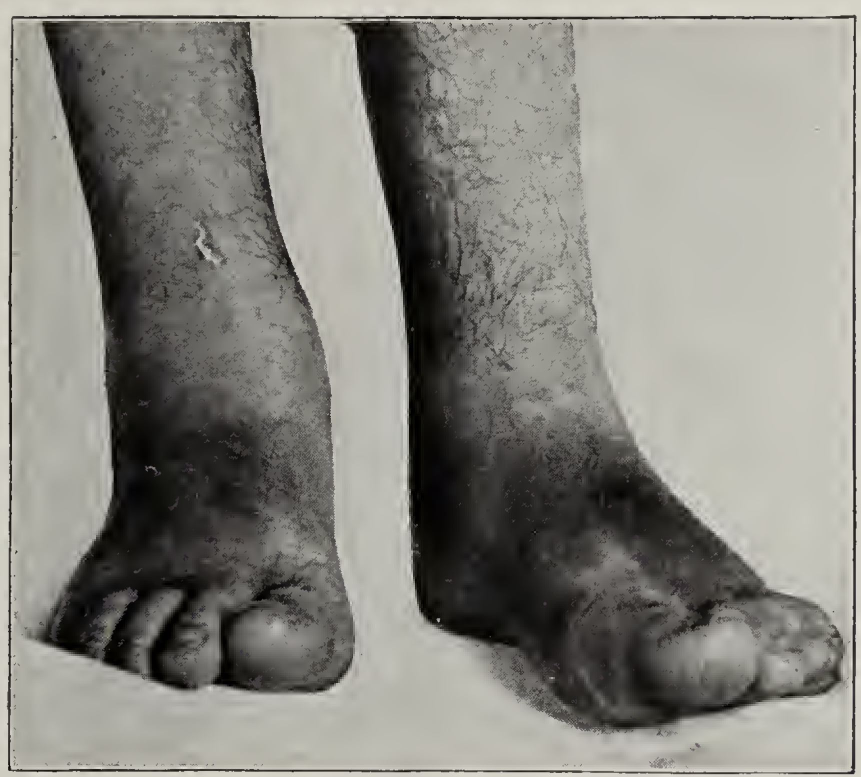

Fig. 2.—Appearance of the feet of patient in November, 1918.

Present illness: In December, 1917, while on duty with the Flying Corps, he "caught cold" and had tonsillitis. He was advised to have the tonsils removed.

Jan. 8, 1918, tonsillectomy was performed under ether anesthesia, in Philadelphia. He remained in the hospital only twenty-four hours. A few days later he developed a cough and pain in the left chest, at times referred to the left side of his abdomen.

February 1, he took to his bed and remained there for three weeks, suffering from what his physician called "pleurisy" of the left chest.

His cough persisted for about ten weeks.

March 19, he reported for duty at Kelly Field No. 2, Texas, and began flying. About this time his cough left him and he says that it did not return until after an accident in May in an aeroplane.

May 29, his aeroplane dropped from a height of 700 feet, but he was not seriously injured; he did not lose consciousness, but he was bruised and considerably shaken up. His chin was lacerated and his upper central incisor tooth was knocked out. This tooth was not found, and he wonders whether he may have "aspirated" it. There was no roentgenologic evidence that such was the case. No bones were fractured, and he remained in the hospital for only four days, reporting for duty on the sixth day after the accident.

His cough returned, and except for short remissions has persisted up to the present time. After his fall he was not again permitted to fly and was soon given a sick leave for a month.

About July 20, on his return from sick leave, he first noticed "swelling of his feet and toes"; his cough was troublesome, and he was sleepless and easily tired on exertion. The legs and feet felt heavy, weak and stiff as if they had been "jambed."

August 1, he entered the base hospital at Fort Sam Houston where he has remained up to the present time.

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* Owing to lack of space, this article is abbreviated in The Journal by the omission of certain paragraphs and illustrations. It will appear in full in the author's reprints.

About August 15, the hands began to enlarge rapidly, attaining their maximum size (so far) within a couple of weeks. The paroxysmal cough, especially on lying down at night, caused violent frontal headache and insomnia. The headaches lasted only for a few weeks, and there have been none during the past six months; but the sleeplessness has persisted and is still a distressing feature despite the use of sedatives.

Clinical Course.—During August, there were slight rises of temperature during the afternoon, the maximum being 100 F., but usually about 99.4. The pulse ran between 98 and 108. There was much cough, sleeplessness, nervous irritability and depression of spirits.

Weight on admission was 133 pounds, which was about normal.

The physical and the roentgenologic examinations pointed to an involvement of the left lower lobe of the lungs. The heart was normal. The systolic blood pressure was 114. The enlargement of the hands and feet was as described above. The epitrochlear nodes were enlarged. Otherwise the physical examination was not significant.

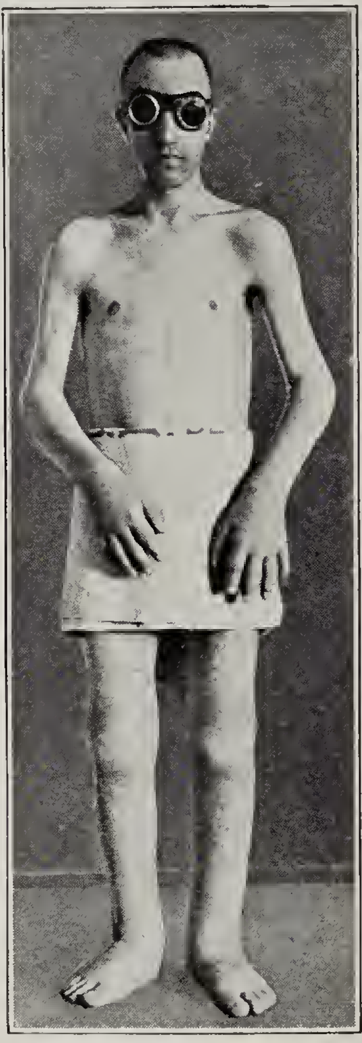

Fig. 3.—Condition of patient, March 20, 1919.

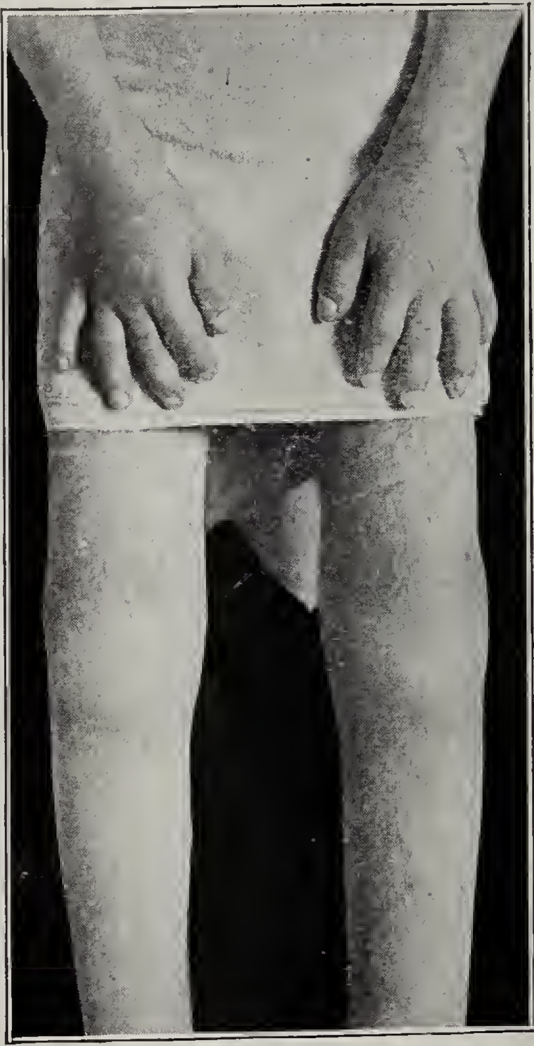

Fig. 4.—Appearance of hands and legs, March 20, 1919.

Blood Wassermann tests were negative, August 6 and 9, and September 6.

The sputum was negative for tuberculosis in approximately twenty examinations.

Repeated examinations of the urine disclosed no albumin, no sugar and no casts. The specific gravity averaged from 1.009 to 1.020.

Blood examination, Aug. 2, 1918, revealed red blood cells, 4,740,000; hemoglobin, 70 per cent.; leukocytes, 11,200; polymorphonuclears, 72; large mononuclears, 3; small mononuclears, 25. There was no poikilocystosis nor chromatophilia.

The feces were negative for parasites.

In September, 1918, efforts were made to locate pus which was suspected in the left chest, and several unsuccessful aspirations were made.

September 13, a small amount of thick pus was aspirated from the left chest posteriorly at a depth which seemed to indicate a lung abscess, and at once costectomy of the eighth or ninth ribs in the posterior scapular line was performed and the parietal and the visceral plura were sutured together, as the first stage of a two-stage operation for lung abscess. The operator was Major Russell.

September 17, through the costectomy wound, an abscess deep in the left lower lobe was opened with the cautery and a considerable amount of pus was evacuated and the abscess was drained.

From September, 1918, up to the present time, there has been more or less drainage of thick pus from the wound. Surgical solution of chlorinated soda (Dakin's solution) was not well borne on account of the communication with the bronchus.

At one time in February, 1919, the discharge gradually ceased and the wound closed but opened again spontaneously about sixteen days later, and discharged a bit of greenish, gangrenous tissue.

At the present time, there is still slight purulent drainage and free communication with the bronchus, namely, a chronic bronchial fistula.

During these months whenever the drainage seemed insufficient there occurred an exacerbation of the cough, mental depression and above all an increase in the size and in the aching pains along the enlarged bones and joints of the extremities, but without local heat or redness.

In January, 1919, the knees became more swollen and filled with fluid.

The treatment during this time has been surgical care of the wound in the chest, symptomatic treatment for the pains and the insomnia, and during December, 1918, the injection of an autogenous vaccine prepared from the pus.

This vaccine contained *Staphylococcus albus,* and a gram-negative typhosus-like bacillus. No effect was noted from its use.

The sputum, March 4, 1919, was thick, mucopurulent, and streaked with blood. Culture shows *Micrococcus catarrhalis* and a green-producing nonhemolytic streptococcus. There was no elastic lung tissue. The odor was musty but not very offensive.

Blood examination, March 2, revealed: red blood cells, 5,740,000; hemoglobin, 80 per cent. (?); leukocytes, 11,400; polymorphonuclears, 54; small mononuclears, 39; large mononuclears, 4, and transitionals, 3.

The systolic blood pressure was 110; the diastolic, 64.

Fluid from the left knee was aspirated, March 6. Smear and culture were negative.

Ear and throat examinations were negative.

Eye examination, March 11, 1919, revealed: vision right eye 20/20, left eye, 20/20. The media were clear. The fundi were normal. The field of vision for form was normal in extent in both eyes.

The weight was 133 pounds Aug. 1, 1918, and 122 pounds, March 15, 1919, a net loss of 11 pounds.

The height was 64 inches, June, 1917, and 64½ inches, March 18, 1919.

The thyroid gland appeared to be normal.

There has been practically a normal temperature for months with occasional elevations to 100 F. at times when the drainage has been temporarily blocked.

The pulse still averages from 96 to 104.

Summary.—There was an involvement of the left lung, probably the effect of an aspiration infection following tonsillectomy under ether. There was a chronic productive cough. There was a rapid enlargement of the feet and hands during a period of six months. A lung abscess was drained, September, 1918, with a resulting persistent, bronchial fistula. Mental depression and insomnia were present. There was a slight loss of weight. There was no evidence of syphilis or tuberculosis. The pathologic condition in the enlarged hands and feet and other regions is best revealed by the roentgenograms which show, besides the enlargement of the overlying soft parts, a definite striated production of new bone in the periosteum of the shafts of the metacarpals and the first two rows of the phalanges, also along the lower ends of the radius and ulna. The corresponding bones of the lower end of the femur; also the clavicles and some of the ribs, are to a degree affected. The joint surfaces appear unaffected. There is fluid in the knee joints.

Negative Findings.—The fingers are not "clubbed." No pituitary or thyroid changes are present. There are no headaches, disturbance of vision nor drowsiness; on the contrary, very marked insomnia. There are no changes in face, lips or skull. There is no evidence of abnormal thirst or hunger, and there are no alterations in the special senses.

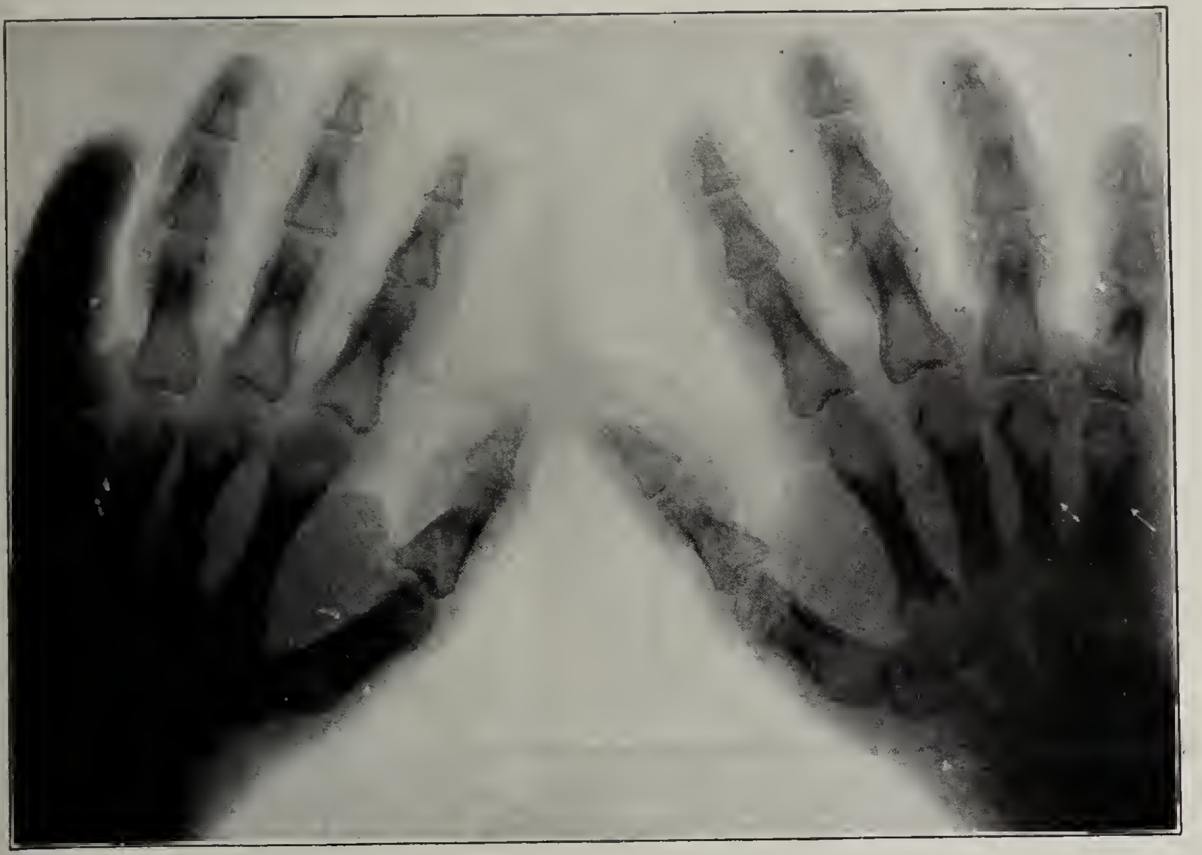

Fig. 5.—Thickening of the periosteum with irregular deposit of subperiosteal bone on metacarpals; also on proximal and middle phalanges (February, 1919).

HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY

In 1890, Marie first reported a case which he described as "osteo-arthropathie hypertrophiante pneumique," a distinct clinical entity, and yet, according to Babcock, this very case turned out later to be a case of acromegaly.

I have been unable to make a complete review of the literature, stationed as I am on military duty, but all the available authorities have been consulted and many and great are the discrepancies encountered. From many of the articles it would appear that the writer never had seen a genuine case of this rare disease and had been obliged to draw on and still further confuse the already confused descriptions of preceding authors.

It is doubtful whether the whole literature up to the present time contains records of 100 cases; it is certainly the only case of its kind which has ever come under my observation.

One is struck by the emphasis laid on the clubbing of the fingers, which is not present in our case. We agree very heartily with Sternberg when he says that "one must suspect that many cases, so-called, are not all the same, and it is a question whether or not 'clubbed fingers' and the periosteal changes are related." Sternberg says that we see clubbed fingers without periosteal changes in the long bones, but we do not see the reverse.

In our case we cannot accept the last clause of Sternberg's statement, for we have a case with pronounced changes in the long bones and yet without "clubbing of the fingers," the fingers being very generally enlarged throughout and the nails, while proportionally large, not curved more than normal.

ETIOLOGY

The French writers were the first to attribute the origin of this rare disease to the absorption of toxins from a septic focus, usually in the lungs. This is the explanation now generally accepted; and in order of frequency the following foci have been encountered: bronchiectasis, empyema, abscess of the lung, pulmonary tuberculosis with cavity formation, toxic cirrhosis of the liver, and malignant tumors of the lung.

Sternberg mentions such other causes as pyelonephritis, dysentery, pneumonia, pleurisy, influenza, alcoholism and congenital heart disease; but Osler remarks that Sternberg must have included many doubtful cases. The tuberculosis theory is upheld by Poncet, Thorburn, Ball and Alamartine. Syphilis has also been advocated by certain French writers as the cause.

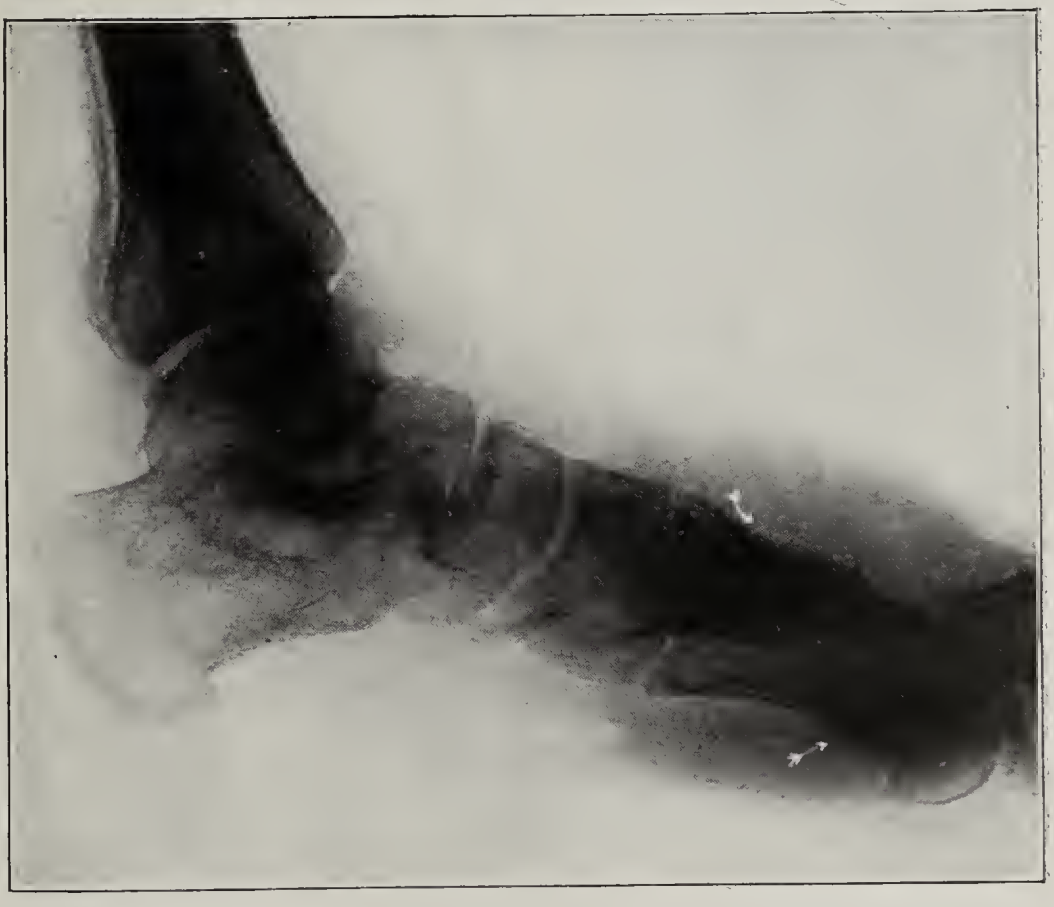

Fig. 6.—Subperiosteal bone deposits on lower ends of tibia and fibula; posterior aspect of os calcis; anterior surface of astragalus and of metatarsals (March, 1919).

Cyanosis, if it were constantly present, might be called on to explain simple clubbed fingers, but it fails utterly to account for the bone changes.

The bone and joint involvement in our case indicate conclusively that the process is a subacute infectious osteo-arthritis, and in our case, as in the vast majority of genuine cases reported, the focus of infection is in the lungs.

PATHOLOGY

In 1906, Alexander collected seventy-seven instances from the literature which he regarded as genuine cases of this disease, and he reviews the pathology of all the cases in which complete necropsies were performed (sixteen cases).

We quote Alexander's findings almost verbatim from Osler, and the description fits our case very perfectly:

> Symmetrical deposits of new subperiosteal bone on the shafts of the long bones. Most frequently affected are the lower ends of the radius and ulna, the metacarpals and the first two rows of the phalanges; more rarely the lower end of the humerus and the upper ends of the radius and ulna. The new bone begins abruptly from 4 to 5 inches above the wrist joint and forms a sheath covering the lower ends as far as the epiphyseal line. The circumference of the bone is about equally affected, the thickest deposit being at the junction of the shaft with the lower extremity of the bone. The carpal bones are not affected, but the metacarpals are ensheathed and appear uniformly enlarged. The first two rows of the phalanges are similarly affected but less than the metacarpals. The terminal phalanges are apparently unaffected.

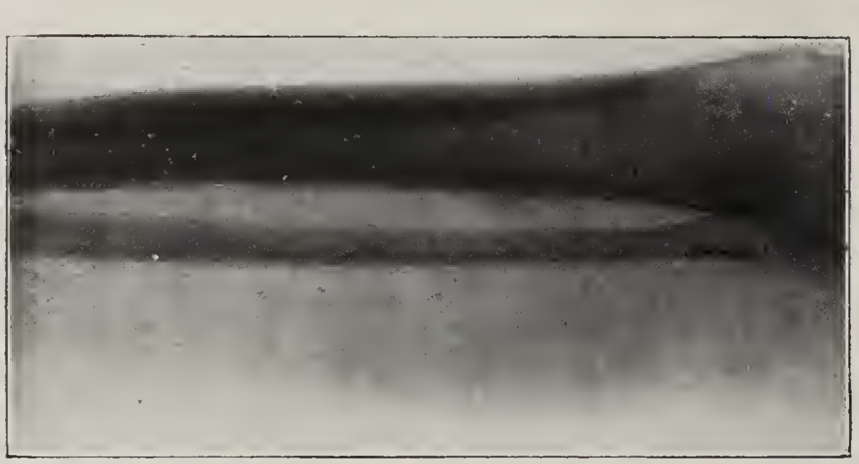

Fig. 9.—A sheath of new bone may be seen surrounding the shafts of the tibia and fibula. The cortex and medullary canal are apparently normal (March, 1919).

> Similar bones of the lower extremity are affected, especially the lower tibia, which may be thickened by a layer of new bone one quarter of an inch thick. The phalanges of the toes are less affected than those of the fingers.
>
> Deposits have been found on the iliac crests, on the clavicles and on the anterior surface of the patellae.
>
> The symmetrical distribution is truly remarkable.
>
> The cortex of the bone may show sclerosis and thickening, with diminution in the size of the medullary canal. The periosteum is very vascular and thick, and the main nutrient canals are large and many additional vessels enter the compact layer.
>
> The bone changes are due to a chronic inflammation, causing new bone formation, also to atrophy and rarefaction and, to a much less degree, to osteophyte building.
>
> The long bones do not bend. The skull is little, if any, affected.
>
> In many cases there is excess of fluid in the joints, wrists, ankles, knees and fingers. In these affected joints the synovial membrane shows inflammatory changes, but there are no cartilaginous changes or lipping, no eburnation nor osteophyte building.

The bone changes are only part of the process, for there is much thickening of connective tissue, especially in the vicinity of the wrists, ankles and fingers.

Barker describes the affair as a slowly ossifying periostitis and osteitis, but he states that the joints are free.

Buck[3] says that there is "an outside layer of dense, newly formed periosteal bone all along the shaft; this layer is striated and does not completely obscure the old cortical line. In pronounced cases all the bones in the body may be involved; the flat bones are thickened and there is marked kyphosis."

Fraenkel adds that it is "a true hypertrophy in consequence of periostitis, with new bone formation and at the same time a rarefaction of osseous tissue with dilatation of the natural interstices as well as increase of the medullary substance."

I make no attempt to harmonize the little discrepancies in the descriptions quoted above.

The thyroid and the pituitary glands are not altered.

TREATMENT

The treatment for the pains in the bones and joints is symptomatic. The only treatment which will logically have any effect on the progress of this race disease must be directed toward the cure or improvement of the primary focus in the lungs.

CONCLUSIONS

The history, the clinical findings and the roentgenologic findings in our case all point quite conclusively to the diagnosis of hypertrophic pulmonary osteoarthropathy, by which we mean a subacute infectious osteo-arthritis, secondary to a septic focus in the lungs. However, we must acknowledge that the roentgenogram of the skull shows an abnormally small sella turcica, and the possibility of some change in the pituitary must be admitted.

Is it possible that our case, like the first case reported by Marie, may later develop into an irregular type of acromegaly?

CONGENITAL BILATERAL STRICTURE OF THE URETER *

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NEW YORK

If we may judge from the literature on the subject, congenital stricture of the ureter is not rare; but a *bilateral* congenital stricture of the ureter is a rare defect, only eight cases, exclusive of the one here recorded, having been described. From the few cases recorded it would appear that these strictures are most often discovered at the extremes of life, most of them having become evident before the age of 5 years. Two cases have occurred in adults, one at the age of 25 years and the other at the age of 62.

No apparent reason for this congenital anomaly presents itself in studying the development of the urinary system. The ureters are primary derivatives of the bladder, growing cephalad to meet the metanephric tissue. Their lumina appear either as a result of central absorption of the epithelial outgrowth or are present primarily in the process of their evagination from the bladder[1]. The failure of these processes to be completed would give rise to the obliteration of the lumen. Another explanation rests on an anatomic characteristic of the ureter in the embryo, namely, the presence of valves. In the case reported by Watson and Cunningham,[2] it is probable that the valves became adherent at their margins or lost their elasticity and so caused the narrowing of the lumen.

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[3] Bryant and Buck: American Practice of Surgery **1** and **3**: 1906.

* From the Pathological Laboratory, Lincoln Hospital and Home, G. L. Rohdenberg, M.D., Director.

[1] Huntington: Harvey Lectures, New York, 1906-1907, p. 222.

In the ureter there are three sites of predilection where the lumen may be obliterated: at the junction of the ureter with the renal pelvis, at the brim of the bony pelvis, and at the vesical end. When the obstruction occurs at the vesical end, obliteration may occur just outside the bladder, or in the muscular coat, or at the bladder opening of the ureter. With obstruction just outside the bladder, there is a cystic dilatation extending up a variable distance from the bladder while the inner surface of the viscus is negative. With the stricture in the middle coat, there is no obvious abnormality, except perhaps a dimpling or a moderate pouting at the site of the ureteral opening. When the obliteration occurs at the ureteral orifice, there is a cystic outpouching from the ureteral opening which may vary daily in size, as in Buerger's case,[3] or enlarge so that it may present at the external urethral meatus as in the cases described by Bostrom.[4]

As is to be expected, the narrowing of the lumen produces a back pressure which results in structural and physiologic changes in the tract behind the stricture. The extent of these changes is dependent on the degree of the atresia. If obstruction is incomplete, there is a dilatation of the lumen of the ureter accompanied by a hypertrophy of the wall. The renal pelvis becomes dilated, and atrophy of the pyramids and renal parenchyma follows. If the atresia is complete, the result is either an atrophy of disuse or a hydronephrosis, with or without a pyogenic infection. The fluid in the hydronephrotic cases, as Sollmann, Williams and Briggs[5] have shown, possesses the characteristics of a transudate and not that of urine.

The cases occurring in the literature are, briefly abstracted, as follows:

REPORT OF CASES

Case 1.—A man, aged 25, was operated on at the age of 14 for a right-sided hydronephrosis and at the age of 25 for a left-sided pyonephrosis (Wipple[6]).

Case 2.—A bilateral congenital atresia occurred in an 8 month old fetus at the vesical opening of the ureters with beginning double hydronephrosis (Welz[7]).

Case 3.—The age of the patient is unknown, but he presented a marked degree of bilateral hydronephrosis due to unyielding ureteral valves (Watson and Cunningham[2]).

Case 4.—A boy who died thirty hours after birth presented a right ureter obliterated 5 cm. from the kidney and the left ureter obliterated 2 cm. above the bladder (Mutach[8]).

Case 5.—A man, aged 62, presented a bilateral stricture at the vesical openings indicated by minute depressions at the tip of protrusions appearing at the normal ureteral openings in the bladder. This was probably the type in which the stricture was situated in the ureter as it passed through the muscular coat of the bladder (Burchard[9]).

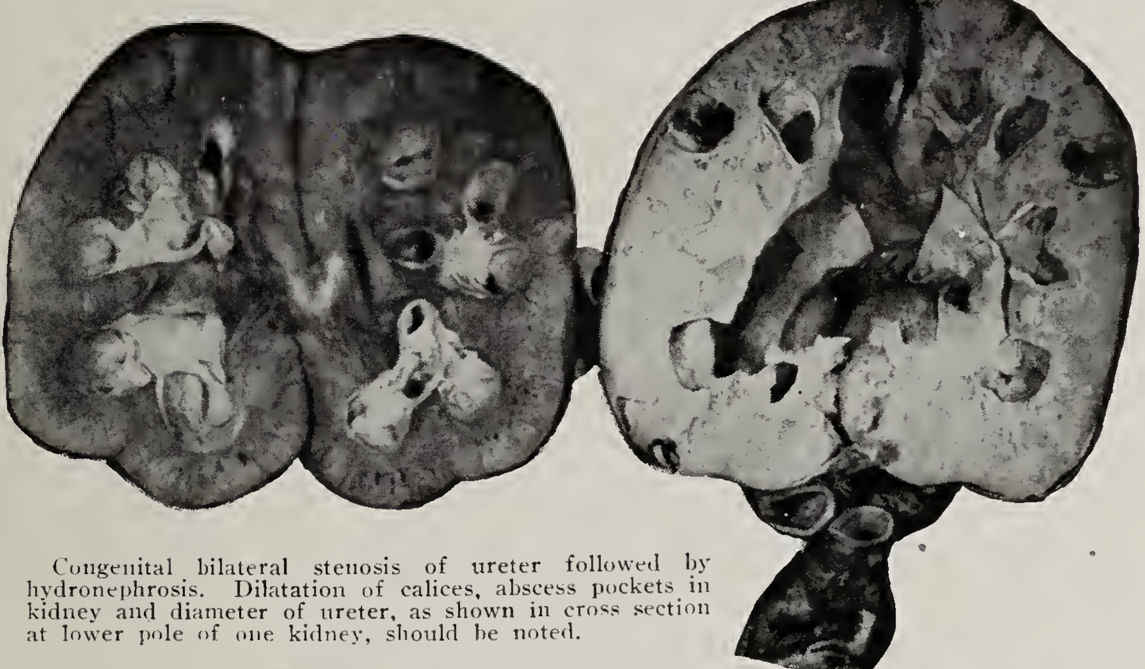
Case 6.—A boy who died one hour after birth from respiratory difficulties presented the ureter patent on the right side for a distance of 3 cm. from the bladder, the left ureter being patent for 2 cm. This author states that similar cases have been reported by Hoenes and Ahlfeld (Dycherhoff[10]).

AUTHOR'S CASE

A boy, aged 1 month, was brought to the hospital with the statement that he had been restless and vomiting since birth. Birth had been normal. Physical examination revealed a marked state of malnutrition. The abdomen was much distended, the superficial veins being prominent on both sides. The child was moderately jaundiced. The temperature varied from 99 to 100 F. After three days in the hospital the infant died.

At the necropsy, aside from the jaundice of the skin and organs, only two abnormalities were found: the first of these was that of the gallbladder. The viscus was distended with a colorless mucoid substance, and the cystic duct was completely angulated on itself so that the two limbs were parallel. They were held in this position by a vascular band containing the cystic artery. On cutting this band the obstruction was released and the contents of the gallbladder could be expressed into the duodenum.

The second abnormality was in the urinary system: Both kidneys were enlarged, the pelvis and calices were dilated and the pyramids were flattened. The left kidney presented several abscess pockets, the largest of which was 5 cm. in diameter. Both ureters were markedly dilated, measuring almost 1 cm. in diamter, the ureteral walls being 0.25 cm. thick. A probe could be passed through their entire course except at the vesical end where they permitted the passage of only a horsehair. The urethra was patent and the bladder showed no abnormality. The accompanying illustration shows the condition better than words can describe it.



Congenital bilateral stenosis of ureter followed by hydronephrosis. Dilatation of calices, abscess pockets in kidney and diameter of ureter, as shown in cross section at lower pole of one kidney, should be noted.

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[2] Watson and Cunningham, cited by Eisendrath: Surg., Gynec. & Obst. **12**: 533 (June) 1911.

[3] Buerger, cited by Bottomley, Ann. Surg. **52**: 597 (Nov.) 1910.

[4] Bostrom, cited by Schwarz: Beitr. z. klin. Chir. **15**: 159 (Nov.) 1895.

[5] Sollman, Williams and Briggs: J. Exper. M. **9**: 71 (Jan.) 1907.

[6] Wipple, cited by Welz: Inaug. diss., München, 1903.

[7] Welz: Inaug. Diss., München, 1903.

[8] Mutach, cited by Welz (Footnote 7).

[9] Burchard: Centralbl. f. allg. Path. u. Path. Anat. **7**: 129 (Feb.) 1896.

[10] Dycherhoff: Inaug. Diss., Kiel, 1900.

Institution to Promote Cleanliness and Hygiene Among Schoolchildren.—The women of the Comité femenino de Higiene Popular of Spain have fitted up a building at Madrid equipped with all that is necessary for baths, etc., for schoolchildren, especially to "hygienize" the children as they are to be sent out of town to the seashore sanatoriums, school colonies and for other outings. The building has been placed at the disposal of the city authorities, and the work of caring for the children is done by the women of the league or the public health personnel. The children have their hair cut, the head disinfected, the mouth put in order and the teeth attended to by a woman dentist. There are douches and other bathing facilities and the institution is open for work every week-day, from 8 a. m. to 8 p. m., everything gratuitous. It is hoped to install more of these Casas de Higiene Benéfica Infantil in other crowded parts of the city.

ANKYLOSIS OF THE JAW DUE TO FIXATION OF THE TEMPORAL MUSCLE

METHOD OF TREATMENT *

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ROCHESTER, MINN.

It is sometimes difficult to determine definitely the side involved and the location of the fixation of an ankylosis of the jaw. This is particularly true in cases in which the jaws are fully formed before the ankylosis has occurred and in which there is no deformity. The diagnosis of the location is not so difficult when the fixation has occurred early in life, causing the deformity typical of such cases.

Ankylosis of the jaw may be said to be of three types: (1) articular ankylosis, the most common type, due to the involvement of the temporomaxillary joint, (2) extra-articular ankylosis, in which the extra-articular structures or muscles are the cause, and (3) articular-extra-articular ankylosis, in which both the joint and the extra-articular structures are at fault. The clinical points of value in determining the side involved and the location of the ankylosis have been brought out in a recent article.[1]

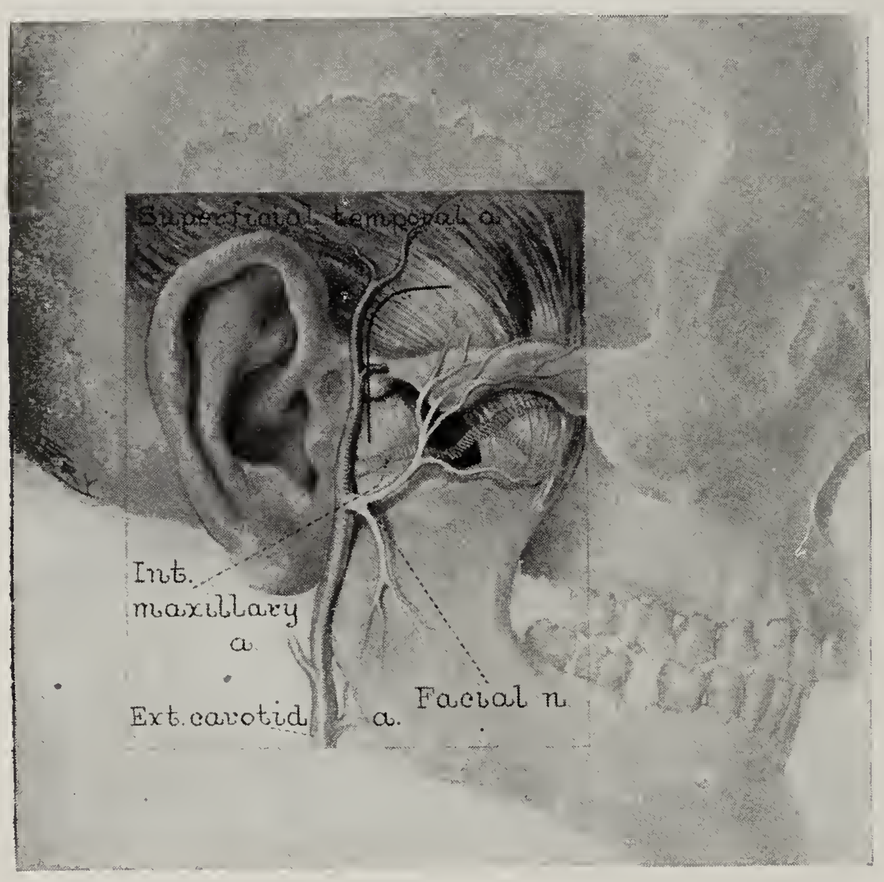

Fig. 1.—The superficial temporal artery, internal maxillary artery, facial nerve and the location of the incision.

The treatment of the articular type of ankylosis gives uniformly good results. It consists of an arthroplasty of the temporomaxillary joint through a curved incision 2 inches long, extending above the zygoma and down in front of the ear, and the removal of at least one-half inch of the condyle and the ascending ramus of the jaw. It is not necessary to interpose any tissue in the new joint. When the jaw is not deformed, the operation is not difficult. If the typical deformity of ankylosis developed early in life is present, the joint will be very low and should be attacked from above by removing the lower margin of the zygoma. In this way the facial nerve is avoided, which is liable to injury if care is not taken in making the dissection in the soft tissues.

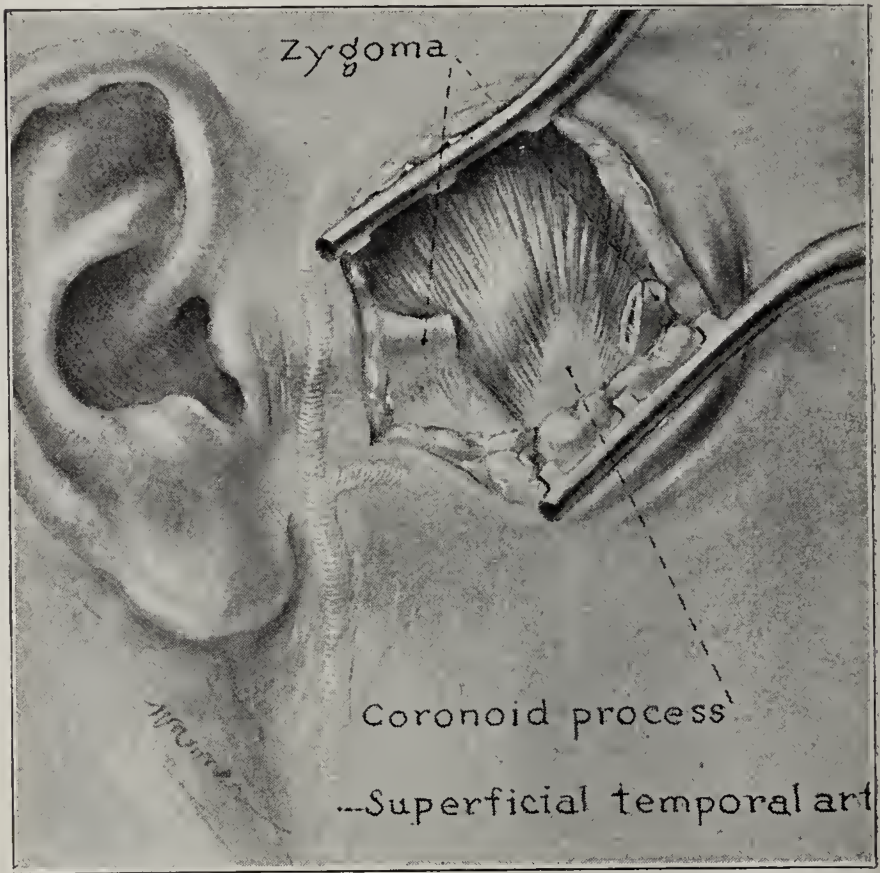

Fig. 2.—Appearance after removal of a portion of the zygoma and exposure of the coronoid process, and the attachment of the temporal muscle.

The treatment of the extra-articular and the articular-extra-articular types of ankylosis are much more difficult and present many problems. A recent case of extra-articular ankylosis of the jaw, due to fixation of the temporal muscle, suggested a method of treatment which, so far as I know, is new for this type of case.

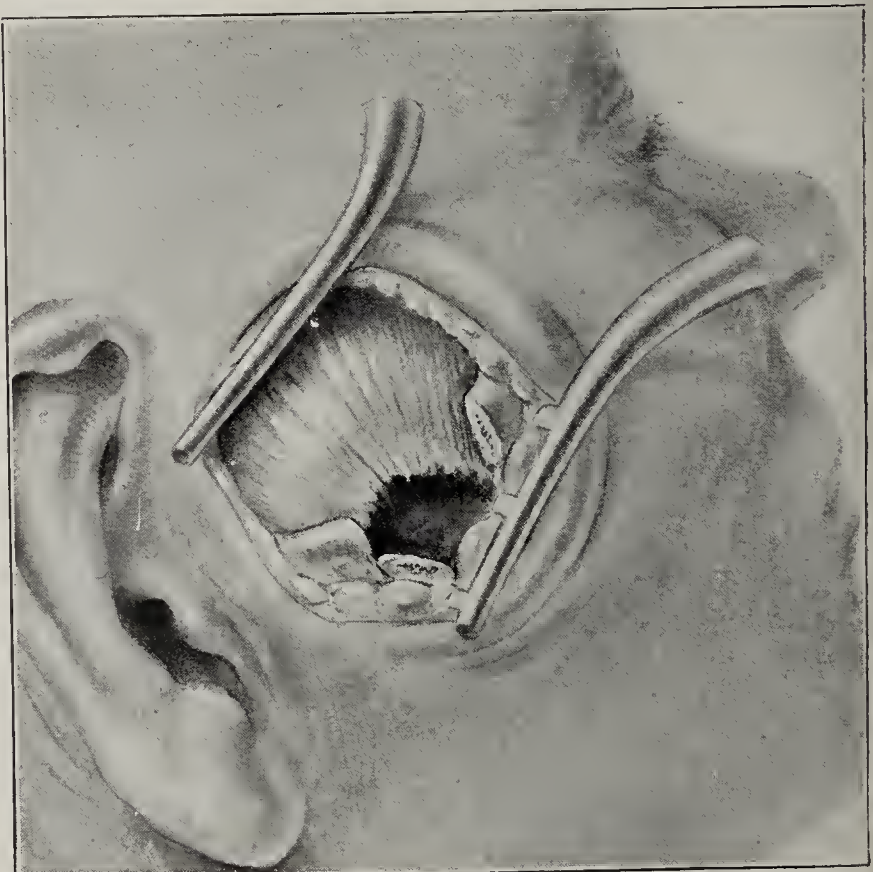

Fig. 3.—Appearance after removal of the coronoid process along with the attachment of the temporal muscle.

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*From the Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic.

[1] Henderson, M. S., and New, G. B.: Ankylosis of the Jaw, Surg., Gynec. & Obst. **27**: 451-458 (Nov.) 1918.

REPORT OF CASE

History.—N. A. B. (Case 118426), a farmer, aged 36, came to the clinic, Jan. 8, 1919, on account of inability to open his mouth. This trouble followed a gasserian ganglion operation here three and one-half years ago. The operation had been done by Dr. E. H. Beckman for trifacial neuralgia of several years' standing. The notes of the operation, July 21, 1915, follow:

"The operation was done in two stages. The Cushing incision was made, and large tortuous vessels were found throughout the entire dura. Because of the severe hemorrhage it was thought best to divide the operation into two stages and a gauze pack was inserted to be left in place for twenty-four hours. July 29, 1915, the second stage operation was done. The posterior root was evulsed and most of the ganglion removed. The bottom of the pocket was packed with gauze to control hemorrhage; the gauze was removed twenty-four hours later."

The patient made an uneventful recovery except that he was unable to open his mouth after the operation; he secured complete and permanent relief from pain.

The ankylosis was complete and the patient had received no treatment for it. Except for the scar in the left temporal region extending down in front of the ear, the face was symmetrical and there was no atrophy. It was believed that the ankylosis was due to the fixation of the temporal muscle either from cutting it across at the time of the operation or from secondary inflammatory reaction. The patient was given ether, and an unsuccessful attempt was made to stretch the jaws open. In order to restore the function of the jaw, an operation was performed.

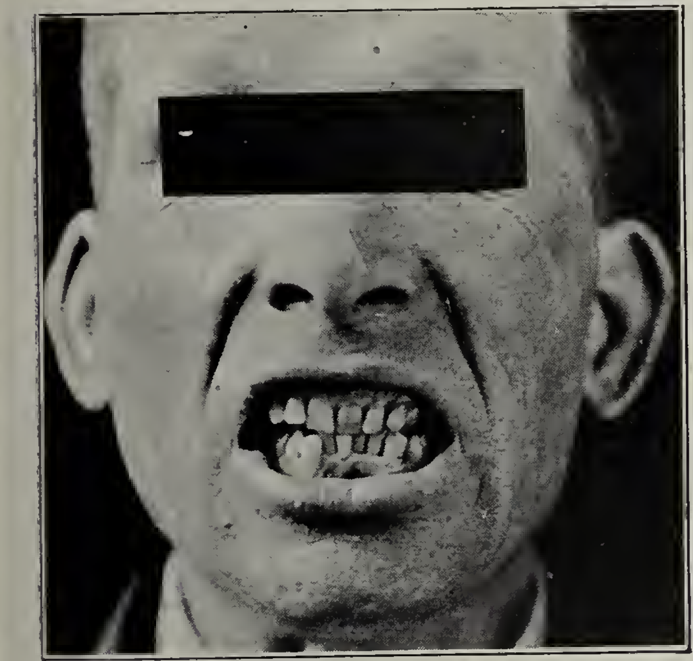

Fig. 4 (Case 118426).—Complete ankylosis of the jaw due to fixation of the temporal muscle following gasserian ganglion operation.

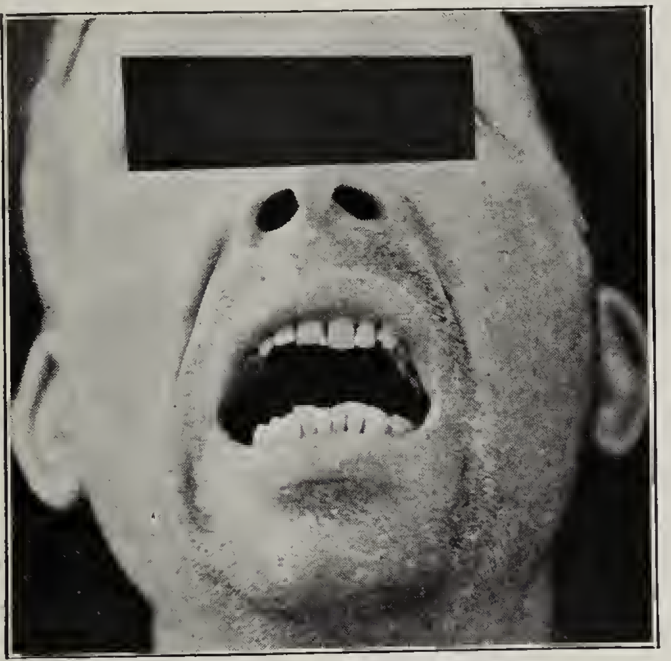

Fig. 5.—Appearance after removal of the coronoid process and the attachment of the temporal muscle.

Operation and Result.—The incision was the same as that used in the operation for arthroplasty of the temporomaxillary joint (Fig. 1). The skin and superficial tissues were incised down to the temporal fascia. A mastoid retractor was inserted and the zygoma exposed well forward. In elevating the soft tissues over the zygoma it is essential to keep close to the bone, thus preventing injury to the facial nerve. By means of blunt dissecting scissors and a periosteal elevator the inner surface of the zygoma was freed so that a piece of it 1 inch long was removed with a Gigli saw (Fig. 2). This piece was placed in a warm, wet gauze sponge. The temporal muscle and coronoid process were then exposed and removed with a curved chisel and a bone-biting forceps. The attachment of the temporal muscle to the inner surface and notch of the ascending ramus was removed by blunt, dissecting scissors (Fig. 3).The temporomaxillary joint was exposed but not opened, and was found to be normal. The piece of the zygoma that had been removed was replaced and sutured by catgut sutures, and the wound closed with catgut and dermal sutures. The following day the patient could open his mouth, and in a week's time he was able to separate his teeth 1 inch. The facial nerve was not injured. He was given a screw-top mouth-gag, but he preferred to use wooden tongue depressors placed together on the flat to exercise his jaws; he could put nine of these between his teeth. He was able to chew meat or any type of food. This good function of the jaw has been maintained now for four months.

AN ORIGINAL TEST FOR THE PATHOLOGIC GREAT TOE SIGN

WITH ILLUSTRATIVE CASES *

LEO M. CRAFTS, B.L., M.D.
MINNEAPOLIS

While making a study of a remarkable grouping and diffusion of various reflex responses found in the followng case of back injury referred by Dr. J. F. Norman of Crookston, in May, 1917, my attention was attracted by one among other highly interesting phenomena, to a sharp dorsal extension of the great toe occurring when an upward stroke was made with a blunt point over the anterior surface of the ankle. Application of this test in various cases following this observation led to the definite conclusion that an original method of eliciting the pathologic toe sign had been discovered.[1]

REPORT OF CASE

Case 1.—T., a single man, aged 52, while reaching under a section of barn floor which was being lifted by several men, was doubled over sharply when they accidently let it down on his shoulders. He felt a band of numbness around the midbody immediately, but continued his work. For three months he suffered from a dull pain in the region of the original numbness. This gradually improved, and was followed by sharp "cramplike" pains in the same zone. These subsided slowly and were succeeded by numbness in the feet, gradually rising to the waist line. About three weeks later the legs began to grow weak, complete loss of motion rapidly supervening, followed immediately by retention of urine.

The patient came under observation about four days following the onset of these symptoms. His general nutrition was poor, and he had lost 30 pounds. The face muscles and upper extremities were normal, but there was marked atrophy in the legs. The patellar response was abolished on both sides. There was no ankle clonus, but a marked Babinski response in each foot, and after an interval of about a second extension of the other great toe, accompanied by contraction of the adductors of the thigh. There was also positive reaction to the Oppenheim and Chaddock tests in both feet. Moderate dulling of tactile and pain sense was found over both lower extremities up to a point 2 inches below the umbilicus, and of tactile sense only to a line 2 inches above this point. When the pin point passed the lower of these lines, in determining its topography, it was noticed that dorsal extension of the great toe occurred, accompanied by retraction of the leg. All motor power was abolished in both legs. The abdominal reflexes were obliterated. During the investigation of these various phenomena it was accidentally noticed that stimulation of the anterior surface of the ankle was uniformly followed by dorsal extension of the great toe. And various tests showed that the best response was produced by an upward stroke with a dull point, for a distance of about 2 inches.

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* Read before the Section on Nervous and Mental Diseases at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Preliminary material on the subject was presented before the Minnesota Neurological Society, Jan. 15, 1918, and an abstract published in Minnesota Medicine **1**: 110 (March) 1918.

A laminectomy was performed by Dr. H. B. Sweetser, May 5. The ninth to the twelfth spines were removed, exposing a brownish, fusiform, extradural mass opposite the ninth and tenth vertebral bodies. This was carefully removed and found to be a hypernephroma.

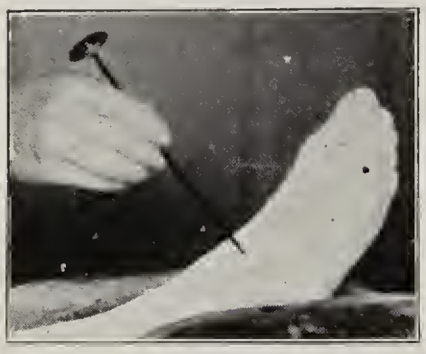
Fig. 1.—Method of eliciting test: blunt point in position for beginning of stroke.

May 10, the patient reported his legs feeling more comfortable. The Oppenheim and the Chaddock responses had disappeared. The Babinski reflex was present on both sides; and an upward stroke over the ankle surface also produced extension of the great toe. Sensation had improved in the segmental zone below the umbilicus, and that just above it had become hyperesthetic.

May 28, it was reported that the zone of hyperesthesia had disappeared about two weeks before. Sensation was normal now to the line 2 inches below the umbilicus; but below this point there was no change. As the pin passed this line there was still an occasional extension of the great toe. The Babinski reflex was present on both sides, and muscular contraction of the shoulder and of the upper arm of the same side followed the test after about one second's delay; but diffusion did not now cause extension of the opposite great toe. Stimulation of the skin over each ankle also produced extension of the toe, and there was a slight Oppenheim on the right. Patellar response was absent, and no ankle clonus existed. There was no control of the bladder and no power in the legs. The patient returned to his home at this time.

About eight months later he reported continued improvement, with power to reflex and extend the legs, move the toes and to lift either foot from the floor. And he was then able to get from his bed to his wheel-chair and back alone.

COMMENT

All the various methods that have been devised by different observers for eliciting the great toe reflex, Babinski, Oppenheim, Gordon, Chaddock and that which I have described, are of identical significance, predicating definite involvement of the motor neuron at some level. The explanation of the occurrence of a positive reaction to one of these tests and its absence to others, in any given case, is an interesting study, and the reason evidently depends on the exact level of arc, or on the individual sets of fibers involved, one sensory stimulus linking with and another missing the activation of the exact motor path concerned. In properly bringing out the various responses, the skill of the technic employed is of distinct importance. All require deft application for accuracy and certainty of conclusion. To develop the Babinski response, Barker directs stroking with a blunt point along the inner plantar border. This is certainly not the best practice. The surest reaction is always found by stroking nearer the outer margin or across the ball of the foot. Sometimes it will be found only by stroking back near the heel; again, midway forward, and in many, only by a stroke across the ball of the foot inward. At times a very light touch, at others deep and firm pressure, produces the best response. A quick stroke may be most effective in one instance, a slow movement in another. All should be employed fo rexact and complete knowledge. The clumsy rubbing of the thumb nail along the sole of the foot is extremely crude. A blunt-pointed instrument properly shaped for the purpose should always be employed for the Babinski test and for mine. Oppenheim's sign is best determined by running the soft ball of the thumb or finger tips, with firm pressure, down the lower 3 inches of the inner posterior border of the tibia. A similar movement around the external malleolus from behind forward brings out the Chaddock. And a quick, deep grasp of the calf muscles develops Gordon's sign. The best method for eliciting the reflex response under present consideration is by stroking with a blunt point upward over the dorsal surface of the ankle, for a distance of about 2 inches, the lower leg being horizontal and the musculature relaxed (Fig. 1). The amount of pressure necessary varies in different cases. A direct, quick thrust against the surface with the point of the instrument is sometimes effective, and a downward stroke occasionally also, but not as uniformly as the upward movement. Usually the test finds the best response when applied up the median line (Fig. 2), but occasionally it will be found either toward the inner or the outer side of the ankle surface.

Of all methods of developing the positive toe sign, Babinski's is undoubtedly most constantly effective. Of the others, I have found my method next in constancy, and distinctly more frequent than that of Oppenheim, while a response to either the Chaddock or the Gordon test is decidedly uncommon in my experience. To be clearly positive, a dorsal extension of the great toe is essential. Simple immobility of the toe is atypical, but its meaning or importance is not certain. The behavior of the other toes varies widely. They may flex, extend or remain inert; or they may spread, fanlike. This behavior of the small toes should have more careful observation for possible added value in the complete interpretation of these tests.

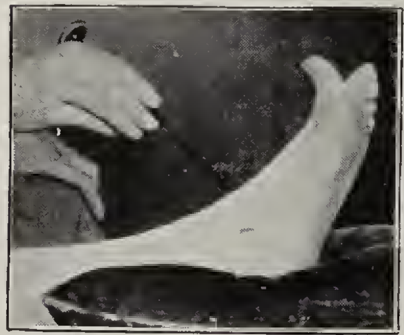
Fig. 2.—Typical dorsal extension of great toe in the application of the test.

While a considerable series of cases has been under observation and study in determining the value of this test, it is not deemed necessary or desirable to extend the text by detailing numerous case histories. Brief presentation, however, of one or two striking illustrations of its presence in chronic degenerative and acute inflammatory conditions may not be amiss.

ILLUSTRATIVE CASES

Case 2.—H. K., a man, aged 40, referred by Dr. C. M. Kistler, had had a chancre fifteen years before. He was a plumber by occupation, had been married twelve years, and of his seven children four were stillborn. He had pain between the shoulders and down the back for two years, and increasing trouble in controlling the urine. There had been a loss of sexual power in the preceding two months, and steadily increasing difficulty in walking; but he was in good nutrition and color. The right pupil was larger than the left and not circular; it did not respond to light. The iris had that tense, flat appearance with loss of the normal velvety softness, as characteristic of the tabetic eye as the so-called Argyll Robertson pupil, which I first described[2] in 1917. There was moderate incoordination in the arms, and all arm reflexes were abolished. Patellar responses were entirely wanting. There was decided incertitude of gait and marked ataxia of station. No ankle clonus appeared, but marked Babinski, Oppenheim, Chaddock and Gordon reflexes were present, and a positive response to a stroke over the dorsal surface of the ankle on both sides. Serologic findings in the spinal fluid were positive; in the blood, negative.

Case 3.—Paul, P., aged 7, seen in consultation with Dr. G. M. Doran, Feb. 22, 1919, presented an unusual picture of acute bulbar paralysis (lethargic encephalitis), apparently of influenzal origin. The mother was of a neurotic temperament. About four weeks before, following a rather slight indisposition, probably influenzal, tendency of the eyes to turn in was noticed. The tonsils were removed a week later. Crossing of the eyes increased and became continuous. Two weeks later the child began to have distinct difficulty in speech and had several attacks of vomiting. About five days afterward difficulty in walking developed, accompanied by marked staggering. Swallowing was not involved at that time. When first seen he was pale, and there was a marked internal strabismus, double, but with greater involvement of the right eye. The pupils were normal; speech, very dysarthric, and there was slight power of phonation. The facial muscles were all in action, but the tongue did not protrude. There was some incoordination in arm movements, pendulum swaying when he sat erect, a reeling stagger when on his feet and inability to stand without support. The arm reflexes were negative; the patellar response, overactive and equal. There was no ankle clonus. The great toe sign was positive to all tests, including that which I have described. Distinct lethargy. No nuchal rigidity existed, and no Kernig sign. The next day swallowing was affected. Respiration became difficult; the heart, weak; the pulse, faint and fast, and, following a rapid failure of strength, the patient died that evening.

SIGNIFICANCE OF RESPONSE

The commonly accepted interpretation of a dorsal extension of the great toe on stimulation by any of the various tests is the presence of definite organic damage to the motor tracts or fibers at some level. And, undoubtedly, this is usually the condition; but not always. I have found the reaction present with the very earliest symptoms of acute cerebrospinal meningitis, on the second or third day in several cases, before organic destruction of motor neurons could have taken place; and I have seen the reaction diminish and entirely disappear with advancing recovery, no motor disability remaining. Barker's statement, therefore, that the positive toe sign does not appear until the second week is not correct.

SUCCESS OF NEW TEST

During the past two years, in which I have studied the occurrence of the pathologic great toe sign by the test here presented, it has been demonstrated in a fairly wide range of conditions of traumatic, inflammatory and degenerative type, including multiple sclerosis (frequently), spinal cord tumor, brain trauma, cerebral apoplexy, brain tumor (both cerebral and cerebellar), brain abscess, symptomatic epilepsy, syphilitic myelitis complicating tabes, spinal cord trauma, and lethargic encephalitis. It would therefore appear to be established as comparable to the Babinski test, only second to it in constancy of occurrence, and of identical significance and importance.

ABSTRACT OF DISCUSSION

Dr. George A. Moleen, Denver: The last word has not been said about the reflexes as indicating destruction of the pyramidal tracts. We have all been impressed with the variety of stimuli applied to the leg which would produce an extensor response in cases of organic lesion of the projection tracts. Even the pricking of a pin, in such frank degenerative conditions, has produced extension of the toe, and the more severe the stimulus the greater the associated response. I think not only the dorsal foot reflex but the von Bechterew, the Babinski, the Gordon and the Oppenheim have a somewhat similar interpretation for most of us and must be accepted as indicative of a lesion, more or less destructive or inhibitory, of the tracts. In a recent case in which all the reflexes were lost, as well as all function below the region of the ninth dorsal segment and after a laminectomy, the recovery of partial function was evident. Most interesting was the reflex to which Marie has called attention, the reflex of inhibition, consisting of a voluntary flexion of the thigh on forced plantar flexion of the toe. This reflex seemed to be an elaboration of that which we have regarded as the more elaborate form of a Babinski reflex. I believe it is yet to be decided which of these reflexes is to be considered as indicative of partial lesion, and which a complete, of the spinal cord, and meanwhile hope that something more definite will be brought out besides the association of other reflexes on which we must all rely at the present time.

Clinical Notes, Suggestions, and New Instruments

DIAPHRAGMATIC HERNIA: REPORT OF CASE

James G. Ware, M.D. (Los Angeles)
Lieutenant, M. C., U. S. Army; Chief of the Roentgen Service
CAMP KEARNEY, LINDA VISTA, CALIF.

History.—W. M. B., aged 29, cook with the American Expeditionary Forces, was wounded by fragments from a high explosive shell, Oct. 11, 1918, while serving with the second antiaircraft battalion. He states that immediately after the injury he experienced difficulty in breathing, and blood came from the mouth. He ran forward for several hundred feet before falling unconscious. Within an hour's time he was picked up by stretcher bearers, taken to an ambulance, and finally placed in a French hospital. Roengenograms were made, and a large number of shell fragments were found scattered throughout the upper third of the thigh, together with a larger fragment in the left lung. Fourteen hours after he was wounded he was operated on, and these fragments were removed. At the same time a long incision was made over the left dorsal region; the eighth, ninth, and tenth ribs resected; and the shell fragment in the lung removed. The patient states that the surgeons informed him that the diaphragm was perforated in two places. He was confined to the hospital for two months.

For the first fifteen days following the operation he was practically unable to retain any nourishment. After that time, milk and other liquid diets were tolerated, and were followed by bully beef soup and cabbage, which, the patient states, were not very appetizing. He substituted, therefore, articles of food that he could purchase.

Roentgenograms were again taken before he left France, and a diagnosis of pleural adhesions with contraction of the diaphragm was made. The medical treatment during his hospital care consisted principally of large doses of calomel, sodium bicarbonate, and castor oil.

The patient left France, Jan. 31, 1919, and was admitted to the base hospital at Camp Kearney, March 23. The following day he was sent to the roentgen-ray department with the request that roentgenograms be made of the left upper quadrant of the abdomen and the left chest.

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[2] Crafts, L. M.: The Early Recognition of Multiple Sclerosis, J. A. M. A. **69**: 1130 (Oct. 6) 1917.

The patient complained of inability to retain food of any solid variety, tolerating only liquids and the softer articles of diet. Food had to be administered cold; otherwise nausea and vomiting resulted. The patient complained of pressure symptoms and cardiac distress on exertion. Constipation was extreme.

Examination.—Nothing of interest could be found on routine examination, except some tenderness on palpation over the left upper quadrant of the abdomen.

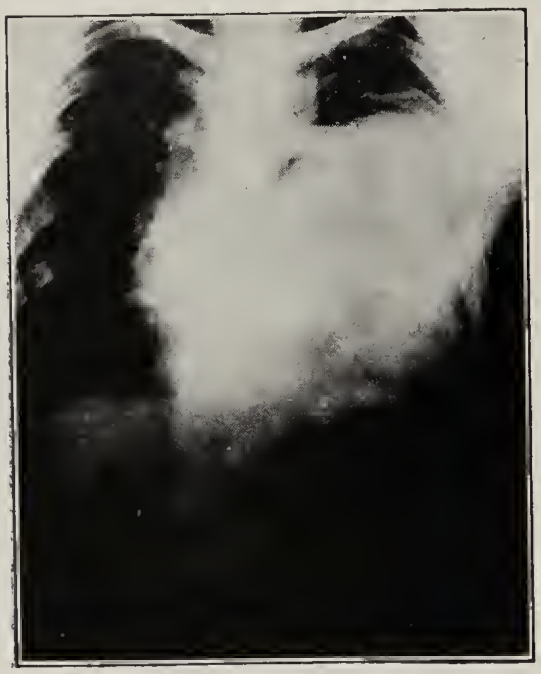

Fig. 1.—Dense mass filling the left side of the thoracic cavity up to level of fifth rib posteriorly.

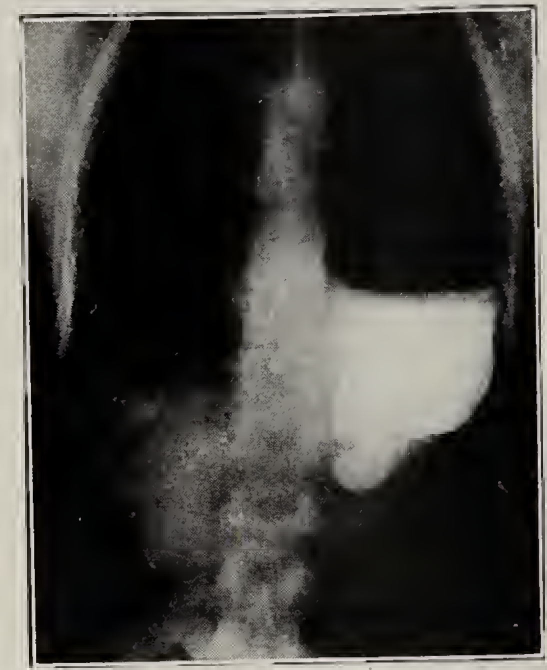

Fig. 2.—Hour glass appearance of stomach with patient in standing position.

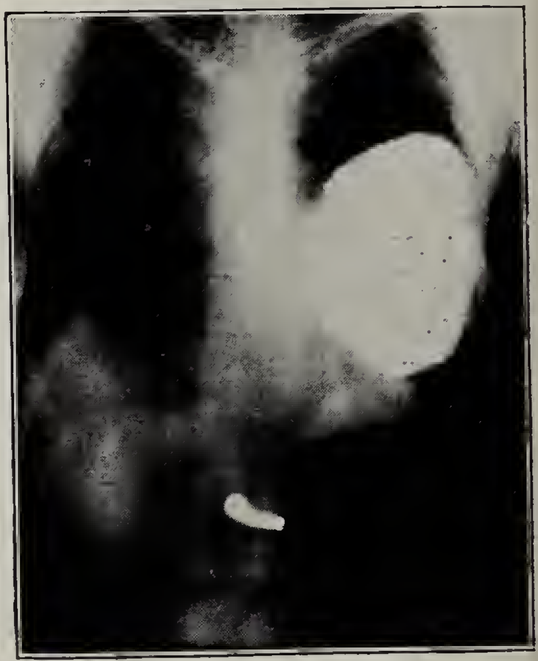

Fig. 3.—Plate made with patient in prone position. Barium fills out thoracic shadow seen in Figure 1.

Stereoscopic plates made of the thorax disclosed a dense mass filling the left side of the thoracic cavity up to the level of the fifth rib posteriorly (Fig. 1). Its upper surface was smooth and convex in outline, and resembled very much the picture often seen in severe cases of empyema in which the diaphragm is drawn up by adhesions. No fluid level could be made out. The heart was crowded over to the right side, but was apparently normal in size when seen under the fluoroscope. From the history and the roentgen findings, a tentative diagnosis of diaphragmatic hernia was made, and the patient prepared for a gastro-intestinal examination.

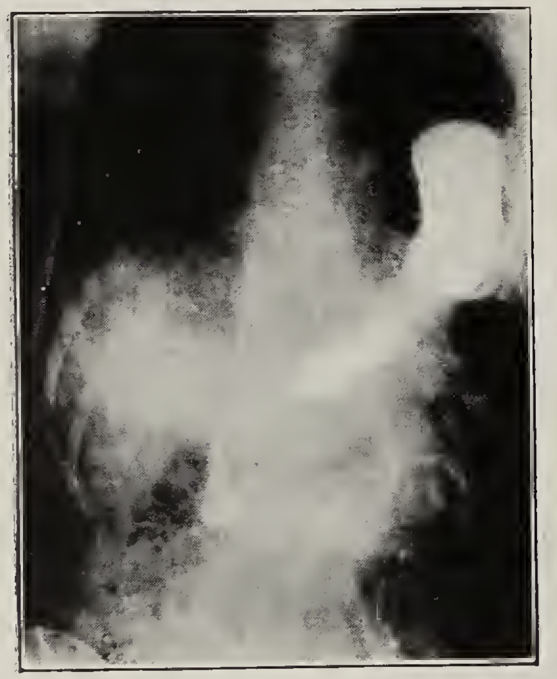

Fig. 4.—Six hour plate. Typical hour glass appearance. Constriction due to contraction of diaphragm.

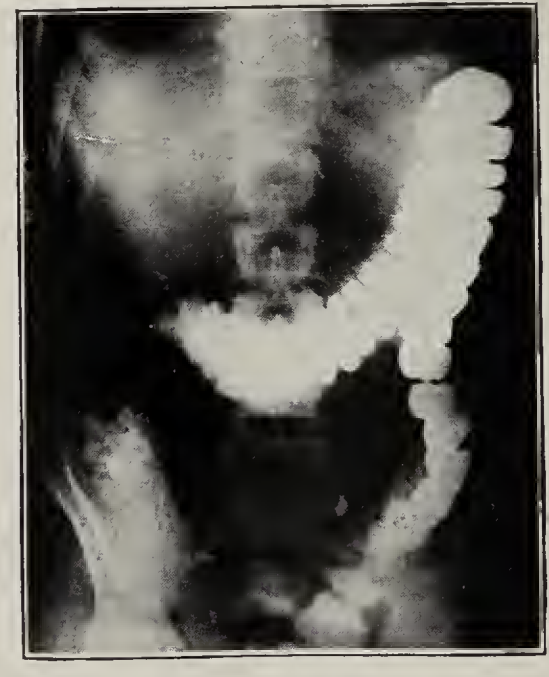

Fig. 5.—Forty-eight hour plate showing position of splenic flexure at a point on a level with the intervertebral disk between eleventh and twelfth thoracic vertebrae.

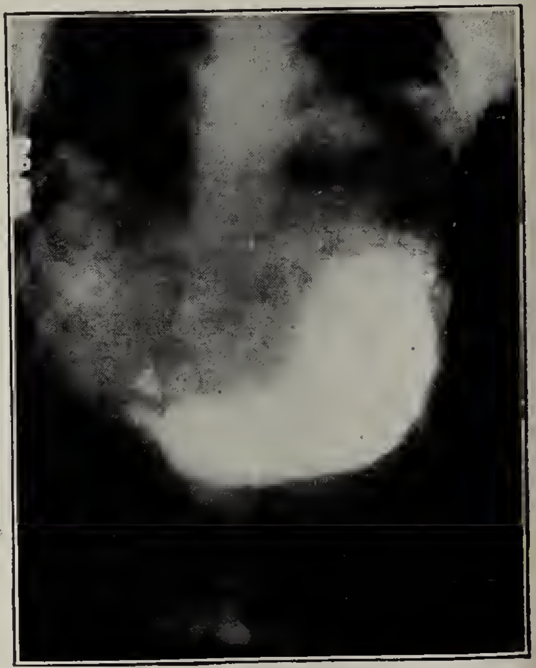

Fig. 6.—Stomach three weeks after operation: Normal in shape and outline. Cap visualized.

He experienced considerable difficulty in taking the barium meal, but by drinking very slowly was able to ingest the full meal of 16 ounces. The obscure shadow seen on the first plates now proved to be the stomach. In the standing position, the fluid level reached the margin of the tenth rib posteriorly, with the air bubble one-third the size of the barium shadow above that. Peristalsis was extremely slow, but after ten minutes' time the barium solution began to trickle through into a smaller sac, which was evidently the pyloric end of the stomach. The roentgen appearance was that of an hour-glass stomach (Fig. 2). The constriction of the stomach at this point was due to the contraction of the diaphragm around the stomach, but became effaced to some extent as the barium solution filled the lower sac. With the patient in the prone position, the barium solution completely rounded out the stomach, which now gave the appearance of being a thoracic organ, its upper border being on a level with the seventh rib posteriorly (Fig. 3). Seven hours later a barium residue was noted in the stomach, and here again was found the hour-glass appearance (Fig. 4).

Twenty-four and forty-eight hour plates showed practically no difference in the position of the barium column in the colon. The hepatic flexure was about normal in position, while the splenic flexure reached a point on a level with the intervertebral disk between the eleventh and twelfth thoracic vertebrae (Fig. 5).

Operation and Result.—An operation was performed by Major James F. Percy, chief of the surgical service, and Major T. E. Bailey. A median line incision was first made through the abdomen, but it was found impossible to reduce the stomach through this route. The stomach was adherent to the diaphragm and to surrounding structures. A second incision was made into the thorax, and the sixth and seventh ribs were resected. Two thirds of the stomach was found to be in the thoracic cavity, and was adherent to the pericardium. The adhesions were quickly separated, and the stomach reduced with considerable difficulty through a large opening in the posterior part of the diaphragm to which the stomach was adherent. The hole in the diaphragm was then closed, and the stomach now occupied a normal position in the abdomen. Forty-eight hours later the patient was smoking a cigaret and apparently comfortable.

Three weeks later the patient's condition was so improved that he was again sent to the roentgen-ray department. The stomach was apparently normal in position and outline. Peristalsis was regular and the pyloric cap visualized (Fig. 6.) The prognosis for a complete recovery is excellent.

PUNCTURED WOUND OF THE EXTERNAL ILIAC ARTERY WITH SUCCESSFUL TYING OF THE VESSEL

Charles F. Davidson, M.D., Easton, Md.

History.—L. S., aged 15, white, schoolboy, was thrown, Feb. 22, 1919, from a load of straw and fell on a three-prong pitchfork. His father, aged 40, was living and healthy. His mother died at the age of 35 of pulmonary tuberculosis. There were two brothers living, 6 and 10 years old, respectively, both healthy. One brother died in infancy. There were no sisters. He had not had any diseases except scarlet fever. He had always been healthy.

I reached the patient twenty minutes after the accident. He was entirely pulseless at the radial and temporal arteries. The heart sounds were indistinct. Respiration was 8; the skin was cold and covered with clammy sweat. The pupils were dilated and responded slowly to light. His mind was clear and he was thoroughly conscious. There was one lacerated wound over the pubic bones 3 inches long, through the skin to the bones. There was a punctured wound half way between the symphysis pubis and the anterior superior spine of the ilium. There was another punctured wound on the outside of the right anterior superior spine of the ilium through the skin to the bone and down along the outside of the bone 1 inch deep.

Preoperative Treatment.—The feet of the patient were elevated. Hot coffee enemas were given, one twelfth grain of morphin was given hypodermically, and 30 drops of aromatic spirit of ammonia in water were given every fifteen minutes for four doses. Absolute quiet was instituted. In two hours he said he felt better. The temporal pulse was 140; the radial pulse was wanting. He was then brought to the emergency hospital on the cot on which he was found and one-twelfth grain of morphin and $\frac{1}{150}$ grain of atropin were given hypodermically. The patient was carried to the operating room half an hour later. Anesthesia was begun at 3:10 p. m. The temporal pulse was 140. The operative area was washed with alcohol followed by ether and painted with iodin.

Operation.—This was begun at 3:25 p. m. The temporal pulse was 110. The operation was completed at 4:15 p. m. The radial pulse was 146. The lacerated wound over the pubic bone was sutured. The punctured wound on the outside of the pelvis was opened at the lower end, and a gauze through and through drain was put in. Incision was made at the edge of the right rectus. As soon as the rectus muscle was pushed aside, it was seen that black, clotted blood had infiltrated the peritoneum and all the tissues. Black, clotted blood was between the serous and the muscular coats of the bladder and the intestine, particularly the cecum, which was as black as the bladder. There was free clotted blood at the lower point of the right kidney. At least a pint of clots was removed from this point. There was no free blood within the peritoneal cavity. No perforation in the intestine could be found. After the intestine was pushed aside, there was a gush of bright red blood into the field. I seized the right common iliac artery with the thumb and forefinger of the left hand. The anesthetist said: "One more like that and he will be dead." The incision was enlarged. The field was packed off and the external iliac artery was brought into view. I lessened the pressure on the common iliac and bright red blood rushed from a little hole not larger than the lead in an ordinary lead pencil in the front and about the middle of the external iliac. I tightened my grasp on the common iliac. All the blood was sponged out and the hole was plainly visible in the external iliac. Hemostatic forceps were put on the external iliac artery, one on each side of the hole, and the grasp on the common iliac was released. The hemorrhage was controlled. It was just 4 o'clock when the clamps were applied. The clamp on the cardiac side moved on each pulsation of the heart. A silk ligature was put around the artery on the cardiac side of the clamp and one on the distal side of the other clamp. A cigaret drain was put at the lower end of the right kidney, one down in the pelvis behind the bladder, and one under the cecum. These were brought out of the abdominal incision and the wounds closed to the drains and the two hemostatic forceps that were left in situ. It was impossible to close the peritoneum because it was so infiltrated with blood as to make it so friable that the stitches would not hold. The aponeuroses were drawn together with twenty-day chromicized No. 3 catgut and the skin was sutured with silkworm gut. The patient left the operating table at 4:15. During the operation Dr. W. T. Hammond, with the assistance of a nurse, gave by infusion 1,000 c.c. of physiologic sodium chlorid solution and constantly administered oxygen with ether. He gave the anesthetic and conducted that part of the operation that kept the patient alive during the operating work.

Clinical Course.—The patient was sent to his room with a radial pulse of 146 and a respiration of 30. An immunizing dose of tetanus antitoxin was given as soon as he became conscious after the anesthesia. The right leg became purple and enlarged in size. Pulsations were first felt in the posterior tibial artery at 6:10, two hours and ten minutes after the external iliac was fastened with the hemostatic forceps. The right leg immediately commenced to become normal and in a few hours was the same color and the same size as before the accident. When the patient was first sent to his room, his head was lowered and proctoclysis with physiologic sodium chlorid solution by the drip method was begun. After regaining consciousness the patient complained of great thirst and was given water. The next day he took and retained broths, soft eggs and milk. The hemostatic forceps were removed on the fourth day and the drains were started on the fifth day and were entirely removed on the eighth day, to be replaced by smaller ones. As soon as his condition allowed it he was placed in Fowler's position. There was very little draining the first three days, but profuse draining after that. Whenever his temperature and pulse would go high, a Kelly clamp passed in the wound would drop down behind the bladder and a profuse discharge of pus would follow the withdrawal of the clamp. The patient made an uneventful recovery and left the hospital, April 5, 1919, still draining but with not retention enough to cause any rise of temperature.

The patient reported to my office May 17 and again June 2, walking well. He said he was all right and felt fine. The abdominal wound was entirely healed at the time of the visit, May 17.

COMMENT

My only other experience in tying the external iliac artery was when I was in von Bergman's clinic. I saw him tie the external iliac for a traumatic aneurysm of the femoral caused by sheep-shears puncturing this vessel. In this case it was one hour and ten minutes before collateral circulation was established, the difference being due to the fact that his patient was in perfect health and my patient was in collapse from hemorrhage.

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SATURDAY, JULY 26, 1919

THE RENAL THRESHOLD FOR BLOOD SUGAR

The widespread application of quantitative blood sugar tests in the study of disease promises to be helpful not only in diagnosis but also in the therapeutic management of patients. It is impossible to make complete reference here to the numerous meritorious researches on blood sugar. Nevertheless, we may justly point with a certain amount of pride to the patent fact that alike in the devising of experimental methods and in the refined study of the new problems of carbohydrate metabolism, American investigations in the laboratories and clinics have been second to none. Science, it is true, knows no boundaries of race or nationality; but the time has come when charges of practical materialism shall no longer overshadow the just deserts of American research in medicine.

As an outcome of the newer work it has seemingly become important to look on hyperglycemia, or an abnormally high level of blood sugar, as competing in significance with glycosuria, or glycuresis, as it has been more recently designated.[1] Heretofore, emphasis has for the most part been placed solely on the content of sugar in the urine. This was inevitable so long as practicable methods of estimating the level of glucose in the blood were not yet available. Today, rapid procedures of sugar analysis on readily obtainable small samples of blood have altered the situation. By such tests it has become evident that a considerable elevation of the blood sugar level may occur under certain circumstances without evidence of the fact in the urine. The problem of the renal threshold for sugar elimination is thus raised. If the average normal blood sugar value is placed at 0.11 per cent., with a range of from 0.07 to 0.14 per cent. of glucose, the normal threshold will probably be not far removed from 0.17 or 0.18 per cent. Only when the sugar concentration in the blood exceeds this figure does the carbohydrate ordinarily escape into the urine in appreciable amounts.

The renal threshold may become decidedly higher in such diseases as diabetes and nephritis. Basing their conclusions on observations in the Hahnemann Hospital at Rochester, N. Y., Williams and Humphreys[2] assert that the threshold in diabetes tends to rise with the prolonged duration and the increasing severity of the disease. According to them, younger diabetics as a rule have low or normal thresholds. The threshold rises with advancing years. When the diabetes is mild or quiescent, the point at which the kidneys eliminate sugar is stationary; but when the disease becomes progressive, the threshold tends to rise. Indeed, before death the blood sugar renal threshold may reach great heights with little or no sugar appearing in the urine. A rising renal threshold for sugar in the face of careful dietary treatment is a serious prognostic sign. A high renal threshold for sugar in mild diabetes under proper dietary regulations usually indicates some complication, as arterial hypertension.

An important practical problem arises out of these recently discovered facts regarding the renal threshold for sugar. What is the proper index of tolerance for carbohydrate? Shall the intake of this group of nutrients be regulated to prevent glycosuria or to reduce the blood sugar level to a lower threshold value? Let us bear in mind that glycosuria is not a necessary accompaniment of decreased tolerance which may be measured in diverse ways.[3] Mosenthal[4] and his collaborators at the Johns Hopkins Hospital have suggested that a high blood sugar level in diabetes may be a protective mechanism, conserving the carbohydrate somewhat for the uses of the organism. Williams and Humphreys rejoin in the belief that persistent high blood sugar levels promote exhaustion and rapid decline of function, and that the high threshold is merely a safety measure. In severe diabetes, in which extremely low diets are necessary to maintain life, the high threshold is essential to take care of the seriously impaired carbohydrate metabolism. In the treatment of diabetes, they add, it is desirable to maintain the blood sugar level as nearly normal as possible, even though severe restrictions in diet may be necessary for this purpose, and notwithstanding the fact that the high threshold will permit of a much more liberal diet without the appearance of sugar in the urine.

We are not prepared to take a final stand in this issue. On the outcome must depend the proper plan of dietotherapy in diabetes. From the one standpoint, food would be permissible just short of the amount that induces glycosuria; from the other, the indication for control would be found in the blood sugar level rather than in urine tests. A further feature of practical interest has been pointed out now by Williams and Humphreys. In severer cases of nephritis, patients may excrete small quantities of sugar in the urine, frequently giving rise to the misapprehension that true diabetes exists. In such cases, they remark, the blood sugar level is inappreciably influenced by carbohydrate restriction, and these patients should not be subjected to the discomfort of rigorous diabetic diet.

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[1] Glycuresis Versus Glycosuria, editorial, J. A. M. A. **72**: 1772 (June 14) 1919.

[2] Williams, J. R., and Humphreys, Eleanor M.: Clinical Significance of Blood Sugar in Nephritis and Other Diseases, Arch. Int. Med. **23**: 537 (May) 1919; The Clinical Significance of Blood Sugar in Diabetes Mellitus, ibid., p. 546; Observations of Tolerance and Rate of Utilization of Glucose in a Series of Individuals Exhibiting Various Degrees of Diabetes Mellitus, ibid., p. 559.

[3] Janney, N. W., and Isaacson, N. I.: A Blood-Sugar Tolerance Test, Proc. Soc. Exper. Biol. & Med. **15**: 15, 1917.

[4] Mosenthal, H. O.; Clausen, S. W., and Hiller, A.: The Effect of Diet on Blood-Sugar in Diabetes Mellitus, Arch. Int. Med. **21**: 93 (Jan.) 1918.

ANTISCORBUTICS: I

Ever since Holst and Fröhlich[1] asserted, in 1912, that the antiscorbutic property of certain fresh vegetables and fruits may be to a large extent lost when they are subjected to a high temperature or are dried, students of nutrition have been more alert to the possible effects of culinary processes on some of the less understood properties of foods. Although, as has already been discussed in these columns, McCollum and his colleagues have assumed that scurvy is a disease related to intestinal putrefaction and the retention of feces, the concordant opinion of other recent investigators, notably Givens, Hart, Hess, Mendel, Steenbock and their co-workers in this country, and Chick, Harden and their collaborators in England, has substantiated the earlier view that the disease is the result of a deficiency of some nutritive factor in the diet. From this standpoint we may speak of the lack of an antiscorbutic vitamin, just as the lack of an antineuritic vitamin is postulated in the genesis of polyneuritis.[2]

The lack of knowledge of the distribution of antiscorbutic vitamins has been accentuated by the needs of infant feeding. The use of cow's milk pasteurized at a temperature as low as 63 C. (145.4 F.) for thirty minutes has led in the course of several months to milk outbreaks of infantile scurvy,[3] thus indicating the poverty of heated milks in the antiscorbutic vitamin. Only recently Hart, Steenbock and Smith have demonstrated at the University of Wisconsin that milk sterilized at 120 C. for ten minutes, commercial unsweetened condensed milk, and the commercial milk powder examined had lost their antiscorbutic properties when used in quantities equivalent to an amount of raw milk which would prevent scurvy in guinea-pigs on a diet of rolled oats and dried hay. From such citations it becomes evident why investigators of infant feeding have sought suitable sources of antiscorbutics and why producers of food preparations are concerned with the retention of native antiscorbutic potency so far as this is possible. Recent writers[1] have sanely summarized the situation by saying that either the results with guinea-pigs on experimental scurvy should not be translated to infantile scurvy, or we should follow the wiser course of using some antiscorbutic in conjunction with the exclusive use in infant feeding of such heated milk products as have been described.

Thanks to the labors of a number of investigators both here and abroad, the pediatrician is no longer limited to the conventional orange juice in his efforts to avert scurvy in infants. Reference has been made in The Journal to some of the novelties, such as the raw juice of the swede and the tomato, which are also available for human nutrition. Although the antiscorbutic value of fruit juices was recognized three hundred years ago, Alice Henderson Smith[4] of the Lister Institute in London has upset the traditional faith in lime juice, as the result of her historical studies. It appears that the juice used with good effect in the olden days was in reality obtained from lemons and sweet limes, not from the West Indian sour limes. With the change to the sour limes has come a failure in antiscorbutic potency that was difficult to understand until it was demonstrated recently by experimental tests on animals that the sour lime of the West Indies (*Citrus medica-acida*) happens to have only one quarter of the antiscorbutic value of the lemon (*Citrus medica-limonum*). Lemon juice is easily available for the treatment of infantile scorbutus. Harden and Zilva[5] have further demonstrated that after removal of the free citric acid and other acids from lemon juice, the residue also retains its antiscorbutic activity; and in collaboration with Still[6] these investigators have, for the first time, clinically employed with success this antiscorbutic factor separated from the greater part of the inactive components in combination with which it occurs. The vitamin-containing product could be administered in large dosage after the refinement and the exclusion of extraneous substances. In fact, the lemon product was given in concentration at least double—in one case seven times—as strong as the form in which it occurs naturally in the foodstuff (lemon) from which it was obtained. The treatment was thus, so to speak, "intensive," reminding one of the seemingly potent therapeutic procedure of Hess, who introduced orange juice directly into the circulation of scorbutic infants.

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[1] Holst and Fröhlich: Ztschr. f. Hyg. **72**: 1, 1912; **75**: 334, 1913.

[2] Hess, A. F., and Unger, L. J.: Scurvy, VIII: Factors Affecting the Antiscorbutic Value of Food, Am. J. Dis. Child. **17**: 221 (April) 1919. Hart, E. B.: Steenbock, H., and Smith, D. W.: Studies of Experimental Scurvy: Effect of Heat on the Antiscorbutic Properties of Some Milk Products, J. Biol. Chem. **38**: 305 (June) 1919.

[3] Hess, A. F., and Fish, Mildred: Infantile Scurvy: The Blood, the Blood-Vessels and the Diet, Am. J. Dis. Child. **8**: 385 (Dec.) 1914. Hess, A. F.: Infantile Scurvy, III, Its Influence on Growth (Length and Weight), ibid. **12**: 152 (Aug.) 1916.

[4] Smith, A. H.: A Historical Inquiry into the Efficacy of Lime-Juice for the Prevention and Cure of Scurvy, J. Royal Army Med. Corps, February and March, 1919; Lancet **2**: 725 (Nov. 30) 1918.

[5] Harden, A., and Zilva, S. S.: The Antiscorbutic Factor in Lemon Juice, Biochem. J. **12**: 259 (Oct.) 1918.

[6] Harden, A.; Zilva, S. S., and Still, G. F.: Infantile Scurvy: The Antiscorbutic Factor of Lemon Juice in Treatment, Lancet **1**: 17 (Jan. 4) 1919.

There are indications that the potent fruit juices can be suitably preserved for clinical use. This is a matter of no little consequence in conserving products that do not come into the market with uniform frequency and at reasonable prices throughout the year. Harden and Robison[7] have reported from London that the antiscorbutic principle in orange juice is not volatilized when the juice is distilled at 40 C. under reduced pressure. By evaporation of orange juice at 40 C. under reduced pressure, it is possible to obtain a solid residue which possesses in a very high degree the antiscorbutic value of the fresh juice. This value is not appreciably diminished when the substance is kept in a dry atmosphere at room temperature during six months. The prolonged heating to which fruit juices are subjected in the usual processes for the manufacture of jams and jellies renders it unlikely that these would ever possess any considerable antiscorbutic value. Nevertheless, Harden and Robison have found that by the use of the newer extremely rapid commercial processes of concentration without the application of high temperatures, fruit jellies can be prepared (from the apple, for example) which are by no means devoid of antiscorbutic potency, though this is of a different order from that characteristic of the orange and lemon. Surely there can no longer be any excuse for the failure to avert infantile scurvy, even when fresh, unheated milk is not available.

THE PHYSICAL EXAMINATION OF THE FIRST MILLION DRAFT RECRUITS

A recent bulletin from the Surgeon-General's Office discusses the methods followed and the results secured in the physical examination of the first million draft recruits. The initial selected draft of 1917 was the first opportunity that this country had had in half a century to make a census of the physical constitution of its people. It is doubtful whether any physical survey in the history of the country is comparable to it. Approximately 10,000,000 men from 21 to 30 years of age were registered. Of these, 2,510,000 were examined physically by the local draft boards prior to Dec. 15, 1917. Of this number, 730,000, or approximately 29 per cent., were rejected on physical grounds. Between Dec. 15, 1917, and Sept. 11, 1918, 3,208,446 men were examined by local draft boards. Out of these two groups, approximately a million men were sent to the mobilization camps and there reexamined. The results of this second examination of the million draft recruits are recorded in this report. The Surgeon-General's Office announces that a report will be published later, containing all the information concerning the men accepted and sent to camp, those rejected by the local boards and those discharged from the army for disability.

This material naturally involves an enormous amount of detail. Some general conclusions, however, can be made. While reports from the different camps naturally varied considerably on account of the variation in ideals of the physical examining boards, it is possible to show that the incidence of particular defects and diseases varied in different sections of the country; for instance, these figures show strikingly the large prevalence of goiter in the region of the Great Lakes and the Northwest. Another striking fact is the overwhelming predominance of flatfoot as a physical defect. This condition was found in the ratio of 177.45 per thousand, or nearly eight times as frequently as any other defect. Twenty-two per cent., or more than one fifth of the rejections, were caused by a mechanical defect such as flatfoot, defects in the bones and joints, hernia, etc.; 15 per cent. of rejections were on account of imperfections of the sense organs; 13 per cent. were due to defects in the cardiovascular system; 12 per cent. to nervous and mental troubles; 10 per cent. were rejected on account of communicable diseases, almost entirely tuberculosis and venereal diseases; 8.5 per cent. were rejected because of developmental defects, and 6 per cent. on account of skin diseases and imperfection of the teeth. The comparison between men coming from rural and urban communities is also interesting. The local boards rejected from certain selected urban districts 21.68 per cent., and from rural districts 16.89 per cent. The total number of defects found in urban recruits was 38.3 in each hundred, while the defects among rural recruits were 33.3 per hundred. While flatfoot is the greatest defect noted, the amount of flatfoot reported from the Southern states is markedly less than that from the Northern states. Probably the mildness of the climate and the general custom of negroes and boys—especially among the rural classes—going barefoot is responsible for the better development of the feet and consequently for the smaller percentage of flatfoot in the South. Men from the large cities show much greater proportion of hernia than do men from the rural districts. Venereal diseases are found predominant in the Southern states, while the Northwest has a much lower percentage than any other section of the country. Defective vision is found more commonly among recruits from New England and New York City than from the Central states. Trachoma is more common among the recruits from Kentucky, Indiana, Illinois and Missouri than from the other states. Varicose veins are especially common in Minnesota and Wisconsin and the mountainous regions of the extreme Northwest. Underweight was found more commonly in the Western and Northwestern states than elsewhere. Defective physical development was found in the New England states to an unusual degree. Men from the cities showed 30 per cent. more defective vision than men from the country. Otitis media is about 60 per cent. more common in the cities than in the country, while mitral insufficiency is 60 per cent. more common in the country than in the city. Chronic alcoholism and drug addiction are much more common in the city than in the country. Defects of vision are in direct ratio to the size of the cities. Valvular heart disease is, speaking roughly, inversely proportionate to the density of the population.

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[7] Harden, A., and Robison, R.: The Antiscorbutic Properties of Concentrated Fruit Juices, J. Royal Army Med. Corps, January, 1919.

The report contains more than 500 pages of tables, charts and plates, giving all the details for the million men, classified by states, by defects and graphically. By the statistical method it gives a new insight into the physical status of our young men.

Current Comment

INCIDENCE OF CARCINOMA OF TONGUE AND LIP FIFTY YEARS HENCE

In his recent Bradshaw lecture, Mr. D'Arcy Power[1] reviewed the salient facts regarding the history of cancer of the tongue and ventured the assertion that, fifty years hence, we shall see an enormous increase in the incidence of this disease, and that it will become relatively as common among women as among men. The grounds for this assertion are rather interesting. No one is bold enough to claim knowledge of the basic cause of cancer; nevertheless, we are all aware that cancer is much more likely to appear under certain conditions than others, and that by the use of certain agents, as, for instance, the roentgen ray, we can induce cancer almost at will. To a limited extent, therefore, one predisposing and exciting cause of cancer has been discovered, in the form of appropriate types of chronic irritation. Cancer of the tongue among lower animals is rare, there being only about five cases on record. Power presents evidence to show that, up to the time when syphilis, the use of tobacco, and the excessive, widespread abuse of alcohol were introduced, the incidence of carcinoma of the tongue in the human family did not exceed that at present found among lower animals. Carious teeth are probably without great significance. Examination of a multitude of skulls reveals the incidence of caries of the teeth among the ancient Romans in Britain to have been on a par with that among the present inhabitants of London; yet cancer of the tongue is a disease of modern life. When syphilis became rampant, lesions of the mouth, of course, greatly increased in frequency; yet cancer remained uncommon. It was only when the habit of smoking tobacco became firmly established that the incidence of buccal cancer showed a sharp increase. The frequency with which cancer arises from syphilitic scars in the mouth has been frequently commented on. Without discussing further the evidence produced, it may be stated that, from the historical standpoint, syphilis appears to be the great predisposing cause of buccal cancer, and chronic irritation, particularly that due to smoking, the great exciting cause. In spite of the propaganda against venereal disease, there is as yet no reason to suppose that the incidence of syphilis will show any substantial decline during the next half century, while the smoking habit is yearly becoming more widespread, especially among women. Cancer of the tongue and lip has increased threefold in the past thirty years. In view of the facts as stated, the incidence of buccal cancer fifty years hence becomes, indeed, a matter of interesting speculation.

JACOBI AS A REVOLUTIONIST

As we stated last week, Abraham Jacobi was one of the well known "forty-eighters." The story of Carl Schurz as a revolutionist is familiar to many, while that of Jacobi, his dearest friend, has yet to be told in all its details. Schurz relates that in 1850 he first met Jacobi, then a student of medicine at Bonn and a "zealous democrat," and adds that later in the year Jacobi was "on his way to Schleswig-Holstein, to offer his services as a physician to our struggling brethren." For his activities in the cause of the revolution, Jacobi was accused of high treason—at the age of 21—and was confined in prisons at Cologne and Minden for about two years. On his release in 1853 he went to England, for it was reported that new charges were to be made against him; but he stayed there only a short time, and on the advice of Schurz moved to America, where he became a citizen as soon as possible. Sir William Osler once praised Dr. Jacobi for having refrained from writing for publication during the seven years following his graduation from the University of Bonn. Jacobi's comment on this was:

> He did not know that in nearly two years of those seven I never saw a square inch of paper or more than an infinitely small pencil which I concealed in my hair. When I saw the light again the French Republic had been destroyed nearly two years and the world had changed its shape.

THE CARE OF PUBLIC WATER SUPPLIES

It is not enough for a city to introduce a water supply from a pure source, or to install a good filtration plant for a slightly polluted water or to undertake to purify a contaminated water by chlorin treatment, and stop at that. Any one of these methods may be justified by local conditions, but unless the surroundings of the pure water supply be jealously guarded at all times, and unless the efficacy of purification methods is frequently tested and controlled, there is danger that the supply may come to grief through an "accident" which a not too superhuman sagacity might have prevented. In the case of a water supply, eternal vigilance is the price of safety. Two typhoid epidemics recently reported[1] may adorn the tale. In Xenia, Ohio, there were only two typhoid cases in 1917 and none in 1918 up to August 27. From that date, however, seventy-seven cases were reported. On investigation it seemed clear that the common source of the infection was the water supply, and it was soon discovered that, although a bleach solution had been carefully added to the water, an inferior bleaching powder

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[1] Power, D'Arcy: On Cancer of the Tongue; The Bradshaw Lecture, 1918, Brit. Jour. Surg. 6: 336 (Jan.) 1919.

[1] J. of the Am. Water Works Assn., June, 1919.

(though guaranteed to be of proper strength) had been used and that the solution was only about one fifth as effective as it should have been. The regular application of simple tests might have prevented the whole trouble. In Moline, Ill., also an explosive attack of typhoid occurred in 1918. Although the precise method of water contamination was perhaps less clear in this case than at Xenia, the investigation brought to light the fact that various contaminations of the pure water supply with a polluted source existed, and that through some carelessness the contaminated water had been allowed to mix with the pure water supply. "The chemist had opened the by-pass about 5 p. m. on June 21 and left it open until about 2 p. m. on June 22. During this period one of the sedimentation tanks had been cleaned, cutting the sedimentation period in two, which permitted water even poorer than usual to enter the clear well. A study of the records showed that the chlorin was on only a part of the time the water was being by-passed. Later information was secured from a diary kept by the chemist that the by-pass was also open during a part of June 19. During portions of this period little or no chlorin was being added. There is no doubt but that the typhoid outbreak in July resulted from the opening of the by-pass on the dates mentioned." One conclusion drawn from this "incident" was that "in a filter plant treating a polluted stream, water by-passes should under no conditions be tolerated. This means that the plant must be of ample capacity to supply sufficient filtered water at all times." With this conclusion there will be general agreement.

THE CAUSE OF WAR EDEMA

Early in the course of the war, when the food supply of the Central Empires began to be jeopardized, reports of unusual maladies became current in many of the countries affected. Among the forms of illness apparently associated with dietary shortcomings was a peculiar type of edema which came to be known as "war dropsy" or "war edema." Several hypotheses have been advanced in explanation of its occurrence. At first war edema was charged to undernutrition attributable to short rations. Presently, however, the disease seemed to be attendant on the lack of certain essential dietary components rather than a diminished intake of food as such. The increasing restrictions in the variety of food products consumed tended to lead to "one-sided diets." The suggestion was therefore soon ventured that lack of certain vitamins, notably the fat-soluble food accessory occurring in cream, butter, beef fat, fish oils and egg yolk, as well as green vegetables, was responsible for the appearance of the edema. Recent experimental studies by Kohman[1] at the Physiological Laboratory of the University of Chicago suggest, however, that "war dropsy" may be due to an insufficiency of protein in the diet, rather than to a vitamin deficiency. Thus, animals placed on rations low in protein, the latter being supplied by carrots alone, in numerous instances developed marked edema which manifested itself in various ways, sometimes with fluid in the pleural and peritoneal cavities, and sometimes with fluid collected subcutaneously, especially over the chest and about the forelegs. Weakness always occurred and usually loss of weight, aside from the gain due to accumulation of fluid in the tissues. Enrichment of the diet in protein averted such abnormalities.

BILL FOR A NATIONAL DEPARTMENT OF HEALTH

Elsewhere[1] appears an abstract of a bill creating a national department of public health. This bill, introduced by Hon. Joseph I. France, United States Senator from Maryland and Chairman of the Senate Committee on Public Health and National Quarantine, is one of the most comprehensive measures on this subject that has been prepared. Three bills creating a national department of health are now before Congress, each of them drafted on broader lines than those of previous years. The need of an adequate and efficient national department of health is more apparent today than ever before. Legislators, physicians and laymen are more than ever agreed as to its desirability. Exactly what form it will take remains to be seen; but if all those interested in better national health organization will cooperate, constructive legislation in this field will soon become a reality.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending July 18, there were 11,755 officers in the Medical Corps, a decrease of 633 from the previous week. The Medical Reserve Corps contained 2,949 officers. The total number of physicians discharged since the beginning of the war is 21,232.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Alexander City—Griffin, J. O. (L.)
Anniston—Woodruff, L. H. (C.)
Birmingham—Board, O. P. (M.)
  Drake, C. H. (L.)
  Pate, E. E. (L.)
Carrollton—Zuber, T. L. (L.)
Ensley—Sparks, D. H. (C.)
Gadsden—Greet, T. Y., (M.)

ARIZONA

Tucson—Goothelf, E. J., Jr. (L.)
Yuma—Jacobs, L. (C.)

ARKANSAS

Little Rock—Proctor, F. L. (M.)
Prescott—Hesterly, J. B. (L.)
Warren—Sherrill, J. J. (M.)

CALIFORNIA

Berkeley—Meads, A. M. (M.)
King City—Bullard, C. T. (L.)
Los Angeles—Boyer, J. I. (C.)
  Grant, W. L. (M.)
  Holleran, W. M. (C.)
  Opp, P. A. (L.)
Los Angeles—Prince, R. W. (C.)
  Schenck, G. F. (L.)
  Severson, J. M. (C.)
  Smith, B. (C.)
  Wharton, C. G. (M.)
Pomona—Swindt, J. K. (M.)
Porterville—Willey, H. J. (C.)
Redlands—Burke, W. P. (C.)
Sacramento—Crawford, J. W. (C.)
San Francisco—Miller, H. E. (C.)
  Norton, A. A. (L.)
  Seidenfeld, L. G. (M.)
  Washburn, W. W. (C.)
  Williams, H. D. (L.)
  Zimmerman, H. (C.)
Weaverville—Fields, D. B. (C.)
Whittier—Wilson, H. P. (C.)

COLORADO

Denver—Charles, R. L. (L.)
  Chase, P. M. (M.)
  Knoch, N. H. (L.)
  Lunt, L. K. (M.)
Oak Creek—Kracaw, F. C. (C.)
Pueblo—Brown, E. H. (C.)
Stoneham—Turner, F. C. (C.)

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1. Kohman, Emma A.: A Preliminary Note on the Experimental Production of Edema as Related to "War Dropsy," Proc. Soc. Exper. Biol. and Med. **16**: 121 (April 16) 1919.

1. General News, this issue, page 282.

CONNECTICUT

Bristol—Woisard, J. I. (C.)
Granby—Irwin, V. J., Jr. (C.)
Hartford—Climan, M. (L.)
Hurwitz, H. M. (L.)
Stidger, I. R. (C.)
Torrington—Hoffman, W. E. (C.)
Wallingford—Sheehan, M. T. (L.)
West Haven—St. Lawrence, A. J. (L.)
Westport—McLaury, F. H. (C.)

DELAWARE

Ashland—Higgins, R. D. (L.)
Laurel—Elliott, J. R. (C.)

DISTRICT OF COLUMBIA

Washington—Bingman, C. E. (C.) (C.)
Bloom, R. H. (M.)
MacDonald, A. M. (L.)
Moffitt, H. W. (L.)
Morgan, F. P. (C.)
Prentiss, D. W. (C.)
Reichelderfer, L. H. (L. C.)

FLORIDA

Chattahoochee — Spiers, W. H. (L.)
Hosford—Wilhoit, S. E. (C.)
Jacksonville—May, R. D. (L.)
Pensacola—Mixon, J. A. (M.)

GEORGIA

Alapaha—Moye, T. R. (L.)
Atlanta—Brawner, A. F. (L.)
Calhoun, F. P. (M.)
Meeks, J. L. (L.)
Upchurch, W. A. (M.)
Camak—Lazenby, E. K. (C.)
Cedartown — Richardson, M. S. (L.)
Columbus—Dykes, A. N. (C.)
De Sota—Bagley, G. W. (L.)
Macon—Selden, J. A. (C.)
Walker, D. D. (L.)
Milledgeville—Allen, W. H. (L.)
Price, J. A. (L.)

IDAHO

Boise—Titus, W. S. (M.)
Kellogg—Kennett, G. H. (L.)
Moscow—Barrows, F. L. (C.)

ILLINOIS

Belleville—Dew, W. A. (C.)
Carbondale—Mitchell, J. M. (C.)
Centralia—Gambill, W. H. (C.)
Chicago—Bailiff, J. O. (L.)
Bay, H. H. (C.)
Berghoff, R. S. (C.)
Blackburn, P. M. (L.)
Byrne, M. W. K. (C.)
Cliver, P. M. (C.)
Dahl, E. O. (L.)
Chicago—Dunlavy, H. C. (L.)
Eastman, L. K. (L.)
Friedman, J. C. (M.)
Friedrich, L. H. (C.)
Gino, V. (L.)
Grayston, J. T. (C.)
Harris, U. B. (C.)
Heap, W. A. (C.)
Howard, W. H. (L.)
Kitterman, P. G. (C.)
Lando, M. (L.)
Light, L. S. (C.)
Lohman, O. (C.)
Lowry, N. H., Jr. (L.)
Mars, H. F. (L.)
Mayers, L. H. (M.)
Myers, J. T. (L.)
Miller, F. M. (C.)
Morris, E. A. (C.)
O'Connell, J. T., Jr. (L.)
Perry, H. S. (L.)
Robertson, C. M. (C.)
Roblee, L. H. (M.)
Roos, E. C. (L.)
Rudolph, L. (M.)
Smith, S. A. (L.)
Strass, H. W. (C.)
Turner, L. L. (L.)
Twiss, H. I. (L.)
Watterson, W. H. (M.)
Wendt, A. C. (C.)
Cicero—Bennewitiz, A. H. (C.)
Ostrowski, F. G. (L.)
Colchester—Harrison, B. A. (C.)
Crete—Blim, W. C. (L.)
East St. Louis—Spitze, E. C. (C.)
Mansfield—Young, E. Y. (C.)
Marshall—Haslitt, P. P. (C.)
Mattoon—Bryan, T. A. (C.)
Maywood—O'Shea, J. W. (C.)
Monticello—McDeed, W. G. (C.)
Mt. Vernon—Gilmore, W. H. (C.)
New Baden—Schnell, B. C. C. (M.)
Oregon—Sheets, H. H. (C.)
Pana—Eberspacher, F. J. (C.)
Paxton—Kelso, L. W. (C.)
Peoria—Causey, F. A. (L.)
Garrett, E. A. (L. C.)
Rockford—Green, J. A. (C.)
Rock Island—Rimmerman, A. B. (M.)
Springfield—Godfrey, E. B. (M.)
Tuttle, H. H. (L. C.)

INDIANA

Bedford—Guthrie, M. B. (L.)
Bloomfield—Cook, T. R. (C.)
Burnett Creek—McBeth, W. (C.)
Connersville—Smelser, H. W. (L.)
Corydon—Amy, W. E. (L.)
Danville—Grimes, J. H. (C.)
Delphi—Crampton, C. C. (C.)
Forest—Compton, S. M., (L.)
Fort Wayne—Senseny, H. M. (L.)
Gary—Craig, J. A. (C.)
Indianapolis—Beaver, T. R. (C.)
Carter, L. D. (Col.)
Cottingham, C. E. (C.)
Ottinger, R. C. (L.)
Smith, J. M. (C.)
Strickland, C. (C.)
Terre Haute—Yung, J. R. (C.)
Wabash—Jewett, L. E. (M.)
Washington—Wadsworth, H. C. (M.)
West Lafayette—Davisson, C. V. (L.)
Williams—McFarlin, J. T. (C.)
Winchester—Brenner, I. E. (C.)
Robison, J. S. (C.)

IOWA

Fort Madison—Walker, J. R. (C.)
Hancock—Standeven, J. F. (C.)
Hedrick—Porter, J. A. (L.)
Independence—Battey, P. B. (C.)
Iowa City—Smith, J. N. (C.)
Keokuk—Rankin, W. (M.)
Marshalltown—Molison, R. C. (C.)
Milo—Bowie, L. L. (C.)
Nevada—Houston, B. (L.)
Norway—Simpson, C. E. (L.)
Oelwein—Leehey, F. P. (C.)
Prescott—Clary, W. H. (L.)
Rowan—Gordon, W. N. (L.)

KANSAS

Ashland—Nyberg, M. O. (C.)
Atchinson—Horner, T. E. (C.)
Centerville—Porter, G. F. (C.)
Climax—Hendricks, H. L. (L.)
Glyde—Belot, M. L. (C.)
Denison—Wilmoth, W. L. (C.)
Emporia—Morgan, D. L. (L.)
Iuka—Boyce, S. F. (C.)
Junction City—Carr, W. A. (M)
Kansas City—Hassig, J. F. (C.)
Rabin, J. H. (L.)
Lawrence—Chambers, H. L. (M.)
Lenexa—Nesselrode, C. C. (M.)
Marysville—Willson, E. L. (C.)
Meriden—Preston, O. R. (L.)
National Military Home—Adams, S. (C.)
Oakley—Miller, C. M. (C.)
Onaga—Koentz, C. H. (C.)
Perth—Vincent, H. A. (L.)
Sabetha—Wrightman, F. E. (C.)
Severy—Hodges, W. A. (C.)
Thayer—Reece, H. E. (C.)
Waldo—Dreher, H. S. (C.)
Wichita—Hissem, R. W. (M.)
Schlegel, E. H. (L.)

KENTUCKY

Charley—Hayes, L. S. (C.)
Fort Thomas—Crawford, C. (L.)
Fulton—Crafton, G. A. (L.)
Harrodsburg—Price, C. P. (C.)
Heath—Morris, C. C. (C.)
Irvington—Meador, R. W. (L.)
Kirksville—Combs, W. G. (L.)
Louisville—Gribble, B. G. (L.)
Hale, T. F. (C.)
Henderson, E. L. (M.)
Zimmerman, B. F. (M.)
Newport—Okrent, S. (L.)
Regina—Flanary, M. D. (L.)
Rockfield—Moss, R. C. (C.)
Vanceburg—Graham, C. L. (C.)
White Star—Henry, O. P. (L.)
Woodburn—Davis, B. P. (L.)

LOUISIANA

Bogalusa—Brister, T. M. (L.)
Melrose—Kelly, J. L. (M.)
Melville—Williams, L. J. (M.)
New Orleans—Locascio, J. L. (C.)
Murphy, D. J. (C.)
Weil, A. I. (C.)
Rayville—Sartor, J. C. (C.)
Shreveport—Willis, J. C., Jr. (C.)
Ward—Whitley, G. G. (C.)

MAINE

Bangor—Thompson, J. B. (C.)
Clinton—Newcomb, C. H. (L.)
Fairfield—Sturgis, K. B. (L.)
Limerick—Carpenter, L. W. (L.)
Millinocket—Bryant, C. S. (M.)
Portland—Carmichael, F. E. (C.)
Gray, J. E. (C.)
Moore, R. B. (M.)
Weeks, D. (L.)
Vinal Haven—Brown, F. F. (C.)

MARYLAND

Baltimore—Anderson, F. B. (C.)
Fargo, L. K. (C.)
Fulton, J. S. (L. C.)
Joslin, C. L. (C.)
Levy, M. (C.)
Martin, F. (M.)
Sprunt, T. P. (M.)
Elkton—Mitchell, H. A. (L. C.)
Polesville—Williams, F. T., (C.)
Salisbury—Pilchard, S. N. (L.)
State Sanatorium—Snyder, S. (L.)

MASSACHUSETTS

Arlington Heights — Ring, A. H. (C.)
Beverly—Johnson, P. P. (L. C.)
Blandford—Shurtleff, P. A. (L.)
Boston—Ayer, J. B., Jr. (C.)
Binney, G. H., Jr. (L.)
Clymer, G. (C.)
Cox, O. F., Jr. (L.)
FitzSimmons, H. J. (C.)
Gooding, J. H. (L.)
Hassman, D. M. (M.)
Holland, W. T. (L.)
Jones, T. P. (C.)
Keenan, J. A. (L.)
Kreutzmann, H. R. (L.)
McCrudden, F. H. (C.)
Porter, C. T. (C.)
Shapira, A. A. (C.)
Spear, L. M. (C.)
Brockton—Lawrence, J. H. (C.)
Moore, G. A. (C.)
Pettey, J. A. (C.)
Brookline—Cushing, A. A. (L.)
Cambridge—Brassil, T. F. (C.)
Eustis, R. S. (C.)
McCabe, F. H. (M.)
Murphy, J. J. (M.)
Lynn—Breed, N. P. (M.)
Malden—Howard, H. J. (C.)
Methuen—Ganley, E. H. (L.)
Needham—Pease, C. W. (C.)
New Bedford—Gennert, J. (L.)
Johnson, E. S. (C.)
O'Brien, D. P. (C.)
Roderick. A. J. (L)
Newton—Brady, C. N. (L.)
Rattey, A. A. (L.)
North Abington—Bishop, W. A. (L.)
Springfield—Lynch, C. F. (L. C.)
Rice, A. G. (C.)
Rochford, R. A. (C.)
Uxbridge—Ledbury. J. W. (C.)
Waltham—Taylor, R. A. (L.)
Westborough—Jillson, W. A. (L.)
Worcester—Lincoln, G. C. (M.)

MICHIGAN

Ann Arbor—Ganzhorn, E. C. (L.)
Holcombe, H. M. (C.)
Ideson, R. S. (L.)
Treadgold, G. D. (L.)
Augusta—Weeks, R. E. (L.)
Battle Creek—Kolvoord, T. (L.)
Brown City—Waltz, J. F. (L.)
Detroit—Barrett, W. D. (L.)
Beck, H. A. (C.)
Healy, G. H. (L.)
Kennedy, C. S. (L.)
Luce, H. A. (C.)
Pinney, L. J. (C.)
Sellers, C. W. (L.)
Escanaba—Long, H. W. (C.)
Flint—Ballard, C. S. (C.)
Grand Rapids—Brotherhood, J. S. (C.)
Holland—Westrate, W. (L.)
Howell—Richeson, V. N. (C.)
Ionia—Robertson, P. C. (C.)
Iron River—Liefert, W. C. (C.)
Ironwood—Maccani, W. L. (L.)
Midland—Johnson, J. H. (C.)
Muskegon—Colignon, C. M. (C.)
Port Huron—Patterson, D. W. (L.)
Wakefield—MacPhail, D. E. (L.)

MINNESOTA

Ashby—Randall, A. M. (C.)
Atwater—Anderson, L. W. (L.)
Chatfield—Reynolds, H. W. (C.)
Minneapolis—Oden, R. J. E. (C.)
Thomas, G. J. (M.)
Rochester—Szlapka, T. L. (C.)
Weaver, S. D. (C.)
Slayton—Richardson, W. E. (C.)
St. Paul—Greene, C. L. (L. C.)
Waseca—Rudolf, A. J. (C.)

MISSISSIPPI

Hamilton—Darracott, L. W. (L.)
McLaurin—Rogers, F. A. (C.)
Reid—Priest, R. E. (C.)
Starkville—Ricks, F. L. (C.)
Vicksburg—Sproles, H. F. (C.)

MISSOURI

Belle—Johnson, G. C. (L.)
Bloomfield—Wilson, J. (C.)
Brookfield—Jenkins, C. E. (C.)
Butler—DeWeese, E. R. (L.)
Cape Girardeau—Williams, P. R. (C.)
Carthage—Gentry, W. H. (C.)
Clarence—Hall, S. M. (C.)
Doniphan—Hume, J. R. (C.)
Excelsior Springs—Kirkham, A. (L.)
Green Ridge—Heibner, E. A. (L.)
Kansas City—Bird, J. R. (L.)
Cavaness, E. W. (C.)
Getelson, J. (C.)
Hedge, M. O. (C.)
Holbrook, W. F. (C.)
Johnson, A. N. (M.)
McCarthy, H. E. (M.)
Stofer, E. S. (C.)
St. Louis—Alexander, R. D. (L. C.)
Bailey, F. W. (M.)
Blair, V. P. (L. C.)
Burns, R., Jr. (L. C.)
Fitzporter, A. L. (L.)
Hein, E. E. (L.)
Mestemacher, L. H. (C.)
Sante, L. (L.)
Sellers, C. L. (C.)
Steinmann, W. A. H. (C.)
Sullivan, F. J. (C.)
Unterberg. H. (M.)
Wite. J. B. (L.)
Summerville—Wallen, L. H. (C.)

MONTANA

Bozeman—Gibson, L. K. (C.)
Great Falls—McCauley, A. M. (C.)
Jordan—Baker, D. A. (C.)
Missoula—Hobson. J. D. (L.)
Nashua—Lomas, J. A. (L.)
Rudyard—Schulberg, P. A. (L.)
Simms—Smith, C. L. (L.)

NEBRASKA

Fairbury—Hawes, W. J. (L.)
Florence—Avery, H. H. (L.)
Kearney—Rose, W. E. (L.)
Lincoln—Moyer, T. C. (C.)
Omaha—Leary, W. J. (M.)
Van Buren, F. A. (M.)
Papillion—Becker, W. C. (L.)
Rushville—Crawford, W. H. (C.)
Wausa—Hansen, O. T. (C.)

NEVADA

Elko—West, C. W. (M.)
Reno—Roller, W. C. (M.)

NEW HAMPSHIRE

Franconia—Johnson, H. L. (M.)
Franklin—Woodman, J. B. (L. C.)
Manchester—Sullivan, D. J. (L.)
Wheat, A. F. (M.)
Nashua—Congdon, C. E. (M.)
Sutton—Clough, W. P. (L.)
Walpole—Craig, W. P. (C.)

NEW JERSEY

Asbury—Potts, G. W. (L.)
Atlantic City—Bender, P. B. (M.)
Uzzle, E. F. (L.)
Jersey City — Sherwood, W. A. (L. C.)
Kearny—Dukes, H. R. (C.)
Merchantville—Cohan, E. N. (L.)
Morristown—Lathrope, G. H. (L. C.)
Newark—Crawford, D. H. (C.)
Gauch, W. (C.)
Horwitz, P. (L.)
Schramm, J. A. (C.)
New Brunswick—Hilliard, A. G. (L.)
Passaic—Dwyer, H. E. (C.)
Jahn, A. G. (C.)
Paterson—Clay, T. A. (M.)
William, J. W. (M.)
Perth Amboy—Cottrell, J. G. (L.)
Plainfield—Morris, T. M. (L.)
Rutherford—Garrison, N. S. (C.)
Reynolds, E. C. (C.)
South Orange—Dane, C. M. (M.)

NEW YORK

Albany—Draper, E. L. (M.)
Heslin, J. E. (C.)
Mount, L. B. (C.)
Beacon—Moore, J. W. (M.)
Brooklyn—Bass, B. R. (L.)
Bell, H. K. (C.)
Cohen, J. N. (L.)
Feaster, H. J. (L.)
Fisher, S. L. (M.)
Goldman C. (L.)

Brooklyn—Holley, I. (M.)
Laudeutcher, I. D. (C.)
Manulkin, G. (L.)
Mensch, M. (L.)
Parnass, S. (L.)
Ravich, A. (L.)
Smith, W. S. (C.)
Tanner, E. K. (M.)
Topkins, S. (C.)
Zamkin, H. O. (C.)
Buffalo—Anderson, L. F. (L.)
Bolton, P. M. (C.)
Brumberg, J. (L.)
Kummer, C. P. (C.)
Lojacono, S. C. (L.)
Reimann, E. P. (L.)
Sullivan, J. C. (L.)
Yellen, H. S. (L.)
Cohoes—Seaport, L. B. (L.)
Eastwood—Dunning, R. H. (L.)
Elmhurst—Krauss, J. G. (L.)
Elmira—Breese, F. P. (C.)
Granville—Munson, W. L. (L.)
Highland Falls—McMenamin, T. D. (M.)
Keeseville — Holcombe, F. M. (L. C.)
Kingston—Loughran, E. D. (C.)
Livingston Manor—Bourke, V. G. (C.)
Mt. Vernon—Mills, N. (L.)
New Rochelle — Hendrickson, C. W. (C.)
Read, C. A. (C.)
New York—Barker, J. C. (L.)
Blank, M. L. (C.)
Brill, A. A. (C.)
Brodie, B. (L.)
Bryant, W. S. (L. C.)
Carr, M. L. (L. C.)
Cassebeer, H. A. (M.)
Conley, D. S. (M.)
Curtin, T. H. (M.)
Daly, D. J. (L.)
Davis, T. G. (C.)
Dolan, E. J. (L.)
Fuchs, M. L. (L.)
Groff, P. A. (C.)
Hartwell, J. A. (M.)
Hyman, H. T. (L.)
Jennings, J. E. (L. C.)
Judkowitz, H. (C.)
Keller, J. A. (L.)
Lamb, A. R. (M.)
LeComte, J. R. (M.)
Marvel, N. C. (L.)
Matus, D. (L.)
Meader, F. M. (M.)
Nelson, F. L. (C.)
Ordway, W. H., Jr. (L.)
Orenstein, A. (C.)
O'Rourke, R. E. (L.)
Owens, H. F. (L.)
Palmer, A. (L.)
Purdy, H. L. (C.)
Rhett, W. M. (C.)
Schaaf, R. A. (C.)
Schaeffer, F. W. (C.)
Shapiro, L. L. (L.)
Sheridan, J. M. (L.)
Shibley, G. S. (C.)
Shlimbum, S. (C.)
Smith, L. H. (L.)
Smith, T. A. (C.)
Tannenbaum, F. (L.)
Thaxton, G. B. (L.)
Walter, M. R. (C.)
Ware, E. R. (L.)
Weeks, W. W. (M.)
Williams, C. M. (L. C.)
Willis, G. S. (C.)
Wilson, B. (L.)
Wilson, H. J. (L.)
Wurthmann, J. W. (L.)
Yudkowsky, P. (L.)
Niagara Falls—Gallagher, W. E. (L.)
Wisch, C. A. (L.)
Northport—Travis, W. C. (C.)
Olean—Atkins, L. J. (L.)
Van Campen, B. (L. C.)
Oneonta—Dickinson, W. G. (C.)
McMenamin, F. J. (L.)
Oswego—Galvin, W. J. (L.)
Perry—Houghton, M. O. (C.)
Port Chester—Ruben, B. D. (C.)
Port Jervis—MacAllister, L. H. (C.)
Potsdam—Fuller, F. J. (C.)
Poughkeepsie—Cotter, L. E. (L.)
Rodgers, A. G. (C.)
Riverdale—Dykman, A. B. (C.)
Rochester—Almy, M. A. (C.)
Barber, L. J. (C.)
Bondi, A. (L.)
Melen, D. R. (L.)
Nacey, L. J. (M.)
Whipple, E. C. (C.)
Rome—Stuart, L. (C.)
Schenectady—Doig, R. B. (C.)
South Onondaga—Gak, H. E. (L.)
Syracuse—Potter, P. S. (C.)
Troy—Benson, A. W. (C.)
Warwick—Beattie, J. H. (M.)
White Plains—Briggs, F. S. (L.)
Holden, J. F. (L.)
Lawrence, W. A. (L. C.)
Yonkers—Betts, B. H. (M.)

NORTH CAROLINA

Asheville—Jordan, C. S. (C.)
Ayden—Dixon, G. G. (L.)
Bethel—Garrenton, C. (C.)
Charlotte—Fetner, L. M. (C.)
Wishart, W. E. (C.)
Durham—Watkins, G. T. (C.)
Farmville—Moseley, H. P. (C.)
Garland—Sloan, W. H. (L.)
Goldsboro—Spicer, R. W. (C.)
Greensboro—Starr, H. F. (C.)
Kittrell—Swindell, F. O. (C.)
Lowell—Patrick, G. R. (C.)
Maysville—Shaw, C. (L.)
Polkton—Boyce, J. M. (C.)
Sanatorium—McBrayer, R. A. (C.)
Star—Dameron, E. L. (L.)
Sunburst—Sturdivant, B. B. (L.)
Tarboro—Green, W. W. (M.)
Royster, T. H. (C.)
Wilmington—Robertson, J. F. (C.)

NORTH DAKOTA

Egeland—O'Brien, W. P. (L.)
Fargo—Rindlaub, M. P. Jr. (C.)
Grand Forks—Meland, O. N. (M.)
Litchville—Platou, C. A. (L.)
Minot—Pence, J. R. (C.)
Omemoe—Ginsberg. W. (C.)
Warwick—Carter, J. A. (M.)

OHIO

Akron—Baremore, H. R., Jr. (C.)
Alexandria—Bishop, W. D. (L.)
Ashland—Patton, C. C. (L.)
Barberton—Rodenbaugh, H. A. (C.)
Bellefontaine—Stinchcomb, W. G. (L.)
Cincinnati—Brown, H. A. (C.)
Curl, R. B. (L.)
Raman, H. B. (L.)
Rupp, D. (L.)
Cleveland—Andrews, F. L. (C.)
Bray, C. M. (L.)
Crouch, W. C. (C.)
Euler, F. A. (L.)
Glass, G. F. (M.)
Kimmel, B. B. (C.)
Mayer, N. C. (L.)
Mylott, E. C. (L.)
Osmond, J. D. (C.)
Sanford, H. L. (L. C.)
Schlink, H. A. (C.)
Columbus—Hoskins, G. O. (L.)
Keiser, J. G. (C.)
Laufersweiler, L. F. (L.)
Dayton—McCally, A. W. (C.)
Payne, F. C. (L.)
Woodruff, R. L. (L.)
Findlay—Hartman, J. V. (M.)
Frankfort—Smith, W. B. (C.)
Greenville—Spitler, R. H. (L.)
Lancaster—Axline, C. G. (M.)
Mantau—Knowlton, E. H. (C.)
Marietta—McMillan, W. W. (M.)
Marion—Mouser, H. K. (C.)
Mechanicsburg—Whitaker, H. O. (C.)
Metamore—Lathrop, W. L. (L.)
Millersburg—Olmstead, A. R. (C.)
Putnam, I. S. (C.)
Scott—Hanna, M. (C.)
Thurston—Fishel, C. R. (L.)
Toledo—Cary, W. (L.)
Pilliod, F. W. (C.)
Wapakoneta—Campbell, T. A. (L.)
Weston—Wetherill, J. C. (L.)
Youngstown—Painter, A. M. (M.)

OKLAHOMA

Alva—Bilby, G. N. (L.)
Clinton—Darnell, E. E. (L.)
Davenport—Nickell, U. E. (L.)
Enterprise—Billington, J. J. (C.)
Frederick—Howell, C. H. (C.)
Hugo—Maier, H. W. (L.)
Hulen—Burnett, B. H. (L.)
Lawton—Janney, J. G. (M.)
Oklahoma—Bradley, H. C. (L.)
Holliday, J. R. (L.)
Maxwell, J. H. (C.)
Soper—Hargraves, T. A. (L.)
Tryon—Jansing, J. H. (C.)
Wagoner—Moore, G. C. (L.)

OREGON

Carlton—Morrison, A. D. (L.)
Marshfield—Straw, E. E. (C.)
Portland—Anderson, E. E. (L.)
Cahill, R. W. (L.)
Stewart, J. A. (C.)
Ziegelman, E. F. (M.)

PENNSYLVANIA

Altoona—Kaufman, D. (M.)
Braddock—Lamb, H. H. (C.)
Butler—McCandless, D. L. (L.)
Cambridge Springs—Mullin, C. E. (C.)
Chatham—Moore, L. C. (C.)
Coraopolis—Brown, S. A. (L.)
Cresson—Brachman, D. S. (C.)
Cumberland Valley—Stoner, A. Z. (M.)
Dalton—Vail, H. L. (M.)
Doylestown—Sweeney, J. J. (M.)
Elizabethville—Romberger, F. T. (C.)
Ellwood City—Iseman, C. M. (M.)
Ford City—Robinsteen, C. H. (L.)
Franklin—Tibbens, C. E. (M.)
Glenlyon—Thomas, A. M. (C.)
Greensburg—Blackburn, G. R. (L.)
Hamburg—Robinbold, A. M. (M.)
Harrisburg—Perkins, R. L. (M.)
Haverford—Sharpe, J. S. (M.)
Irwin—Caldwell, J. D. (C.)
Jeanette—Doncaster, W. T. (L.)
Johnstown—Hill, H. L. (C.)
Mayer, L. H., Jr. (C.)
Langhorne—Ridge, S. L. (M.)
Marcus Hook—Stockton, H. T. (C.)
McKees Rocks—Goodrich, H. J. (L.)
Meadville—Brophy, E. E. (L.)
Skelton, W. B. (C.)
Midland—Hunter, L. L. (L.)
Monaco—Wagner, J. H. (L.)
Mont Alto—Mulligan, A. J. (L.)
New Castle—Cooper, J. R. (M.)
New Kensington—O'Hara, W. T. (C.)
Oakmont—Edgar, J. C. (M.)
Palmertown—Hersh, H. E. (C.)
Perkasie—Strouse, O. H. (L.)
Philadelphia—Aitken, C. S. (C.)
Beckley, A. G. (M.)
Bennett, W. A. (L.)
Bishop, A. L. (C.)
Burns, M. A. (M.)
Carmany, H. S. (C.)
Chapin, C. E. (C.)
Deal, J. C. (L.)
Haigh, J. E. (L.)
Hoyt, D. M. (L. C.)
Ingle, H. B. (C.)
Keiser, E. E. (M.)
Killen, R. D. (C.)
Patten, C. A. (C.)
Weber, C. H. (M.)
Willard, D. P. (M.)
Phoenixville—Rulon, S. A., Jr. (C.)
Pittsburgh—Bigoney, C. F. (L.)
Binkley, O. H. (L.)
Collins, J. H. (M.)
Crookston, W. J. (Col.)
Gilmore, J. L. (L.)
Kirk, D. I. (L.)
Lambert, S. E. (M.)
Logan, J. S. (L.)
Mabon, T. M. (L.)
Maxwell, W. C. (C.)
McCague, E. J. (L. C.)
Patterson, H. B. (M.)
Reynolds, F. D. (C.)
Vankirk, V. E. (C.)
Pittston—Nicholson, C. E. (L.)
Portage—Yearick, G. I. (L.)
Port Carbon—Conrad, J. W. (C.)
Pottsville—Bergstein A. M. (L.)
Reading—Golding, E. K. (L.)
Strasser, R. E. (C.)
Sayre—Fish, H. S. (M.)
Scranton—Keller, W. E. (L. C.)
Rebhorn, E. H. (L.)
Shamokin—Salter, O. E. (C.)
Sharpsburg—Hall, S. K. (C.)
Shellburg—Anderson, J. C., Jr. (C.)
Strousburg—Rosenkrans, C. B. (C.)
Uniontown—Baltz, S. A. (M.)
Luman, C. M. (M.)
Waynesburg—Ullom, F. S. (C.)
West Chester—Farrell, J. A. (M.)
Wilkes-Barre—Baird, T. M. (M.)
Griffith, M. E. (C.)
Smith, H. A. (C.)
Williamsport—Logue, J. G. (L.)
York—Smith, G. (C.)

RHODE ISLAND

Howard—Gannon, C. H. (L.)
Providence—O'Keefe, W. J. (L.)
Risk, W. A. (C.)

SOUTH CAROLINA

Anderson—Sanders, L. C. (C.)
Bennettsville—Strauss, D. D. (L.)
Charleston—Pitts, T. A. (C.)
Smith, W. A. (C.)
Chester—Thomas, H. B. (L.)
Columbia—Baron, C. W. (M.)
Rodgers, F. D. (M.)
Darlington—Coggshall, J. T. (L.)
Inman—Gibson, R. B. (L.)
St. Matthews—Raysor, H. C. (L.)
St. Stephen—Colson, J. D. (L.)
Sumter—Littlejohn, T. R. (L.)
Walhalla—Verner, J. D., Jr. (L.)

SOUTH DAKOTA

Milbank—McKenna, C. H. (M.)
Mitchell—Bobb, B. A. (M.)

TENNESSEE

Decatur—Arrants, W. R. (L.)
Frankewing—Johnson, W. J. (L.)
Halls—Brown, Y. S. (L.)
Johnson City—Moss, J. G. (M.)
Knoxville—Edwards, E. V. (C.)
Memphis—Carnes, W. A. (C.)
Coughlin, T. F., Jr. (C.)
Semmes, R. E. (C.)
Shea, J. J. (M.)
Vaughan, J. A. (C.)
Munford—Witherington, J. G. (L.)
Nashville—Hatcher, G. A. (C.)
Ravenscroff—Allison, G. M. (C.)
Stanton—Nash, W. B. (C.)

TEXAS

Alice—Perkins, M. J. (L.)
Britton—Nifong, H. D. (C.)
Dallas—Carruthers, F. W. (L.)
Colwick, J. T. (L.)
Jackson, R. W. (L.)
Dilley—Gates, E. F. (C.)
El Paso—Hendricks, C. M. (L. C.)
Galveston—Moore, T. F. (C.)
Honey Island—Bledsoe, J. A. (C.)
Houston—Fancher, R. M. (C.)
Meredith, W. P. (L.)
Mitchner, J. M. (L.)
White, J. L. (L.)
Kerens—Norwood, E. P. (C.)
Lancaster—Parks, C. C. (L.)
Luling—Francis, S. J. (M.)
Marlin—Hutchings, E. P. (L.)
Sewall, F. B. (L.)
Newcastle—Wilson, O. W. (C.)
Palestine—Dunlap, R. W. (L.)
Roby—Smith, M. (C.)
Rosebud—Chernosky, W. A. (C.)
San Angelo—McAnulty, J. P. (C.)
San Antonio—Hanson, W. S. (L.)
Kenney, N. M. (C.)
McManus, W. F. (M.)
Wyneken, H. O. (M.)
Sherman—Brown, H. L. (C.)
Tolar—Crawford, J. F. (C.)
Van Alstyne—Wolfe, J. A. L. (C.)
Victoria—Hopkins, J. V. (L.)
Weinert—Cadenhead, J. F. (C.)

UTAH

Kaysville—Gardner, C. S. (M.)
Logan—Rush, W. A. (C.)
Ogden—Pugmire, L. R. (C.)
Salt Lake City—Alexander, R. J. (C.)
Vernal—Rich, H. E. (L.)

VERMONT

East Hardwick—Kinney, A. C. (C.)
Manchester Depot—Lovejoy, J. L. (C.)
North Troy—Flagg, R. S. (L.)
St. Johnsbury—Harvey, J. W. (C.)

VIRGINIA

Altavista—Board, J. A. (C.)
Ashland—Jordon, J. W. (C.)
Bena—Healy, M. W. (C.)
Berryville—Iden, C. H. (L.)
Buckingham—Tucker, P. E. (L.)
Charlottesville—Tennant, C. C. (L.)
Clifton Forge—Rucker, C. N. (C.)
Wysor, F. L. (C.)
Colonial Beach—Harrison, G. B. (C.)
Danville—Elliott, S. T. (C.)
Dundas—Ozlin, R. L. (C.)
Falls Church—Fadelye, J. M. (L.)
Forestville—Biller, A. C. (L.)
Haymarket—Payne, W. C. (L.)
Lynchburg—Davis, T. N., Jr. (C.)
Newport News—Davis, R. A. (C.)
Norfolk—Smith, C. C., Jr. (C.)
West, D. P. (L.)
Port Royal—Shelley, P. H. (C.)
Pounding Mill—Zimmerman, G. L. (C.)
Richmond—Graves, K. D. (C.)
Stern, H. S. (C.)
Warrick, F. K. T. (M.)
Weisiger, W. R. (C.)
Roanoke—Kenpp, J. W. (C.)
Stony Creek—Parson, A. D. (L.)
Suffolk—Yates, O. R. (L.)

WASHINGTON

Dayton—Chase, R. J., Jr. (L.)
Ferndale—Hood, C. S. (C.)
Onalaska—Millington, W. A. (L.)
Seattle—Cassels, W. G. (M.)
Lessing, A. (M.)
Spokane—Johnson, A. C. (C.)
Pennock, W. J. (M.)
Robinson, H. H. (C.)
Sultan—Bortner, H. W. (C.)

WEST VIRGINIA

Bluefield—Hern, W. O. (C.)
Charleston—Mairs, A. (C.)

Clarksburg—Cherry, S. L. (C.)
Fairmount—Weirick, C. R. (L.)
Hiawatha—Barger, F. W. (C.)
Huntington—Schulz, J. C. (C.)
Malden—DeBell, A. W. (C.)
Marting—Shirkey, I. G. (C.)
Parkersburg—Werner, R. G. (L.)
Salem—Davis, E. (C.)
Summerville—Guilford, E. W. (C.)
Topins Grove—Howell, W. H. (C.)
Wheeling—Hildreth, E. A. (C.)
Masters, W. E. (L.)

WISCONSIN

Alma Center—Griswold, G. W. (L.)
Almena—Cristman, E. S. (C.)
Antigo—Steffen, L. A. (C.)
Chaseburg—Remer, W. H. (L.)
Fennimore—Howell, E. C. (C.)
Fond du Lac—Twohig, J. E. (L.)
Green Bay—Hendrickson, H. (C.)
Hartford—Witte, D. H. (L.)
Milwaukee—Bruins, D. (M.)
Grove, W. E. (C.)
Russell, H. C. (L.)
Mount Horeb—Ishmael, O. E. (L.)
Neenah—Russell, F. H. (C.)
Packwaukee—Gillette, H. E. (C.)
Portage—Taylor, W. A. (L.)
Racine—Hogan, J. H. (C.)
Seymour—Boyden, W. L. (C.)
Sun Prairie—Barry, H. J. (L.)
Wauwatosa—Martin, C. D. (L.)
Olsen, R. E. (L.)

WYOMING

Buffalo—Conyers, C. A. (C.)
Laramie—Lane, A. E. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

Los Angeles—Werner, E. A. S.

FLORIDA

Tampa—Higgins, A. F.

GEORGIA

Augusta—Pund, E. R.
Savannah—Fitzsimons, L. E.

ILLINOIS

Chicago—Duner, C. S.
Great Lakes—Cannon, F. M.
Gamble, J. W.
Pontiac—Young, J. G.

INDIANA

Vevay—Dodd, D. W.

IOWA

Marshalltown—Lounsberry, R. C.

KANSAS

Elk City—Haydon, O. K.

LOUISIANA

Lakeland—Lorio, C. A.

MASSACHUSETTS

Boston—Macaluso, A.
Tewksbury—Tricky, C. L.
Westboro—O'Brien, T. J.

MINNESOTA

Minneapolis—Kooiker, H. J.
Litchfield, J. T.
Rochester—Sutton, G. D.

MISSOURI

King City—Ferguson, M. J.
Nebo—Hartley, U. E.

NEBRASKA

Omaha—Cochran, F. B.

NEW YORK

New York—Faber, G. W.
Foote, E. M.
Frink, C. A.
Halsted, H.
Meeker, H. D.
Rochester—Waterman, J. L.
Yonkers—Reed, F. O.

OHIO

Birds Run—Swan, G. F.

PENNSYLVANIA

Tarentum—Conwell, F. L.

SOUTH CAROLINA

Darlington—DuBose, R. H.
Enoree—Holcombe, V. E.

TEXAS

El Paso—McKinney, Wm.

VIRGINIA

Charlottesville—Waddell, W. W.
City Point—Bradley, J. C.
Fork Union—Snead, G. H.
Lynchburg—Davis, J. W.

WASHINGTON

Seattle—Coe, H. E.

WEST VIRGINIA

Page—Whitehurst, E. B.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Arkansas

To report to the commanding general, Southern Department, from Camp Pike, Lieut. J. H. M. HARDY, Malvern.

California

To Camp Lee, Va., from Hoboken, Lieut. C. C. DICKINSON, McCloud.

To Camp Lewis, Wash., from Fort Douglas, Capt. W. C. MABRY, Tropico.

To Fort Bayard, N. M., from Whipple Barracks, Capt. J. H. MEYER, San Bernardino.

To Fort Des Moines, Iowa, from Camp Fremont, Lieut.-Col. C. W. HAVERKAMPF.

To Fort Sheridan, Ill., from Camp Dix, Major C. W. HUGHES, Hawthorne; Capt. E. W. BURKE, Redlands.

To Fox Hills, N. Y., from Camp Dix, Capt. C. L. TRANTER, San Francisco.

To report to the commanding general, Central Department, from Camp Dix, Major H. X. CLINE, Burbank. Hawaiian Department, from San Francisco, Lieut.-Col. E. G. NORTHINGTON. Southern Department, from Hoboken, Major W. O. BLANCHAR, Los Angeles.

To San Francisco, Calif., Letterman General Hospital, from Camp Kearney, Capt. E. N. REED, Santa Monica; from San Francisco, Major H. D. OFFUTT; from Surgeon-General's Office, Major P. M. THOMAS, San Francisco.

Colorado

To Denver, Colo., from Fort D. A. Russell, Major O. D. WESCOTT, Denver.

To Fort Riley, base hospital, from Camp Dix, Major L. M. VAN METER, Denver.

District of Columbia

To Camp Gordon, Ga., from Walter Reed General Hospital, Major P. E. McNABB.

To Fort Bayard, N. M., from Walter Reed General Hospital, Major L. A. FOX.

To Fort Sam Houston, Texas, from Army Medical School, Major E. A. FENNEL.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut.-Col. R. T. MORRIS, Washington.

Florida

To Fort McPherson, Ga., from Camp Dix, Major H. M. BEARDALL, Orlando.

To Plattsburg Barracks, N. Y., from Camp Dix, Capt. H. E. PARNELL, Fort Myers.

Georgia

To Denver, Colo., from Fort Oglethorpe, Lieut.-Col. C. D. COWLES, JR.

To Fort McPherson, Ga., from Camp Taylor, Capt. T. H. STEWART, JR., Atlanta; from Walter Reed General Hospital, Major T. C. DAVISON, Atlanta.

To report to the commanding general, Hawaiian Department, from Camp Gordon, Major F. H. POTTERS.

The following order has been revoked: *To Camp Meade, Md.,* from Camp Jackson, Capt. F. W. ROGERS, Dakota.

Illinois

To Army Medical School, D. C., from Chicago, Major C. B. WOOD.

To Columbus Barracks, Ohio, from Denver, Lieut. T. W. HAGERTY, Chicago.

To Fort Riley, base hospital, from Detroit, Capt. B. M. CONLEY, Wilmette.

To Fort Sam Houston, Texas, base hospital, from Camp Travis, Lieut. G. E. BRERETON, Chicago.

To Fort Sheridan, Ill., from Camp Dix, Lieut. H. T. GARRISON, Chicago; from Camp Dodge, Lieut. A. W. CHRISTENSON, Rockford; from Camp Grant, Capt. D. H. KELLER, Anna; from Camp Zachary Taylor, Lieut. G. E. PFEIFFER, Chicago; from Fort Des Moines, Lieut. J. E. BENTLEY, Chicago.

To Fort Slocum, N. Y., from Camp Dodge, Major F. C. TEST, Chicago.

To report to the commanding general, Central Department, from Camp Dix, Capt. D. T. COLE, Odell.

To Walter Reed General Hospital, D. C., from Fort Sheridan, Major G. W. WOODNICK, Chicago.

Indiana

To Camp Shelby, Miss., from Camp Dix, Major B. WEBSTER, Kingsbury.

To Fort Benjamin Harrison, from East View, Major H. M. HOSMER, Gary.

To Fort McHenry, Md., from Camp Jackson, Lieut. C. E. COX, Indianapolis.

To Fort Sam Houston, Texas, base hospital, from Denver, Lieut. P. W. HOPKINS, East Chicago.

To Oteen, N. C., from Fort Oglethorpe, Lieut. F. B. ROBERTS, Indianapolis.

To Walter Reed General Hospital, D. C., from Fort Benjamin Harrison, Lieut.-Col. G. B. LAKE.

Iowa

To Camp Gordon, Ga., from Camp Pike, Major E. E. HOBBY, Iowa City.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. L. M. COFFEY, Keokuk.

To Fort Sheridan, Ill., from Camp Dodge, Major F. L. LOVE, Iowa City.

To Newport News, Va., from Camp Jackson, Capt. C. H. KINNAMAN, Keokuk.

To Otisville, N. Y., from Camp Dix, Capt. J. A. MATSON, Purdy.

Kansas

To Carlisle, Pa., from Walter Reed General Hospital, Capt. J. W. SPEARING, Norcatur.

To report to the commanding general, Southern Department, from Camp Kearney, Capt. W. DOSTER, Coldwater.

Kentucky

To Camp Zachary Taylor, Ky., from Camp Pike, Major W. B. GOSSETT, Louisville.

To Carlisle, Pa., from Camp Zachary Taylor, Capt. O. P. HODGE, Grants Lick.

Louisiana

To Fort McPherson, Ga., from Camp Upton, Capt. R. H. FISHER, Sulphur.

To report to the commanding general, Southeastern Department, from Camp Dix, Major D. H. TREPAGNIER, Burrwood.

Maine

To Walter Reed General Hospital, D. C., for instruction, from Camp Upton, Capt. L. B. HAYDEN, Livermore Falls.

Maryland

To Fort McHenry, Md., from Camp Meade, Capt. H. K. FLECKENSTEIN, Lieut. W. A. DARBY, Baltimore.

To Fort Schuyler, N. Y., from Camp Meade, Col. J. B. HUGGINS.

To Montgomery, Ala., from Mineola, Capt. C. T. C. BUCKNER, Baltimore.

Massachusetts

To Fort McHenry, Md., from Hoboken, Lieut. F. S. CALDICOTT, Milford.

To Fort Slocum, N. Y., from Boston, Col. W. A. POWELL.

To Fox Hills, N. Y., from Camp Zachary Taylor, Lieut. J. J. H. HILTON, Lawrence.

To Plattsburg Barracks, N. Y., from Camp Dix, Lieut. M. H. SPELLMAN, Whitman.

To report to the commanding general, Hawaiian Department, from Camp Devens, Major A. B. JONES.

To San Francisco, Calif., from Camp Dix, Major A. H. PIERCE, Leominster.

To Walter Reed General Hospital, D. C., for instruction, from Fort Snelling, Capt. F. A. BARDWELL, Boston; from Pittsburgh, Capt. A. U. F. CLARK, Westboro.

The following order has been revoked: *To Mineola, N. Y.*, Hazelhurst Field, for instruction, from Newport News, Lieut. P. H. CLARKE, Holyoke.

Michigan

To Fort Riley, base hospital, from Detroit, Capt. C. L. STOREY, Detroit.

To Fort Sheridan, Ill., from Camp Kearney, Major H. S. BARTHOLOMEW, Lansing; from Detroit, Lieut. F. D. GERMAN, Franklin.

To report to the commanding general, Hawaiian Department, from Fort Oglethorpe, Major H. L. ARNOLD, Owosso.

To Riverside, Calif., March Field, from Mineola, Lieut. J. L. DESROSIERS, Detroit.

To San Francisco, Calif., Letterman General Hospital, from Camp Zachary Taylor, Major C. BARTON, Detroit.

Minnesota

To Colonia, N. J., from Pittsburgh, Lieut. G. A. MURRAY, Rochester.

To Fort Des Moines, Iowa, from Fort Snelling, Lieuts. H. W. STONE, Minneapolis; J. C. WALKER, Jr., Rochester.

To report to the commanding general, Southern Department, from Camp Pike, Capt. V. D. GUITTARD, Cloquet.

The following order has been revoked: *To Fort McHenry, Md.*, from Camp Upton, Capt. F. P. MOERSCH, Minneapolis.

Missouri

To Camp Lee, Va., from Army Medical School, Lieut. S. J. WOLFERMANN, St. Louis.

To Fort Sam Houston, Texas, base hospital, from Camp Kearney, Capt. C. L. WOOLSEY. Chillicothe.

To Fort Sheridan, Ill., from Fort Sill, Major T. J. LYNCH, St. Joseph.

To Fox Hills, N. Y., from Camp Dix, Capt. F. L. PRATT, Kansas City.

To Jefferson Barracks, Mo., from Camp Dix, Lieut. J. F. BREDECK, St. Louis.

To Walter Reed General Hospital, D. C., from Camp Grant, Capt. A. S. HEITHAUS, St. Louis.

Montana

To Fort Des Moines, Iowa, from Fort Snelling, Capt. P. L. ASHLEY, Wibaux.

Nebraska

To Camp Pike, Ark., from Camp Dix, Capt. S. B. HALL, Omaha.

New Hampshire

To Walter Reed General Hospital, D. C., for instruction, from Camp Meade, Capt. B. W. CARR, Pittsfield.

New Jersey

To Army Medical School, from Camp Dix, Col. G. B. FOSTER, Jr.

To Camp Bragg, N. C., as camp surgeon, from Hoboken, Col. W. H. TEFFT.

To Camp Grant, Ill., from Camp Dix, Col. A. M. WHALEY.

To Camp Meade, Md., from Hoboken, Col. E. L. RUFFNER.

To Fort McHenry, Md., from Camp Dix, Col. T. H. JOHNSON.

To Fort McKinley, Me., from Hoboken, Lieut.-Col. J. D. HEYSINGER.

To Fort Sam Houston, Texas, base hospital, from Fort Douglas, Capt. A. F. GRAHAM, Paterson.

To Fort Screven, Ga., from Hoboken, Lieut.-Col. W. DENTON.

To Fort Sheridan, Ill., from Camp Dix, Lieut.-Col. H. L. DALE; from Hoboken, Cols. H. C. MADDUX, R. C. McDONALD.

To Fort Strong, Mass., from Camp Dix, Lieut.-Col. O. W. PINKSTON.

To Fort Wadsworth, N. Y., from Hoboken, Col. F. SCHMITTER.

To Fox Hills, N. Y., from Camp Dix, Col. E. G. HUBER.

To Governors Island, N. Y., from Hoboken, Lieut.-Col. F. S. MACY.

To Monterey, Calif., from Hoboken, Col. J. I. MABEE.

To New Haven, Conn., for instruction, and on completion to San Francisco, Calif., Letterman General Hospital, from Camp Dix, Major G. C. H. FRANKLIN.

To Oteen, N. C., from Hoboken, Lieut. V. H. CORNELL.

To report to the commanding general, Eastern Department, from Camp Dix, Lieut.-Col. E. L. NAPIER. Southern Department, from Camp Dix, Col. W. E. COOPER; from Hoboken, Lieut.-Col. C. W. McMILLAN. Western Department, from Camp Dix, Lieut.-Col. L. S. HUGHES.

To San Francisco, Calif., Letterman General Hospital, from Hoboken, Col. J. M. KENNEDY.

To Walter Reed General Hospital, D. C., from Hoboken, Col. N. L. McDIARMID.

New York

To Americus, Ga., Souther Field, from Mineola, Lieut. J. F. BOURKE, Jamaica.

To Camp Devens, Mass., from Hoboken, Lieut. J. I. SCHOONMAKER, West Coxsackie.

To Camp Dix, N. J., from Army Medical School, Lieut. E. A. LANE, New York. Base hospital, from Camp Devens, Major H. A. RILEY, New York.

To Camp Gordon, Ga., from Camp Dix, Lieut. R. V. HADLEY, Collins.

To Carlisle, Pa., from Eastview, Major C. A. SQUIRES, Binghamton.

To Fort McPherson, Ga., from Eastview, Capt. C. R. BAKER, Kingston.

To Fort Porter, N. Y., from Fort Monroe, Major M. M. LUCID, Cortland.

To Fox Hills, N. Y., from Detroit, Capt. L. H. TAFT, New York; from East View, Capt. P. B. FITZGERALD, New Rochelle.

To Hoboken, N. J., from Camp Jackson, Capt. C. R. GILL, Brooklyn.

To Oteen, N. C., from Fort Oglethorpe, Lieut. C. R. HENRY, New York.

To report to the commanding general, Hawaiian Department, from Camp Upton, Major R. P. WILLIAMS; from Fox Hills, Col. W. F. TRUBY. Philippine Department, from Fort Slocum, Col. E. M. TALBOT.

To Spartanburg, S. C., from Fort Oglethorpe, Lieut. E. L. WILSON, Bolton Landing.

To Walter Reed General Hospital, D. C., from Camp Upton, Lieut. T. A. D. SOMERS, New York.

To Washington, D. C., from Mineola, Lieut. J. J. LANCER; from Tobyhanna, Pa., Capt. E. L. AYME, New York. Bolling Field, from Minneola, Major J. DIBBLE.

North Carolina

To Camp Shelby, Miss., from Oteen, Major R. A. CAMPBELL, Statesville.

To report to the commanding general, Hawaiian Department, from Camp Bragg, Col. W. M. SMART.

Ohio

To Denver, Colo., from Camp Meade, Lieut. F. R. TROUTE, Jamestown.

To Fort Benjamin Harrison, from Camp Dix, Lieut. J. T. KENNEDY, Cincinnati; from Pittsburgh, Capt. W. N. KEENAN, Coshocton.

To Fort Sheridan, Ill., from Fort Snelling, Lieut. R. K. FINLEY, Xenia.

To report to the commanding general, Central Department, from Camp Dix, Capt. J. FRIDLINE, Ashland.

Oklahoma

To Fort Leavenworth, Kan., from Camp Zachary Taylor, Capt. E. F. DAVIS, Oklahoma City.

To Fort Sill, Okla., Post Field, from Mineola, Capt. D. A. MYERS, Lawton.

Oregon

To Denver, Colo., from Camp Lewis, Major R. C. MATSON, Portland.

To Walter Reed General Hospital, D. C., from East View, Capt. G. L. HYNSON, Portland.

Pennsylvania

To Carlisle, Pa., from Pittsburgh, Lieut. J. H. KRIEDER, Harrisburg.

To Houston, Texas, Ellington Field, from Mineola, Capt. C. H. KETTERER, Butler.

To Otisville, N. Y., from Pittsburgh, Lieuts. T. F. MOORE, E. S. WEIMER, Pittsburgh.

To Plattsburg Barracks, N. Y., from Camp Dix, Capt. R. ZIMMERMAN, Wilmerding.

To San Francisco, Calif., Letterman General Hospital, from Fort Snelling, Capt. E. H. ERNEY, Philadelphia.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut. J. F. HERBERT, Jr., Philadelphia.

The following orders have been revoked: *To Colonia, N. J.*, from Walter Reed General Hospital, Major C. C. YOUNG, Philadelphia.

To Fort McHenry, Md., from Cape May, Lieut. H. W. SCARLETT, Bryn Mawr.

South Carolina

To Fort McHenry, Md., from Camp Dix, Capt. W. R. JOHNSON, Windsor.

To report to the commanding general, Philippine Department, from Camp Jackson, Major O. H. STANLEY.

To Spartanburg, S. C., from Biltmore, Major M. P. MOORER, Georgetown.

Tennessee

To Colonia, N. J., from Camp Dix, Capt. B. C. McMAHON, Memphis.

To Fort McPherson, Ga., from Camp Dodge, Capt. O. B. CHANDLER, Union City; from Camp Lee, Lieut. C. W. ROBINSON, Memphis.

To Fort Sheridan, Ill., from Camp Custer, Lieut. C. R. CRUTCHFIELD, Nashville.

To Spartanburg, S. C., from Camp Lee, Lieut. E. C. SEALE, Nashville.

Texas

To Camp Bragg, N. C., Pope Field, From Mineola, Lieut. W. A. BLACK, Marlin.

To Camp Travis, Texas, from Camp Dix, Capt. J. A. SIMPSON, Brownsville.

To Fort Sam Houston, Texas, base hospital, from Camp Dix, Capt. C. C. ODOM, Childress.

To Monterey, Calif., from Fort Oglethorpe, Lieut. S. E. MURCHISON, Marshall.

Utah

To Fort Sam Houston, Texas, base hospital, from Fort Douglas, Capt. C. M. BENEDICT, Salt Lake City.

To Fort Sill, Okla., from Fort Douglas, Major W. CHRISTOPHERSON, Salt Lake City.

Vermont

To Carlisle, Pa., from Pittsburgh, Lieut. A. A. CROSS, Williamstown.

Virginia

To Fort Sheridan, Ill., from Newport News, Major W. DENISON.

To San Antonio, Texas, Kelly Field, from Mineola, Capt. S. E. BROWN, Norfolk.

Washington

To Camp Lewis, Wash., base hospital, from Fort Snelling, Lieut. R. L. GHERING, Spokane.

To report to the commanding general, Western Department, from Camp Lewis, Lieut.-Col. H. H. SHARPE.

Wisconsin

To Fort Sam Houston, Texas, from Camp Jackson, Major M. W. HALL, Mondovi.

To Mineola, N. Y., from Camp Bragg, Capt. J. J. FRANCE, Milwaukee; from Montgomery, Ala., Capt. H. S. STEENBERG, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg.-Gen. C. C. PIERCE, proceed to New York for conference with the executive committee of the State Health Officers' Association.

Sen. Surg. J. H. WHITE, proceed to Greenville, S. C., on temporary duty.

Surg. EDWARD FRANCIS, proceed to Salt Lake City, Utah, for conference with Secretary of the State Board of Health, and for study of so-called deer-fly fever.

Surg. E. A. SWEET, proceed to Knoxville, Tenn., to examine the Whittle Springs property with regard to its suitability for use as a hospital by the Public Health Service.

P. A. Surg. LISTON PAINE, detailed as supervisor of the district comprising the Virgin Islands, for the examination and treatment of War Risk beneficiaries.

P. A. Surg. J. G. TOWNSEND, bureau orders of June 24, 1919, amended so as to fix the headquarters of the Supervisor of District No. 4, War Risk Insurance beneficiaries, at Washington, D. C., instead of Baltimore, Md.

P. A. Surg. W. C. WITTE, proceed to Chicago, Ill., to attend Red Cross conference relative to tuberculosis cases.

P. A. Surg. CARL MICHEL, detailed as supervisor of the district comprising Porto Rico, for the examination and treatment of War Risk beneficiaries.

Asst. Surg. J. D. APPLEWHITE, relieved at Petersburg, Va., in extra-cantonment work; report for duty in rural sanitation in the State of Virginia with headquarters at Petersburg.

Prof. C. W. STILES, proceed to Monteagle, Tenn., from time to time to deliver addresses before the Monteagle Chautauqua.

Surg. E. E. CABLE, Reserve, ordered to active duty in the reserve corps of the Public Health Service, effective July 1, 1919.

P. A. Surg. J. LEE ADAMS, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, 1919.

P. A. Surg. W. H. AXTELL, Reserve, bureau letter dated June 3, 1919, amended so as to assign him to active duty June 1, 1919.

P. A. Surg. R. W. BROWN, proceed to East Norfolk, Mass., for temporary duty.

P. A. Surg. CHARLES S. COWIE, Reserve, ordered to active duty in the reserve corps of the Public Health Service, effective July 1, 1919.

P. A. Surg. S. W. CRITTENDON, Reserve, relieved at East Norfolk, Mass. Proceed to the Marine Hospital, Boston, Mass., for duty in the examination and treatment of cases suffering from neuroses or disturbed mental conditions.

P. A. Surg. A. P. GOFF, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 15, 1919; proceed to Washington, D. C., for duty in the Division of Marine Hospitals and Relief.

P. A. Surg. GEORGE A. ROWLAND, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, 1919.

Asst. Surg. C. E. JAMES, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 15, 1919. Proceed to Boston, Mass., for duty at the Marine Hospital.

Asst. Surg. HENRY E. ST. ANTOINE, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, proceed to Baltimore, Md., for duty in the Marine Hospital.

Asst. Surg. DANA L. WEED, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, effective July 1, 1919.

Asst. Surg. JOSEPH E. WHEELER, Reserve, ordered to active duty in the Reserve Corps of the Public Health Service, proceed to the marine hospital, St. Louis, Mo., for duty.

Act. Asst. Surg. ROBERT P. HARRISON, relieved at Little Rock, Ark., proceed to Greenville, S. C., for duty in the U. S. Public Health Service.

Act. Asst. Surg. J. BALDWIN McCOMB, relieved at Macon Ga.; proceed to New Orleans, La., and report to supervisor of District No. 6.

Act. Asst. Surg. J. C. MONTGOMERY, relieved at Manhattan, Kan., proceed to Joplin, Mo., for duty in connection with rural sanitation.

Intern JOSEPH J. BATEMAN, proceed to Washington, D. C., for duty in the Mount Alto Hospital.

Scien. Asst. C. S. BROWN, proceed to points in the States of Pennsylvania, New Jersey and Delaware, for conference relative to venereal disease control among seamen.

Scien. Asst. P. L. HELMICK, relieved at Philadelphia, Pa., proceed o Washington for conference.

Scien. Asst. H. S. LUCAS, relieved from rural sanitation duty in he State of Virginia, proceed to Joplin, Mo., for duty in rural sanitation.

Asst. Educational Director DAVID ROBINSON, proceed to Toledo, Ohio, for conference relative to combating venereal diseases in that city.

Regional Consultant RUSSELL A. JEWETT, proceed to New York and Boston for conference with insurance officials relative to coopera- ion in venereal control measures.

Regional Consultant EDITH M. RABE, proceed to Auburn, Ala., o lecture before a special school of instruction for women.

Lecturer ROSCOE C. BOWN, proceed to Harpers Ferry, W. Va., Hampton, Va., and Buck Roe Beach, Va., to deliver addresses on the venereal disease programme.

Resignation of Assistant Surgeon R. L. DeSAUSSURE accepted by direction of the President to be effective Oct. 20, 1919.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

New Tuberculosis Clinic.—The first tuberculosis clinic was held by the Lee County Tuberculosis Association at Dixon, July 9, under the instruction of Dr. Russell E. Adkins, Springfield. In the afternoon Dr. Adkins conducted a similar clinic at Sterling.

Graduate Course Lecture.—The seventh lecture of the graduate summer quarter in medical sciences at the University of Illinois, Chicago, was delivered, July 23, by Prof. Leslie B. Arey of Northwestern University on "Giant Cells and Their Rôle in Bone Resorption."

Personal.—Dr. Samuel J. Walker, Chicago, has been awarded a medal of the third class by the Greek government. ——Dr. Anna Dwyer, Chicago, fell at Ravinia Park, July 11, fracturing her arm.——Dr. John S. Sweeney, Chicago, has returned after service with the American Expeditionary Forces in France.

Public Health Campaign.—The Chicago Chapter of the American Red Cross, July 15, entered definitely on the preparatory measures for handling epidemic or other civilian disasters. It has appropriated $15,000 for the campaign of preparedness to include courses of instruction for home nursing which will be under the charge of Mrs. John McMahon.——The new municipal nursing school for Chicago will open, August 4. The school is to be located in the old Loyola School of Medicine building on Fulton Street. The plan includes a training course of eight weeks for the women of Chicago who desire to become proficient in home nursing. Applications for admission to the school should be made to the department of health, City Hall.

INDIANA

Board Reversed.—The finding of the Indiana Board of Medical Registration and Examination in the revocation of the license of George F. Smith, Bicknell, has been reversed by the Knox Circuit Court.

Reinstatement Denied.—At a recent meeting, the Indiana State Board of Medical Registration and Examination declined to restore the license of Dr. Charles L. Landfair, Bluffton, Ind., which had been revoked in 1906, for the reason that it was not satisfactorily shown by the evidence presented that he was entitled to such restoration of his right to practice.

Funds Needed for Tuberculosis Camp.—At the meeting of the Evansville Anti-Tuberculosis Society, held at Evansville, July 8, a committee was appointed to wait on the hospital compaign committee and ask for an appropriation of $40,000 for the Boehne Camp. This money is needed for the purpose of the outing farm, and for the installation of a central heating plant.

New Reciprocal Relations.—The Indiana State Board of Medical Registration and Examination has recently established reciprocal relations with Alabama, Georgia and Washington. Relations had previously been established with Arkansas, Colorado, District of Columbia, Illinois, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin and Wyoming. This makes thirty-four states with which Indiana now reciprocates in the matter of medical licensure.

IOWA

Full Time Physician for City.—At a joint meeting of the city council and school board of Fort Dodge, held June 5, it was decided to employ a physician who shall devote his entire time to the health work in the city including that in the city schools.

Valley Physicians Hold Meeting.—At the forty-eighth annual meeting of the Des Moines Valley Medical Association, held in Ottumwa, June 25 and 26, Dr. Laris P. Torrence, Blakesburg, was elected president, and Drs. William S. Lessinger, Mt. Pleasant, and Lora D. James, Fairfield, vice presidents.

Personal.—Dr. Daniel C. Stellsmith, health officer of the University of Iowa and Iowa City, has been appointed city health officer of Columbus, Ga.——Dr. James S. Cooper, Burlington, has been appointed physician of Des Moines County, succeeding Dr. Benjamin F. Campbell, whose time has expired.——Dr. E. A. Kepford has resigned as state director of the Red Cross and will resume his work as state lecturer on tuberculosis.——Dr. James Dunn, school physician of Davenport, has resigned in order to permit the former school physician, Dr. Peter H. Schroeder, who has been in military service, to resume his former duties.——Dr. George B. Jenkins, professor of anatomy in the State University of Iowa, Iowa City, has resigned and is to be connected with the Carnegie Institute.

Hospital Items.—Dr. Carlisle R. Jones, Atlantic, took possession of the New Atlantic Hotel and has begun to remodel it for use as a hospital.——The Clipper Building at Clarion has been sold to Dr. Erle D. Tompkins, who will remodel and adapt the building for use as a hospital.—Vern W. Skiff, Chicago, a former citizen of Newton, has given a hospital to that city.——The preliminary plans of the new addition to the Jane Lamb Hospital, Clinton, have been approved. The plans call for a five story building to be located in front of the present building. The structure will be of brick and in harmony with the other buildings.——The controlling interests of the Marengo Mineral Springs Hospital have been purchased from Dr. Erie N. Brown and Ira N. Crow, by Dr. William P. Hutchins.——Permit for the erection of the Sunnycrest Tuberculosis Hospital, Dubuque, to cost $150,000, has been granted.——A campaign for funds to build a $200,000 hospital for women and children in Des Moines has been opened by the Iowa Lutherans.

MARYLAND

Hospital for Negroes Assured.—With the realization of $51,000 collected by the colored people of Baltimore, the purchase of the Union Protestant Infirmary building for a colored hospital is assured. However, the headquarters for the fund will remain open until the $75,000 desired is raised. Of this amount, $25,000 will be used to buy equipment, including an up-to-date roentgen-ray machine.——The trustees of the Union Protestant Infirmary will now push their plans for a campaign to raise $750,000 for the erection of a new hospital group on the site acquired at Homewood. Plans for the hospital will be brought to completion at once by the architect.

Personal.—Dr. W. G. Vandermin, the urologic specialist of the Island of Java, recently visited the Johns Hopkins Hospital. He will spend eight days in Baltimore engaging in further research at Johns Hopkins, when he will leave for Holland on his way back to Java. In May, 1916, he entered the medical corps of the Dutch East Indian Army, and has since then visited Holland, England, France, Spain, Japan, China and America.——Alan M. Chesney, Major, M. C., U. S. Army, Baltimore, who arrived recently in Newport News after more than two years spent in base hospitals with British and American armies in France, has been ordered to Camp Dix pending his separation from the service.——Dr. Daniel St. T. Jenifer, who served with the U. S. Medical Corps overseas, is visiting his home at Towson.——Dr. Ralph C. P. Truitt, Baltimore, has been appointed medical director of the Illinois Society for Mental Hygiene.

Reconstruction Work.—The big exhibit of reconstruction work for wounded soldiers done at U. S. Army General Hospital No. 2, Fort McHenry, in charge of Harry S. Purnell, Lieut.-Col., M. C., U. S. Army (retired), opened, July 21, at the Medical and Chirurgical Faculty Building, Baltimore, and will continue for a week or ten days. It is open to the public free of charge and affords an opportunity to see the remarkable work done by surgeons at this post for the soldiers marred and shattered by war. Besides a complete exposition of reconstruction methods, the collection includes drawings of unusual operations, sketched by artists who followed each step of the processes; reproductions of deformities before and after correction, and models, masks, casts and paintings of many descriptions. It has proved so interesting to the medical authorities at Washington that it will be moved to that city from the Medical-Chirurgical Building and made a part of the collection in the Army Medical Museum.

NEW YORK

New Regulation for Registration of Births.—In order to meet the requirements of the law passed by the last legislature, the state health department is about to issue printed forms complying with the new regulations. For all births occurring since April 14, 1919, the forms will give the name of the child, the date and place of its birth, the names of the parents, and the signature of the registrar who signed the birth certificate. The state health department urges the importance of proper birth registration on both physicians and the laity.

Personal. — Homer Folks, director of the Department of Civil Affairs of the American Red Cross, and a member of the Public Health Council of New York, has been made a Chevalier of the Legion of Honor by the French government and a Commander of the Order of the White Eagle by the Serbian government.——Dr. Henry L. K. Shaw, Albany, director of the Division of Child Hygiene in the state department of health since 1914, has resigned and will devote all his time to private practice.——Major Albert H. Garvin, Ray Brook, formerly superintendent of the New York State Hospital for Tuberculosis, who went to France in September, 1917, where he served as chief of the Bureau of Tuberculosis, Medical and Surgical Department, with the American Red Cross forces, has been decorated with the Medaille d'Honneur de Vermeil of the French government in recognition of his services to that country.

New York City

To Organize New Hospital.—Application has been made for the incorporation of the St. Bartholomew's Hospital and Clinic for the Alimentary Canal. The clinic is to be conducted at 215 East Forty-Second Street and is an extension of the work begun by the late Bishop Greer when he was rector of St. Bartholomew's Church.

Personal.—Dr. William B. Brinsmade of Brooklyn has been cited by General Pershing for exceptionally meritorious and conspicuous service in the American Expeditionary Forces. Dr. Brinsmade organized Naval Base Hospital No. 1 which took care of 3,668 battle casualties and 504 cases of pneumonia.——Dr. John Leonard Kantor has been released from army service.

Physicians Face Prosecution.—Summonses for more than 8,000 physicians, dentists, druggists and veterinarians authorized to dispense narcotic drugs, who failed to register with the state department of narcotic drug control on or before July 1, as required by law, are being issued. Violation of this law is a misdemeanor punishable by revocation of license and other penalties.

Sold Fake Diplomas.—According to a news report, Nicholas D. Clements, New York, pleaded guilty, July 7, to selling a bogus medical diploma to Abraham Lazinsky of Brooklyn for $1,500. Clements asked leniency on his promise to reveal the names of seventy-five men now practicing as physicians and attorneys on "credentials" sold by him. Clements is serving a term at Dannemora prison.

The Jacobi Will.—The will of the late Dr. Abraham Jacobi disposes of an estate of approximately $300,000. His daughter, Mrs. Margaret McAneny, is the residuary legatee. Bequests of $5,000 are made to the New York Academy of Medicine, and to a niece and a nephew. The Academy of Medicine is also to take such of the decedent's medical books, journals and surgical instruments as may be selected. Dr. Abraham L. Goodman is to have such books and surgical instruments as he may select. Other friends are to receive medical books and surgical instruments. The United States Civil Service Reform Corporation is to receive $1,000. A few other minor bequests are provided.

NORTH CAROLINA

Personal.—Dr. Claude P. Fryer, Greenville, has resigned as county health officer of Pitt County.——Coite L. Sherrill, Major, M. C., U. S. Army, Satesville, has been promoted to the rank of lieutenant-colonel, Medical Corps.

Medical Building for Charlotte.—At a meeting of physicians, lawyers, real estate men and investors in Charlotte, June 26, the feasibility of a medical building was discussed, and a committee was appointed to perfect plans for organizing a corporation to put up the building, to select a suitable site and to make general plans for carrying out the purpose of the meeting.

State Board Items.—Drs. Richard H. Lewis, Raleigh, and J. E. Tucker (D.D.S), have been appointed members of the state board of health for a term of six years.——At the annual meeting of the North Carolina State Board of Medical Examiners, held at Raleigh, June 24 to 27, Dr. John Quincy Myers, Charlotte, was elected president, and Dr. Hubert A. Royster, Raleigh, was continued as secretary-treasurer of the board.

Hospital Notes.—The Grand Lodge of Free Masons of North Carolina has authorized the erection on the grounds of the Masonic Orphanage at Oxford, of the William J. Hicks Memorial Hospital to cost about $75,000. It will be a structure of reenforced concrete, three stories in height and with accommodation for fifty patients.——The Montgomery Home in Concord is being remodeled so that it may be occupied by the Concord Hospital. After the changes are made there will be provision for twenty-five rooms and an open ward to contain ten patients.——The Richard Baker Hospital has been reopened at Hickory.——The Infants' and Children's Sanatorium at Saluda opened for the year, May 25. This institution is devoted exclusively to the treatment of babies and children.——President R. B. Babington of the North Carolina Orthopedic Hospital has received instructions from the building commission to go ahead with his plans for the erection of a hospital for the treatment of crippled children. The institution has at present a site of 28 acres, and $70,000 for the building fund. The hospital is to be located at Gastonia.

OHIO

Memorial to Physician.—A memorial tablet in memory of Dr. Julius H. Jacobson, Toledo, was dedicated, July 10, in the auditorium of the nurses' home of St. Vincent's Hospital.

Anesthetists' Organization. — The Toledo Association of Anesthetists was organized, July 1, and the following officers were elected: president, Dr. Elmer I. McKesson; vice president, Walter Hartung; secretary and treasurer, Dr. Paul P. Gintzel.

Northern Ohio Physicians' Outing.—At the outing arranged for the physicians of northern Ohio at Cedar Point, July 17, by the Ohio State Medical Association, the principal address was delivered by Dr. Harold N. Cole, Cleveland, director of the Bureau of Venereal Diseases for the state of Ohio, on "Venereal Diseases, Their Diagnosis and Control."

Honor Retiring Executive Secretary.—The council of the Ohio State Medical Association gave a dinner, July 6, at Columbus in honor of Mr. George V. Sheridan, executive secretary of the association, who has become publisher of the Springfield (Ohio) *Sun*. On behalf of the association, Dr. John H. J. Upham, Columbus, presented a completely equipped automobile hamper to Mr. Sheridan.

Personal—Dr. Edison B. Starr, Springfield, has been appointed director of industrial hygiene and medicine by the state board of health, with headquarters at Columbus.——Dr. Klor L. Parent has been appointed head of the Federal Clinic, Lima, succeeding Dr. Aldo V. Sibert, who has resigned.——Dr. J. Carroll McGinnis, Martins Ferry, is reported to be seriously ill.——Dr. James H. Bennett, Youngstown, who was appointed president of the board of education, had a cerebral hemorrhage, June 29.——Dr. Ora O. Fordyce, Athens, has succeeded Dr. George R. Love, Toledo, resigned, as superintendent of the Toledo State Hospital.

PENNSYLVANIA

Hospital Dedicated.—The Sacred Heart Hospital, Allentown, which has been erected at a cost of nearly $200,000, will be dedicated, August 31, in connection with the golden jubilee celebration of the Sacred Heart congregation.

Second Summer School Held.—The second summer camp of the state department of health opened at Mont Alto, July 6, for an instructional course of two weeks under the charge of Dr. Edward Martin, Philadelphia, state commissioner of health, and Dr. John D. McLean, assistant commissioner.

Personal.—Dr. Walter A. Dearth, Pittsburgh, has been elected a member of the Allegheny County prison board.——Dr. James F. Edwards, Pittsburgh, for many years director of the department of health at Pittsburgh, has been appointed health commissioner of Omaha.——Dr. Joseph D. Findley, Altoona, has been elected chief of the staff of the Altoona Hospital, to fill the vacancy caused by the resignation of Dr. Orr H. Shaffer, who, on account of ill health, will spend a year in California.

Philadelphia

Personal.—Cheney M. Stimson, Major, U. S. Army, who served with Base Hospital No. 82 at Toul, France, has returned from overseas.——Dr. Jacob Solis-Cohen at the annual meeting of the Philadelphia Laryngological Society, June 3, was elected honorary president for the term of his life.

Government Returns Hospital.—An agreement has been reached between the War Department and the department of health and charities relative to the lease of a section of the buildings of the Philadelphia General Hospital, which were used by the government during the latter part of the war with Germany as a reconstruction hospital for wounded soldiers and sailors. After the lease of the buildings, which was effected by Director Krusen of the department of health and charities and Secretary of War Baker, the government fitted up the structure with considerable hospital equipment, all of which now becomes the property of the municipality. The buildings were leased at an annual rental of $1.

Preventive Medicine Course at Woman's Medical College.—Dean Tracy, of the Woman's Medical College, has outlined courses calculated to meet the specific needs of medical women in the great field of public health education. These courses have been approved by the interdepartmental social hygiene board, from which a grant of money has been received by the college which enables it to undertake the development of the work this year, pending the fall campaign which shall enable the college to establish a department of preventive medicine. Courses adapted to the needs of the medical women, who are preparing for social work in which a medical background is necessary, are included in the curriculum of the new department. All students entering must undergo physical examination.

RHODE ISLAND

Personal.—Dr. Fenwick Gordon Taggart, East Greenwich, a veteran of the Spanish-American War and who has been overseas for more than a year, has been commissioned major, M. C., U. S. Army.——Dr. John H. Doyle, Providence, now on duty with the Army of Occupation in Germany, has been promoted to the rank of major, M. C., U. S. Army.

Society Meets at State Infirmary.—At the annual meeting of the Kent County Medical Society, held at the State Infirmary, Howard, June 19, a child welfare clinic, a clinic on mental diseases, a surgical clinic and a medical clinic were held, and at the conclusion, lunch was served and the society was entertained by Dr. Henry A. Jones, superintendent of the institution.

Medicolegal Society Election.—The annual meeting of the Rhode Island Medico-Legal Society was held, June 26, at Slocumb's-on-Pawtucket, under the presidency of Dr. Byron U. Richards, Pawtucket, and the following officers were elected: president, Dr. Henry A. Jones, Howard; vice president, Henry D. J. C. Dubois, and secretary-treasurer, Dr. Harry S. Flyn, Providence.

Tuberculosis Prevention.—The Rhode Island Anti-Tuberculosis Association in its eleventh annual report states that in the state there are at present twenty-four local tuberculosis associations, seven sanatoriums and hospitals and preventoriums, seven open air schools, and ten dispensaries. A tuberculosis bureau has also been established by Dr. Charles V. Chapin in the health department.

SOUTH CAROLINA

United States Public Health Service Work at Columbia Ends.—The United States Public Health Service which has maintained an office in Columbia since September, 1917, turned over its work to the state and city health organizations, June 30. During this period the public health service has disbursed more than $75,000 in the protection of the health of military forces and civic health population of Columbia.

Personal.—Dr. Richard L. DeSaussure, Charleston, has been elected commissioner of health of Floyd County, Ga., succeeding Dr. Mather M. McCord.——Dr. James A. Hayne, Columbia, state health officer, who has been very ill in a hospital in Washington, is reported to be improving at his home in Greenville.——Dr. Edward C. L. Adams, Columbia, has been appointed game warden.——Dr. C. Frederick Williams, Columbia, who has been seriously ill, is reported to be convalescent.——Dr. Chauncey M. Rakestraw, Rock Hill, has been made surgeon of the Pryor Hospital, Chester.

Graduation Exercises.—At the annual commencement exercises of the Medical College of the State of South Carolina, Charleston, held June 5, fourteen degrees in medicine and three in pharmacy were conferred. The annual commencement address was delivered by President W. S. Currell of the University of South Carolina. It is announced that Dr. Lane Mullally, Charleston, professor of obstetrics and vice dean of the faculty for thirty years, has resigned. Dr. Francis L. Parker, Charleston, has been elected vice dean of the institution; Dr. G. Fraser Wilson, professor of obstetrics; Drs. Julius C. Sosnowski, Edward H. Sparkman, Jr., and Joseph S. Rhame, assistant professors of surgery; Dr. J. M. Jordan, professor of botany and pharmacognosy; Dr. Henry W. DeSaussure, lecturer on gynecology; Dr. William H. Frampton, assistant in obstetrics and medicine, and Dr. Olin B. Chamberlain, assistant in medicine.

Hospital Notes.—At the annual meeting of the stockholders of the Gaffney City Hospital, June 27, J. A. Carroll was reelected president, and Drs. James N. Nesbitt, Stuart B. Sherard and Robert T. Ferguson, all of Gaffney, directors.——The work on the Spartenburg General Hospital will probably be commenced this month. The new institution will be a merger of the Good Samaritan Hospital and the Spartanburg Hospital and will be known as the Spartanburg General Hospital. The structure will be of reinforced concrete and fireproof. The site contains 7½ acres and was purchased at a cost of $20,000.——The Abbeville County Memorial Hospital has been granted a commission with a capital of $10,000. The petitioners state that it is their purpose to establish in Abbeville a hospital in memory of soldiers from Abbeville County who died in the recent war.——The pathologic laboratory of the Columbia Hospital, built and equipped with funds given by Mrs. T. G. Croft, in memory of her husband, the late Dr. T. G. Croft, Aiken, was dedicated recently.

TENNESSEE

State Board Moves.—Quarters for the state board of health have been secured in the capitol annex on Seventh Avenue, Nashville.

Hospital Cornerstone Laid.—The cornerstone of the Tri-State Methodist Episcopal Hospital, Memphis, was laid, June 12. It is estimated that the building will cost $1,000,000.

New Medical Building.—The board of trustees of the University of Tennessee is planning to erect a building for the medical department of the university at Memphis, to cost $100,000.

Personal.—Dr. William O. Sullivan, Newbern, was painfully injured by the overturning of his car between Newbern and Yorkville, July 2.——Dr. I. C. Ramsey, a colored physician of Gallatin, was assaulted while making a professional call, June 3, and is under treatment in a hospital in Nashville.

New Officers.—The West Tennessee Medical and Surgical Association held its annual meeting in Dyersburg, May 30, and the following officers were elected: president, Dr. John D. Brewer, Newbern; vice president, Dr. Harley W. Qualls, Union City; secretary, Dr. Isaac A. McSwain, Paris (reelected).

Physician Loses Suit.—A suit directed by Dr. Ben Friedman of Memphis, against the Tennessee State Board of Medical Examiners, based on the allegation that his license was maliciously revoked, was recently dismissed by the court. Reports indicate that the board revoked his license about a year ago on charges that Friedman had violated the Harrison Narcotic Law.

CANADA

New Brunswick Medical Society.—At the final session of the annual meeting of the New Brunswick Medical Society, held in St. John, July 15 and 16, a special committee brought in a report, which the society subsequently adopted, affirming that alcohol is a medicine and a necessary drug, and should be under no more restrictions than any other drug. It was also declared that special prescription blanks in connection with alcoholic prescriptions are inconvenient and unnecessary.

Personal.—Lieut.-Col. John Amyot, Toronto, professor of hygiene and preventive medicine in the University of Toronto, who has been overseas for three or four years as sanitary officer to one of the Canadian divisions, has been appointed deputy minister of the newly created federal department of public health at Ottawa.——Dr. Wilfrid T. Grenfell, C. M. G., the Labrador medical missionary, has been in Ottawa in the interest of several hospitals he is establishing in that section of Canada.——Major David A. Clark, Toronto, who has had more than four years' service overseas, has been appointed to the staff of the Military Neurological Hospital at Vancouver.——Major Herbert G. Murray, Owen Sound, Ont., who enlisted with the Queen's University Hospital, Kingston, has returned to Owen Sound and reentered private practice.

GENERAL

Coming Meeting.—The thirty-second annual meeting of the American Association of Obstetricians and Gynecologists will be held in Cincinnati, September 15 to 17, under the presidency of Dr. John F. Erdman, New York; Dr. Magnus A. Tate is chairman of the local committee of arrangements.

District Society Election.—At the annual meeting of the Iowa and Illinois Central District Medical Association, held at Davenport, July 10, the following officers were elected: president, Dr. William D. Chapman, Silvis; vice president, Dr. Gordon F. Harkness, Davenport; secretary, Dr. Arthur E. Williams, Rock Island (reelected), and treasurer, Dr. Thomas D. Starbuck, Davenport.

Secretary of Council on Pharmacy and Chemistry Honored.—In connection with the ninety-eighth annual commencement exercises of the Philadelphia College of Pharmacy, the degree of Master of Pharmacy was conferred on Prof. William A. Puckner, Chicago, secretary of the Council on Pharmacy and Chemistry of the American Medical Association. The degree was conferred by the Dean, Dr. Charles H. LaWall.

Chattahoochee Valley Physicians Elect Officers.—At the nineteenth annual meeting of the Chattahoochee Valley Medical Association, held in Columbus, Ga., July 9 to 11, Warm Springs was selected as the next place of meeting and the following officers were elected: president, Dr. Hugh McCulloch, West Point, Ga., vice president, Dr. Walter A. Weed, Birmingham, Ala., and secretary-treasurer, Dr. William J. Love, Opelika, Ala. (reelected).

New Officers.—The Association of American Physicians, at its annual meeting in Atlantic City, June 16 and 17, elected the following officers: president, Dr. Hermann M. Biggs, New York; vice president, Dr. William S. Thayer, Baltimore; secretary, Dr. Thomas McCrae, Philadelphia; recorder, Dr. Thomas R. Boggs, Baltimore; treasurer, Dr. Joseph A. Capps, Chicago, and councilor, Dr. Lewis A. Conner, New York.——The annual meeting of the American Society for Tropical Medicine was held in Atlantic City, N. J., June 16 and 17, and the following officers were elected: president, Henry J. Nichols, Colonel, M. C., U. S. Army, Washington, D. C.; vice presidents, Drs. John M. Swan, Rochester, N. Y., and Carl F. Meyer, San Francisco; secretary and treasurer, Dr. Sidney K. Simon, New Orleans, and assistant secretary, Dr. Allen J. Smith, Philadelphia. New Orleans was selected as the next place of meeting.

Legislation for Influenza Control.—The first step in the way of obtaining legislation to combat a recurrence of the influenza epidemic has been taken in Congress by the introduction of a measure by Congressman Eugene Black of Texas. The bill provides an appropriation of $500,000 for the investigation of the causes, modes of transmission, prevention and cure of influenza, pneumonia and allied diseases, and the fund is also made available for combating these diseases. This sum is made available until July 1, 1922. The Public Health Service is charged with the expenditure and administration of this work. The Surgeon-General of the Public Health Service is authorized to employ such medical assistance and nurses as may be necessary, fixing their compensation at not greater than the amounts paid other similar employees of the Public Health Service. The Surgeon-General is directed to file an itemized list of expenditures with Congress, December 1 of each year. A preamble to the measure declares that the influenza epidemic caused 500,000 deaths in the United States, that influenza and pneumonia cause one tenth of all the deaths in the United States, that medical science is not yet in possession of complete data regarding these diseases, and that they are of grave social concern to the United States. The bill is No. 7293, and was referred to the House Committee on Appropriations, of which Congressman James W. Good of Iowa is chairman, for action.

A Bill for a National Department of Health.—Hon. Joseph I. France, U. S. Senator from Maryland and chairman of the Senate Committee on Public Health and National Quarantine, introduced on July 17, Senate Bill 2507 creating a department of public health. The bill follows the general plan of the Owen Bill, with some important modifications.

It provides for a department of public health under the direction of a secretary, who shall be a member of the cabinet, and for three assistant secretaries, the first assistant to be a man trained in medical science, public health and sanitation; the second to be an expert in vital statistics; and the third to be a woman trained in medicine or nursing and public health. The U. S. Public Health Service and the Bureau of Chemistry are to be transferred to the new department, which is also to have bureaus on vital statistics, sanitation, hospitals, child and school hygiene, quarantine, food and drugs, nursing, tuberculosis and personnel. The secretary of public health is directed to communicate with the governor of each state requesting him to recommend to the legislature suitable legislation with adequate appropriations to secure cooperation between the federal department of public health and the state board of health. Every state taking such action is to be entitled to its proportionate share of such funds as may be appropriated by Congress for carrying out the provisions of the act. The secretary of public health is also directed to divide the United States into health states, districts, subdivisions and precincts, each conforming to the geographical boundaries of the various political divisions. Each state is to create a state board of health with a state health officer and a health officer for each district, subdivision and precinct, the secretary of public health to appoint these state officers as federal health officers "so that in each cooperating state every health officer of said state or of each district, county or precinct therein is by virtue of his selection by the local authorities become also a federalized officer and as such an integral part of the Department of Public Health." The Department of Public Health is directed to cooperate with the Departments of Commerce, Labor and the Interior in the collection of vital statistics and to establish a uniform system of cards, records and reports regarding diseases, disabilities, industrial accidents, births, deaths, physical condition of schoolchildren, the number and condition of existing hospitals, etc. The bill provides for the appropriation of $15,000,000 for 1920 to be prorated among the states in proportion to their population as soon as the states comply with the provisions of the law and the regulations of the secretary of public health, provided that each cooperating state must contribute to the public health work a sum equal to that contributed by the federal government and that it must make full and complete reports of births, deaths and morbidity. It also appropriates $48,000,000 for the construction of sanatoriums and hospitals, this sum to be distributed among the states in proportion to their population, each state receiving its allotment to provide an equal amount, also location, plans and means of future support for the proposed hospital.

FOREIGN

Conference of Manufacturing Chemists in Italy.—The First National Congress of the Manufacturing Chemists of Italy is to convene at Milan in October with an exhibition annex.

Smallpox at Barcelona.—There has been a rather serious outbreak of smallpox in Barcelona. The papers there attribute it to the migration of patients from other parts of Spain.

Special Belgian Ear and Throat Meeting.—The Société belge d'oto-rhino-laryngologie met at Antwerp early in July and invited French and other specialists to attend, an official reception being tendered the visiting confrères by the municipal authorities.

Army to Fight Typhus.—An expedition to combat typhus in Poland is being organized in Paris under the command of Harry L. Gilchrist, Col., M. C., U. S. Army. The expedition will consist of 550 officers of the Medical Corps, and volunteer sanitary experts.

Reappearance of Belgian "Scalpel."—The dean of medical ournals in Belgium, *Le Scalpel,* has taken the initiative to merge in one single and important journal the various small medical journals published in Belgium before the war, none of which have been revived to date.

The Pozzi Sale.—The last week in June the collections of he late Professor Pozzi were auctioned off at the Petit galeries at Paris. The collection included thirty choice paintngs of different schools, tapestries, bronzes, antique rugs and furniture, miniatures, etc., all said to have been selected with exquisite taste.

Tuberculosis Funds at Madrid.—The *Fiesta de la Flor* (Flower Day), held annually at Madrid for the purpose of collecting funds to care for tuberculous patients, produced his year the sum of 160,000 pesetas (about $32,000), which s the largest amount collected since this custom was inaugurated six years ago. It is estimated that tuberculosis causes 50,000 deaths every year in Spain.

Swiss Ophthalmologic Congress.—The twelfth annual meeting of the Gesellschaft der schweizerischen Augenärzte was held at Basel in July. The principal subjects discussed were detachment of retina and injections of milk in treatment of various eye affections. Vogt of Basel reported the experimental production of cataract by isolated short-waved ultra red plus red rays. Also experimental depigmentation of the living iris by the same. Also a demonstration of the visibility of the endothelium of the living cornea by means of the cornea microscope and Gullstrand's lamp.

Losses in the Profession in Italy During the War.—The *Riforma Medica* cites recently published statistics to the effect that 1,060 members of the medical and nursing professions in Italy died from wounds or illness contracted at the front. This includes 317 army physicians, 10 in the navy, 42 of the Red Cross service and others in the merchant marine, to a total of 377 registered physicians. There were also 216 medical students killed and 40 pharmacy students, 23 veterinarians and 22 veterinary students. Orderlies, nurses and others bring the total to 1,060, and 300 of this number had been decorated for special gallantry or devotion or both. Of the 377 physicians, 30 died in prisons in Austria, Hungary or Germany or at the front in Macedonia, Albania or Libya.

Child Welfare Methods in France.—The officials of the Department of the Seine Inférieure, with a population of about 2,000,000, have taken over and provided for the permanent maintenance of an organization for the protection of mothers and children which was installed by the American Red Cross in 1918. The organization includes a model clinic for children, prenatal clinic for prospective mothers, a dental clinic, a school for social service workers, courses for midwives, school teachers and students, a maternity hospital with a capacity of 1,600, a school for children accompanying prospective mothers, a children's hospital with 100 beds, and a model dairy farm. This work has been in charge of Dr. Walter R. Ramsey, St. Paul, assistant professor of pediatrics in the University of Minnesota Medical School.

Typhus Train Aids Russian Refugees.—A specially equipped typhus train, financed by funds supplied by the Interallied Sanitary Commission and managed by the Red Cross, has traveled from Vladivostok to the Ural Mountains, its staff of physicians and nurses ministering to persons afflicted with the malady and instructing the people in preventive measures. At the present time this train is operating among the soldiers of the Kolchak government on the Perm front. Many carloads of drugs and medical supplies have been provided for the men of the Russian army. A special Red Cross mission, which recently made a survey of the situation in western Siberia, found that many of the hospitals had been stripped of drugs, instruments and surgical dressings. The Red Cross is equipping these institutions. In all, about 40 tons of drugs have been shipped from America since last September. About 1,500 refugees remain in and around Vladivostok, and these have been concentrated in barracks a few miles outside of the city. Labor is in demand around Vladivostok, and this fact has greatly reduced the number of refugees.

Medical Assistance to Siberia.—Drugs, clothing, foodstuffs and miscellaneous supplies valued at more than $5,000,000 have been distributed over Siberia by the American Red Cross during the last nine months. At present nine hospitals are being operated by the organization in Siberia with a total capacity of 4,000. The relief work of Siberia has been in charge of Dr. R. B. Teusler, who has for several years been in charge of the St. Luke's Hospital, Tokyo, Japan. The headquarters of the commission are at Vladivostok where two hospitals are being maintained. New hospitals were established recently at Irkutsk and Chelyabinsk. The other Red Cross hospitals are at Omsk, Tumen, Tomsk and Novonikolaevsk. A hospital for typhus fever is also in operation at Petropavlovsk. The spread of typhus in this territory has been checked to a great extent by the establishment of bathing and disinfecting stations along the line of the railway. At one of these stations at Ekaterinenburg, in one month, baths were provided for 35,000 persons, the clothing of these persons was disinfected, and new garments supplied wherever necessary.

Deaths in the Profession Abroad.—Dr. M. de Tolosa Latour, Madrid, one of the most prominent physicians of Spain, died in the early part of June. Dr. Tolosa Latour was a member of the Royal Academy of Letters and had been a leader in public health matters, especially in all relating to child hygiene and tuberculosis prevention. He was also instrumental in founding the first seashore sanatorium for children in Spain. He had been for many years a frequent contributor to medical journals and an author of note. He was founder of the Sanatorio Maritimo at Chipiona, secretary for fifteen years of the Consejo Superior de Protección a la Infancia, and leader in welfare work for young children in general.——The death is reported of Dr. **Luigi Luciani,** professor of physiology and rector of the University of Rome, senator since 1905, long member of the Consiglio Superiore della Istruzione and of numerous scientific societies at home and abroad, aged 79. The Neurologic Society of London elected him to fill the place left vacant by the death of Brown-Séquard. His name is connected particularly with the periodical activity of the heart, the motor and sensory centers in the brain, the cortical pathogenesis of epilepsy, the static action of the cerebellum, and the physiology of fasting. In his research and in his teaching he was guided by the conception of the unity of medical science in general and the inseparability of physiology and pathology, always urging his pupils to "think physiologically."——Dr. **Gabriel Corin,** professor of legal medicine at the University of Liége after serving as assistant professor of physiology, founder of the *Archives Internationales de Médecine Légale,* and frequent contributor to scientific journals, especially those devoted to physiology, anthropology and criminology.

LATIN AMERICA

Sanitary Regulations in Haiti.—The new sanitary regulations adopted in Haiti have been recently published in the *Official Journal* of that country.

Hookworm Disease in Salvador.—The first permanent station to combat hookworm disease in the republic of El Salvador has been opened by the Rockefeller Foundation in the city of Santa Ana.

Sanitary Campaign in Costa Rica.—The last message of the president of Costa Rica states that the government intends to carry out during the present year an active sanitary campaign all over the republic.

Permanent Pharmaceutical Exhibition in Paraguay.—The National Society of Pharmacy of Paraguay has decided to commence a permanent exhibition of pharmaceutical, biological and chemical products, laboratory apparatus and in general of everything relating to pharmacology.

Physicians in Chile.—According to the report on public education in Chile for 1917 just published, there were granted during that year by the University of Chile, 327 degrees of doctors in medicine, 201 degrees of masters of medicine, and 351 degrees of bachelors of medicine, out of a total of 9,217 degrees conferred by the university.

Yellow Fever in Ecuador.—The director of sanitation of the Guayas department has presented a report to the government on the work so far conducted by the Rockefeller Foundation against yellow fever in that country. The results are already apparent in the gradual decrease of yellow fever at Guayaquil as shown by the number of cases which were eighty-eight in December and only seventeen in March.

Medical Students in Paraguay.—During the year 1918 there were in the School of Medicine of Paraguay two professors and forty-three first year students and in the School of Obstetrics two professors and twenty-four students. The School of Pharmacy had seven professors and sixteen students. The government has provided the necessary funds for the opening of a laboratory and institute of physiology.

Quarantine Regulations in Santo Domingo.—The new quarantine regulations prescribed by the director of public health of Santo Domingo were put in force, July 1. According to these regulations, the quarantinable diseases are cholera, smallpox, yellow fever, typhus fever, bubonic plague and leprosy.——New regulations for the eradication of mosquitoes have also been adopted and published in the *Official Journal.*

Uniformity in Vital Statistics.—One of the regulations adopted at the First American Congress of Commercial and Economical Expansion held recently at Montevideo, recommends that the different American governments organize systematically their services of vital statistics so that they can soon begin the annual preparation of mortality tables. It is also recommended that the capital of some American country be designated for the location of an international office of demography, Santiago de Chile being suggested for that purpose.

PARIS LETTER

Paris, July 3, 1919.

Special Privileges for the War Wounded

A recent order of the Paris prefect of police establishes the use of special car tickets to be furnished to war-blinded or mutilated men whose condition makes long standing in line difficult. These special tickets will permit them to go out on the platforms of the "Metropolitan" instead of waiting in the line.

Death of Professor Carrieu

The death of Dr. Carrieu, aged 66, who held the chair of clinical medicine at the Montpellier School of Medicine, has been reported.

A Special War Fund

The special war fund committee of the Association générale des médecins held a meeting recently at the Paris School of Medicine, under the presidency of Dr. Louis Mourier, undersecretary of state for the medical department of the army. Drs. Bourgeois, Bellencontre and Bongrand spoke somewhat at length of the activities of the war fund committee, pointing out the various forms of aid that had been rendered by the society. The sum of $180,000 has been disbursed, which has inured mainly to the benefit of the physicians of the invaded territory, the widows and orphans of physicians, and students bereft of the necessary resources to continue their studies.

Competitive Examinations for Hospital Internships

The question of the resumption of the French custom of holding competitive examinations to decide what candidates shall be admitted as hospital interns possesses, at this time, a lively interest in certain circles. In September, 1918, the so-called provisional interns presented to the examining board a petition to the effect that they might be granted the privilege of entering on their full rights as interns without further examination. In answer to this petition the examining board has reached the following decision:

The provisional interns who were appointed as a result of the competitive examination held in 1913; who, at the present time, are actually serving as such; who have belonged at least a year either to a fighting unit or to a field unit; or who, if they remained in the army for less than a year, were granted a furlough or a permanent discharge for reasons of disability; or who have been given a compensation allowance on account of wounds or sickness; or who have, for similar reasons, been transferred to the reserve, are hereby appointed hospital interns without further examination. The so-called externs who were declared admissible to the competitive examination for internships held in 1913, provided they have taken part in all the tests of this examination and have fulfilled otherwise, from a military standpoint, the conditions enumerated above, are hereby appointed provisional hospital interns without further examination. The first competitive examination for hospital internships to be held in the future will be reserved exclusively for: (1) hospital "externs" who have fulfilled the conditions enumerated above, and (2) provisional interns who were not mobilized or who were not mobilized under the conditions indicated above; including also women who have been admitted as provisional interns.

LONDON LETTER

London, July 2, 1919.

Defeat of the Dogs' Protection Bill

The opposition of the profession to the dogs' protection bill (The Journal, June 14, p. 1782) has been successful. The third reading has been defeated by a majority of 101 to 62. Sir Watson Cheyne led the opposition. He said the bill ought not to be proceeded with, because it implied very grave censure, for which there was no justification, on a large body of honorable men and on a great profession. He did not think the house recognized what an amount of obloquy and abuse had been poured on men who were trying to obtain knowledge which might be of great value to mankind. The original act relating to vivisection was founded on the prevention of unnecessary pain being inflicted on animals; the house had gone fully and carefully into the matter; and to pass this bill now would imply that cruelty was being inflicted and that the medical profession delighted in torture. When he began bacteriologic research, which was then in its infancy, he had difficulty in obtaining admission to a licensed laboratory and in securing two signatures on his license, because at that time practicing surgeons and physicians did not think very much of bacteria, and in some cases were entirely opposed to Lord Lister's revolutionary surgery. Now it was proposed to add another restriction in the form of a certificate to show that no animal other than a dog could be used for the purpose of a desired experiment. There was a great deal of exaggeration about experiments on animals. It was monstrous to say they were going to get results by watching patients or by postmortem examination. In the case of poison gas were they to sit still and watch the patient till he died? Because that was what it came to if they were not to be allowed to use dogs. The whole history of medicine was full of instances of prolonged observation of patients and postmortem examinations without arriving at any result, and something achieved almost at once by experiment.

Presentation to Sir William Osler

Some of the pupils, colleagues and friends will present to Sir William Osler a collection of essays on the day before his seventieth birthday, which falls on July 12. The presentation will be made by Sir Clifford Allbutt at the Royal Society of Medicine. The contributions to the volume were collected by a committee of which Dr. William H. Welch was chairman and Dr. Casey A. Wood was secretary. The committee was composed of the following American members: Drs. Harvey Cushing, Charles L. Dana, Field H. Garrison, Abraham Jacobi, G. E. de Schweinitz, Henry Barton Jacobs, Francis J. Shepherd and Horatio C. Wood. The British members were Col. J. G. Adami, F.R.S., Dr. Raymond Crawfurd, Sir Bertrand Dawson, Sir William Fletcher, Prof. Arthur Keith, Sir Andrew Macphail (McGill University, Montreal), Sir D'Arcy Power, Sir Humphry Rolleston, and Dr. Charles Singer of Exeter College, Oxford, who has acted as secretary of the English section. An engraved portrait of Sir William Osler forms a frontispiece reproducing as nearly as possible the printers' and binders' arts of the fifteenth century. The essays formed two large octavo volumes each, of over 700 pages. The number of contributors both English and American is about 100. The contributions cover the history of medicine, medical education and research, pathology and therapeutics, thus reflecting the interest of Sir William Osler. There will be only one printing of the book, and the supply is limited to subscribers. The subscription is $10.

Deaths from Arsphenamin (Neo-Arsphenamin)

Distressing fatalities from the use of arsphenamin (neo-arsphenamin) continue to occur, though they are frequently not recorded in the medical press. Within ten days three deaths have occurred at the Royal Infirmary, Hull, in which the patients manifested epileptiform convulsions after the injections. At St. George's Hospital, London, a girl aged 16 was treated with injections of the novarsenobillon brand of neo-arsphenamin. An injection which was to have been the last proved fatal. A crop of these cases occurred during the war and were put down to some chemical impurity in the drug, which came from the same firm. In the present case the medical evidence was to the effect that death was due to pneumonia consequent on injection of the novarsenobillon.

MEXICO LETTER

Mexico, July 13, 1919.

Reappearance of Yellow Fever

Yellow fever, which for many years used to ravage our ports regularly, but which has not been present for a long time, has appeared again in the state of Yucatan, causing the death of two persons. The disease has assumed epidemic form and has spread to the states of Campeche and Chiapas. The sanitary authorities have taken the necessary precautionary measures and have reported the presence of the disease to the sanitary authorities of other countries, as required by international conventions. It is expected that a commission of bacteriologists will be appointed to carry out confirmatory studies in regard to the etiologic rôle which *Leptospira icteroides* plays in the disease according to the investigations of Noguchi. These studies were first known here through the article published in The Journal. The reappearance of yellow fever furnishes an excellent opportunity to make further investigations with respect to inoculation and immunotherapy in connection with the disease, since it appears that the etiologic germ is already known.

The Organization of the Mexican Medical Association

The organizing committee for the proposed Mexican Medical Association has been appointed. It will be the endeavor of the committee to secure the indorsement of the plan on the part of the physicians, and it will also prepare by-laws for the association. Dr. Eduardo Liceága has been elected honorary president, Dr. Gregorio Mendizábal, president, and Dr. Jesus Monjaras, secretary, in addition to other physicians who will act as vice presidents, treasurer and members of the committee. The secretary's address is calle Ezequiel Montes, No. 11, Mexico City.

The Prohibition Movement

The governor of Sonora has ordered that any one found manufacturing alcoholic drinks or dealing in them shall be shot.

Repeal of Tax on Physicians

The tax on the exercise of the liberal professions, which included that of medicine, has recently been repealed.

Regulation of the Practice of Medicine

The state of Puebla has promulgated a law governing the practice of medicine in accordance with which this profession can be practiced in that state only by those persons possessing legally acquired degrees and who can prove their identity. In towns in which there are no licensed physicians, laymen may be permitted to practice after filing the proper application and obtaining a permit, which will be granted only after an examination has been passed with a view to ascertaining the character of the applicants, education and their knowledge of the healing art. So far only the states of Jalisco and Puebla have legislated on this subject. In the other states complete freedom, with the abuse of privilege, prevails, the existing condition being called here, probably for euphemistic reasons "liberatad de profesiones" (professional liberty).

Personal

Dr. Macías, the president of the University of Mexico, has returned from the United States where the honorary degree of LL.D. was bestowed on him by the University of Arizona. He visited several colleges in Arizona and also in Texas and California.——Dr. S. Burt Wolbach, of Harvard, who came to this country to make certain studies on typhus fever, has returned to the United States. No report of the result of his investigations was made by him here.——Dr. Aristeo Calderón, a member of the National Academy of Medicine for many years, a legal expert of the courts of justice and lately chief of the medicolegal corps of the army, died, July 4, of pneumonia.——Dr. Alberto Oviedo, who until recently was president of the University of Mexico, has left for the United States, where he intends to make certain special studies on behalf of the government.

Marriages

Carlton Ira Wood, Lieut.-Com., M. C., U. S. Navy, on duty at the U. S. Naval Hospital, New London, Conn., to Miss Margaret A. Miller of Wadsworth, Ohio, June 24.

Herman Alfred Heise, Lieut., M. C., U. S. Army, North Lake, Wis., on duty at Fort Oglethorpe, Ga., to Miss Eugenia May Rothrock, at Fort Oglethorpe, recently.

Aydelotte Will Whealton, Chincoteague, Va., to Miss Louise Florence Dowling-Peters of London, England, at Atlantic City, N. J., June 27.

William Welles Hoyt, Capt., M. C., U. S. Army, Chicago, to Isabel Doan Brownlee of the American Red Cross, in Paris, France, May 27.

Reginald Myers Atwater, Boston, to Miss Charlotte Martin Penfield of Englewood, N. J., at Silver Bay, N. Y., July 10.

Robert Crow Hamilton, Indiana Harbor, Ind., to Miss Roma Jane Earnest of Seymour, Iowa, June 26.

Harry Bradford Norton to Miss Zella Elzea, both of Center, Mo., at New London, Mo., June 29.

Frank Theodore Weber, Lewiston, Minn., to Miss Alexia Regina Mauel of Ashford, Wis., June 30.

Clifford Joseph Ouellette, Oconto, Wis., to Miss Katherine Walsh of Rubicon, Wis., recently.

Robert Conrad Moehlig, Detroit, to Miss Clara Eleanor Lavelle of Anderson, Ind., June 25.

Arthur Henry Orcutt, Arcola, Ill., to Miss Helen V. Fritman of Brooklyn, July 7.

John Elias Livingood to Miss Minnie E. Janssen, both of Wyomissing, Pa., July 1.

Deaths

John Anthony Murtagh ⊕ **Col., M. C., U. S. Army;** died in the Letterman General Hospital, San Francisco, July 5, from heart disease. He was born in Pennsylvania, June 19, 1866, and was graduated from the Medical Department of the University of Pennsylvania in 1898. Colonel Murtagh entered the military service as hospital steward of the Third Pennsylvania Infantry in 1898; became an assistant surgeon in 1901, five years later was promoted to captain and assistant surgeon. He was made major in the Medical Corps in 1910, lieutenant-colonel in 1917 and colonel, M. C., National Army, Feb. 18, 1918. After the fire and earthquake in San Francisco, in 1906, Colonel Murtagh was in charge of the medical relief.

Henry McLean Cronkhite, Col., M. C., U. S. Army (retired), New York City; Albany (N. Y.) Medical College, 1858; aged 85; who served in the Civil War as a private, was made lieutenant and assistant surgeon in the Army in 1867; was promoted to captain and assistant surgeon in 1870, to major and surgeon in 1886 and was retired in 1895 on account of disability in line of duty and was made lieutenant-colonel, retired in 1904; died in U. S. Army General Hospital No. 1, New York City, June 15, from bronchopneumonia.

Oscar D. Schaeffer, Nazareth, Pa.; College of Physicians and Surgeons, Baltimore, 1886; aged 58; president and general manager of the Nazareth Paper Box Factory; treasurer of the Nazareth Waist Company; director of the Farmers Union Mutual Fire Insurance Company and of the Nazareth National Bank; for about six years postmaster of Nazareth and for a number of years investigator of inheritance taxes for Northampton County; died at his home, July 1.

Eugenie Raura Eliscu, New York City; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1893; aged 53; a Roumanian by birth; treasurer of the American Medico-Pharmaceutical League; lecturer for the New York Social Hygiene Society; an authority on psychology and sex hygiene; who was injured in an accident in the Brooklyn Subway in October, 1918, died at her home, July 11.

Willis Oliver Barney, Jr., ⊕ Boston; Tufts College Medical School, Boston, 1912; aged 30; a specialist in diseases of the ear, nose and throat; who served as a lieutenant in the United States Naval Reserve Forces, and was relieved from active duty, February 12; died in his apartment in Boston, June 25, from injuries received by being run down by an automobile.

Herman Eichhorn ⊕ New York City; College of Physicians and Surgeons in the City of New York, 1904; aged 37; a specialist in gastro-enterology; assistant in internal medicine at the Vanderbilt Clinic and in the neurologic department of the Mount Sinai Hospital; assistant visiting physician to the New York City Children's Hospital; died at his home, July 13.

Daniel Joseph Brown ⊕ Springfield, Mass.; Harvard University Medical School, 1886; aged 58; a well known surgeon of western New England; a member of the Springfield Police Commission; chief surgeon of Mercy Hospital for several years; a member of the surgical staff of Springfield Hospital; died at his home, July 8, from nephritis.

Charles Aloysius Obertin, Union Grove, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; aged 38; a member of the State Medical Society of Wisconsin; who had been under treatment in a sanatorium in Milwaukee since November, 1918; died at the home of his brother in Milwaukee, July 1, from nephritis.

Amos J. Givens, Stamford, Conn.; Eclectic Medical Institute, Cincinnati, 1886; aged 55; superintendent and proprietor of Stamford Hall Sanatorium; a specialist in the treatment of mental diseases and drug addiction; president of the Fidelity Title and Trust Company, Stamford; died at his home, July 7, from heart disease.

Archibald I. Maclay ⊕ Delavan, Ill.; Jefferson Medical College, 1874; aged 67; division surgeon of the Illinois Central Railroad; for fifteen years a member of the board of education and for several terms city and township health officer; died at his home, July 1, from heart disease.

Robert A. Hildebrand, Glen Rock, Pa.; College of Physicians and Surgeons, Baltimore, 1895; aged 48; a member of the Medical Society of the State of Pennsylvania; who was taken to York, Pa., for treatment; died in the automobile in front of a physician's office, July 5, from nephritis.

William Reynolds Severson, Los Angeles; University of Illinois, Chicago, 1901; aged 46; a veteran of the war with Spain; who served as captain, M. C., U. S. Army, at Camp Kearney, Calif., and was honorably discharged, March 8, 1918; died in Los Angeles, June 14.

Leslie K. Warren, High Rolls, N. M.; University of Nashville, Tenn., 1905; aged 35; formerly clinical assistant to the chair of surgery in the University of Nashville and University of Tennessee, Nashville; died in the Providence Hospital, El Paso, Texas, July 1.

William Otto Dougherty ⊕ Arnold, Pa.; Jefferson Medical College, 1911; aged 34; first lieutenant, Medical Corps, U. S. Army, from March, 1918, until his honorable discharge, March 6, and assistant surgeon at Camp Beauregard, La.; died at his home, June 28.

George James Schuele ⊕ Bridgeport, Conn.; Yale University, New Haven, 1908; aged 41; who served as a first lieutenant, Medical Corps, U. S. Army, for a year and was honorably discharged, April 22, 1919; died at his home, July 10, after a surgical operation.

Benjamin Addison McConnell, Dover, Ohio; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; aged 56; a member of the Ohio State Medical Association; died at Union Hospital, Dover, July 9, from disease of the liver.

William Eugene Brandt, Washington, D. C.; University of Louisville, Ky., 1871; Bellevue Hospital Medical College, 1877; aged 70; acting assistant surgeon, U. S. Army, from 1874 to 1877; for many years a government employee; died at his home, June 26.

Jerome E. Moore, Springfield, Tenn.; University of Nashville, Tenn., 1859; aged 87; a member of the Tennessee State Medical Association, who sustained a fracture of the hip in a fall, June 24, died at the home of his daughter in Springfield, June 30.

Mary A. Willis, Jersey City, N. J.; Eclectic Medical College of the City of New York, 1886; aged 74; physician to the Rescue Home for Women and the Children's Paradise, Jersey City; died at her home, July 14, from heart disease.

George Williams Lewis ⊕ New Orleans; Tulane University, New Orleans, 1867; aged 72; for several years assistant house surgeon of the Charity Hospital; died at his home, July 4, from bronchial pneumonia.

Henry Tucker Mansfield, Needham, Mass.; Harvard University Medical School, 1869; aged 38; a member of the Massachusetts Medical Society and a veteran of the Civil War; died at his home, July 6.

Edmund Burnard Squire, Auburndale, Mass.; Boston University, 1879; aged 61; a director of the Co-operative Bank of Auburndale; formerly a practitioner in Lyndenville, Vt.; died at his home, June 23.

Charles T. W. Seidel, Jackson Center, Pa.; Western Reserve University, Cleveland, 1884; aged 60; for one term prothonotary; died suddenly in Orangeville, June 24, from cerebral hemorrhage.

Allen Evan MacColl, Belleville, Ont.; Queens University, Kingston, Ont., 1891; aged 52; formerly a member of the Ontario Medical College; died at his home, May 5, from arteriosclerosis.

James D. Kiefer, Mount Carmel, Pa.; Hahnemann Medical College, Philadelphia, 1890; aged 59; for many years a member of the local school board; died at his home, July 5, from arteriosclerosis.

Henry T. Rennolds, Baltimore; University of Maryland, Baltimore, 1867; aged 75; a surgeon in the federal service during the Civil War; died at his home, July 5, from senile debility.

Jacob F. Briggs, Shickshinny, Pa.; Pennsylvania Medical College, Philadelphia, 1861; aged 83; also a druggist; a veteran of the Civil War; died at his home, July 6.

Edward Clayton Frost ⊕ Campbello, Mass.; Dartmouth Medical School, Hanover, N. H., 1887; aged 59; died at his home, May 5, from tuberculosis following influenza.

Absalom A. Ledbetter, Hallettsville, Texas; Tulane University, New Orleans, 1870; aged 75; died at his home, June 24.

Alvin Nelson Keith, Chicago; University of Illinois, Chicago, 1883; aged 66; died at his home, June 20, from myocarditis.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

DR. MILES' HEART TREATMENT

"Dr. Miles' Heart Treatment" is put out by the Miles Med-cal Co. of Elkhart, Ind. The history of the exploitation of his preparation is fairly typical of the history of "patent nedicines" in general. Before the days of the Food and Drugs Act, when there was no penalty for falsifying on the rade package, it was "Dr. Miles' New Cure for the Heart," nd the carton bore the legend:

> "Dr. Miles' New Cure is the Latest and Greatest Discovery for Veak and Diseased Hearts, and the only Safe and Agreeable one known. t is the result of vast experience and years of Scientific investigation y one of the most able and learned physicians of the age."

The trend of the advertising of the "heart cure" can be llustrated by quoting from the descriptive paragraphs in dvertising material of va-ious dates:

> "Dr. Miles' New Heart Cure: wonderful, strengthening med-cine for weak heart, perma-ently curing all diseases of the leart and Circulation."

This later became:

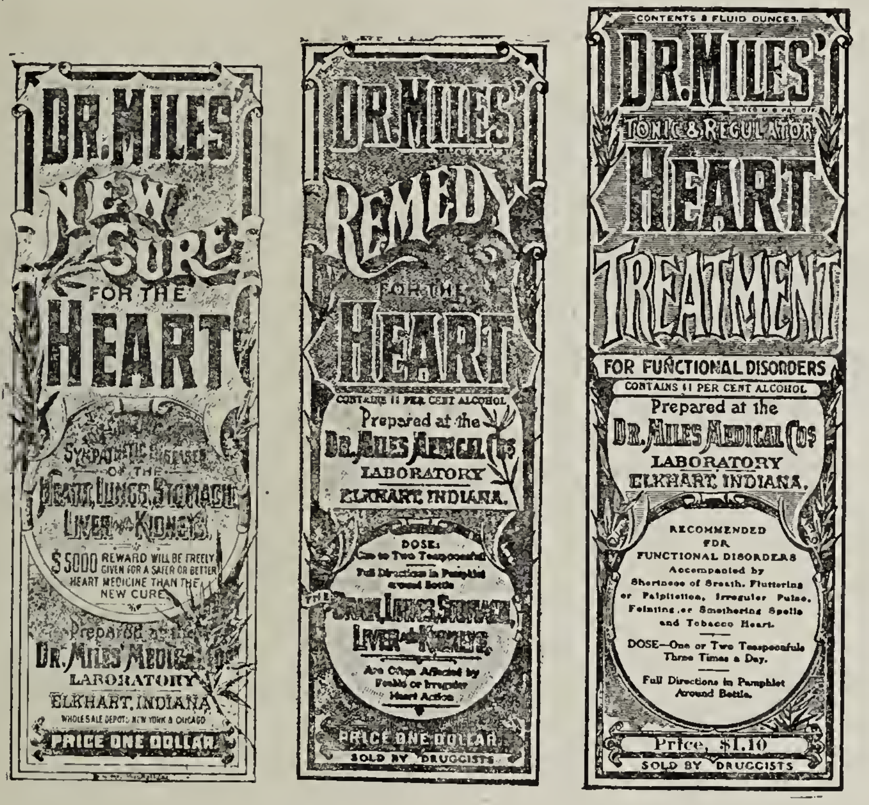
> "Dr. Miles' Heart Cure, the reatest heart builder and reg-lator known."

And still later:

> "Dr. Miles' Remedy for the leart: a strengthening medicine nd tonic for the weak heart."

And now is:

> "Dr. Miles' Heart Treatment: strengthening regulator and nic for the weak heart."


DR. MILES'
NEW CURE
FOR THE
HEART
SYMPATHETIC DISEASES OF THE HEART, LUNGS, STOMACH, LIVER AND KIDNEYS
$5000 REWARD WILL BE FREELY GIVEN FOR A SAFER OR BETTER HEART MEDICINE THAN THE NEW CURE
Prepared at the DR. MILES' MEDICAL CO'S LABORATORY ELKHART, INDIANA
WHOLESALE DEPOTS: NEW YORK & CHICAGO
PRICE ONE DOLLAR
DR. MILES'
REMEDY
FOR THE
HEART
CONTAINS 11 PER CENT ALCOHOL
Prepared at the DR. MILES MEDICAL CO'S LABORATORY ELKHART, INDIANA.
DOSE: One to Two Teaspoonful
Full Directions in Pamphlet around Bottle
THE HEART, LUNGS, STOMACH, LIVER AND KIDNEYS
Are Often Affected by Feeble or Irregular Heart Action
PRICE ONE DOLLAR
SOLD BY DRUGGISTS
CONTENTS 8 FLUID OUNCES.
DR. MILES'
TONIC & REGULATOR
HEART
TREATMENT
FOR FUNCTIONAL DISORDERS
CONTAINS 11 PER CENT ALCOHOL
Prepared at the DR. MILES MEDICAL CO'S LABORATORY ELKHART, INDIANA.
RECOMMENDED FOR FUNCTIONAL DISORDERS Accompanied by Shortness of Breath, Fluttering or Palpitation, Irregular Pulse, Fainting or Smothering Spells and Tobacco Heart.
DOSE—One or Two Teaspoonfuls Three Times a Day.
Full Directions in Pamphlet Around Bottle.
Price, $1.10
SOLD BY DRUGGISTS

Greatly reduced reproductions of the carton of "Dr. Miles' Heart Treatment" through varying stages of truthfulness.

In common with most patent medicine" adver-sements, the "scare" nethod has been used in xploiting this "heart treat-nent." The public has been ssured for instance, that one person in every four as a weak or diseased eart" and in some of the older advertising we read under a iscussion of the "Treatment of a Weak Heart":

> "Unless something is done to check its onward course, it will surely ad to death by the slow torture of some chronic or lingering disorder hich it has induced or by the sudden snuffing out of life's flame by eart failure."

No information regarding the composition of Dr. Miles' leart Treatment is vouchsafed by the manufacturers, at ast beyond that which the law requires. Thus the labels sed since the passage of the Food and Drugs Act admit the resence of 11 per cent. alcohol. Like other "patent medi-ine" exploiters the makers of this nostrum wish to retain ne element of secrecy probably for the mystery that it throws ver their products, and for the scope it gives to the imagi-ation of their advertisement writers. Nevertheless they are pparently anxious to capitalize wherever possible any state-nents regarding the drugs used in their preparation, so the liles Medical Company publish under the heading "What ledical Authorities Say," some quotations relative to two f the alleged ingredients of the nostrum. Some of these uotations are garbled and modifying clauses have been nitted, while in other cases the quotations are from uncri-cal sources.

The two drugs alleged to be ingredients of Dr. Miles' Heart Treatment, but not mentioned by name, are digitalis and cactus. It is sufficient to say at this point that careful chemical and physiologic tests have proved conclusively that, if there is any digitalis present it is there in such infinitesimal amounts as not to have the slighest therapeutic effect. Before leaving this phase of the discussion it is worth while to compare one quotation given by the Miles concern as having been given by a medical authority with that of the original. Neither the name of the author, nor the name of the drug is disclosed, however, by the Miles advertising:

AS QUOTED BY MILES	THE ORIGINAL QUOTATION
"It is of value in nearly all cases of disease where the condition is one in which the heart fails to do its proper amount of work." (*From pamphlet entitled, "What Medical Authorities Say," distributed in Chicago March, 1919.*)	"Digitalis is of value in nearly all cases of cardiac disease where the condition is one in which the heart fails to do its proper amount of work, unless the failure is due to myocardial degeneration." (*From "Practical Therapeutics," A. J. Hare, 1916.*)

We have put in small capitals those parts of the quotation from Hare which the Miles Medical Company either omits or modifies. It is worthy of note that the very next sentence in Hare's book, following the quotation just given, reads: "If simple hypertrophy or excessive compensatory hypertrophy exists, it [digitalis] is harmful." This statement the Miles concern does not quote, although it has in the past recommended the nostrum for cardiac hypertrophy.

To determine the presence or absence of digitalis in Miles' Heart Treatment, a pharmacologist was asked to make physiologic tests with the preparation. The question as to whether or not there is any cactus present was not considered of any special interest, because extensive experimental work has shown that cactus grandiflorus has no physiologic action. The tests that were made by the pharmacologist, however, were such that, had Miles' Heart Treatment contained *any* drug possessing any heart action, its presence would have been disclosed. The gist of the pharmacologist's report was to this effect:

> The tests indicated that there was no digitalis body present in the preparation (in amounts that could have any therapeutic effect) in doses containing enough alcohol to induce narcosis. There was no evidence that Miles' Heart Treatment has any therapeutic effect on the heart aside from that of the alcohol which it contains, even when administered orally, in doses corresponding to those of 1,750 c.c. for a man of 70 kilos. Such doses are equivalent to more than 7 bottles of the treatment. It can be said with certainty that Miles' Heart Treatment does not exert any action which entitles it to be considered as belonging to the digitalis group, or to any other group recognized by clinicians as exerting any typical, demonstrable, pharmacologic action on the heart.

In addition to the pharmacologic tests, Miles' Heart Treatment was also subjected to chemical analysis in the A. M. A. Chemical Laboratory. A summary of the chemist's report follows:

CHEMIST'S REPORT

"Chemical examination shows Miles' Heart Treatment to be a solution of a compound, or compounds, of iron representing about 0.120 gm. metallic iron in 100 c.c., or about ⅔ grain in one fluidounce. There is also a small amount of phosphate, about 5 per cent. glycerin, a reducing substance, which may be glucose or invert sugar. No potent alkaloidal drugs could be detected. The presence of an ammonium compound was demonstrated by the liberation of free ammonia on addition of fixed alkali to the preparation. The liquid is colored with caramel. A solution of iron glycerophosphate in 10 per cent. alcohol with about 5 per cent. glycerin and a little sugar or glucose had much the same chemical properties as Miles' Heart Treatment."

How long would the "patent medicine" business last if the exploiters of these nostrums were required to publish a full quantitative formula of the active ingredients on the label, and, further, were required to tell the truth about their products? The "Latest and Greatest Discovery for Weak and Diseased Hearts," which was "the result of vast experience and years of Scientific Investigation by one of the most able and learned physicians of the age" does not loom as imposingly after it has been subjected to the test of independent chemical and physiologic investigation. A little iron, a small amount of phosphate, about 5 per cent. of glycerin, and 11 per cent. of alcohol, the mixture colored with caramel—a great discovery indeed!

Correspondence

REQUEST FOR BIOGRAPHIC DATA

To the Editor:—In revising my "Cyclopedia of American Medical Biographies" into a wholly new cyclopedia, in cooperation with Dr. Walter L. Burrage, and in adding some hundreds of names, there remain a certain number of physicians about whom we have not been able as yet to obtain needed information. I write to The Journal to ask if any of its readers can enlighten me, and if they will not kindly at once communicate with me by letter that I may complete the following biographies:

In the first place, is Dr. S. S. Herrick, eminent chemist and sanitarian of New Orleans still living? If not, when and where did he die? Is Dr. D. B. Hoffman, who wrote the "Medical History of San Diego County, California," born in 1827, still living? The same question I am compelled to ask regarding Frederick V. Hopkins, early geologist of Louisiana. One of the most important of all my biographies is that of William Anderson, who lived for a time in New York, wrote a fine "Surgical Anatomy of the Groin" in 1822, and in 1837 suggested a hospital in connection with a university of the city of New York. He was associated with Valentine Mott and Wright Post in his activities. He probably graduated in Scotland, and probably returned there.

I want in all the foregoing cases the birth, death, anything about the early life, professional accomplishments and activities of any of the gentlemen, and any reference to any published memoranda, and shall be truly grateful to any one who will help me out immediately.

Howard A. Kelly, M.D.
1418 Eutaw Place, Baltimore.

"METABOLISM IN PERNICIOUS ANEMIA"

To the Editor:—I would be obliged to you if you will correct the impression that you give in your editorial with this title (June 21, 1919, p. 1846) regarding our "Studies of the Chemistry of Pernicious Anemia." We did not investigate the metabolism of substances in this disease but were careful to point out that our studies were directed rather at certain general chemical investigations than to anabolism and catabolism phases. We paid no attention to the intake of food, so far as its exact chemical composition was concerned. We only stated as part of the sixth conclusion that "there is a state of suboxidation—the neutral sulphur fraction is increased," which statement is, of course, correct. But we laid no stress on this matter in the paper, and we only mentioned it casually. Our object in this research was to study the functional capacity of the various organs. You misquote us and destroy the value of our contribution to this subject by stating that the functions of the liver are reported as undamaged. We state (Conclusion 8) that "there is a deficiency in the hepatic detoxication function as shown by the sulphoconjugation test." We wrote our paper mainly to impress this finding for we believe that this may be the causative factor of this disease: the failure of the liver to neutralize the poisons generated in the gastro-intestinal tract, resulting in the absorption of these poisons by the blood with the resulting blood destruction.

Max Kahn, M.D., New York.

"PROTEOGENS"

State of Ohio, State Department of Health.

To the Editor:—I note in the issue of The Journal for July 12, a statement regarding the so-called "Proteogens" manufactured by the Wm. S. Merrell Company of Cincinnati.

My attention has been called to the fact that salesmen of this company have been exhibiting a letter purporting to show that this department has endorsed their products in the treatment of venereal diseases. The letter in question was written by a physician employed in one of the clinics conducted jointly by this department and the U. S. Public Health Service, and the stationery of the department was used without authority. The physician in question has made numerous efforts to recall the letter, but the Merrell people profess an inability to control its use.

I need not add that this department has not endorsed and will not endorse these products, and has no evidence that they are of any value whatsoever.

Allen W. Freeman, M.D., Commissioner of Health.

"THE NEUROLOGY OF CERVICAL RIBS"

To the Editor:—Dr. Church, in his paper on "The Neurology of Cervical Ribs" (The Journal, July 5, 1919, p. 1), says: "No textbook on nervous diseases makes the slightest detailed mention of cervical ribs in connection with brachial plexus disorders," etc. In the second edition of Jelliffe and White, Diseases of the Nervous System, 1917, is a discussion of the subject, and (p. 366) a roentgenogram with the caption: "Double cervical rib causing mixed type of brachial palsy." In several places the relation of cervical rib to brachial plexus disorders is given in detail. Dr. Church further states that cervical ribs have never been observed in the first, second or third ribs. In the textbook just mentioned will be found in the section on cervical rib (p. 378): "Thomas Murphy has recorded a case in which the symptoms were due to the pressure of the first rib. A similar case is reported by Sherren."

Smith Ely Jelliffe, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE SEPTIC VIBRIO

To the Editor:—I am a discharged soldier about to enter the state university this fall. Across the ocean, during my stay as a patient in a hospital, I heard of a parasite known as the *Vibrion septique,* and cannot seem to get any definite information as to its character or morphology. Will you kindly give me any information you may have available?

H. G. Wells, Waterbury, Vt.

Answer.—The *Vibrion septique* (*Bacillus septicus, B. oedematis,* bacillus of malignant edema) was discovered by Pasteur in 1876. The next year, 1877, Pasteur and Joubert (*Bull. de l'Acad. de méd.* **187**:793) established the principal characters of the vibrio and called the sickness produced by it acute experimental septicemia. Koch and Gaffky (*Mitt. a. d. k. Gsndhtsamt.* 1881, p. 52 et seq.) gave it the name, bacillus of malignant edema. Mice and guinea-pigs are exceedingly sensitive to it. Chauveau and Arloing discovered about 1884 that *Vibrion septique* was the cause of gas gangrene in man. The traumatic gangrene of some animals is also due to it. The organism is about the size of the anthrax bacillus (7 by 0.8 microns) but narrower, and the ends are not so square cut. It is gram-negative unless the staining with gentian violet is prolonged. It thrives well on culture mediums. It kills a guinea-pig in two days. Although it is considered to be the cause of gas gangrene it is not the sole cause, for *B. phlegmonosus-emphysematosus* of Fraenkel and *B. aerogenes-capsulatus* of Welch and Nuttall produce it also, as well as other germs. For further details one may consult any good textbook on bacteriology.

STRENGTH OF EPINEPHRIN FOR LOCAL ANESTHESIA

To the Editor:—Please give me the following information:

1. What strength of epinephrin (adrenalin) should be used in injecting tonsils for local anesthesia?
2. What are the dangers of strong solutions of epinephrin, aside from the secondary hemorrhage?
3. Would 1 dram of 1:1,000 solution of epinephrin to the ounce of 1:500 cocain, and using 2 drams in each tonsil, be dangerous?

Please omit my name. B. E. M.

ANSWER.—1. From 10 to 15 drops of the 1:1,000 solution of epinephrin per ounce of anesthetic solution is the strength usually employed.

2. The chief danger of strong solutions lies in the possibility of injecting it inadvertently into a vein, in which case 1 c.c. of a 1:1,000 solution might produce most alarming and even fatal results from overwhelming effect on the circulation. In subcutaneous infiltration, there is the additional danger of necrosis from excessive vasoconstriction; but this probably does not apply to as vascular a tissue as that of and around the tonsil.

3. The addition of 1 dram of a 1:1,000 solution of epinephrin to the ounce of 1:500 cocain would probably not be very dangerous; but the concentration is greater than that usually employed; and, when the solution is used as freely as 2 drams per tonsil, it might not be entirely devoid of danger.

PROTECTION OF BOOKS AGAINST INSECTS

To the Editor:—I should like to know a way to protect my library against the insects that are now destroying it. I have used without success powdered pepper, "Noflatine" and formaldehyd fumigations.

PEDRO PONS, M.D., Batabanó, Havana, Cuba.

ANSWER.—Powdered pepper and formaldehyd fumigations have practically no effect on insects attacking libraries. The U. S. Bureau of Entomology recommends fumigation of the library with hydrocyanic acid gas, or the placing of the books in a tight container, such as a wooden box well lined with paper, and fumigation with carbon disulphid. Proper precautions must, of course, be taken, especially in using hydrocyanic acid. Both these substances can be obtained in Cuba. Instructions (in English) for applying them will be found in Farmers' Bulletins 699 and 799, and might perhaps be obtained also in Spanish from the Department of Sanitation, Havana, Cuba.

ARMY DISCHARGE PAPERS

To the Editor:—In the discharging of medical officers from Army service, the only honorable discharge received by many was an order stating that for "convenience of the government," the following named will be discharged. Then follows a long list, including the officer to whom the communication is addressed. Will this be the only discharge given such men?

C. M. MURRELL, M.D., Matherville, Ill.

ANSWER.—The language used in the discharge notice is that prescribed by the War Department, except that when only one individual is discharged at a time his name is inserted in the body of the order instead of at the end. In addition to this order each officer discharged is entitled to a formal discharge certificate. These certificates were not authorized until December, 1918; it was provided at that time that those who had not been given the certificate could obtain it by application to the Adjutant-General of the Army.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.

HAWAII: Honolulu, Sept. 9-11. Sec., Dr. J. R. Judd, Honolulu, Hawaii.

NEW HAMPSHIRE: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.

New York March Examination

Mr. George M. Wiley, director, Examinations and Inspections Division, reports the written examination held at New York City, March 11-14, 1919. The examination covered 8 subjects and included 10 questions. An average of 75 per cent. was required to pass. Of the 148 candidates examined, 134 passed and 14 failed. The following colleges were represented:

College	Year Grad.	No. Licensed
PASSED		
Bennett College of Eclectic Med. and Surg.	(1907)	1
Harvard University	(1919)	1
Columbia University, Coll. of Phys. & Surg.	(1919)	51
Fordham University	(1917) (1919, 48)	49
New York Homeo. Med. Coll.	(1917)	1
University and Bellevue Hosp. Med. Coll.	(1919)	31
FAILED		
Tufts College	(1917)	1
Columbia University, Coll. of Phys. & Surg.	(1919)	4
Fordham University	(1919)	2
University and Bellevue Hosp. Med. Coll.	(1919)	6
Medical College of Virginia	(1915)	1

Dr. Wiley also reports that between March 25 and May 1, 1919, 6 candidates were licensed by endorsement of their credentials. Of these one was granted a reregistration license, 3 were granted diplomas by reciprocity with other states, and 2 were licensed by endorsement of their diplomas on the basis of eminence and authority in the profession. Of those licensed by reciprocity and endorsement of credentials the following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
New York Homeo. Med. Coll. . . (1899) New Jersey;	(1916)	New Jersey
Woman's Medical College of Pennsylvania	(1903)	New Jersey
ENDORSEMENT OF DIPLOMAS		
Kentucky School of Medicine	(1899)	
Harvard University	(1886)	

Minnesota April Examination

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral and written examination held at Minneapolis, April 1-3, 1919. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 18 candidates examined, 15 passed and 3 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1913)	82.2
University of Illinois (1919) 89.1, 89.5, 91		
Harvard University. . . . . (1912) 94.3; (1918) 95.5;	(1919)	92.6
University of Minnesota	(1918)	92.8*
Albany Medical College . . . . (1895) 78;	(1911)	87.9
Columbia University Coll. of Phys. and Surg.	(1918)	89, 92.2
Cornell University	(1911)	93
Miami Medical College	(1900)	88.3
University of Pennsylvania	(1917)	85.5
FAILED		
College of Medicine and Surgery, Physio-Medical	(1909)	64
University College of Medicine, Richmond	(1909)	66
Montreal School of Medicine and Surgery	(1898)	33

*Granted M.B. degree in 1918 after completing four year course; will receive M.D. after completing his intern year.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
American Medical Missionary College	(1904)	Illinois
Chicago College of Medicine and Surgery	(1917)	Illinois
Rush Medical College . . . . (1905) North Dakota,	(1914)	Illinois
University of Illinois	(1914)	Wisconsin
University of Michigan Medical School	(1916)	Michigan
University of Minnesota	(1902)	N. Dakota
Long Island College Hospital	(1910)	N. Dakota
Miami Medical College	(1908)	Ohio
Vanderbilt University	(1917)	Tennessee
Queens University	(1902)	Wisconsin

Book Notices

John Coakley Lettsom and the Foundation of the Medical Society. Being the Presidential Address Delivered Before the Medical Society of London on October 8th, 1917. By Sir St. Clair Thomson, M.D., F.R.C.P., F.R.C.S. Paper. Price, two shillings and sixpence. Pp. 63, with illustrations. London: Harrison and Sons, 1918.

The Medical Society of London was organized in 1773 by Dr. John Coakley Lettsom, the physician on whose name was written the historic doggerel which has so often been quoted as expressing the attitude of some of the medical profession,

> "When any sick to me apply,
>   I physicks, bleeds, and sweats 'em;
> If after that they choose to die,
>   What's that to me, I. Lettsom."

Sir St. Clair Thomson, one of our foreign guests at the Atlantic City Session, president of the Medical Society of London for 1917 and 1918, took as the subject of his presidential address the life and character of his first predecessor in office. The address is published in pamphlet form and is a fascinating biographic study of professional life and conditions in England from 1750 to 1815. Although born in the West Indies and early left an orphan without friends or influence and very little money, Lettsom in 1766 settled in London at the age of 20 and in a short time developed a practice and professional standing that placed him at the head of his profession by the time he was 40. His biographer states that his income from 1786 to 1800 ranged from five thousand to twelve thousand pounds a year, or practically $25,000 to $60,000. The successful medical practitioner led quite as strenuous a life then as now. In 1791, at the age of 47, he says, "During the last nineteen years, not one holiday have I taken." In another letter he complains that his practice had not suffered him to sleep in his own bed for thirteen nights. That he was a systematic and tireless worker is shown by his voluminous correspondence which, of course, in those days was carried on entirely by hand. At one time he had more than two hundred correspondents on professional, scientific and personal matters. Nearly all of his letter writing was done in his carriage. His outside interests were quite as extensive and absorbing as his professional work. In 1770, he founded the first general dispensary in London. In 1773, he organized the London Medical Society. He was an active member and lecturer of the Royal Philosophical Society, and one of the founders of the Royal Humane Society. He was a personal friend and supporter of Edward Jenner, and an ardent advocate of vaccination. His personal friendship for John Howard led him into much activity for prison reform. He was during his entire life deeply interested in botany, agriculture and fossils. He organized soup kitchens, wrote tracts, delivered lectures on the effects of hard drinking, cultivated bees, formulated plans for the management of boarding schools with special regard to diet, clothes, games and sanitation, and was greatly interested in the history of medicine. In 1801, he published three volumes of essays in which appear discussions of such subjects as poverty, prostitution, the education of the blind, the treatment of the deaf and dumb, the prevention of hydrophobia, and the use of substitutes for wheat in making bread. The last subject became one of public interest and importance during the Napoleonic wars, just as it has been during the late world war. Not only did the price of bread rise, but also the quality and size of the loaf diminished. Lettsom recommends Indian corn, potatoes, rice and other substitutes for wheat bread. Especially interesting are his relations to the United States. Benjamin Rush was an intimate friend, and in a book of memoirs published in 1817, it appears that a large tract of land on the Susquehanna River belonging to Dr. Rush was named after Dr. Lettsom. He first sent Jenner's vaccine lymph across the Atlantic, assigning it to his friend, Dr. Waterhouse, professor of medicine at Harvard University. His correspondents included Washington and Benjamin Franklin. Harvard University in 1790 gave him the degree of LL.D. He was an honorary member of the medical societies of New York, Massachusetts and Philadelphia, of the Massachusetts and Philadelphia Humane Societies, of the Pennsylvania Society for the Abolition of Slavery, and of practically all the scientific and historical societies that then existed in America. His work, which increased as he grew older, lasted almost until the day of his death, which occurred in his seventy-first year after an illness from pneumonia of only a few days.

This biographic sketch is a historical document of great interest and fascination, giving with unusual vividness a picture of professional life of a century and a half ago. It is charmingly written and copiously illustrated.

Surgery in War. By Alfred J. Hull, F.R.C.S., Lieut.-Col., Royal Army Medical Corps. With a Preface by Lieut.-Gen. T. H. J. C. Goodwin, C.B., C.M.G., D.S.O., Director-General, Army Medical Service. Second edition. Cloth. Price, $6 net. Pp. 624, with 210 illustrations. Philadelphia: P. Blakiston's Son & Co., 1919.

There are today, roughly speaking, four classes into which current medical literature may be divided: In the first group we may assemble the so-called research papers which deal with theories and phenomena in the field of the medical sciences from the standpoint of their truth or falsity. In a second group we may assemble papers of the nature of case reports, presenting the result of practical experience and, in a growing percentage of cases, justifying the term "clinical research" which has been applied to the type of work they represent. In a third group we find those books and monographs which treat of their subject from the standpoint of the principles involved, omitting detailed analyses, giving a bird's-eye view, so to speak. In the fourth group we find the so-called books of reference, in which great attention is paid to that detail and close analysis which works of the preceding group seek to condense and formulate into broad generalizations. It is in this group that we should place the book under discussion. Bearing in mind the author's statement: "The object of this book has been to give members of the profession who have not practiced war surgery an account of the treatment which has proved efficacious in our hands. Symptomatology and details of treatment, which are found in textbooks of general surgery, have not been repeated. The book is not intended to be in any sense complete. Surgical knowledge is presupposed, and our efforts have been mainly directed to recounting methods of treatment of the more common injuries met with in war," we are inclined to credit the author with underestimating the value and scope of his work. If we were to offer adverse criticism, it would deal with the illustrations. There are numerous sketches accompanying the text. The book would present a much more finished, workman-like appearance if the majority of the sketches had been submitted to a capable artist for revision before publication. Secondly, it seems to be almost inexcusable that a publisher should permit the appearance of a high grade book, such as this, with a full page illustration turned upside-down. Apparently the publishers are feeling the pinch of the universal shortage of labor. In spite of this slight mechanical disability, "Surgery in War" is one of the best books on the subject that we have seen.

The Early Treatment of War Wounds. By Colonel H. M. W. Gray, C.B., C.M.G., M.B., Consultant in Special Military Surgery. Cloth. Price, $3.75. Pp. 299, with 25 illustrations. New York: Oxford University Press, 1919.

One of the greatest difficulties with most authors writing on medical subjects is that of stating their problem and its solution without a great deal of unnecessary exposition, and without dragging in a whole family of distantly related and entirely superfluous matters. In this book, Colonel Gray has overcome the difficulty, and presents the essential facts with refreshing simplicity and vigor. He does not write from the standpoint of a man with a theory to prove; rather, as one reads the book, the impression grows that here is an earnest, scientific surgeon of wide experience endeavoring to tell the simple truth without bias and, incidentally, without that "holier than thou" attitude which the advocates of particular plans of treatment are so prone to adopt. The first six chapters deal with the general management of the wounded, the essentials of first aid, the treatment of shock, the use of antiseptics and dressings, and the principles of the operative treatment of war wounds, great stress being laid on the early and complete excision of devitalized tissue as a fundamental in the prevention of wound sepsis. The remaining five chapters deal with the treatment of wounds of special regions, considering in particular wounds of the brain, the thorax, the spinal cord, compound fracture of the femur, and wounds of joints. Abdominal wounds are not given consideration. The author says: "I have not written anything on abdominal wounds. It has always seemed to me that a surgeon who has mastered the technic of successful excision of an ulcerating cancer of the colon is capable of obtaining as good results as possible if he applies the same principles in the treatment of war wounds of the abdominal organs coupled with those used in combating spreading peritonitis." This volume deserves a place on the shelves of every medical library.

Medicolegal

Contributory Negligence and Evidence in Malpractice Case

(*Summers v. Tarpley (Mo.), 208 S. W. R. 266*)

The Springfield (Mo.) Court of Appeals, in reversing a judgment obtained by the plaintiff for $500 damages for alleged malpractice, and remanding the case for a new trial, says that, in jumping from a vehicle on account of the team's running away, the plaintiff broke the small bone of her left leg about 3 inches above the ankle, and fractured the larger bone near the ankle joint. The defendant who, the record showed, was what is commonly called a "country doctor" and was not equipped for accurate diagnosis, diagnosed the injury as a dislocation. He testified that he put the disarranged parts back in position to the best of his judgment, bound the leg with ordinary bandage, covered it with cotton, and strapped it in a metal splint. This splint was taken off at the end of seven days. About fifteen days after the injury, he first realized that the bones were broken, and put the splint back on. The bones were not put in proper apposition, however, and the result was a somewhat deformed ankle. He gave as an excuse for not diagnosing more thoroughly in the irst instance that the plaintiff's father and mother would not permit him to administer chloroform, claiming that the plaintiff had a weak heart. The defendant also testified that he insisted on the family's getting another physician to aid him, which they declined to do, and again declined to do when, at the end of the fifteen days, he realized that the bones were broken and asked for another physician to help him. He said that he did in both instances the best he could under the circumstances. The evidence for the plaintiff, on the other hand, tended to show that the defendant no time made a request for assistance, but insisted all the time that the injury was only a dislocation, and that he did not need any assistance.

The plaintiff not having charged in her petition that her deformed ankle was due to the defendant's lack of skill, but was due to his unskilful and careless treatment, there was no error in the trial court's refusing to permit him to prove his general reputation as a skilful physician.

Nor was there error in an instruction to the jury to the effect that the burden was on the defendant of proving to the reasonable satisfaction of the jury by a preponderance of the evidence the defense of contributory negligence, the court being of the opinion that the evidence offered by the defendant tending to establish that the plaintiff's deformed ankle was due to her own negligence and that of her family in failing to procure assistance was the defense of contributory negligence pure and simple. It will be observed that the defense of negligence on the part of the patient is, in a malpractice case, called contributory negligence as in any other kind of case. It is clear that the alleged negligence of the plaintiff in this case, if established, would constitute a complete defense, and this court knows of no other term than "contributory negligence" to designate that character of defense. Contributory negligence as a defense in malpractice cases is recognized by all authorities, but some differ as to the effect of negligence of the patient after operation or reatment in failing to observe the directions of the physician. But the court holds it was reversible error to permit physicians called on behalf of the defendant to be asked, on cross-examination, if they ever treated a patient that was left in that condition by similar injury, having reference to the condition of the plaintiff's ankle. It was improper cross-examination, and prejudicial. Aside from the force of the situation tending to elicit a negative or noncommittal answer, the plaintiff would be establishing that the defendant was negligent by proving what some other physician had or had not done. If a physician under such circumstances should answer in the affirmative, then a defendant, situated as in the case at bar, would be entitled to have the physician explain. He could go into all the details of the collateral case, which would lead far afield from the issues, and into matters wholly irrelevant.

Evidence of Fraud by Itinerant Doctor in Obtaining Note

(*Security State Bank of Wichita v. Seaunier (Kan.), 178 Pac. R. 239*)

The Supreme Court of Kansas, in reversing a judgment obtained by the plaintiff bank, and ordering a new trial, in this action on a promissory note given by the defendant to one Slocum, says that the latter was an itinerant doctor who advertised his business by a dog, pony and medicine show. On the day on which the note was given, Slocum told the defendant that his wife had catarrh, and that a cancer was forming in her stomach; that if the defendant did not do something for her within thirty days, she would be past doing anything with at all; that, if she was not treated in the right way, she would die within thirty days; and that she ought to go to a hospital; that he had an institute and hospital at Wichita, but that he could treat her at her home. He asked the defendant if he was little enough to let his wife lay and die for $120. He promised the defendant to keep the note for six months, and said to him that his wife would be well; that the medicine he would give would cure her; and that he could cure her in sixty days. Immediately after obtaining the note, he tried to sell it in Neodesha, and soon thereafter transferred it to the plaintiff. He had neither institute nor hospital in Wichita. The defense was that the note had been obtained by fraud and was without consideration, and that the plaintiff had purchased the note in bad faith and with knowledge of the fraud.

The defendant's first assignment of error was that the trial court erred in refusing to permit him to introduce in evidence certain chattel mortgages on Slocum's show outfit to secure the payment of certain debts then owing by Slocum to the plaintiff, and to secure any other indebtedness that might be incurred to the bank by Slocum. There were four of those mortgages. They were signed by Slocum and by his wife, who claimed to be the owner of the property. The mortgages should have been received in evidence to establish links in a chain of circumstances which would tend to show that Slocum had committed a fraud on the defendant, and that the bank had knowledge of that fraud and was not a holder of the note in good faith.

The defendant's second assignment of error was that the court erred in rejecting the depositions of four physicians of Wichita. The testimony disclosed in those depositions concerned the honesty and integrity of Slocum, and his reputation and ability as a physician. That evidence tended to establish another link in a chain of circumstances which might prove that Slocum was guilty of fraud in procuring the note, and should have been admitted for that purpose.

The trial court placed the burden of proof on the defendant, and, after his evidence had been introduced, sustained a demurrer thereto, and instructed the jury to return a verdict in favor of the plaintiff. But the evidence of what occurred when the note was given, together with the chattel mortgages and the testimony contained in the depositions, if the chattel mortgages had been admitted in evidence, would have been sufficient to compel the trial court to submit the cause to the jury for the purpose of determining whether Slocum had been guilty of fraud in obtaining the note; and a finding of the existence of fraud would have been sufficient to place on the plaintiff the burden of showing that it acquired the note in due course.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Colorado Cong. of Ophth. and Oto-Laryn., Denver, August 4-5.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN PEDIATRIC SOCIETY

Thirty-First Annual Meeting, held in Atlantic City, N. J., June 16-18, 1919

(Concluded from page 220)

Cerebrospinal Involvement in Hereditary Syphilis

Dr. C. P. Jeans, St. Louis: About 30 per cent. of syphilitic infants show changes in the cerebrospinal fluid of such a character and degree as to make the diagnosis of syphilitic involvement of the nervous system quite certain. There may or may not be associated clinical manifestations indicating neurosyphilis. Intravenous and intramuscular treatment will result in most instances in the disappearance of the abnormal findings, both in the cerebrospinal fluid and in the blood. Routine spinal puncture in older children having either latent or active syphilis likewise showed evidence of neurosyphilis in about 30 per cent. of those examined. Prolonged intravenous or intramuscular treatment will eventually result in a negative blood Wassermann reaction, while the cerebrospinal fluid may or may not continue to show changes indicating neurosyphilis. Intraspinal treatment will cause the disappearance of pathologic changes in the spinal fluid when these have persisted.

DISCUSSION

Dr. W. McKimm Marriott, St. Louis: Dr. Jeans' experience is that the administration of arsenic before mercury has been given may result in a serious reaction, namely, the Herxheimer reaction. In order to avoid this reaction, treatment should be given first with mercury and later with arsenic. A further practical application of the results of Dr. Jeans' work is that if one watches the spinal fluid in cases that are apparently cured, and after the blood has become negative, the spinal fluid may still be positive.

Dr. L. R. De Buys, New Orleans: It is well to sound a warning against being too eager tc exclude congenital syphilis in the presence of a negative blood Wassermann test. One should always examine the cerebrospinal fluid when syphilis is suspected. It is also well to get away from the intraspinal method of treating these cases.

Dr. Isaac Abt, Chicago: What is your manner of administering arsphenamin? I use both mercury and arsenic.

Dr. C. P. Jeans, St. Louis: We use the arsenobenzol brand of arsphenamin. We also inject mercuric chlorid, one-half minim per kilogram, of a 1 per cent. solution.

Predominance of Seborrheic Eczema in Early Life

Dr. Thomas S. Southworth, New York: The part played by seborrhea in the causation of eczema has been overlooked. The seborrheic factor may be traced in the milder forms on the face and body, the identity of which may be established by finding seborrhea on the scalp and in the characteristic locations in the folds above and below the ear. A seborrheic basis may furnish the starting point for an eczema. The recognition of a seborrheic basis for a lesion by no means excludes the possibility of other micrococcic invasion. There is no conflict between a seborrheic and an anaphylactic or toxic etiology of eczema, since seborrheic neighborhoods are susceptible to other superadded conditions of the skin. Zinc oxid ointment, so helpful in other types, is useless by itself in seborrheic cases, even of the simplest form, unless ammoniated mercury or tar or resorcin is added to destroy the micro-organisms present. The dietetic factor in these cases must be differentiated and corrected before these cases will yield to treatment.

Aneurysm of Ascending Arch of Aorta in a Thirteen Year Old Boy

Dr. Henry Herman, New York: Physical examination showed marked pulsation of the carotids, the heart enlarged, particularly to the left, rather a wide area of dulness at the level of the first and second interspaces, and a systolic murmur. The electrocardiogram showed a marked ventricular predominance. The fluoroscopic examination revealed an aneurysm of the ascending arch of the aorta. The roentgen ray corroborated this finding. The Wassermann test was + + + +. The mother's Wassermann test was also + + + +. In the epigastrium there was a hard mass, about 6 cm. in diameter, extending down about 8 cm. from the ensiform, not tender, and probably a gumma. The spleen was markedly enlarged, extending to the iliac crest. There were no palpable epitrochlear glands. The reason for presenting this case is the great rarity of aneurysm of the thoracic aorta in children, there being only about twenty cases of aneurysm of the aorta in children reported in the literature.

Congenital Disseminated Atelectasis

Dr. John Ruhräh, Baltimore: When first seen, Nov. 15, 1917, the child, then between 4 and 5 months of age, showed cyanosis and rapid respiration, the respirations being rarely under 50 a minute and often 75 and 80. The heart was normal so far as could be ascertained. The roentgen ray revealed disseminated patches of unexpanded lung. The child, with proper care and attention to feeding, gradually improved, and at present is apparently normal.

Case of Scorbutic Hematuria

Dr. Percival J. Eaton, Pittsburgh: This case occurred in a rather poorly nourished child fed on patent foods and then on cooked foods, but never on fresh, raw food. The child's condition seemed to point more toward scurvy than toward calculus, and the urine showed nothing abnormal except bright red blood. Fresh raw milk, beef juice and orange juice were prescribed. Under this treatment the hematuria disappeared, and it was not necessary to use the sound.

Anomaly of the Diaphragm with Gastric and Intestinal Obstruction

Dr. L. R. DeBuys, New Orleans: This baby was perfectly well up to the age of 3 months, when she had a peculiar attack of colic with twisting and straining. After several attacks of this nature the child became acutely ill, with high temperature and rapid pulse. On examination the chest showed less movement of the left side and was apparently not as full as on the right side. Resiliency was absent. The heart was displaced to the right, the apex beat being in the median line. The abdomen presented a tumor in the epigastrium and left hypochondriac region, lying transversely, and about the roundness of a banana, 3 or 4 inches long, and distinct from the lower border of the ribs. The blood examination disclosed a leukocytosis of 29,500, with 88 per cent. polymorphonuclears. The roentgenogram suggested an intussusception. An operation, performed for the relief of the constriction, revealed a diaphragmatic hernia. The intestine was found empty and contracted. No omentum was visible. When the tumor was palpated there was a sudden gush of blood from the mouth and nose and a cessation of breathing. Attempts at resuscitation were futile. A further incision showed the spleen lying on top of the tumor with its long axis transverse to the abdomen and its convex surface lying next to the diaphragm, the lower end being just under the costal arch. The tumor was attached to the hilum of the liver. The transverse colon was not in sight. There was a hiatus in the diaphragm under the tumor which was found to be continuous with another fluid mass in the thorax. On opening the left chest, the fundus and greater part of the body of the stomach, the transverse colon and the great omentum were found in the thoracic cavity. No pleura was found over these viscera. The tumor consisted of the pyloric portion of the stomach twisted on its axis at the hiatus behind the diaphragm. At a second necropsy, the left suprarenal body was found to be enlarged and hemorrhagic. At the posterior left half of the diaphragm there was no attachment; a hard cord bridged over this area in a domelike manner. There was another twist in the stomach anterior to the pyloric orifice. The two twists in the stomach had cut off certain blood supplies which resulted in gangrenous necrosis of the stomach wall. Among the points of interest in this case were the absence of tenesmus and bloody stools in an obstruction involving the descending colon, which would require the exclusion of the diagnosis of intussusception, and the roentgenogram without evidence of air in the thorax, especially with an intestinal hernia into it.

Incidence and Significance of Rheumatic Nodules in Children

Dr. Joseph Brennemann, Chicago: Rheumatic nodules are as frequent in children in this country as they are in England, where they have received so much attention. Observers should settle the question as to whether these nodules are a definite quantitative accompaniment of rheumatism or whether they have a selective geographic habitat. They practically never occur in rheumatism uncomplicated by endocarditis or pericarditis. They are relatively rare in mild cases of rheumatism or chorea with cardiac complications, but occur with great regularity and usually very abundantly in chronic or recurrent and active endocarditis, especially in those patients that for weeks or months sway between life and death, not alone because of broken compensation, but even more because of a smouldering uncontrollable infection that ever and anon lights up again. As rheumatic nodules are pathognomonic of rheumatism with carditis, they are often of considerable diagnostic value. A new and abundant crop has often an ominous significance in showing that a new and serious cardiac invasion has taken place. Rheumatic nodules, unless very carefully looked for, are likely to be overlooked. Careful search will reveal them more often than is commonly thought.

AMERICAN SURGICAL ASSOCIATION

Fortieth Annual Meeting, held at Atlantic City, N. J., June 16-18, 1919

(Concluded from page 222)

Thoracic Fistula and Chronic Empyema: Nondeforming Operation for Its Cure

Dr. Howard Lilienthal, New York: Thoracoplastic collapsing operations for the cure of sinuses and pneumothorax following empyema are, as a rule, unjustifiable and unsurgical. Not only is there permanent thoracic asymmetry, but the affected lung is permanently deprived of much of its function. The method I use restores the lung almost to its normal capacity, while its danger is far less than that of the Schede, Estlander and Delorme operations. The operation consists in the approach through a long seventh interspace incision beginning behind the costal angle and extending almost or quite to the cartilage. From one to four ribs are divided upward or sometimes downward at the posterior angle of the wound, or very rarely upward at its anterior end in order to expose every recess of the cavity. A powerful automatic rib retractor is an absolute necessity in this operation. The lung, which will be found bound down by adhesions, is now liberated by incision through the confining membrane, which may be removed if there is an easily found line of cleavage and which otherwise may be loosened by numerous intersecting incisions. By intrapharyngeal insufflation the lung is expanded and it should reach the chest wall. Fine bubbling on the surface is of no consequence, but whistling means that a bronchus has been entered, an accident which should, if possible, be avoided. Drainage is secured through the original sinus enlarged for the purpose, the new surgical wound being closed by interrupted sutures of chromic catgut through the muscles, but without pericostal sutures. The skin wound is approximated by silk or silkworm-gut. The after-treatment consists in dressings, irrigations and strenuous blowing exercises.

Delayed or Late Extraction of Intrathoracic Projectiles by Method of Petit De La Villéon

Dr. Robert G. LeConte, Philadelphia: This method depends on the localization of the projectile with regard to its anatomic surroundings in contradistinction to its mathematical situation from surface markings. The projectile is removed by sight with forceps through a small buttonhole opening, with the employment of the roentgen rays and a fluoroscopic screen.

DISCUSSION

Dr. Antoine Depage (through Dr. Joseph Van de Velde): In a bad case of empyema after using the Carrel method and making a bacteriologic count, the wound became sterile. Then we simply closed the wound and the result was perfect. All cases treated in this way gave very good results. Before suturing, it is very important that the bacteriologic count should be satisfactory and that there should be no secretion in the wound. The edges of the wound should be freshened, the pleura and the skin then being sutured. In a large cavity the fluid will do no harm since it is absorbed gradually.

Dr. Alexis V. Moschowitz, New York: The essential elements in the treatment of empyema are the sterilization of the cavity and the work Nature will do following this.

Dr. Willy Meyer, New York: The reference to the aid which Nature will give in the treatment of empyema recalls a case of a child, 10 months of age, in whom the formaldehyd glycerin injections were used. Much to my surprise the sinus closed; the roentgen ray revealed a pneumothorax, but at the end of two weeks the child was entirely well. I was called on some time ago to remove the bismuth oil which had been injected in an old empyema case to determine the extent of the cavity, and in which acute bismuth poisoning had resulted. We reopened the original resection of the rib. The man continued to have irregular temperature and we instituted the Carrel-Dakin treatment. After forty-eight hours he appeared to be in very good condition. The sinus is almost closed now. The old chronic cases of empyema offer a good field for the use of differential pressure.

Dr. A. J. Ochsner, Chicago: At the Philadelphia meeting of this association I reported a series of cases such as Dr. Lilienthal described, in which we used the bismuth paste, following exactly the directions given by Beck. We have continued the use of the method; and while I have not the figures, much more than half of our patients have recovered permanently. The bismuth paste, however, must be administered in strict accordance with the directions given.

Dr. Joseph Ransohoff, Cincinnati: During the recent epidemic I had about eighty cases of empyema. All the patients recovered. Abscess of the lung occurs in about 6 per cent. of the acute empyemas. Drains in both directions give a connection between the pleural cavity which is infected and the base of the lung. We did not discover this in our cases until we began the use of surgical solution of chlorinated soda, when some of the solution was coughed up with rather unpleasant complications. While empyema cases may be closed with fluid present and remain closed for two or three years, so long as there is any fluid in the pleural cavity there is the possibility of the relighting up of the infection. I agree fully with the statement that in some of these chronic cases the mere sterilization is not sufficient treatment. We must make a resection to free the lung and allow it to expand.

Dr. Joseph A. Blake, New York: I agree with Dr. Ransohoff that the best treatment of chronic sinuses following empyema is their prevention. I believe also that in too many cases too much drainage is used at the primary operation, and that the drainage tubes and the treatment are responsible for the formation of sinuses. I regard it as absolutely wrong to use the Carrel-Dakin treatment in the early stages of the case. We would not, for instance, think of using Carrel-Dakin solution in the peritoneum in peritonitis, or in suppuration of the knee joint, with the tubes and constant irrigation. It was my unfortunate experience to see in France a very large number of patients in whom the Carrel tube had been left for a long time with a resultant sinus. The operation must be done with judgment; in some cases there is much material to be removed. The drainage tube should be left in for thirty-six hours, and care must be observed that sufficient drainage is secured.

Fractures of Lower Third of Femur

Dr. Joseph Van de Velde, La Panne, Belgium: The compounding of these fractures during the war has considerably complicated the treatment. Open fractures by missiles we divide into fractures: (1) with no comminution; (2) with slight comminution, and (3) with much comminution. For each of those types we used the following three methods of treatment: (1) wiring; (2) traction on the femoral condyles by ice tongs, Steinmann pins or Willems screws; (3) Depage's vertical suspension of lower fragment combined with horizontal traction on the leg. The first type of fracture is the ideal one for wiring. If, after débridement we plan to make a primary suture of the wound, we use Depage's wiring method because the metallic tube which sustains the wire comes out of the wound and affords good drainage. If we make a secondary suture, we use a Parham or bronze wire which we remove after a month before suturing the wound. In transverse fractures we use the ice tong or vertical suspension, and in a few cases we have used Lane's plates with good result. We do not recommend the use of screws in open contaminated fractures. In the second type of fracture primary suture is dangerous, and we therefore make a delayed primary of a secondary suture, and here the Steinmann pin offers the best method. It is placed just above the condyle. When this is not possible we pass it through the anterior part of the condyle under the control of a fluoroscopic screen, as recommended by Fesson. The pin should not be left in place more than six weeks. For the third type of fracture we use the vertical suspension, which is combined with a horizontal traction on the leg. The vertical suspension is accomplished by passing a bronze wire through all the tissues of the anterior part of the thigh with a Reverdin needle. A finger introduced into the wound catches the wire and fixes it securely around the end of the lower fragment. Traction is made by a weight hanging above the bed of the patient. Shortening of the femur is prevented by traction with a Chutro stirrup. Some of our fractured femurs were kept for three months with this apparatus without pain or complication. The method has been used with excellent result also in cases of badly united fracture of the lower third with fistula. Here we recommend the subperiosteal resection of the osteitic callus and a vertical suspension of the lower fragment. Those cases have done wonderfully well.

DISCUSSION

Mr. W. Hey Groves, London, England: In general terms I am quite in accord with Dr. Van de Velde's principles of treatment; but in certain details I think the matter is open for criticism. In fractures with no comminution I think the number requiring wiring is quite the exception, and that the operation should be limited to those cases in which the widely separated fragments show a real danger of the soft parts intervening. Even here, with the efficient extension apparatus which we have the cases are few. On the treatment of the second type of fractures I think we are in agreement. However, a pin right through the lower end of the thigh is bound to act as a seton, and in a small definite proportion of cases there will be sepsis, which in my own experience amounts to 3 per cent. This danger is entirely eliminated by the use of tibial transfixion. Dr. Van de Velde admitted that the ice tongs or Steinmann pins should not be left in place longer than six weeks, but my experience is that six weeks do not see us through. I venture to suggest, therefore, that in a great many cases it is of the greatest possible value to transfix the tibia and to put on a weight extension.

Dr. A. Primrose, Toronto, Canada: It is possible to close a gap in the skull by a graft of bone or cartilage. The operation is attended by little danger to life. The relief of symptoms directly dependent on the existence of the gap is, as a rule, immediate and complete, such as headache, dizziness, the fear of injury and sense of insecurity, mental depression and worry because of the possession of an ugly deformity. The value of the operation in jacksonian epilepsy is less evident except so far as one may succeed, by removing cortical irritation, in ameliorating the attacks. Symptoms dependent on organic cerebral lesions, such as defective vision, aphasia, loss of memory, deafness and loss of smell, are not improved by the operation. A fascial graft is of distinct value when a bone or cartilage graft is not borne. Finally, the conclusion is reached that when a cranial gap exists it should be closed. The symptoms caused by the existence of the gap will be relieved by a successful cranioplasty.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

July 19, 1919, **158**, No. 568

Management of Postpneumonic Empyema. W. J. Stone, Toledo.—p. 2.
*Scleroderma and Sclerodactyly: Case and Review of Literature. R. M. Atwater, Boston.—p. 29.
*Neurocirculatory Asthenia. J. H. Carrol, U. S. Army.—p. 35.
*Relation of Bacillus Influenza to Recent Epidemic. G. McDonnel, U. S. Army.—p. 47.
Bacillus Botulinus Poisoning. Report of Seven Cases; Four Fatal. G. W. McCaskey, Fort Wayne, Ind.—p. 57.
Review of Epidemic of Influenza at Base Hospital, Camp Beauregard, La. D. J. Frick, U. S. Army.—p. 68.
Bacteriologic Observations on Epidemic of Influenza at Camp Beauregard, La. J. E. McClelland, Cleveland.—p. 80.
Treatment of Epithelioma by Radium. R. H. Boggs, Pittsburgh.—p. 87.
Cerebral Hemorrhage of New-Born. M. Warwick, Minneapolis.—p. 95.
Pneumohydrothorax. J. I. Johnston, Pittsburgh.—p. 105.

Scleroderma and Sclerodactyly.—This case presented by Atwater possesses many characteristics of the disease in its usual form. The associated sclerodactyly appears quite typical of those cases previously reported in which roentgenographic studies of the bones have been made. There is a characteristic atrophy, absorption and eventual disappearance of the terminal phalanges most commonly in the hands and sometimes in the feet.

Neurocirculatory Asthenia.—In Carrol's opinion some types of hyperthyroidism are analogous to neurocirculatory asthenia, and their pathogenesis is prabably identical, the phenomena being attributable to a hyperexcitability of the opposing set of fibers of the autonomic nervous system. In both conditions the syndrome develops in individuals in whom there is a hyperirritability of one or other sets of fibers in the autonomic system. Hence, constitutional predisposition due to inherited sympathetic or vagotonic instability is a factor in the causation on a sound basis. Nervous and emotional strain is the immediate cause of susceptibility (acquired instability of the autonomic nervous system); infection plays a predominant rôle and the susceptibility in such cases may be accepted as indicating a chronicity of the infection with constant or frequent outpourings into the blood of the infective agent. There is a certain rationale for believing that this instability in the autonomic nervous system lies in the element of anaphylaxis in disease in the predilection of anaphylatoxin for the parasympathetic system. There is some evidence that deficiencies of calcium in the diet may have played a part in the causation of some of the phenomena and that the higher plane of inorganic metabolism in the organism may have shared with epinephrin increase the responsibility in causation of the thyroid hyperplasia and hyperthyroidism among the soldiers.

Relation of Bacillus Influenzae to Recent Epidemic.—The final conclusion reached by McDonnel is that the evidence at hand is not in favor of the influenza bacillus being considered the etiologic factor in the recent epidemic.

Annals of Otology, Rhinology and Laryngology, St Louis

March, 1919, **28**, No. 1

Mastoid Cases. C. R. Holmes, Camp Sheridan, O.—p. 1.
Studies of Ear as Motion-Sensing Organ. E. R. Lewis, Dubuque, Ia.—p. 10.
Case of Spontaneous Hemorrhage from Lateral Sinus Occurring Six Days After Simple Mastoid Operation. F. T. Hill, Fort Oglethorpe, Ga.—p. 29.
Complications and Sequels of Tonsil and Adenoid Operations. H. L. Baum, Denver.—p. 37.
Acute Affection of Middle Ear and Mastoids Following Measles. T. J. Jarris, Ft. Oglethorpe, Ga.—p. 59.
Errors and Failures in Bronchial and Esophageal Endoscopy. E. M. Holmes, Boston.—p. 65.
Accidents Result of Submucous Resection of Nasal Septum. C. G. Stivers, U. S. A.—p. 69.
Unusual Cases Met With in Ear, Nose and Throat Service in Base Hospital. S. S. Burns, St. Louis.—p. 73.
Importance of More Intimate Cooperation Between Various Specialists Who See Neurosurgical Cases. E. Sachs, St. Louis.—p. 76.

Case of Toxic Delirium Following Mastoidectomy. J. A. Robinson, New York.—p. 86.
Case of Brain Abscess. I. Friesner, New York.p. 90.
Case of Temporosphenoidal Abscess of Right Lobe. H. Blackwell, New York.—p. 92.

Annals of Surgery, New York

June, 1919, **69**, No. 6

Influence of War Surgery on Civil Practice. L. S. Pilcher, Brooklyn.—p. 565.
Treatment of War Wounds. A. DePage, Brussels, Belgium.—p. 575.
Treatment of Burns. Report of 32 Cases. A. M. Fauntleroy and A. W. Hoagland, U. S. Navy.—p. 589.
*Myxoma. W. H. Fisher, Toledo, Ohio.—p. 596.
*Fibroma of Internal Oblique and Transversalis Muscles. N. W. Green, New York.—p. 600.
*Umbilical Teratoma; Containing Pancreas and Intestine. B. Brooks, St. Louis.—p. 603.
*Case of Defecation, Urination and Menstruation by Rectum. W. W. Keen, Philadelphia.—p. 606.
*Vaginal Hernia. H. B. Sweetser, Minneapolis.—p. 609.
*Why is End-to-End Intestinal Anastomosis Unsafe? A. L. Soresi, New York.—p. 613.
Deformity of Scapula Associated with Cervical Rib and Spina Bifida. G. H. Gopher, St. Louis.—p. 644.

Myxoma of Labium.—Fisher reports a case of pure myxoma of the right labium majus. The tumor never caused any pain and was insensitive to manipulation or pressure. It encroached on the pubic bone and infiltrated the surrounding soft tissues. The tumor weighed 7 pounds.

Fibroma of Abdominal Muscles.—This tumor was found growing in the fibers of the internal oblique and transversalis muscles. The external oblique was not adherent to it. The tumor seemed to be growing from the crest of the iliac bone.

Umbilical Teratoma.—The case cited by Brooks in which an isolated miniature intestinal apparatus was found at the unbilicus undoubtedly is an instance in which the omphalomesenteric duct failed to disappear entirely. The patient was a healthy child, 2 years of age, with no abnormalities, except those referable to the umbilicus. The unbilicus was replaced by an ulcer. The superior margin of the ulcer was overhanging. The lateral margins were sloping. Under the overhanging superior margin of the ulcer was a small sinus into which a probe could be passed for a distance of 3 cm. No chemical examination of the fluid was made. At operation on the peritoneal surface of the umbilical region was found a spherical tumor. There was no visible connection of this tumor with any other structure. On section the similarity of the tumor to tissue of the gastro-intestinal tract was revealed. Microscopic examination showed the spherical tumor to be composed of tissues corresponding to those forming normal intestine. Peritoneum, muscle, nerve cells, submucosa, lymphoid nodules and mucosa were all present in their usual relations. In the wall of the tumor adjacent to the peritoneum was a small island of normal pancreas. The gland was lobulated. The arrangement of the acini and ducts was the same as that of the normal pancreas.

Defecation, Urination and Menstruation by Rectum.—Keen cites the case of a woman, who for over thirty-five years defecated and urinated and for eleven years menstruated by the rectum. The condition necessitating this use of the rectum was a case of extensive and incurable vesicovaginal and rectovaginal fistula caused by sloughing as a complication of typhoid. Ultimately Keen entirely closed the vaginal outlet.

Vaginal Hernia.—Sweetser cites a case of hernia protruding through the posterior vaginal wall. It was covered by peritoneum. The omentum was firmly attached to the uterus and broad ligaments. When the omentum was detached, the coils of bowel were separated and the uterus drawn forward, an opening was discovered in the center of the Douglas pouch, about 1 inch in diameter, through which the finger could be passed into the cyst below. There was no cyst wall above. The opening was closed by sutures, including the sacro-uterine ligaments. The abdomen was closed without drain. Returning to the vagina the sac was twisted into a cord, tied and cut off, and the levator muscles were sutured over the stump. The redundant vaginal wall was excised and the edges sutured.

End-to-End Intestinal Anastomosis.—This is a report of a clinical and experimental study of technic, indication and contraindications for end-to-end anastomosis of the small intestine and the colon. Soresi claims that, technically speaking, it is impossible with any method and the most perfect technic imaginable, to perform an end-to-end intestinal anastomosis, either of the small intestine or of the colon, with the positive certainty that leakage will not take place. The tissues found in the mesenteric space are infected and their blood supply is practically nil. In order to make it as safe as possible, whatever can lessen the resistance of the tissues concerned in the anastomosis must be avoided, such as unnecessary trauma, blood clots, great amount of suture material, unnecessary infection, knots, tight sutures; the blood supply must be left in the best condition obtainable with a safe and perfect hemostasis; all these desiderata are obtained with a technic originated and recommended by Soresi. He states further that the end-to-end method should always be resorted to in preference to any other method requiring more time when, and only when, time is the most important factor that will help to save a patient's life.

Archives of Internal Medicine, Chicago

June 23, No. 6.

Influenza Epidemic of 1918 in France and England. W. J. McNeal, New York.—p. 657.
*Rapid Construction of Liver Cell Protein on a Strict Carbohydrate Diet Contrasted with Fasting. N. C. Davis, C. C. Hall, and G. H. Whipple, San Francisco.—p. 689.
Influenza Epidemic of Liver Cell Protein on a Strict Carbohydrate Diet Contrasted with Fasting. N. C. Davis, C. C. Hall, and G. H. Whipple, San Francisco.—p. 689.
*Liver Regeneration following Chloroform Injury as Influenced by Various Diets. N. C. Davis and G. H. Whipple, San Francisco.—p. 711.
*Nonepidemic "Epidemic" Meningitis. G. H. Bigelow, Boston.—p. 723.
*Cerebral Complications of Mumps. R. L. Haden, Detroit.—p. 737.
*Oxygen Consumption of Human Erythrocytes. G. A. Harrop, Baltimore.—p. 745.
Physiology and Experimental Treatment of Poisoning with Lethal War Gases. E. P. Underhill, New Haven, Conn.—p. 753.

Construction of Liver Cell Protein by Carbohydrates.—Davis and his associates have been impressed with the great speed of repair of the normal liver following a type necrosis due to chloroform. A diet of bread and skim milk gives the optimum repair following a unit chloroform liver necrosis. A diet of cooked skeletal muscle is not as favorable for rapid liver repair as the rich carbohydrate diet. A diet of cooked liver or kidney is more favorable for rapid liver repair than a meat diet. Beef extract given alone does not favor liver repair, which indicates that meat extractives are not particularly concerned in the reaction of liver repair. Thyroid powder given in large doses with no food does not stimulate liver repair, but does accelerate tissue katabolism and increase nitrogen elimination. Brain feeding is favorable to liver regeneration and repair. Fat diets (vegetable oils, butter, lard, beef, fat, etc.) do not aid in liver regeneration.

Nonepidemic "Epidemic" Meningitis.—Eighteen cases of meningococcus meningitis in which the infection was probably conveyed by a carrier are analyzed by Bigelow. In this series, eight of the patients received a serum, the titer of which was 1:200, or higher, for the organism recovered in each case. Each of these patients received an average of 278 c.c. of serum intraspinally and 191 c.c. intravenously. Five of the eight patients died, a mortality of 62.5 per cent. The mortality among the other ten cases was 70 per cent. Of these ten, the titer used in the serum, in one half of the cases was less than 1:200, and in the other half it was not determined. Five, or 27.6 per cent., of the patients showed purpura. Only one of these recovered.

Cerebral Complications of Mumps.—Nine cases of cerebral complications occurring among 476 cases of mumps are recorded by Haden, who believes that cerebral complication is probably mainly an encephalitis instead of a meningitis. Gram-positive cocci were demonstrated in the spinal fluid in one case. Animal inoculation and culture were negative. Lumbar puncture was a most effectual therapeutic measure.

Oxygen Consumption of Human Erythrocytes.—According to Harrop normal mature human erythrocytes have no oxygen consumption measurable by present methods. Where it is measurably increased in the blood of individuals with anemia, the oxygen consumption has no relation to the severity of the anemia and no constant relation to histologic abnormalities in the erythrocytes other than increases in the number of reticulated cells. Blood which contains abnormal numbers of reticulated erythrocytes has an oxygen consumption proportional to the percentage of reticulated cells present. The data afford evidence that the two phenomena go hand in hand. Both are due to the presence of abnormal numbers of youthful cells, and both are prabably rather accurate indicators of functional variations in the bone marrow and of the amount of blood regeneration.

Archives of Neurology and Psychiatry, Chicago

June 1, 1919, **1**, No. 6

*Pathology of Experimental Traumatic Abscess of Brain. C. R. Essick, Reading, Va.—p. 673.
*Histopathology of Carcinoma of Cerebral Meninges. G. B. Hassin, Chicago.—p. 705.
Case of Mongolism in One of Twins. H. Swanberg and H. A. Haynes, Lapeer, Mich.—p. 717.
*Eunuchoidism. H. Climenko and I. Strauss, New York.—p. 726.
*Pathogenesis of Tabes Dorsalis. W. F. Schaller, San Francisco.—p. 749.
Surgical Treatment of Injuries of Nervous System. C. A. Elsberg, New York.—p. 768.

Traumatic Abscess of Brain.—Experimental abscesses produced in the cortex of thirty-five cats by injury and infection of the brain resulted in a rapidly fatal process which simulated the traumatic injuries of the central nervous system in man. The affected part enlarged and brought about a marked dislocation and compression of the remainder of the nervous tissues. In 50 per cent. of the cases the infection reached the ventricular system within a few days, and from there usually spread into a basilar meningitis through the metapores of the fourth ventricle. The tendency of the infective process to invade the subarachnoid space from the point of injury was not marked, but in a third of the animals the infection entered the subdural space, forming there a subdural abscess. These lesions were very different from the more slowly growing abscesses extending from the air sinuses. The latter, occurring frequently in man, may be differentiated by the relatively slight swelling and dislocation, and by the development of a definite connective tissue capsule between the lesion and the sound parenchyma. The traumatic abscess in the experimental animal extended rapidly along the fiber tracts. No encapsulation could be demonstrated in any of these observations. Healing took place by ingrowth of connective tissue.

Carcinoma of Cerebral Meninges.—The reactive phenomena in the meninges to the presence of cancer cells, and the character of the meningeal involvement were studied by Hassin in one case which is reported in detail.

Eunuchoidism.—Four cases of congenital eunuchoidism, three of which, can easily be put into the class of status lymphaticus are reported by Climenko and Strauss. The first case gave clinical symptoms of apoplexy into the cord, a condition hitherto unreported, although apoplexies into the brain have been known to exist. The third case shows a sella condition that is also very rare and is contrary to the belief that in the eunuchoids the sella turcica is enlarged. It probably illustrates the fact that our judgment of the function of the pituitary must not be based on the size of the sella as evidenced through the roentgen-ray appearance. The fourth case is a mixed type of eunuchoidism with characteristic fat accumulations and strongly suggestive of status lymphaticus. In this case also the sella turcica was rather small. The second case is in a class by itself. The patient resembles the anthropoid much more than does the average human being. His skeletal frame looks as if it belonged to an intermediary stage between the human and the anthropoid. His intelligence is low.

Pathogenesis of Tabes Dorsalis.—Schaller is an adherent to the meningeal theory of tabes in the sense that the meningeal inflammation occasions in some manner the characteristic degenerations of the posterior roots and the posterior columns of the cord. Subacute syphilitic inflammatory changes in the subarachnoid space (posterior leptomeningitis, meningeal and neural involvement of radicular nerve) are in etiologic relationship with the degeneration of the posterior roots. Likewise similar processes explain the cranial nerve involvement in tabes. The manner in which this subacute inflammatory meningitis produces root degeneration is as yet uncertain. It may act by direct extension of the meningeal lesions to the nerve roots causing a meningoradiculitis, or by pressure constiction from sclerosed meninges; by toxic products engendered by this inflammation or even by increase of fluid pressure, as is the case in posterior spinal root degeneration in brain tumor. These causes may act together or independently. This inflammation, which is constant in tabes to a greater or lesser degree, is evidenced by characteristic cerebrospinal fluid changes at one time or another in every case of tabes. Specific therapy in tabes should have for its object the reappearance of normal fluid reactions. Intraspinal therapy may be necessary to obtain this object. Conversely intraspinal treatment is contraindicated when the fluid shows no inflammatory reactions.

Arkansas Medical Society Journal, Little Rock

June, 1919, **16**, No. 1

Proceedings of Annual Meeting.

Boston Medical and Surgical Journal

July 10, 1919, **181**, No. 2

Medicine from Lay Standpoint. Molière; Shaw; Kipling. T. Leary. Boston.—p. 27.
Compulsory Reporting and Compulsory Treating of Venereal Diseases. B. H. Mason, Worcester, Mass.—p. 34.
Treatment of Round Shoulders. E. H. Bradford, Boston.—p. 39.
Alcohol as Factor in Production of Epilepsy and Allied Convulsive Disorders. D. A. Thom, Palmer, Mass.—p. 42.

Georgia Medical Association Journal, Atlanta

May, 1919, **9**, No. 1

Proceedings of Annual Meeting.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, 1919, **13**, No. 2

*Optical Isomers. V. The Tropeins. A. R. Cushny, Edinburgh.—p. 71.
*Action of Drugs on Output of Epinephrin from Suprarenals. I. Strychnin. G. N. Stewart and J. M. Rogoff.—p. 95.

Tropein.—According to Cushny, while tropein itself is devoid of the typical atropin action, many of its compounds, especially those containing the benzene nucleus, possess the characteristic action in some degree. This is greatly intensified by the presence of hydroxyl and asymmetric carbon in the side chain, and the highest degree of activity is reached only when tropein is combined with an acid of the benzene series, which contains a hydroxyl and an asymmetric carbon in the side chain, the whole molecule being levorotary.

Action of Strychnin on Output of Epinephrin from Suprarenals.—The authors found that strychnin causes a marked increase in the output of epinephrin. The increase is not transient but persists for a considerable time. No attempt was made to fix a minimum effective dose, but it was clearly shown that doses of strychnin well within the therapeutic range, and which caused little or no exaggeration of reflex excitability are capable of producing a considerable augmentation in the rate of output. Indications were obtained in some experiments that the stage of prolonged augmentation of the rate of output, which constitutes the principal action of the drug, may be preceded by a transient diminution. This phenomenon was best seen with the smaller doses and with subcutaneous administration of the drug.

Kentucky Medical Journal, Bowling Green

July, 1919, **17**, No. 7

Relation of Thyroid to Confusional Insanity and Melancholia. J. S. Wright, Louisville, Ky.—p. 271.
U. S. P. H. Service and Influenza. J. McMullen, U. S. P. H. Service.—p. 275.
Red Cross and Influenza. L. Hafford, Louisville.—p. 277.
Influenza Epidemic; Its Lessons. J. I. Wittenberg, Louisville.—p. 280.
Tracheotomy for Edema of Larynx Complicating Influenza. E. D. Smith, Louisville.—p. 282.

Cranial Fracture: Subtemporal Route Preferred in Increasing Intracranial Pressure. L. Bloch, Louisville.—p. 283.
*Traumatic Rupture of Intestine; Case Report. C. G. Forsee, Louisville.—p. 284.
Venereal Clinic. H. Bronner, Louisville.—p. 285.
Results of Roentgen-Ray Therapy in Treatment of Nonmalignant Uterine Hemorrhage. J. P. Keith.—p. 288.
Dorsolumbar Myelitis; Case Report. A. W. Nickell, Louisville.—p. 290.
National Administration of Food and Drug Laws. H. W. Wiley, Washington.—p. 292.

Traumatic Rupture of Intestine.—A young man, 19 years of age, was struck by an automobile while riding on the tail board of another automobile. The accident occurred about two hours after the young man had eaten a full meal. There was complete division or rupture of the small intestine, 4 to 6 inches below where the duodenum crosses the vertebrae. This tear extended about 3½ inches into the mesentery. There was very little soiling of the peritoneum as the mucous membrane protruded through an opening and stopped the emptying of the intestinal contents into the cavity. The peritoneum was torn off the inner surface of the colon over a space of 2½ inches by 3½ inches. This was sutured in place. The intestine was closed by an end-to-side anastomosis. The patient recovered.

Medical Record, New York

July 5, 1919, **96**, No. 1

Situation Psychosis. J. E. Long, Washington.—p. 1.
Does Cure of Cancer Depend on Oxidation of Tissues? E. P. Robinson, New York.—p. 9.
Treatment of Pneumonia. L. Kirby, Nottingham, Eng.—p. 12.
Intravenous Use of Iron and Arsenic. L. Stern, New York.—p. 14.
Wounds of Head in War. E. Archibald, Montreal.—p. 16.

July 12, 1919, **96**, No. 2

Carcinoma of Gallbladder. J. B. Deaver, Philadelphia.—p. 47.
Through the Jaws of Death, Back from the Mouth of Hell. W. B. Knokle, Montoursville, Pa.—p. 49.
Intelligence. B. Lemchen, Chicago.—p. 50.
Evolution of Podiatry. H. Scheimberg, Brooklyn.—p. 53.
Ambulatory Skull Fracture with Delayed Symptoms. K. A. Menninger, Topeka, Kan.—p. 58.
Two Unusual Cases of Alcoholism. L. F. Herz, New York.—p. 58.
Venereal Problems of the War. V. C. Pedersen, New York.—p. 60.

Michigan State Medical Society Journal, Grand Rapids

July, 1919, **18**, No. 7

*Deformities of Plantar and Anterior Arch. B. Monkman, Detroit.—p. 371.
Corpus Luteum Extract in Pregnancy. W. E. Welz, Detroit.—p. 373.
Scopolamin Morphin Anesthesia and Analgesia. B. Van Hoosen, Chicago.—p. 375.
Advantages of Routine Rectal Examination During Labor. L. L. Bottsford, Ann Arbor, Mich.—p. 378.
Diagnosis of Peptic Ulcer. J. B. Jackson, Kalamazoo, Mich.—p. 382.
Significance of Focal Infections. C. D. Aaron, Detroit.—p. 350.

Deformities of Plantar and Anterior Arch.—Monkman says that the attitude of the medical profession should change from one of passive to active interest in advocating reform in the manufacture and sale of shoes. Freak styles in shoes should be subjected to a prohibitive tax to discourage their manufacture, preferably by federal enactment. The fitting of shoes should be supervised by a real orthopedist. Appliances for the feet should only be sold on the advice of the physician as is any other corrective measure.

Nebraska State Medical Journal, Norfolk

June, 1919, **4**, No. 6

Proceedings of Annual Meeting.

New York Medical Journal, New York

July 5, 1919, **60**, No. 1

Curvatures of Spine in Growing Children. E. H. Bradford, Boston.—p. 1.
Important Needs of Hospitals for Mental Diseases. E. J. Kempf, Washington.—p. 8.
Importance of Early Detection of Glaucoma and Its Management. J. A. Kearney, New York.—p. 11.
Shell Shock in Soldiers. I. Bram, Philadelphia.—p. 13.
Epidemic Polioencephalitis (Lethargic Encephalitis). I. Abrahamson, New York.—p. 17.
Apothesine Anesthesia in Tonsillectomy. J. Coleman, New York.—p. 19.
*Effects of Influenza on Pulmonary Tuberculosis. B. Stivelman, Bedford Hills, N. Y.—p. 20.

Effects of Influenza on Pulmonary Tuberculosis.—Careful observation for four months, and reexamination of all patients affected with tuberculosis at the end of this period, showed that all the patients but two were none the worse for their experience, their general condition being as good as might have been expected normally. Tuberculous and nontuberculous subjects seemed to have been equally susceptible to influenza, the incidence in each case being 24 per cent. Early and advanced cases were equally affected. Pneumonic consolidations occurred as frequently in the nontuberculous as in the tuberculous.

July 12, 1919, **60**, No. 2

Origin of Immunity. C. L. Redfield, Chicago.—p. 45.
Belgian Medical Service. L. Melis, Brussels, Belgium.—p. 48.
Clinical Value of Serologic Examinations. J. G. Hopkins, New York.—p. 49.
*Suprapubic Prostatectomy. A. L. Soresi, New York.—p. 51.
Education of the Young Blind. E. M. Van Cleve, New York.—p. 54.
Rhinoplastic Surgery. C. Graef, New York.—p. 56.
Interesting Cases in Post Hospital in Brooklyn. C. C. Leck, Brooklyn.—p. 59.
Intestinal Parasites. I. V. Levi, Philadelphia.—p. 63.

Suprapubic Prostatectomy.—A new technic for a modified two and three stage operation, and absolute prevention of secondary hemorrhage is described by Soresi. This modification aims to prevent the infection of the tissues surrounding the bladder. The first stage consists in suturing the unopened bladder to the skin under local anesthesia; the second stage is also the last if the surgeon deems it convenient to remove the prostate immediately. To prevent hemorrhage, Soresi puts in the place from which the prostate, or part of it, was removed, a soft rubber bag, which is then filled with mercury. The pressure exercised by the heavy mercury is continuous, uniform, gentle and sufficient to compress the torn blood vessels.

Tennessee State Medical Association Journal, Nashville

June, 1919, **12**, No. 2

Plea for Better Rural Sanitation; Preventive Measures. J. T. Moore, Algood, Tenn.—p. 41.
Rural Health Work in Tennessee. E. L. Bishop, Nashville.—p. 42.
Labyrinthitis Accompanying Acute Purulent Otitis Media. J. B. Blue, Memphis.—p. 48.
Flagellate Diarrhea. J. Witherspoon, Nashville.—p. 50.
Extrauterine Pregnancy. J. H. Carter, Nashville.—p. 54.
*Unusual Mastoid Case. W. L. Simpson, Memphis.—p. 56.
Vomiting as Symptom in Cerebral Disorder. B. F. Turner, Memphis.—p. 57.
Importance of Arousing Among General Practitioners a More Intense Interest in Diseases of Mouth, Especially Pyorrhea. J. R. Carrol, Henderson, Tenn.—p. 58.
Surgery of Some Common Orthopedic Conditions. R. O. Ritter, Chicago.—p. 60.

Unusual Mastoid Case.—In the case cited by Simpson extensive pathologic changes in the mastoid were accompanied by few physical signs and symptoms and few abnormal findings in the ear. The drum and hearing were normal.

Texas State Journal of Medicine, Fort Worth

June, 1919, **15**, No. 2

Quotations on History of Medicine. S. P. Price, Marlin, Texas.—p. 39.
Part of Texas Doctors in War. T. T. Jackson, San Antonio, Texas. p. 45.
Public Health Progress in Oklahoma. A. R. Lewis, Oklahoma City.—p. 52.
Needs of State Health Department. C. W. Goddard, Austin, Texas.—p. 49.

Virginia Medical Monthly, Richmond

May, 1919, **46**, No. 2

Congenital Pyloric Stenosis. L. W. Peple, Richmond.—p. 25.
Present Status of Cesarean Section. B. H. Gray, Richmond.—p. 29.
Immediate Perineal Repair. V. Harrison, Richmond.—p. 33.
Diet During Puerperium. M. P. Rucker, Richmond.—p. 35.
Case of Gangrenous Balanitis. C. F. Ross, Richmond.—p. 36.
Treatment of Fractures of Elbow. P. W. Boyd, Winchester, Va.—p. 37.
Causes of Insanity. J. T. A. Wright, G. M. McCracken, Pittsburgh.—p. 39.
Cooperative Medicine. H. H. Roberts, White Sulphur Springs, W. Va.—p. 40.
Treatment of Nonmalignant Laryngeal Vegetations by Roentgen Rays. A. L. Gray, Richmond.—p. 41.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal

May 10, 1919, I, No. 3045

Jaundice: Types Occurring During the War. W. H. Willcox.—p. 565.
*Conductive Anesthesia By Intrasacral Extradural Injection of Procain. S. A. Meaker.—p. 569.
Treatment of Gonorrhea with Acriflavine. D. Watson.—p. 571.
Value of Bipp in Primary Operations for Gunshot Wounds of Joints. F. H. Diggle.—p. 572.
Cerebrospinal Fever. H. Rolleston.—p. 575.

Conductive Anesthesia by Intrasacral Extradural Injection of Procain.—The method described by Meaker is said to be a new one. When procain is injected extradurally into the bony canal of the sacrum, anesthesia of the third and lower sacral and coccygeal nerves is produced. The motor roots are not affected, and retention of urine after hemorrhoid operations done with sacral injections is neither more nor less common than when a general anesthetic is given. The regions supplied by the first and second posterior sacral nerves may undergo a paresthesia, but they are not anesthetized. The field of usefulness for sacral anesthesia is said to comprise operations for hemorrhoids, fistula and other conditions in and about the anus. In some cases the anesthesia is limited to a circle around the anus 3 or 4 inches in radius, while in others almost the whole of the buttocks may be analgesic. There is usually bilateral symmetry of effect. The lower rectum is anesthetized for at least 3 inches above the anus. The injection is to be made through the approximate center of the sacral hiatus.

China Medical Journal, Shanghai

May, 1919, 33, No. 3

*Pandemic Influenza in Korea; Etiology. F. W. Schofield and H. C. Cynn.—p. 203.
Relapsing Fever in Fukiem. J. E. Skinner, C. G. Trimble, and C. G. Chen.—p. 210.
*Intravenous Injections of Typhoid Vaccine in Treatment of Various Diseases. W. W. Cadbury.—p. 213.
*Tokelau (Tinca Imbricata) in Szechwan. H. J. Dubreuil.—p. 223.
*Significance of Charcot-Leyden Crystals in Indication of Amebic Colitis. H. W. Acton.—p. 229.
Neuritis of Ulnar Nerve Due to Adherent Cicatrix; Liberation and Elongation. L. Casabianca.—p. 233.
Implantation of Ureters into Rectum. A. L. Ludlow.—p. 236.
Vulvar Stenosis: Abnormal Dilation of Urethra. W. C. Dale.—p. 239.
Case of Hematocolpos. J. H. Baldwin.—p. 240.
Needs and Problems of Small Hospitals in China. J. P. Maxwell. —p. 241.

Pandemic Influenza in Korea.—Schofield and Cynn believe that it is doubtful whether Pfieiffer's bacillus can be considered as the specific cause of the recent pandemic of influenza.

Injections of Typhoid Vaccine in Various Diseases.—Commercial typhoid vaccine, or typhoid paratyphoid vaccine, prepared for prophylactic inoculations, was used by Cadbury with good results in acute arthritis, rheumatic fever, chronic arthritis, syphilitic affections, various forms of neuralgic pain, psoriasis, lichen planus, itching of eczema and erythema induratum.

Tokelau (Tinea Imbricata) in Szechwan.—In the treatment of this disease Dubreuil used chrysophanic acid ointment, 10 per cent., mixed with petrolatum. At the end of two applications, given at an interval of about four days, the scales drop off, leaving only a fine red tracery showing where they had been. At the end of another week even these marks completely disappear and the skin resumes the normal healthy aspect. The achromia persists, however, for some time, and it is easy to distinguish the parts which were affected from the rest of the skin. If the treatment is stopped at this point the lesions reappear where they were before, except that on the back they are much more rare and scattered. If at this stage treatment is recontinued, the scars at once yield, but only to reappear directly treatment is abandoned. To avoid these recrudescences, Dubreuil advises that the treatment should be conducted as follows: On the first day the patient anoints with the chrysophanic acid ointment only one part of the body, as the legs, making use of a brush in order to work the application thoroughly into the skin, and taking great care not to allow any of the portion of the skin of that part, no matter how small, to remain untreated. On the two following days, if there has been no symptom of drug intoxication, the ointment is applied to the trunk of the body and to the neck. Finally, the face is treated, and care must be taken to wash the patient carefully and to remove the ointment by gentle rubbing with alcohol if there are signs of conjunctivitis. If this should happen the treatment can still be continued, but use must be made of chrysophanic acid, 10 gm.; guttapercha, 10 gm.; chloroform, 80 gm. With intermissions of one or two days, if necessary, the treatment is started again, and gone through twice completely in exactly the same manner. From then onward, that is to say, at the end of about ten or fifteen days, nothing further need be done, except to apply the ointment daily on the hands and feet, special care being taken concerning the portions of the skin immediately adjoining the nails. If no lesions appear during two weeks of careful scrutiny, all treatment may be stopped and the patient kept under careful surveillance for a period of from fifteen days to a month, after which he may be considered cured.

Charcot-Leyden Crystals in Diagnosis of Amebic Colitis.—Acton's examinations of cases have shown that there is no association between Charcot-Leyden crystals and intestinal entozoa. Charcot-Leyden crystals are more commonly present in the subacute and chronic types of amebiasis than in the acute type. They are rarely found in the nonamebic dysenteries. The association between Charcot-Leyden and *Endamoeba dysenterica* is very high. The pressure of Charcot-Leyden crystals in the absence of amebas is indicative of amebic colitis. These crystals persist for some time after the amebas have disappeared as the result of emetin treatment.

Dublin Journal of Medical Science

June, 1919, 3, No. 570

Recent Researches on Trench Fever. R. J. Rowlette.—p. 245.
*Eclampsia as Cause of Accidental Hemorrhage. W. Smyly.—p. 257.
Skin Stains and Hair Dyes. W. G. Smith.—p. 266.

Eclampsia as Cause of Accidental Hemorrhage.—The main point emphasized by Smyly in the report of his cases is the fact that many, if not most, of the cases of severe accidental uterine hemorrhage are due to conditions not only closely allied to but identical with those which cause eclampsia.

Edinburgh Medical Journal

June, 1919, 22, No. 6

Acute Poliomyelitis. E. Bramwell.—p. 345.
Diaphragmatic Hernia Following a Gunshot Wound. D. W. Greig. —p. 357.
Field Ambulance in Gallipoli, Egypt, Palestine and France. J. Young. p. 366.

Japan Medical World, Tokyo

June 15, 1919

*Development of Artificial Mammal Carcinoma in Experimental Animals. Yamagiwa and Ichikawa.

Development of Artificial Mammal Carcinoma in Experimental Animals.—The authors succeeded in producing an artificial epithelial carcinoma in the ear of the rabbit by the external application of tar. In the meantime the artificial tumor in the rabbit's ear had been found easily to ulcerate and by the heterogeneous infection of the various bacteria all the transplantation experiments proved negative. The authors therefore endeavored to develop the gland carcinoma artificially and for this purpose considered the mammary glands to be most convenient to treat. The first series of experimental animals were injected twice a month in the beginning of the experiment and later once a month with from 0.5 to 1.0 c.c. of the mixture of lanolin and watery extract of tar in proportion of 1 : 3 at the beginning and later 1 : 4. The injection was made at the mammary region and toward the mammary glands. The second series were injected with the mixture of lanolin and the untreated tar in proportion of 4:1 into the rabbit that had been given the injection of the mixture of lanolin and the watery extract of tar (1:3) as the animals in the first series. The third series of animals were injected with the mixture of lanolin and tar (4:1) from the very beginning of the experiment, twice monthly for the beginning and once monthly afterward. The fourth series of animals was given 0.3 c.c. of tar into the excretory ducts by means of a slender needle inserted through the nipple. The animals belonging to the first and third series died within from two days (the shortest) to 227 days (the longest); only one animal is still living. The animals of the second series lived from 70 to 227 days. In the fifth series, on the contrary, the animals lived for a considerably long period of time. One of the animals belonging to this series died on the four hundred and sixty-third day and proved the development of flat-epithelial carcinoma in the mammary glands. Although the experiment has not proceeded so far as to prove the involvements of other organs than the mammary gland, nor has the transplantation experiment been tried, but from the results so far attained, the authors conclude that the artificial development of mammary carcinoma is possible.

Journal of Tropical Medicine and Hygiene, London

June 16, 1919, **22**, No. 12

Cure of Bilharziasis by Intravenous Injections of Antimony Tartrate. J. B. Christopherson.—p. 113.
Seven Day Fever. (P. U. O.) W. F. M. Loughnan.—p. 114.
Edema of Eyelids Caused by Ants. A. Marshall.—p. 117.

Lancet, London

June 28, 1919, **1**, No. 26

Rôle of Consulting Surgeon in War. G. Makins.—p. 1101.
*Detoxicated Vaccines. D. Thomson.—p. 1102.
Detoxicated Vaccines in Treatment of Gonorrhea. D. Less.—p. 1107.
Bacteriology of Influenza in Lower Egypt. G. M. Findlay.—p. 1113.
Case of Rapidly Fatal Ulcerative Endocarditis. M. J. Stewart and H. L. Flint.—p. 1114.

Detoxicated Vaccines.—Thomson is convinced that a prophylactic vaccine for bronchial and nasal catarrh is useless unless it is a mixed vaccine containing every species of germ giving rise to such attacks. He makes a compound detoxicated vaccine composed of a mixture of pneumococci, *M. catarrhalis, B. Friedländer, B. septis,* streptococcus and *B. influenzae* (Pfeiffer), containing 10,000 millions per cubic centimeter. The first dose is 1,500 millions; second dose, 3,000 millions; third dose, 3,000 millions. About 150 persons have been inoculated with two doses in this manner, and as no influenza or catarrhs have been recorded so far among them, except one very mild case, Thomson has considerable hope that this inoculation will prove of marked value in the prevention of these affections. Also during a catarrhal attack this compound inoculation has showed a marked power of bringing the infection to a rapid termination.

Medical Journal of Australia, Sydney

May 24, 1919, **1**, No. 21

Auricular Flutter and Other Cardiac Cases. M. D. Silbergerg.—p. 415.
Secretin Treatment of Diabetic Mellitus. J. Jona.—p. 422.
Case of Separation of Symphysis Pubes, Fracture of Ramus and Rupture of Bladder. E. W. Buckley.—p. 422.
*Case of Probable Rupture of Thoracic Duct. R. H. Martin.—p. 423.

Case of Probable Rupture of Thoracic Duct.—Marten records the case of a man who fell from his motorcycle and landed heavily on the left shoulder. He was able to pick himself up and push his machine home, about 200 meters. He felt very much shaken and retired at once to bed. When dressing the next morning he noticed a large swelling in the left posterior triangle of the neck, somewhat tender to the touch, but soft and not blood stained. It was absolutely painless, almost doughy in consistence, irreducible, noncrepitant, with no impulse on coughing. All the time the swelling was under observation it remained exactly the same. The diagnosis made by exclusion was injury to the thoracic duct, probably not the main duct, but one of the numerous branches it frequently splits up into before it enters the subclaviojugular junction. Nothing was done.

Archives des Maladies de l'App. Digestif, París

May, 1919, **10**, No. 3

*Membranous Pericolitis and Chronic Appendicitis. R. Grégoire.—p. 129.
*The Loss of Nourishment in Dysentery. M. Loeper.—p. 153.
Hour-Glass Aspect of Stomach. P. Duval.—p. 163.
Diagnosis of Intestinal Disease. E. Joltrain and P. Baufle.—p. 178.

Membranous Pericolitis and Chronic Appendicitis.—Grégoire remarks that there are few symptoms so difficult to interpret as pain in the iliac fossa. The appendix may be removed without curing the pain, and he relates eight cases in which the appendix could be exculpated. Membranous pericolitis can sometimes be incriminated. The vascular membrane that develops encloses the colon in a sac that is too short for it, and the colon has to bend. If a congenital origin for the membrane is accepted, then we can assume that the colon has been impeded in its growth, like the old custom of deforming the feet of Chinese women. The colon folded in on itself does not allow free passage of its contents. Between two angulations the loop becomes distended and painful, and stasis results. Relief can come only from releasing the colon from its hampering membrane, and fastening it so it cannot fall into the old bends again. In his cases he fastened the right portion of the transverse colon to the anterior abdominal wall. The subhepatic angle was opened wide by this procedure and the normal passage of feces insured. The cure has been complete and permanent in one for seven and one for four years among his eight patients treated by this means. The others are comparatively recent cases or have been lost to sight. The pains had persisted after removal of the appendix in four. In the others the abdominal attack had simulated acute appendicitis, but the membranous pericolitis or Jackson's membrane had been recognized and corrected at the laparotomy. In these cases of constricting bands and membranes, the paroxysmal pain may suggest appendicitis, but the temperature and pulse keep normal during the attack and the abdominal wall does not stiffen. Some of the bismuth meal was retained in the cecum in one of his cases for sixty-four hours. The distension of the right colon is also characteristic, and its outline is smooth and roundish; the cecum end larger than the rest. The ascending colon and the transverse colon may lie like the barrels of a gun, but the kink is movable. The dilatation of the origin of the large intestine is an argument against the assumption that mere movability of the cecum is responsible for the disturbances. The small intestine is naturally extremely movable but this does not induce dilatation and pain. Neither the movability nor the ptosis explains the lesion. The decisive factor is the obstacle against which the bowel beats and exhausts its muscular tonicity in vain. When it is released from this, the disturbances subside.

Loss of Nourishment in Dysentery.—Loeper entitles his article "Les Spoliations Intestinales des Dysentériques" and expatiates on the anemia in these conditions. The losses of mineral substances and of iron in the multiple stools prevent normal regeneration of the blood. The red count is low and also the albumin content of the blood, while there is also a constant draining away of minerals. In treating dysentery, therefore, these facts must be borne in mind and the system supplied with nitrogen, phosphorus and minerals. Meat, milk and vegetables are needed especially in convalescence from dysentery. He does not venture always to give meat to convalescents. They may tolerate it scraped, raw, or very rare, but it may rouse the intestinal infection anew. Raw meat and meat juice are useful for their iron. But milk, he thinks, does not deserve the present ostracism in enteritis. If it induces fermentations and diarrhea, this is more annoying than harmful, and is by no means constant. The milk can be given in soups, gruels, with sodium citrate or homogenized. It is generally borne well. Asses' milk is easier of digestion. Fresh cheese is nutritious. At one meal a day purées of legumes might be given, but lentils and peas rather than beans. Macaroni and spaghetti also contain albumin. To supply minerals directly is always a delicate matter. If the liver is working well, phosphorus in oil, 1 : 1,000, influences favorably the metabolism of minerals, especially of calcium. He advises giving it by intramuscular injection of 1 or 2 c.c. at most. This aids powerfully in the retention of calcium taken in the food.

Bulletin de l'Académie de Médecine, Paris

June 3, 1919, **81**, No. 22

*Teratoid Tumors of Testicles. H. Hartmann and A. Peyron.—p. 733.
*Cesarean Section. T. Tuffier.—p. 748.
*Surgical Treatment of War Scars. Walther.—p. 751.
*Serotherapy of Typhoid Fever. A. Rodet and S. Bonnamour.—p. 759.
*Cure of Pulmonary Tuberculosis. L. Rénon.—p. 761.
*Detection of Carbon Monoxid. A. Desgrez and A. Labat.—p. 764.

Teratoid Tumors of the Testicles.—Hartmann has compiled fifty cases and has examined personally twenty-seven. The ages of the subjects ranged from 16 to 43. In one case the tumor was in an undescended testicle. Trauma was recorded in some of the cases as having induced or accelerated the course of the tumor. Different embryomas correspond to different stages in the development of the ovum, hence he distinguishes between placentomas and choriomas, and devotes fourteen pages to this detailed study of thirteen of the former and fourteen of the chorioma type.

Cesarean Section for Uterine Tumors.—Tuffier says that this operation is preferable to hysterectomy for fibromas. He has performed it in 135 cases, leaving the woman with comparatively physiologic conditions in the genital sphere. During the same period of eighteen years he has a record of 131 hysterectomies for the same cause. The great objection to cesarean section is possible interference with pregnancy later, but nothing of the kind has occurred in his experience. One girl of 19 who had three fibromas removed by cesarean section has passed through three normal pregnancies since. At necropsy of one woman several years after the cesarean section there was not a trace of the operation to be found except a line on the body of the uterus. In three cases he enucleated large fibromas at the second or fourth month of the pregnancy and abortion followed in one of the cases. In the discussion that followed, Walther corroborated his statements and reported instances of normal pregnancy after enucleation of fibromas in young women. For older women he prefers hysterectomy, and he added that in some cases the development of new fibromas later finally compelled hysterectomy after all.

Operative Treatment of Scars from War Wounds.—Summarized in Paris Letter, p. 125.

Serotherapy of Typhoid Fever.—Rodet and Bonnamour report 127 cases of typhoid given injections of antiserum before the twelfth day. The total mortality was 11 per cent. but there was associated diphtheria or other disease in a number of the fourteen fatal cases. Eliminating these and the cases not seen till the twelfth day bring the death rate down to 2.9 per cent. Even in the fatal cases great benefit was apparent.

Test for Cure of Tuberculosis.—When everything seems to indicate a permanent cure of the pulmonary tuberculosis, Rénon settles the question by what he calls the test of *adaptation progressive à l'activité.* It takes three months; the subject works on alternate days for a few hours, morning or afternoon, with repose in the intervals. The number of hours of work is gradually increased and the days of repose gradually reduced. During the third month, the working hours should be complete. During these three months of gradual resumption of active life the subject should be supervised regularly in respect to weight, temperature, blood pressure and other signs. A slight loss of weight may be expected and also a slight lowering of the maximal blood pressure. But there should be no rise of temperature nor cough nor new expectoration nor the least râle on inspiration by auscultation of the supraclavicular fossa. The fall is the best season for the test, the subject being thus in good trim for the critical spring months.

Test for Carbon Monoxid.—The test is made with paper impregnated with palladium chlorid.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 9, 1919, **43**, No. 16

*Cancer of Esophagus. Laignel-Lavastine and J. du Castel.—p. 399.
Ulcerative Rectosigmoiditis Id.—p. 402.
*Plastic Peritonitis. L. Morquio.—p. 406.
Congenital Stenosis of Pulmonary Artery. O. Josué.—p. 408.
*Reflex Acute Edema of Lung. R. Tricoire.—p. 413.
*Azotemia in Acute Nephritis. P. Ameuille and M. Sourdel.—p. 417.
Tachycardia in Young Recruits. C. Aubertin.—p. 420.
Etiology of War Tachycardia. J. Gaillard.—p. 424.
Radioscopy of Heart and Aorta with Tachycardia. J. Gaillard.—p. 426.
Autochthonous Malaria and Dysentery. Lemaire and Zemboulis.—p. 428.

Cancer of the Esophagus.—The woman of 52 had been having rebellious recurring eczema for thirty years when erythrodermia developed, with desquamation, the nails dropping off and the hair falling, with pruritus, emaciation and cachexia, and finally a spontaneous fracture of the tibia and a transient slight difficulty in swallowing. Roentgenoscopy then revealed a cancer in the esophagus, soon confirmed by necropsy, which disclosed multiple metastases in the brain, skeleton and liver. The erythrodermia was probably an early manifestation of the malignant disease.

Plastic Peritonitis.—The four children presented areas of hardness in the peritoneum, actual peritoneal plastrons, causing symptoms for a time but finally entirely resorbed at last. The course was subacute and slow, averaging about three months. The onset was sudden, as with acute peritonitis of appendicular, pneumococcus or gonococcus origin. This was followed by a slow remittent course; suppuration was feared at times and Morquio was on the point of operating more than once, when finally the whole subsided spontaneously. There was a variety of special manifestations according as the circumscribed lesion was located in the pelvis, epigastrium, kidney region or elsewhere. The tuberculin test was negative. In some of the children appendicitis seemed to be responsible and a small abscess in two cases was opened and drained, but an interval appendicectomy showed the appendix apparently sound. One of the children had vulvovaginitis and the peritoneal plastrons were evidently the work of the gonococcus. The children were from 3 to 13 years old.

Reflex Acute Edema of the Lung.—Tricoire remarks that while "pleural epilepsy" has been reported as a reflex accident in the course of thoracentesis, he thinks the case he describes is the first one to be recorded in which syncope and acute pulmonary edema developed from reflex action at the beginning of thoracentesis. The young man's chest had been traversed by a bullet four weeks before, but the wound had healed except for the left pleural effusion. Exploratory punctures had shown that it was sterile. The syncope and acute edema came on as only a few cubic centimeters of the effusion had been withdrawn. He recovered under spartein, venesection and wet cupping, after expectorating nearly a pint of foamy fluid. A similar reflex action was responsible for Flack's case of pulmonary edema from drinking iced water; in Jaccoud's case in typhoid from irritation of the abdominal sympathetic; in Vinay's from irritation of the sensory nerve terminals in the uterus, and in Pinaut's and Joucla's cases from puncture in ascites.

Azotemia and Ureosecretory Coefficient in Acute Nephritis.—Ameuille and Sourdel refer to the two, three or four months following acute and stormy nephritis. They had occasion to examine 101 men under these semilatent conditions. They were impressed with the variability of the findings of the Ambard constant, and warn that several repetitions may be necessary to get an accurate estimate of the true condition.

Journal de Médecine de Bordeaux

June 10, 1919, **90**, No. 11

Compound Fracture of the Humerus. G. Jeanneney.—p. 215.
*The Biologic Laws Governing Implants. Bonnefon.—p. 218.
Pupil Reflexes to Light. Cabannes.—p. 222.
The Limits of Specialization. P. Mauriac.—p. 223.
Proposed Reorganization of Medical Course. J. Bergonié.—p. 226.

Biologic Laws Governing Implants.—Bonnefon relates experiences which demonstrate the general law that a healthy graft transplanted into pathologic tissue becomes pathologic itself, while a pathologic graft transplanted into sound tissue may lose its pathologic tendency and grow normal in time. An interesting example of this is the Morax operation on the opaque cornea. With this, a disk is cut from the opaque cornea and another from the transparent periphery, and the disks are transposed. The transparent implant being permeable, like all autografts, becomes invaded by the abnormal elements surrounding it. The connective tissue persists unmodified, but the invading cells destroy its transparency and it gradually becomes opaque. On the other hand, the pathologic opaque graft, implanted in sound tissue, grows normal and in time becomes transparent. The two grafts thus progress in opposite directions, the direction determined by the normal or pathologic character of the bed. The cellular elements in each graft die off and are substituted by cells from the environment. If the environment is normal, the invading cells will aid in regeneration of normal tissue; otherwise not. The prospects therefore of plastic operations on the cornea are not very promising, but Bonnefon's experiences confirm that if a small pathologic process can be cut out completely and then reimplanted in the old site, the environment being normal, it will be invaded by normal cells and lose its pathologic characteristics.

His theoretical premises have been effectually corroborated by his success in treating pterygium by this means. This pterygium process recurs again and again after its excision, so that with none of the operative procedures in vogue can a favorable result be guaranteed. But in the two cases treated on the basis of this biologic law, his success has surpassed his highest anticipations. He excised the pterygium far into sound tissue and transferred it to a glass slide. After staunching all bleeding he reimplanted the pterygium in its old bed, but turned it around, so that the head which had been adherent to the cornea faced the internal angle, and the base fitted against the corneal limbus. In twenty-four hours the pterygium had completely lost its morphologic characteristics. The vascular network was dislocated, destroyed, replaced. The following day the aspect of the graft was merely that of an irregular rectangle of a uniform cherry red, slightly edematous. The inflammatory phenomena soon subsided and from all sides, except the corneal limbus, delicate vessels could be seen making their way toward the center of the expterygium. In two or three weeks it was absolutely impossible to detect a trace of the former pterygium. The aspect is that merely of an ordinary autoplastic graft of conjunctival tissue. He thinks these two experiences should interest surgeons generally as they confirm with precision the biologic laws deduced from his extensive experimental research. In the pterygium we can inspect with the naked eye the changes in implants which otherwise we have been able to trace only with the microscope.

Paris Médical

May 31, 1919, **9**, No. 22

*Influenza of the Thorax. R. Voisin and Benhamou.—p. 421.
The Physiologic Jugular Venous Pulse. E. Stiénon.—p. 427.
*Vomiting of Infants. G. Schreiber.—p. 430.

Treatment of Influenza.—Voisin and Benhamou comment on the liver-kidney signs, the cardiovascular and the nervous signs which reveal the involvement of different organs. The physician has to be on the alert to detect insufficiency in the suprarenals and liver in their task of neutralizing toxins, insufficiency of the emunctories (liver, kidneys), and the violence of the general infection. The prognosis in malignant influenza depends on his prompt recognition of the signs of any of these and steering the patient past them. They describe in detail the treatment for each of these contingencies as they applied them during the pandemic, and credit their low death rate—3.5 per cent.—to their vigilant watch for these special signs outside of the respiratory apparatus.

Treatment of Vomiting in Infants.—Schreiber advises in addition to regulation of the diet and application of hot compresses or ice to the stomach, lavage of the stomach two or three times a day if the vomit has a butyric odor or there are symptoms of intoxication. A teaspoonful of a solution of 2 gm. sodium citrate in 120 gm. distilled water may be given just before or with the feeding. If the vomiting seems to be due to defective gastric secretion, hydrochloric acid or pepsin or both might be given, or pure gastric juice. With spasm of the stomach or pylorus, sedatives are indicated. Operative measures should be decided on promptly if medical measures fail.

Presse Médicale, Paris

May 29, 1919, **27**, No. 30

*Radiology of Intestines. Raulot-Lapointe and E. Sorrel.—p. 289.
*Rubeola. C. Lesieur and P. Jacquet.—p. 292.

Exploration of the Large Intestine.—Lapointe and Sorrel state that they have never had the slightest mishap with bismuth carbonate which they have used for the contrast meal more than 2,000 times. They expatiate on the special advantages of orthodiagrams, and of the practice of giving the bismuth in an enema for radioscopy, to supplement the findings of the contrast meal.

Blood and Gland Reactions in Rubeola.—Lesieur and Jacquet call attention to the enlargement of the supratrochlear gland which was a constant finding in all their cases of rubeola. It is seldom palpable in health but it was found plainly enlarged on palpation on one or both sides in all their cases of rubeola. The blood findings also seemed to be characteristic, a mononuclear leukocytosis, affecting mostly the medium forms, with a slight mast-cell leukocytosis with beginning convalescence. In measles, there is only the ordinary polynuclear leukocytosis; in scarlet fever, polynucleosis is pronounced.

June 9, 1919, **27**, No. 32

*Practical Cardiography. C. Laubry and A. Mougeot.—p. 309.

Pneumocardiography.—Laubry and Mougeot improvised with a webbing belt and a bicycle inner tube an apparatus for recording the heart action, on the principle of the instruments which record the blood pressure. They give some tracings with this pneumography, having studied with it mostly periodical sinusal arrhythmias, with or without a respiratory factor.

Progrès Médical, Paris

May 10, 1919, **34**, No. 19

*Early Diagnosis of Pulmonary Tuberculosis. A. Philibert.—p. 179.
Mineral Waters and Pulmonary Tuberculosis. J. Galup.—p. 183.
*The Reaction to Epinephrin in Hyperthyroidism. A. Bernard.—p. 185.

May 17, 1919, **34**, No. 20

Importance from Social Standpoint of Early Detection of Tuberculous Nature of Morbid Conditions. E. Sergent.—p. 189.
Roentgen Aspect of Gassed Lungs. L. Moreau.—p. 191.
Erysipelas in the Newly Born. Lesné.—p. 192.
Mineral Waters and Chronic Bronchitis. H. Flurin.—p. 193.
Latent Gastric Cancer with Metastases in the Bones. Roubier.—p. 196.

Early Diagnosis of Pulmonary Tuberculosis.—Philibert warns that percussion and auscultation should be done with the mouth open and repeated with the mouth closed, to eliminate modifications for which the narrowness of one or both of the nasal passages may be responsible. There may be no fever with incipient tuberculosis, but the temperature responds with an excessive reaction to slight harmless causes, and this thermic instability may turn the scale. It can be tested with an injection of saline or by the thermic effect of an hour's walk. He keeps the soldier a week in bed and then examines him again after he has been up a week. To obtain sputum, if there is no expectoration, he gives a potion consisting of 0.5 gm. white oxid of antimony in 120 gm. of a mucilaginous vehicle. This stimulates bronchial secretion. If the findings are negative even with homogenized sputum, the test can be repeated later at weekly intervals two or more times. If the temperature runs up after a moderate walk of an hour, this signifies that whatever the cause, repose is indicated, especially if other signs point to tuberculosis.

The Reaction to Epinephrin in Hyperthyroidism.—Bernard reviews some recent works on the influence of epinephrin when the thyroid is functioning to excess. With hyperthyroidism there is evidently some special susceptibility to epinephrin on the part of the sympathetic vasomotor nerve terminals. An injection of 0.5 mg. of epinephrin will induce tachycardia and send up the blood pressure, and it may not return to normal for an hour and a half. This test reaction is important in dubious cases suggesting exophthalmic goiter but without the cardinal signs of it. An operation on the thyroid in such cases often reveals the thyroid studded with small adenomas, too small to be palpated. The subsidence of all the symptoms afterward confirms the assumption of the causal hyperthyroidism. This is particularly important in the group of cases in which the excessive functioning of the thyroid is responsible for conditions labeled psychoneuroses, psychasthenia and neurasthenia, without any appreciable ocular, vasomotor or cardiac symptoms. The slightly positive reaction to the epinephrin test encourages an operation on the thyroid, and this reveals numerous small adenomas in the gland.

Revue Neurologique, Paris

November-December, 1918, **34**, No. 11-12. War Neurology Number

Syndrome of the Posterior Foramen Lacerum. M. Vernet.—p. 117.
Tardy Results of Suture of Nerves. Cestan.—p. 148.
The Psychogalvanic Phenomenon in Some Cases of Sensory Disturbances after War Wounds of Brain. O. Veraguth and H. Brunschweiler.—p. 151.
Case of Psychic Disequilibration. L. Babonneix and M. Brissot.—p. 163.
Classification of Nervous and Mental Diseases and the War. R. Benon.—p. 168.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 24, 1919, **49**, No. 21

*Outcome of Surgical Tuberculosis. De Quervain and Hunziker.—p. 761.
*Children's Pavilion for Contagious Disease. E. Feer.—p. 777.

Outcome with Surgical Tuberculosis.—De Quervain and Hunziker report on the present condition of 537 patients given operative treatment at Basel in 1913. The data presented show that tuberculous processes in fingers, toes, wrists, glands, tendons, soft parts and skin can be successfully treated almost anywhere. With tuberculous lesions in ribs, sternum, clavicle, scapula, radius or ulna, urogenital organs, intestines or peritoneum one is justified in applying treatment in the mountains or the lowlands as most convenient. But treatment in a mountain climate is extremely desirable with tuberculous lesions in the spine, pelvis, humerus, shoulder, femur, tibia or fibula, and in the hip, knee and ankle joints. The advantages of a mountain climate in this group are evident in his figures, and he expatiates on the necessity for a mountain sanatorium for this group as an annex to other hospitals. For the whole of Switzerland, probably one fifth of the average 15,000 cases of surgical tuberculosis require altitude treatment in addition to the other measures. The aim should be therefore to provide mountain sanatorium accommodations for these 3,000 that require it, with a system of interchanges between sanatoriums and hospitals to give this special group the advantages of altitude. Even those patients already living in the mountains need the care and training of a sanatorium. The course of treatment with surgical tuberculosis usually takes one or more years while the course with pulmonary tuberculosis is generally restricted to a few months. As children form the large contingent of surgical tuberculosis cases the loss of time does not matter so much. The system of sanatoriums should be supplemented with institutions where the convalescent and recovered should be gradually accustomed to resume work and train for future activity under medical supervision. There should be a kind of employment bureau in connection, designed for these more or less handicapped persons.

Contagious Disease Hospital for Children.—Feer relates that in a total of 1,000 cases of various infections, from measles and scarlet fever to poliomyelitis, in the last three years at the children's clinic at Zurich he only had two cases of house infection develop, and in both of these instances an avoidable broken link in the chain was detected. This pavilion is built on the glass cubicle plan and even the larger rooms can be partitioned off with glass walls. The hospital has thirty beds and they have been constantly occupied, different infectious diseases succeeding each other in the same cubicle with only the two instances of house infection mentioned above. No one enters the cubicle except the one or two nurses, and they enter it as seldom as possible and then attend to everything at once, take the temperature, etc. The medicines and packs are ordered without too brief intervals. He adds that it is not a mere coincidence that the two cases of house infection were with measles and varicella. These are spread so easily that he insists on the window being shut from without before the cubicle is entered when it contains a patient with either of these diseases. Among other practical points noted is the warning that simple measles and influenza cases develop pneumonia as soon as a case of pneumonia is placed near them. Feer extols this cubicle type of hospital as the ideal for small towns. It is much better supervised and can be run with less expense than hospitals with special departments devoted exclusively to scarlet fever or diphtheria.

Gazzetta degli Ospedali e delle Cliniche, Rome

May 1, 1919, **40**, No. 35

*Post-Typhoid Complications in Bones. U. Tassone.—p. 329.

Post-Typhoid Complications in the Bones.—Tassone reports the case of a young man who developed multiple abscesses in different bones, with a tendency to hyperplasia at different points that compelled surgical intervention. Typhoid bacilli were cultivated constantly from the pus. The bone complications may not develop until after quite an interval. Adolescents form the majority of those affected, and the tibia, scapula and metatarsus are the bones usually involved. Trauma may aid in starting the process. It may manifest itself only by rheumatoid pains with final spontaneous resolution. Or there may be acute or chronic osteoperiostitis with or without much destruction of tissue. These complications usually develop during convalescence, accompanied by a little fever, worse at night as a rule. There may be an interval of several months before the chronic form develops, and the course may suggest a cold abscess lingering for months or years. The typhoid bacilli cultivated from these indolent processes may display great virulence, showing that the slow course is determined by the resisting power of the tissues. The chronic nonsuppurating type may entail production of exostoses and deformity requiring surgical measures; the pains with this are of the same type as in the chronic suppurating form. The deformity may affect both legs, with actually crippling contracture and atrophy of the muscles as in Chantemesse's case, but this is extremely rare. He reports a case of this kind in a robust young farmer. During convalescence from the typhoid he complained of pains throughout his body but they finally settled in one foot, but after incision of the abscess here, others developed at various points. Hyperplastic processes rapidly developed crippling him and finally requiring operative correction for knee and ankle, with resection of bone and section of the Achilles tendon. The typhoid bacillus seemed to be solely responsible for the various lesions. The operation was done nearly three months after the onset of the typhoid fever and three more months passed before the young man was discharged completely cured, his joints functioning normally.

May 4, 1919, **40**, No. 36

*War Wounds of Skull and Brain. E. Greggio.—p. 339.

Skull Wounds.—Greggio here summarizes his impressions from thirty-nine cases of wounds of skull and brain that passed through his service. He classifies them by the site of the injury and describes symptoms and outcome.

Pediatria, Naples

June, 1919, **27**, No. 6

Initial Phase of Scurvy in Infants. O. Cozzolino.—p. 321. Cont'n.
*The Wassermann Reaction with Human Milk. C. L. Rusca.—p. 343.
*Hemorrhagic Meningeal Complications with Whooping Cough. A. F. Canelli.—p. 351.

The Wassermann Reaction with Human Milk.—Rusca examined breast milk from forty women, including fifteen free from syphilis and sixteen with certain syphilis. The response was constantly negative in milk from normal women at the second to the ninth month of pregnancy but there was a weak reaction in the colostral milk. The reaction was always pronounced in milk from the syphilitic women but, under treatment, the reaction disappeared from the milk parallel to its disappearance from the blood. By testing the milk we can thus gain an insight into the woman's condition without her knowledge.

Meningeal Complications of Whooping Cough.—Canelli found at necropsy of two infants, 6 to 23 months old, who had died during whooping cough, pathologic changes in meninges and brain. These intracranial lesions seemed to be direct complications of the pertussis. Both children had been born spontaneously and there had been no signs of a nervous affection until the brain and meningeal symptoms developed after whooping cough had been installed for a few weeks. There was nothing else found or learned to explain the lesions. Both infants died in coma. No histologic lesions were found in the intracranial vessels. It is possible that the minute hemorrhagic foci in brain and meninges may have been due to the action of carbon dioxid from the asphyxia during a coughing paroxysm or to the increased blood pressure during a spasm, but the vessels could not have yielded unless they had been already weakened by the toxic infectious action of the pertussis.

Policlinico, Rome

June 8, 1919, **26**, No. 23

The Pandemic of Influenza. A. Marrassini.—p. 705.
*Asthma. G. Sabatini.—p. 709. Com'd No. 22, p. 673.
Case of Elephantiasis of the Vulva. J. Aboularage.—p. 722.

Asthma.—Sabatini remarks that few ailments have had such an abundant flora of remedies of all kinds as asthma, empiric and scientific. The treatment has to be twofold, to arrest the attack and abolish the cause. We can act to arrest the spasm of the constricting muscles or to stimulate the dilating muscles. Epinephrin and pituitary extract have proved their usefulness in arresting an attack. His experience and that of others seems to indicate that even prolonged administration of these two is harmless. He knows of a man of 65 who has been taking almost daily injections for six years of a preparation containing both these, and he has never shown the slightest sign of general disturbance from it. The theoretical fear that it might send the blood pressure up has not been confirmed by experience; the patient referred to has still a pressure rather below what might be expected at his age. Intrabronchial sprays of epinephrin are uncertain, and Sabatini regards them as uncalled for "as the subcutaneous injection is so magnificently certain," although the mechanism of its action is still unknown. Treatment of asthma on the basis of its being a manifestation of anaphylaxis has been much simplified by the use of peptone. This seems to desensitize in cases of asthma, whatever the antigen responsible for the sensitization. Time and experience will show what to expect from peptone treatment. It is too early yet to determine definitely its efficacy in such an obscure, capricious and rebellious malady as asthma.

May, 1919, **26**, Medical Section No. 5

*Amebic Abscess in Liver. T. Pontano.—p. 169.
*Relative Seroprophylaxis in Influenza. G. Tizzoni and G. Vernoni. —p. 187.
*Pleuro-Typhoid. E. Mondolfo.—p. 193.
Malaria in Italian Soldiers. C. Pezzi.—p. 199. Cont'n.

Amebic Liver Disease.—Pontano remarks that the absence of amebas from the stools does not exclude the amebic origin of an abscess in the liver. The abscess is not always single, and there may be no history of dysentery in the antecedents. Of great differential importance, however, are the microscopic findings in the puncture fluid from the abscess. It consists mostly of cellular detritus, hematoidin crystals and a few scattered reds, with droplets of fat and a few rare whites scarcely recognized and not taking anilin stains, while the fluid is usually bacteriologically sterile. He cites various authorities who emphasize the difference between this colliquative necrotic process and true inflammatory suppuration. In the first of Pontano's two cases the abscess developed in the liver six years after the amebic dysentery, but in the second case there never had been any appreciable symptoms of dysentery at any time. No amebas had been found in the stools or by exploratory puncture, and the abscesses were sterile except for the colon bacillus in one case. The abscess contents were the characteristic albuminous fluid with detritus instead of pus, and the prompt cure in both cases under emetin confirmed the diagnosis. The abscesses retrogressed and were absorbed under vigorous subcutaneous emetin treatment.

Seroprophylaxis of Influenza.—Tizzoni and Vernoni found the richest bacterial flora in influenza in the lungs and pleural effusion, streptococci and staphylococci predominating. The former seemed to be of a special type in the complicated cases, intermediate between the pneumococcus and the streptococcus. It induced invariably in rabbits and mice fatal pleural, pulmonary and peritoneal processes, and they regard it as unmistakably responsible for the complications of influenza. They injected two horses with two strains of this bacterium, and then injected animals by the vein with the serum from these horses, twenty-four hours before injecting them in the pleura with cultures of the bacterium in a dose sufficient to kill the controls. The controls all died from the fourth to the ninth day with purulent pleuropericarditis, but the serum-treated animals all survived. The serum, however, proved effectual only for the same strain that had been used in procuring the antiserum. They regard this experimental work as promising an effectual treatment to ward off the complications of influenza, until we discover means to ward off the disease itself.

Typhoid Pleuritis.—The robust man recovered after nearly an eight weeks' course. The symptoms from the pleura were the first to appear, and with a stormy onset, not explained until the twelfth day disclosed typhoid bacilli both in the pleural effusion and in the blood. Tests the sixth day had been negative. The ordinary symptoms of typhoid, enlargement of the spleen, epistaxis and watery stools did not appear till the second or third week. Mondolfo compares this case with similar ones on record. The earlier the involvement of the pleura, the milder the case seems to be, he states. Later pleuritis is liable to become purulent.

Riforma Medica, Naples

May 17, 1919, **35**, No. 20

*Surgical Aid to Remineralization in Tuberculous Hip Joint Disease. D. Maragliano.—p. 394.
*Erythrodermia with Chronic Articular Rheumatism. P. F. Arullani. —p. 397.
*Quinin, Malaria and Influenza. T. Silvestri.—p. 402.
Diagnosis of Esophageal Tumors. G. Molinari.—p. 402.
Set of Symptoms from Injury of Last Four Cranial Nerves. E. Aievoli.—p. 404.

Surgical Remineralization in Tuberculous Hip Joint Disease.—Maragliano here shows the ultimate outcome in the first two cases of tuberculous coxitis in which he sought to combat the demineralization by introducing a bone and periosteum implant. The patients were a boy of 5 and a girl of 8, and radioscopy showed pronounced demineralization in the healed process. He then drove a bar of bone tissue, taken from the tibia, through the neck, head and cotyle, hoping to supply thus at the spot the minerals needed for the regeneration of the bone. He here gives the radiograms of the cases taken four years later. They testify to the favorable and definite results obtained. Everything seems to indicate that the bone implant materially facilitated and hastened complete repair. The stiff joint in the boy has gradually regained its function. The coxitis in the girl had been so extensive and destructive that the regeneration in eight months was a great surprise. The implant of bone and periosteum was completely absorbed in time in both cases. His previous article on the subject was summarized in these columns recently, June 7, 1919, p. 1709.

Chronic Rheumatism and Dermatoses.—Arullani concludes from the five cases he has encountered that uric acid occurs in the blood more often than is generally recognized. It can be readily detected by Garrod's thread test. The uricacidemia may be responsible for certain unusual skin affections as well as for chronic articular rheumatism. In the pathogenesis of chronic articular rheumatism a special soil, inherited or acquired, can always be assumed.

Quinin, Malaria and Influenza.—Silvestri asserts that the malaria, rather than the quinin, was responsible for the way in which the malarial inmates of hospitals escaped influenza during the pandemic. Not only malaria, but any infectious disease seems to protect against influenza while it lasts. This immunity ceases however, after recovery, and during long latent periods in malaria. He emphasizes that these facts confirm anew the slight resisting power of the influenza virus in respect to other germs. Secondary infections overcome and crowd out the influenza virus, the patient rapidly becoming harmless, so far as infecting others is concerned. Search for the influenza virus, therefore, is bound to fail, if secondary infections are already installed. Only in the first three or four days at most are we liable to encounter it. The systematic use of quinin in prophylaxis of influenza does not seem effectual in warding off the disease, at least in the doses usually given, up to 1 or 1.2 gm. per day. But the quinin given in this way seemed to have a pronounced attenuating influence on the course of the influenza when it developed. This was also observed with quinin given systematically in scarlet fever and measles.

Annaes Paulistas de Med. e Cir., S. Paulo

October, 1918, **9**, No. 10

High Agglutinin Content in the Serum of Patients Inoculated with Antityphoid Vaccine. A. P. de Ulhoa Cintra.—p. 217.

February, 1919, **10**, No. 2

*Recent Research on Hookworm in Indonesia. S. T. Darling.—p. 25.
Six Operative Cases of Foreign Bodies in Alimentary Canal. M. Gatti. —p. 39.

Hookworm in the Malay States and Netherlands Indies.—Darling's research was conducted under the auspices of the Rockefeller Foundation. He relates that malaria is so frequent in Indonesia and hookworm so prevalent that it is difficult to tell to which to attribute the anemia. He tabulates the figures for different localities and the treatment found most effectual. It was found that the initial purge could be omitted without detriment, which rendered it possible to treat larger numbers in less time. But it is indispensable to refrain from eating, the morning of the day the chenopodium is taken, and the afternoon and evening meals must be light, leaving little residue. The stomach and small intestine should be empty, as otherwise the drug is absorbed and its action impeded by particles of food.

Archivos de Ginecopatía, Obstet. y Ped., Barcelona

May, 1919, **32**, No. 5

*Early Diagnosis of Uterine Cancer. Vital Aza.—p. 97.
Venesection in Eclampsia. H. Bouquet.—p. 106.
Interminable Pleurisy. H. Bouquet.—p. 108.

Early Diagnosis of Uterine Cancer.—Aza joins in the universal lament that nearly 90 per cent. of the cases of uterine cancer are beyond medical and surgical aid when first seen by the physician. The family physician and midwives are not enough on the alert to detect cancer, and the women themselves pay no heed to their symptoms. It seems to be impossible to convince women that repeated losses of blood are not a normal feature of the menopause. Even when the family physician is consulted, too often he reassures the woman that her hemorrhages have no significance and will soon right themselves, or he prescribes merely ergot or hamamelis. If the woman is young, the equanimity of the family physician is usually even greater. Few insist on palpation of the vagina, and precious time is wasted while the woman's doom is being sealed. Even when the physician palpates the vagina, he is apt to discard all suspicion of cancer if the cervix feels normal, while the cancer in the fundus proceeds in its course. Thus tranquilized by their family physicians, the women pass to their doom until pains and fetid discharges drive them to the specialist. It is remarkable, Aza declares, how placidly women regard even extensive genital hemorrhages. A loss of even 50 gm. of blood from mouth or nose would send them in alarm to the physician, but they seem to be calmly indifferent to losses of blood by the genitals, of a pint or even a quart of blood. They even seem to be proud of these genital hemorrhages, as an expression of their sex. Only when the genital hemorrhages are brought on by a known trauma are the women disquieted by them. Cancer should be regarded as practically certain when there are repeated spontaneous or traumatic losses of blood, no matter how minute, or oozing of "meat washing water," at intervals of ten or twelve days or less, and the cervix does not feel quite normal. Aza now has in his charge two women of 26 and 23 presenting these unmistakable findings. Even when the cervix is normal, there may be a cancer in the fundus. Any hard, friable excrescence that bleeds readily and can be fragmented with the finger nail is cancerous, as well as actual ulceration in the cervix. Where there is the slightest doubt, a scrap of the cervix or uterine mucosa should be sent to some laboratory for examination.

Rev. Sud-Amer. de Endocrinología, etc., Buenos Aires

Feb. 15, 1919, **2**, No. 2

Minute Doses in Tuberculin Treatment. Cetrangolo.—p. 33.

Revista de la Universidad de Buenos Aires

January-April, 1919, **41**, No. 140

*The Island of Langerhans and Its Endocrine Function. P. J. Garcia. —p. 7.
*Clinical and Surgical Comparison of Pubiotomy and Symphysiotomy. D. Iraeta.——p. 27.

The Island of Langerhans.—García analyzes what has been published on the possible endocrine function of the pancreas, and warns that the idea that the islands of Langerhans are closed follicles must be abandoned once for all. They are formed of epithelial cells, and they undoubtedly pour an internal secretion directly into the blood vessels, but at the same time they discharge an external secretion. This dual secretion is bipolar, possibly alternate, but not simultaneous, like the secretion in the liver. The islands of Langerhans and the acini seem to be reversible after a certain time. Regulation of sugar metabolism also seems to be under the control of the secretion of the islands of Langerhans.

Pubiotomy versus Symphysiotomy.—Iraeta devotes over a hundred pages to this study of the comparative advantages of these methods. There are fifty-seven illustrations in the text. His final decision is in favor of symphysiotomy for various reasons, especially the ease, simplicity and security of the technic under local anesthesia.

Siglo Médico, Madrid

May 3, 1919, **66**, No. 3412

*Insufficiency of the Pancreas in Children. C. S. de los Terreros. —p. 353.
*Chronic Vesiculitis. A. Pulido Martín.—p. 356.
Influenza. C. M. González.—p. 360.

Insufficiency of the Pancreas in Children.—Terreros explains that the pancreas function does not become installed until about the fifth month of life, and even then may not be complete for a time. This is a factor in the disturbances in children under 2 fed too exclusively on any starch, or given meat prematurely. This throws so much work on the pancreas that it becomes exhausted. Even in older children this insufficiency of the pancreas occurs more often than generally recognized. A test meal with a given amount of fat, butter, for example, will show a much larger proportion of fat in the stools than would be the case in a normal child. More than two thirds is passed unutilized. The stools are pasty and bulky, with visible fat, and the urine is ammoniacal. In young children a change of diet answers the purpose. In older children the pancreas may be too pathologic for proper function and organotherapy may be advisable. He warns that he has often found commercial preparations of the pancreas unreliable, and has been forced to use the fresh gland (pieces weighing 0.5 gm. enclosed in capsules that are not dissolved by the gastric juice). The blood in his cases showed slight anemia, leukopeny and lymphocytosis. This seems to be the principal cause of the low blood pressure, the emaciation and the infantilism. He has never succeeded in palpating the pancreas in children.

Treatment of Chronic Inflammation in the Seminal Vesicles.—Pulido Martin emphasizes the importance of lesions in the seminal vesicles as responsible for certain persisting periurethral processes and chronic gonorrheal pseudorheumatism. In about 50 per cent. of the cases the vesicles give no sign of trouble, but in the others the symptoms may be intolerable. They are often mistakenly credited to the prostate and the prostate is maltreated in consequence. As a rule, however, the physician has to locate the source of the disturbances by the history of the case, by palpation, through the rectum, of the vesicles with fingers and instrument, by microscopic examination of the fluid, and by transillumination. With chronic pseudorheumatism and recurring epididymitis, especially the alternating form, the seminal vesicles will be found diseased as also with tenacious urethritis. His experience has been very favorable with injection of a germicide into the vas deferens, to reach the vesicles by this indirect route. The amount injected is too small to induce muscular contraction in the vesicles, so it is not expelled by them if they have previously been emptied by massage. Whatever the theoretical objections to this, the practical results have been most gratifying. He does not suture the minute opening made in the vas deferens but closes it with collodion before suturing the skin over it; this has always answered the purpose. He has never had pain or inflammatory reaction in or around the vas or in the epididymis. He gives the details of seven cases cured by this means of chronic disturbances, reaffirming in conclusion that in half the cases the seminal vesicles themselves are silent although responsible for the chronic disturbances.

May 10, 1919, **66**, No. 3413

Morbid Constitutions. C. Calleja.—p. 373. Cont'n.
*Modern Conception of Syphilis. J. L. Carrera.—p. 376.

Modern Conception of Syphilis.—Carrera writes from the pathology laboratory of the University of Michigan to summarize the present conception of syphilis. It primarily affects the vessels. Then it develops interstitial lesions and, finally, parenchymatous lesions. Fibrosis, infiltration of lymphocytes, and plasma cells are remarkably frequent in syphilis, but the early attack on the vessels is most surprising. The disease is principally and primarily a vascular disease. He discusses the microscopic findings in the different organs and tissues in turn.

Acta Scholae Medicinalis Univ. Imp. Kioto

Jan. 25, 1919, **3**, No. 1

*Action of Peptone on the Circulation. S. Kondo.—p. 1.
*Action of Veratrin on the Vessels. S. Kondo.—p. 19.
*Nature of Trachoma. K. Hiwatari.—p. 31.
Formation by Bacteria of d-beta-Imidazolyl-Lactic Acid from 1-Histidin. K. Hirai.—p. 49.
*Origin of Blood Cells. K. Kiyono and T. Nakanoin.—p. 55.
*Elimination of Cleavage Products of Albumin. N. Suzuki.—p. 139.

Action of Peptone on the Circulation of Blood.—Kondo's experimental research has confirmed that peptone injected intravenously reduces the blood pressure and has a constricting action on the vessels in legs and ears, while it dilates the splanchnic vessels. The constricting action on the vessels in the rabbit ear is followed by a relaxation which occurs earlier the higher the concentration. If constriction has already occurred under the influence of epinephrin, the peptone does not constrict the vessel further but the contraction of the vessel subsides rather earlier than under the influence of Ringer's solution.

Action of Veratrin on the Vessels.—Kondo reports experiences which seem to demonstrate that veratrin, like epinephrin, acts on the nervous elements in the vessel wall. Its powerful vasoconstricting action relaxes somewhat when the vessels are continuously irrigated with it. The constricting action does not manifest itself if the vessels have been previously irrigated with 0.01 per cent. quinin or 0.05 per cent. atropin. Epinephrin behaves in the same way to quinin and atropin. On the other hand, tests with a barium salt showed that its vasoconstrictor action was not modified by the quinin and atropin. He accepts this as evidence that barium acts on the contractile rather than on the nerve elements in the vessels.

Nature of Trachoma.—Hiwatari discusses both trachoma and the normal histology of the conjunctiva, with a large colored plate.

Origin of Bloood Cells.—Kiyono and Nakanoin trace the pedigree and the development of the cells in minute detail through the three stages of blood production, embryonal, etc. They show fifty-seven stained specimens in four large colored plates, with nearly six pages of bibliography. They assert that what they call the "histiocytes" diverge early from the lymphoid stem. They review the morphology of the histiocyte cells in mammals and cold-blooded animals, their functions, their place in ontogenesis and phylogenesis, and report research with vital staining in invertebrates.

Elimination of Albumin Cleavage Products.—This first communication on Suzuki's research in this line, describes the occurrence of phenaceturic acid in normal goat urine, with special regard to the relations between the food and the elimination of the acid.

Mitteilungen a. d. med. Fakultät. d. k. Univ. Tokyo

Sept. 10, 1917, **19**, No. 1. Rec'd June, 1919

*Automatism and Coordination of the Heart. S. Nukada.—p. 1.

Automatism and Coordination of the Heart.—Nukada's monograph fills this entire number, 164 pages, and is accompanied by twenty-one plates, many of them colored. The research was done mainly on the heart of *Limulus longispina*, a species of king-crab, but the findings were compared with those in vertebrates, reptiles, etc. The electrocardiograms of the limulus heart are very much like those of the mammalian heart. In both, he concludes, the nerve tissue seems to be responsible for the heart beat; the muscles take no part in the formation or transmission of the impulse or the coordination of the heart. The sinus node and bundle are merely a prolongation of the auricle which accompanies the nerve tissue and possibly supports and protects it.

Mitteilungen a. d. Path. Inst. Univ., Sendai, Japan

March 24, 1919, **1**, No. 1

*Degeneration and Regeneration in Peripheral Nerves. O. Kimura.—p. 1.

Degeneration and Regeneration in Peripheral Nerves.—Kimura's article fills the 160 pages of this new journal, with five large plates and a table and ten illustrations in the text. He describes experimental research on the histologic processes of degeneration and regeneration in the peripheral nervous system, especially nontraumatic degeneration, with special regard to conditions in human polyneuritis, and other deficiency diseases. There are 214 bibliographic references, titles given in full.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 12, 1919, **1**, No. 15

The Language of Medical Writings. IV. A. Kluyver.—p. 1157.
Medical Education in Austria. G. van Rijnberk.—p. 1161.
*Scrofulous Ophthalmia. L. K. Wolff.—p. 1168.
*Latent Sinusitis with Reflex Neurosis. I. C. Henkes.—p. 1177.
Visual Disturbance with Wounds of Back of Head. G. ten Doeschate.—p. 1183.

Nature and Treatment of "Scrofulous" Ophthalmia.—Wolff apologizes for retaining this term, but says it conveniently classifies the cases in which at some time there has been a tuberculous inflammation in the eye, leaving it hypersensitive to the tuberculous toxin. Certain lymph glands in the vicinity may also have been the seat of a tuberculous process which may or may not have subsided into a latent stage. In any event, the tuberculous toxin occasionally gets mobilized, and when it reaches the hypersensitive eye it induces phlyctenas. The latter do not develop in animals, and tuberculous processes in the neck glands seldom occur in animals except possibly in the hog. Wolff urges examination of the eyes when tuberculous processes are found in the cervical glands in hogs. It is possible that obstinate eczema may likewise be a manifestation of local toxic action on a healed tuberculous lesion which has left the area hypersensitive. Other germs play a secondary but important rôle. Treatment may aim to abolish the tuberculous foci generating the toxins which act on the eye, or it may aim to reduce the sensitiveness of the eye. A course of tuberculin would aid in the latter, but roentgen treatment of the tuberculous glands has proved the simplest and easiest method to eradicate the toxin-generating foci. No operative measures were attempted except to aspirate when necessary. At most 4 H. units were given at a time, with an aluminum filter 5 mm. thick. Roentgen exposures have no influence on the phlyctenular inflammation or corneal ulcer. itself, but exposures of the tuberculous glands dry up the stream of toxins at its source. As adjuvant he has found silver fluorescein useful, especially in a 5 per cent. salve in white petrolatum, applying a little every hour in the conjunctival sac. The same principles were applied in treatment of benign tumors of the eye, and the glandular lesions in the neck retrogressed without recurrence in three of four cases, but the eye lesion was not influenced, in contrast to what is observed with the phlyctenular ophthalmia. The latter disappears as the glandular lesions retrogress, as he shows in a table of fourteen cases. After removal of a sarcoma of the conjunctiva in another case, the eye was subjected to roentgen exposures and no harm seemed to have been done, no microscopic changes from them were evident when the eye was enucleated over two years later on account of recurrence of the sarcoma. Encouraged by this, he applied the roentgen rays directly to the eye and with brilliant success in his first two cases. One was a girl of 18 with iridocyclokeratitis and numerous nodules in the iris; the other patient had keratoscleritis with an ulcerating nodule in the cornea. The lesions were entirely cured in a few days, but there was recurrence in the second case. In three other cases of scleritis great benefit was derived, but not so promptly. The lymph glands had better be exposed at the same time, he says.

Latent Sinusitis with Reflex Neuroses.—Henkes describes a form of latent sinusitis affecting the ethmoidal sinus alone, a hyperplastic ethmoiditis which may generate certain reflex neuroses. The only objective sign of it may be that the middle turbinate bone may be somewhat enlarged and the mucosa a little swollen. This periodical hyperemia and swelling exerts a greater irritation on the nerves and tissues than a polyp or other benign process in the nose. A simple operation on the sinus frees the patient at one stroke from his "neurasthenia," "Ménière's disease," "hay-fever," "nervous rhinorrhea" or other complaint of the kind. In one case of Ménière's disease he removed the left middle turbinate as it seemed to be exceptionally large although all around seemed normal. This left exposed a large cell filled with granulation tissue and cells of the ethmoidal sinus were found filled with the same. After these pathologic cells had been removed, the Ménière's disease of many years' standing was cured completely at once. The irritation responsible for it must have proceeded from the otherwise entirely latent pathologic process in this sinus. He introduces far back in each side of the nose an electric light from a cystoscope and the light is turned on in both together. Asymmetrical findings on a line just below the eyebrows call for further investigation. In one case the scanty symptoms pointed to the frontal sinus.

Hospitalstidende, Copenhagen

May 7, 1919, **62**, No. 19

*Roentgen Treatment of Hypertrophied Breasts. C. Rovsing.—p. 577.
*Vaccination against Typhus. O. Thomsen.—p. 588.

Roentgen Treatment of Hypertrophied Breasts.—Rovsing's patient was an unmarried woman of 27, and her breasts had begun to enlarge about eighteen months before. They grew painful and tender with no relief from supports. The skin was normal. A few glands in the axillae were enlarged and tender. Menstruation was normal throughout. An incision in the upper quadrant of one breast showed hard fibrous tissue. Roentgen exposures were then given, twice 6 H. units (3 mm. aluminum), to each breast, and three months later 20 H. (5 mm. aluminum). The right breast subsided to normal size and consistency but the left only partially subsided and there are still pains occasionally and sometimes a milklike secretion. When the mammae become hypertrophied without any connection with puberty or pregnancy, this generally happens in virgins of about 30. The hypertrophy may be up to nine years developing, and spontaneous retrogression has never been observed. The left mamma is the one usually involved or involved most. The hypertrophy of the mamma at puberty has not been known to retrogress spontaneously, but pregnancy hypertrophy develops more rapidly and usually subsides after delivery, but it may return with later pregnancies. With true hypertrophy of the mamma, the histologic findings suggest a pericanalicular fibroadenoma, but the slow growth and the diffuse enlargement differentiate it from cancer. The under side of the mamma may become excoriated and cases of erysipelas, abscesses and gangrene have been published, but no case is known of malignant degeneration. No medical treatment has ever been known to arrest the hypertrophy, not even treatment as for obesity, with loss of 10 per cent. of the weight. After resection of mamma tissue or skin, what is left continues to grow. Fixation of the pendent mamma to ribs or muscles has been tried and failed. The only operation that has proved successful is mammectomy. Roentgen treatment has been applied in two previous cases. In one the left mamma alone had hypertrophied and it subsided somewhat but returned during a pregnancy six years later, and mammectomy was done. The question now is what effect the roentgen treatment will have on lactation thereafter. Nunberg's experimental research demonstrated that the roentgen rays did not apparently modify the normal mammae of virgin animals examined after the animals were killed. By applying roentgen treatment in pregnancy hypertrophy, this question might be decided once for all.

Vaccination Against Typhus.—Thomsen reviews what has been done in this line in England and in Germany, saying that Neukirch seems to have had the best results with a vaccine made by rubbing smooth a blood clot in serum and then shaking with chloroform. He vaccinated 1,700 persons with this vaccine. Others have used a "vaccine" made with infected lice ground in a mortar with saline and injected subcutaneously. Three injections seemed to be complete protection for guinea-pigs, and might prove useful for especially exposed persons.

Ugeskrift for Læger, Copenhagen

May 22, 1919, **81**, No. 21

*Gastric Secretion in Young Children. A. T. B. Jacobsen.—p. 863.

Gastric Secretion in Young Children.—Jacobsen has been examining the gastric secretion in 25 children from 1 to 4 years old, forty-five minutes after a test meal of 20 gm. zwieback in 175 gm. water. There was no free hydrochloric acid to be found in over 50 per cent. and in all the children the proportion of acid and pepsin was below that of adults. In 2 of the 25 children there was no congo reaction at all. Both congo reaction and the Günzburg were lacking in 5 of 6 children with acute gastro-intestinal disturbance, but as the latter subsided the gastric secretion returned to normal. This occurred likewise in 75 per cent. of the children with subacute and chronic gastro-intestinal disturbances with deficient gastric secretion. The diarrhea in both groups yields usually to a milk diet after preliminary restriction to water for half a day with 5 gm. castor oil.

Upsala Läkareförenings Förhandlingar

March 12, 1919, **24**, No. 3-4

*Advice to Medical Writers. J. A. Hammar.—p. 159.
*The Lymphoid Tissue. T. J. Hellman.—p. 217.

Advice to Medical Writers.—Hammar's advice is specifically for the publication of maiden medical efforts, the *förstlingsarbeten,* and he devotes fifty-eight pages to discussion of the choice of the subject and of the title, methods of research, arrangement of the article, style, and where to place the article. The list of comprehensive reference works fills seven pages, from the Index Medicus to the complete list of the thirty-nine Scandinavian medical and dental periodicals.

The Lymphoid Tissue.—This second report on Hellman's research deals with the secondary follicles in the rabbit tonsil. He was unable to confirm Flemming's theory in regard to lymphocyte production here.

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SKILL AND SCHOLARSHIP AS IDEALS IN MEDICAL GRADUATE EDUCATION *

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MINNEAPOLIS

Even in ancient times, physicians recognized the advantages of a division of labor, allowing concentration of effort in a relatively narrow field of medicine. The ancient Babylonians, according to Garrison, had a physician for every disease, and in the Code Hammurabi (2250 B. C.) medical fees were already regulated by law. Likewise among the Egyptians, as shown by the Ebers papyrus, medicine was highly specialized as early as 1550 B. C. Herodotus states that in the fifth century B. C. (in Egypt):

> Each physician applies himself to one disease only, and not more. All places abound in physicians; some physicians are for the eyes, others for the head, others for the teeth, others for the intestines, and others for internal disorders.

Although medical specialism was thus practiced by the ancients, who undoubtedly developed a high degree of skill in certain respects, for example, in operations for cataract by the Hindus, it soon reached its limits within comparatively narrow bounds. Throughout the ages, down to modern times, specialism, like medicine in general, made relatively slow progress, and for the same reason. The art of medicine necessarily remained empiric, awaiting the development of the fundamental sciences, physics, chemistry and biology. Before this, it was impossible for medicine to make real and rapid progress as an applied science.

With the rapid development of medicine during the past century, specialism has become increasingly necessary, since no man could possibly cover thoroughly more than a small portion of this immense field. While contributing greatly to the advancement of medicine, however, the increasing tendency to specialism in clinical medicine carries with it certain obvious disadvantages and dangers. From the point of view of the individual specialist, the tendency to narrowness through isolation is evident. From the point of view of the general public, the cost of medical service by isolated specialists is becoming burdensome, if not prohibitive.

These difficulties, both from the professional and from the economic point of view, present a serious problem for consideration. The most promising solution appears to be the group system, whereby a staff of specialists may cooperate to practice medicine more efficiently. This means team-work associated with specialism, a principle which has been clearly realized and successfully carried out only in recent times. The Mayo Clinic is generally recognized as a pioneer in this work. The same principle has been followed with success in many other clinics, both public and private, and the movement is extending rapidly.

The tendency toward the group system in medical practice will doubtless receive an immense impetus from the experience during the war, as has been emphasized recently by Dodson. The excellent results obtained by this system in the numerous military and naval hospitals is an object lesson on a scale hitherto unknown. The thousands of medical practitioners who have thereby learned the increased efficiency of military medicine under this plan will doubtless desire to continue it on returning to civil practice. On the other hand, the advantages of the plan will not be lost on the millions of soldiers and sailors, who will naturally demand similar provision for medical service on their return to civil life. We may therefore expect in the near future to see medical groups organized for this purpose in every community able to support a hospital.

It is unquestionably true that preventive medicine will become increasingly prevalent, but this will by no means tend to minimize the importance of the group system. Public hygiene and sanitation likewise can be administered best by an organization of experts in various lines who must cooperate in the solution of the problems of preventive medicine. Moreover, by no means all forms of disease are preventable, even in theory. Curative medicine must therefore remain important, whether under private or state administration, and will certainly reach its greatest efficiency under the group system of organization.

Since well trained specialists are essential to the success of this plan, we may anticipate an increasing demand for them in the near future. Here also the war has revealed our present deficiencies. As Munson, Bispham and others have noted, a large proportion of our alleged specialists were found more or less incompetent in the military medical service.

Our present supply of real specialists thus is far below that indicated by the medical directory. In ophthalmology, for example, according to data cited by Reber, there are now in the United States about 5,000 listed ophthalmologists, of whom perhaps one fourth are really competent specialists. Edward Jackson estimates that about 10,000 trained ophthalmologists are needed in this country, or one to every 10,000 of population. Even if this number of ophthalmologists were now available, it is estimated that about 400

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* Read at a meeting of the staff and students of the Mayo Foundation for Medical Education and Research at Rochester, Minn., April 23, 1919.

* Owing to lack of space, this article is abbreviated in The Journal by the omission of references and other matter. The complete article appears in the author's reprints.

new men should be added each year in order to keep up the supply. The demand for well trained specialists in other lines is equally great.

To meet this demand, how are the specialists to be trained? In the first place, the plan of gradually narrowing from a general practice to a special field, a favorite method in the past, is now recognized as totally inadequate, unless supplemented by special training. For this special training, the opportunities offered by hospitals must be considered. Those hospitals with sufficient clinical facilities and with staffs efficiently organized are able to offer attractive educational opportunities to younger men who are willing to act as assistants during their period of apprenticeship. As has been pointed out by Welch, Barker and others, such positions as those of resident physician or surgeon in some of the larger hospitals represent, up to the present time, the best opportunities for capable young men who are ambitious to rise to eminence in the various phases of clinical medicine. Warner has recently emphasized the opportunities and responsibilities of the hospitals in the education of clinical specialists.

Unfortunately, such opportunities for hospital positions are now very limited in number, as well as defective in most cases from the educational point of view. This becomes apparent when one asks: "What training is needed for those who desire to attain leadership as clinical specialists in surgery, internal medicine, pediatrics, obstetrics, ophthalmology or other departments?" For the ideal education of specialists in medicine, the following conditions appear to me essential: (1) an adequate general medical education, including a hospital internship; (2) advanced work in the fundamental sciences; (3) advanced clinical instruction and training in the desired specialty; (4) training in research methods, and (5) adequate certification of proficiency. Let us consider these principles and the possibility of their realization under present conditions.

PRELIMINARY MEDICAL EDUCATION

An adequate general medical education is clearly an indispensable prerequisite for training in any branch of medical specialism. With a weak foundation, there can be no satisfactory superstructure. A graduate of a poor medical school cannot hope to become a competent specialist, unless he is willing first to go back and rebuild his primary medical education. Cases in which native genius is able to overleap the barrier of deficient preliminary education are rare.

Furthermore, a general hospital internship for at least a year, now recognized as an essential prerequisite for general practice, is even more important to give the broad, comprehensive clinical knowledge necessary for successful specialism. A narrow specialism will inevitably defeat its own ends. To avoid this obvious danger, the tradition still generally current in the medical profession requires several years of preliminary general practice. Recently, however, there has been marvelous improvement in clinical instruction in the better medical schools, making it possible (as Edward Jackson, Todd and others have pointed out) for the student to secure a better all-round clinical training by the end of his intern year than could formerly be obtained by several years of general practice.

There are certainly good educational and social reasons why the graduate medical training for specialism should begin as soon as possible. The graduate of five or ten years' standing has lost much of his mental elasticity, and usually finds it very difficult to resume serious and intensive study. A graduate of a first-class medical school, with a subsequent hospital internship, may therefore safely proceed at once to the desired line of specialization.

ADVANCED WORK IN THE FUNDAMENTAL SCIENCES

Following his hospital internship, the first step needed by the prospective specialist is to strengthen his knowledge of the fundamental sciences underlying the clinical application in his chosen field. This principle must be emphasized, as it is frequently overlooked or ignored.

Nowadays a preliminary undergraduate training in the fundamental sciences of anatomy, physiology and pathology is universally recognized as essential for ordinary medical practice. But it is often forgotten that within the necessarily brief time allotted to these laboratory subjects in the medical curriculum, only their most elementary phases can be considered. These may be sufficient for the general practitioner, but are certainly inadequate for the specialist. Just as a general knowledge of the basic sciences is essential to their successful application in general practice, so is a more detailed first-hand knowledge of the underlying sciences equally necessary for intelligent specialization in a narrower clinical field. The logical graduate medical course must therefore repeat the order of sequence well recognized in the undergraduate curriculum: first, the fundamental sciences; second, their clinical application. The wouldbe specialist is prone to put the clinical cart before the laboratory horse, however, just as the shortsighted medical freshman undergraduate would like (and formerly was permitted) to attend clinics from the beginning of the medical course.

The principle that clinical medicine is an applied science is thus even more true for specialism than for general practice. Before the wouldbe clinical specialist has acquired a more thorough knowledge of the corresponding fundamentals, he simply does not have the science to apply. Without this science, the resultant training and practice will be empiric rather than scientific. Until this elemental principle is clearly recognized, we cannot hope for a satisfactory solution of the problem of graduate medical education for specialism. "Back to the laboratory" must be the slogan for the wouldbe specialist in the first stage of his graduate training.

Granting the principle, where can the requisite fundamental science be obtained? Practically the only places where the necessary facilities are now available are the laboratories of the medical schools of the stronger universities. Some of the larger hospitals have fairly good laboratories of pathology and bacteriology, but few have any one available who is capable of guiding the candidate in a systematic advanced study, even where there are laboratory facilities. The other laboratories necessary for graduate training are not provided by hospitals.

On account of the great expense involved, it likewise appears utterly impossible for the independent postgraduate medical schools to establish satisfactory laboratories for advanced scientific work. While these schools may serve a useful purpose in functioning as "undergraduate repair shops" (Flexner), their facilities for the adequate training of competent specialists are decidedly limited.

Even the universities which have adequate laboratory staffs and facilities for this purpose have rarely given much thought to the matter of providing the opportunities necessary for the training of clinical specialists in the fundamental sciences. Careful planning is required to give the best results. The course for each student should be arranged by conference between those in charge of the various clinical specialties and those in charge of the corresponding laboratory subjects involved. The essential point is that each student should have his work well outlined and supervised and that he should be provided with the necessary laboratory material and facilities.

Systematic provision should be made in a larger number of universities for at least this fundamental laboratory training needed by clinical specialists. Even the two-year medical schools, or other schools lacking sufficient clinical facilities for complete graduate training, could without much difficulty organize an excellent year's fundamental course for this purpose. A discussion of the curriculum requirements for graduate training in the various specialties may be found in papers by Todd, Sedgwick, Litzenberg, Edward Jackson, Duane, Shambaugh, Wishart and others. The broader phases of the subject are emphasized by Christian, Barker, Lyon and Wilson.

If the student could also have an opportunity to serve as a teaching assistant in one of the fundamental laboratories during the earlier part of his graduate work, so much the better. The road to specialism through an apprenticeship in one of the basic sciences, long recognized in Europe, has thus a substantial justification. As Melzer has well said:

> The best physician of the future will be the brainy man who has spent many years in studying the methods employed in acquiring knowledge in the pure medical sciences, and then in applying all his mental energies to a broad study of disease.

The clinical graduate student should also profit greatly from his association with the laboratory sciences in ways other than the acquisition of indispensable information. He should also obtain what is really even more important, an inspiration of scientific ideals and a preliminary training in scientific methods. He should furthermore avoid the fallacious idea that he can leave the laboratory behind him when he has finished therein his preliminary training. Rather will he find it necessary, if his clinical career is to be progressive and fruitful, to maintain permanent relations with the basic medical sciences. Unless he catches the scientific spirit, and realizes that all medicine is essentially merely one phase of biology in a broad sense, his sojourn in the laboratory will have been in vain.

CLINICAL TRAINING FOR SPECIALISM

Following the preparatory work in the fundamentals, the clinical training for specialism is naturally of paramount importance. The apprenticeship method by which most specialists in the past have obtained this training in connection with private or public clinics has varied exceedingly in the opportunities offered and the results obtained. At best, while offering excellent practical training, it has usually been deficient in the requisite fundamental laboratory instruction above mentioned. Moreover, it has usually tended to become more or less routine in character, particularly when there is a large volume of clinical work to be done, with an inadequate number of assistants.

The objections to overloading the student with routine clinical work (during the internship) are thus emphasized by Dodson:

> The amount of routine work now demanded of the intern in many hospitals so consumes his time as to make it very difficult and often impossible for any but the exceptional student to prepare a thesis. This ought not, however, so to be. The intern should have time to study the cases assigned to him thoroughly and carefully, and also pursue exhaustively the study of some disease or condition as presented by some interesting case, or group of cases, to explore the literature relating to that topic, and to set down in orderly fashion the results of his investigation. No instruction or experience in his career is so potent an educational measure as this one of independent creative work.

The argument naturally applies even more strongly in the cases of graduate students beyond the internship year who are preparing themselves to qualify as specialists.

Even in our own university work, where the educational principles are especially emphasized, the graduate fellows in clinical departments have sometimes found that the large amount of routine work they are required to perform leaves insufficient time and energy for the study necessary to meet the requirements of the graduate school.

While on the one hand a thorough, practical training in the clinical work is indispensable, it is clearly evident that this phase of the work may easily be overemphasized, leading to a neglect of the scholarship requirements.

REQUIREMENTS IN SCHOLARSHIP

The question may fairly be raised as to whether these scholarship requirements are really necessary for those seeking to qualify for leadership in clinical specialism. Or are these requirements merely "academic frills" of no real value? The requirements are based on the theory that technical proficiency alone is insufficient to train the highest type of physician; that practical experience must be supplemented by theoretical study; that the ideal of skill must be accompanied by the ideal of scholarship, if we are to train clinical specialists of the highest type, who can render the greatest service to mankind, in research as well as in practice. Let us see whether there is any adequate basis for these assumptions.

From the broader point of view, considering education as the sum total of all factors which train man for better adjustment with his environment, both skill and scholarship are essential. Activity without intelligence is as fruitless as intelligence without activity. Knowing and doing must go hand in hand, if education is to be efficient. This principle is now generally recognized in undergraduate medical education. Is not the power of independent thought and productive scholarship even more important in graduate medical education? On this principle are based the graduate school requirements of thesis, foreign language and history of medicine. Let us briefly consider each of these in turn. The thesis involves a thorough training in scientific research methods, and the application of these methods in the solution of some medical problem. The emphasis on this phase of graduate work, this training in productive scholarship, seems to me justified in two ways.

In the first place, we all recognize that, in spite of great advances in the past, medical science is only at the threshold of its future possibilities. Suffering humanity cannot wait for medical discoveries to come by chance. The state should therefore encourage and train research workers in every branch of clinical medicine, as well as in the more fundamental sciences. This is, I believe, the highest function of the university graduate school. Although only a few of the graduate students will actually develop into investigators of the first rank, even these few will fully justify all the effort and expense involved in their education. While the skilled specialist in his practice may relieve hundreds, his research resulting in even a comparatively small advancement in his subject will, through the entire medical profession, reach and benefit thousands and millions of human beings.

In the second place, training in research methods, as involved in the preparation of a creditable thesis, is also exceedingly valuable even for the larger number who will never become primarily researchers (in the narrower sense), but who will rather devote themselves to specialized clinical practice.

As Allbutt reminds us:

> We are prone to forget that research has two purposes, results being but one of them; the other purpose is method, which is itself an education in flexibility, ingenuity, dexterity and perseverance.

Even the "purely clinical" specialist will thus profit greatly by a thorough training in scientific research methods. This training in research methods is directly beneficial to the clinical practitioner because the practice of medicine is, or should be, essentially scientific research. As Barker expresses it:

> Each new patient is a problem for investigation; the clinician applies the methods he has learned and tries to solve it.

The importance of the research spirit in medical education has likewise been emphasized by Pearce and others. In its broader aspects, this subject is receiving increasing recognition as a principle of education in general, and may, let us hope, be extended throughout our entire educational system, from the kindergarten to the university. From this broader point of view, Donaldson's conception of the research spirit may be cited:

> Research is a frame of mind. A man may have little leisure and trifling resources, may never have published, but if he examines his world in a questioning spirit, if he carries with him not only conclusions, but the observations on which they rest, if he refuses to pound square facts into the round holes that he happens to have in hand, he has attained illumination. The spirit of research is nothing mysterious or remote; it is everyday hard sense. Unfortunately, that does not make it common, but it does make it attainable.

I have dwelt thus somewhat at length on the research spirit, because if it is so important to medicine in general, it should clearly be a very essential part of the highest phase of medical education, the graduate training of specialists. And the thesis is merely the concrete evidence that the student has caught the research spirit, that he has had adequate training in research methods and in their successful application in the solution of some definite medical problem.

As a corollary to the thesis requirement comes the necessity for a study of the medical literature. This involves a reading knowledge of the principal foreign languages. One foreign language is already an admission requirement to the undergraduate work in medical schools of the better class. The addition of a reading knowledge in the second foreign language is not a burdensome requirement, and is an essential prerequisite for efficient scholarship. It is evident that one cannot well invade the unknown until he has learned what is already known in that particular phase of the subject. To do this, he should be able to read at least the three modern languages (English, French and German) in which the greater part of the original work in medical science is published. Translations are usually inadequate and frequently unavailable, even in abstract.

Even the genius of John Hunter did not prevent him from serious error (as cited by Jacobi) in denying the occurrence of visceral syphilis, which had already been demonstrated by Morgagni and Paracelsus. Numerous similar instances could be cited in every branch of medicine, indicating the necessity of a reading knowledge of foreign languages for efficient medical research. A knowledge of languages is necessary even for practitioners who desire merely to keep abreast of medical progress; and it is indispensable for those who aspire to leadership.

Associated with the thesis and language requirements is the subject of the history of medicine. Candidates for the higher degrees in medicine at Minnesota are required to know the history of medicine in general, and particularly that of the major subject in which the degree is sought. This requirement is based on the necessity for a background of historical knowledge, without which it is impossible to get an adequate conception of present conditions. The history of medicine teaches the evolutionary stages by which progress has been made in the past, and reveals pitfalls which must be avoided in the future. Probably in no department of human activity is a knowledge of its historical development more important than in medicine. The neglect of this subject in the undergraduate medical curriculum merely serves to emphasize the necessity for its requirement in the graduate work.

CERTIFICATION

It is not sufficient merely to provide adequate training for medical specialists. If they are to serve the public, some means must be devised to certify their proficiency. Realizing this necessity, the American Board for Ophthalmic Examinations (representing the national ophthalmic societies) examines those who have had the minimum training required for specialists in ophthalmology and awards certificates to those successful in passing the examination. Similarly membership in the American College of Surgeons indicates the recognition of ability in the practice of surgery. While certificates and titles of this character will undoubtedly be useful in helping to designate those at least moderately well qualified to practice in their special fields, it would seem that for those who have devoted a period of three years or more to a systematic course of graduate training and study a university degree is a more appropriate form of recognition and certification. No other institutions are so well qualified as the university to set standards which must command respect.

Just what this degree should be is a matter which has been much discussed, and concerning which there is still no unanimity of opinion. In the University of Colorado School of Medicine, where graduate work in ophthalmology has been developed through the pioneer efforts of Edward Jackson, the degree of Doctor of

Ophthalmology has been awarded to several candidates since 1913. Arnold proposes the degrees of Master of Science in Medicine (M.S.Med.) and Doctor of Science in Medicine (D.S.Med.), which in scholarship are essentially equivalent to the well known graduate degrees, Master of Arts (A.M.) and Doctor of Philosophy (Ph.D.). In addition, he proposes a degree of Doctor of the Practice of Medicine (D.P.Med.). "The requirements for this degree should be essentially the same as for the D.S.Med., except that the time devoted to research and to the preparation of a thesis would be devoted to the development of higher technic and skill in practice."

The latter proposal, to establish a practitioner's degree without research or thesis, is open to serious objections. It would tend to sacrifice scholarship in favor of skill, and thus to yield an unbalanced and undesirable type of specialism. Rather would it seem better to insist that no specialistic training without scholarship requirements involving at least some original work should be crowned by a university graduate degree.

Judging from our experience at Minnesota, graduate students in clinical branches will fall into three groups: Some will be unable to meet the thesis and associated requirements. This deficiency will debar them from being candidates for the higher degrees, irrespective of their technical skill in routine clinical work. Others will be able to produce a fairly creditable thesis, exhibiting some capacity for independent thought, though distinctly below the standard of scholarship ordinarily required for the doctor's degree in the graduate school. These may properly be awarded the degree of Master of Science (M.S.) in the special field. The third class, who measure fully up to the highest standards of both skill and scholarship, are awarded the degree of Doctor of Philosophy (Ph.D.) in the special field involved. We formerly awarded the degree of Doctor of Science (D.Sc.) for the same purpose, but abandoned it in recognition of the growing tendency to use this for an honorary degree.

The use of the M.S. and Ph.D. degrees (qualified or unqualified) for graduate work in the medical sciences is in accordance with the recommendations of the Committee on Degrees (A. C. Eycleshymer, chairman) at the recent meeting of the Association of American Medical Colleges in Chicago in March, 1919. The Ph.D. degree, as pointed out by Shambaugh, Vincent, Lyon and others, has the advantage of being thoroughly established, carrying with it everywhere the certification of ability in original thought and training in scientific methods. The qualification of the degree by the addition of the special field of clinical medicine involved should add to this a further recognition of practical ability in that professional field. It should indicate to the world that the recipient of this degree has undergone a long and careful training, both theoretical and practical; that he has met the most rigid tests both of skill and of scholarship; and that he is well qualified for leadership in his chosen field of specialism in medicine.

CONCLUSIONS

We must recognize an increasing need for medical specialism, especially in connection with the development of the group system in medical practice. For the training of efficient specialists, adequate facilities are in general available only in the medical schools of the stronger universities. These schools should organize graduate work for systematic training of medical specialists along broad lines, including the necessary foundation in fundamental scientific work, practical clinical instruction and training in research methods. Work thus planned in accordance with the ideals of skill and scholarship will yield the most efficient type of specialist. Successful candidates may approximately receive the degree of Master of Science or Doctor of Philosophy, specifying the field of proficiency.

EXPERIMENTS TO DETERMINE MODE OF SPREAD OF INFLUENZA *

MILTON J. ROSENAU, M.D.
BOSTON

The experiments here described were performed on an island in Boston Harbor, on volunteers obtained from the Navy. The work was conducted by a group of officers detailed for that purpose, from the U. S. Navy and the U. S. Public Health Service, consisting of Dr. G. W. McCoy, director of the Hygienic Library, Dr. Joseph Goldberger, Dr. Leake, and Dr. Lake, all on the part of the U. S. Public Health Service; and cooperating with those medical officers, was a group also detailed for this purpose on the part of the U. S. Navy, consisting of Dr. J. J. Keegan, Dr. De Wayne Richey and myself.

The work itself was conducted at Gallops Island, which is the quarantine station of the Port of Boston, and peculiarly well fitted for operations of this kind, serving adequately for the purposes of isolation, observations, and maintenance of the large group of volunteers and personnel necessary to take care of them.

The volunteers were all of the most susceptible age, mostly between 18 and 25, only a few of them around 30 years old; and all were in good physical condition. None of these volunteers, 100 all told in number, had "influenza;" that is, from the most careful histories that we could elicit, they gave no account of a febrile attack of any kind during the winter, except a few who were purposely selected, as having shown a typical attack of influenza, in order to test questions of immunity, and for the purpose of control.

Now, we proceeded rather cautiously at first by administering a pure culture of bacillus of influenza, Pfeiffer's bacillus, in a rather moderate amount, into the nostrils of a few of these volunteers.

These early experiments I will not stop to relate, but I will go at once to what I may call our Experiment 1.

EXPERIMENTS AT GALLOPS ISLAND

As the preliminary trials proved negative, we became bolder, and selecting nineteen of our volunteers, gave each one of them a very large quantity of a mixture of thirteen different strains of the Pfeiffer bacillus, some of them obtained recently from the lungs at necropsy; others were subcultures of varying age, and each of the thirteen had, of course, a different history. Suspen-

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

* This paper and those by Drs. Frost, Park and Conner, which follow are part of a symposium on "Influenza." The remaining papers and the discussion will appear in the issues for August 9 and 16.

sions of these organisms were sprayed with an atomizer into the nose and into the eyes, and back into the throat, while the volunteers were breathing in. We used some billions of these organisms, according to our estimated counts, on each one of the volunteers, but none of them took sick.

Then we proceeded to transfer the virus obtained from cases of the disease; that is, we collected the material and mucous secretions of the mouth and nose and throat and bronchi from cases of the disease and transferred this to our volunteers. We always obtained this material in the same way: The patient with fever, in bed, has a large, shallow, traylike arrangement before him or her, and we washed out one nostril with some sterile salt solution, using perhaps 5 c.c., which is allowed to run into this tray; and that nostril is blown vigorously into the tray. This is repeated with the other nostril. The patient then gargles with some of the solution. Next we obtain some bronchial mucus through coughing, and then we swab the mucous surface of each nares and also the mucous membrane of the throat. We place these swabs with the material in a bottle with glass beads, and add all the material obtained in the tray. This is the stuff we transfer to our volunteers. In this particular experiment, in which we used ten volunteers, each of them received a comparatively small quantity of this, about 1 c.c. sprayed into each nostril and into the throat, while inspiring, and on the eye. None of these took sick. Some of the same material was filtered and instilled into other volunteers but produced no results.

Now, I may mention at this point that the donors were all patients with influenza in Boston hospitals; sometimes at the U. S. Naval Hospital at Chelsea, sometimes at the Peter Bent Brigham Hospital, where we had access to suitable cases. We always kept in mind the fact that we have no criterion of influenza; therefore I would like to emphasize the fact that we never took an isolated case of fever, but selected our donors from a distinct focus or outbreak of the disease, sometimes an epidemic in a school with 100 cases, from which we would select four or five typical cases, in order to prevent mistakes in diagnosis of influenza.

Now, thinking that perhaps the failure to reproduce the disease in the experiments that I have described was due to the fact that we obtained the material in the hospitals in Boston, and then took it down the bay to Gallops Island, which sometimes required four hours before our volunteers received the material, and believing that the virus was perhaps very frail, and could not stand this exposure, we planned another experiment, in which we obtained a large amount of material, and by special arrangements, rushed it down to Gallops Island; so that the interval between taking the material from the donors and giving it to our volunteers was only one hour and forty minutes, all told. Each one of these volunteers in this experiment, ten in number, received 6 c.c. of the mixed stuff that I have described. They received it into each nostril; received it in the throat, and on the eye; and when you think that 6 c.c. in all was used, you will understand that some of it was swallowed. None of them took sick.

Then, thinking perhaps it was not only the time that was causing our failures, but also the salt solution —for it is possible that the salt solution might be inimical to the virus—we planned another experiment, to eliminate both the time factor and the salt solution, and all other outside influences. In this experiment we had little cotton swabs on the end of sticks, and we transferred the material directly from nose to nose and from throat to throat, using a West tube for the throat culture, so as to get the material not only from the tonsils, but also from the posterior nasopharynx.

We used nineteen volunteers for this experiment, and it was during the time of the outbreak, when we had a choice of many donors. A few of the donors were in the first day of the disease. Others were in the second or third day of the disease. None of these volunteers who received the material thus directly transferred from cases took sick in any way. When I say none of them took sick in any way, I mean that after receiving the material they were then isolated on Gallops Island. Their temperature was taken three times a day and carefully examined, of course, and under constant medical supervision they were held for one full week before they were released, and perhaps used again for some other experiment. All of the volunteers received at least two, and some of them three "shots" as they expressed it.

Our next experiment consisted in injections of blood. We took five donors, five cases of influenza in the febrile stage, some of them again quite early in the disease. We drew 20 c.c. from the arm vein of each, making a total of 100 c.c., which was mixed and treated with 1 per cent. of sodium citrate. Ten c.c. of the citrated whole blood were injected into each of the ten volunteers. None of them took sick in any way. Then we collected a lot of mucous material from the upper respiratory tract, and filtered it through Mandler filters. While these filters will hold back the bacteria of ordinary size, they will allow "ultramicroscopic" organisms to pass. This filtrate was injected into ten volunteers, each one receiving 3.5 c.c. subcutaneously, and none of these took sick in any way.

The next experiment was designed to imitate the natural way in which influenza spreads, at least the way in which we believe influenza spreads, and I have no doubt it does—by human contact. This experiment consisted in bringing ten of our volunteers from Gallops Island to the U. S. Naval Hospital at Chelsea, into a ward having thirty beds, all filled with influenza.

We had previously selected ten of these patients to be the donors; and now, if you will follow me with one of our volunteers in this ward, and remember that the other nine were at the same time doing the same thing, we shall have a picture of just what was happening in this experiment:

> The volunteer was led up to the bedside of the patient; he was introduced. He sat down alongside the bed of the patient. They shook hands, and by instructions, he got as close as he conveniently could, and they talked for five minutes. At the end of the five minutes, the patient breathed out as hard as he could, while the volunteer, muzzle to muzzle (in accordance with his instructions, about 2 inches between the two), received this expired breath, and at the same time was breathing in as the patient breathed out. This they repeated five times, and they did it fairly faithfully in almost all of the instances.
>
> After they had done this for five times, the patient coughed directly into the face of the volunteer, face to face, five different times.
>
> I may say that the volunteers were perfectly splendid about carrying out the technic of these experiments. They did it with a high idealism. They were inspired with the thought that they might help others. They went through the program

a splendid spirit. After our volunteer had had this sort of ntact with the patient, talking and chatting and shaking nds with him for five minutes, and receiving his breath five mes, and then his cough five times directly in his face, he oved to the next patient whom we had selected, and peated this, and so on, until this volunteer had had that rt of contact with ten different cases of influenza, in different stages of the disease, mostly fresh cases, none of them ore than three days old.

We will remember that each one of the ten volunteers ad that sort of intimate contact with each one of the n different influenza patients. They were watched refully for seven days—and none of them took sick any way.

EXPERIMENTS AT PORTSMOUTH

At that point, the holidays came, our material was xhausted, and we temporarily suspended our work. n fact, we felt rather surprised and somewhat perlexed, and were not sure as to the next way to turn, nd we felt it would be better to take a little breathing pell and a rest.

We started another set of experiments in February at lasted into March, again using fifty volunteers arefully selected from the Deer Island Naval Traing Station. These experiments I will not give in etail. They would take too long. They were simply esigned and the program was carefully planned, but e way matters turned out became very confusing nd perplexing. I will give two instances to explain hat I mean by that; and I give them because they are xceedingly instructive and very interesting.

In February and March, the epidemic was on the ane. We had difficulty in finding donors. We were ot sure of our diagnosis, having no criterion of influnza. We therefore felt very fortunate when we earned of an outbreak that was taking place at the ortsmouth Naval Prison, only a few hours north of oston. We at once loaded a couple of automobiles lled with our volunteers, and rushed up to Portsnouth, and there repeated many things that I have lescribed in our first set of experiments. At Portsnouth, out of a large number of cases, we made our elections carefully, taking the typical cases for donors, nd transferring the material directly to our volunteers. In about thirty-six hours, half of the number ve exposed came down with fever and sore throat, vith hemolytic streptococci present, and doubtless as he causal agent. All the clinicians who saw these ases in consultation agreed with us that they were rdinary cases of sore throat.

Another incident: One of our officers, Dr. L., who ad been in intimate contact with the disease from arly in October, collected material from six healthy nen at the Portsmouth Navy Yard who were thought night be in the period of incubation of the disease—we vere trying to get material as early as possible, because ll the evidence seems to indicate that the infection is ransmittable early in the disease. None of the six nen came down with influenza, but Dr. L. came down in thirty-six hours, with a clinical attack of influenza, although he had escaped all the rest of the outbreak.

CONCLUSION

I think we must be very careful not to draw any positive conclusions from negative results of this kind. Many factors must be considered. Our volunteers may not have been susceptible. They may have been immune. They had been exposed as all the rest of the people had been exposed to the disease, although they gave no clinical history of an attack.

Dr. McCoy, who with Dr. Richey, did a similar series of experiments on Goat Island, San Francisco, used volunteers who, so far as known, had not been exposed to the outbreak at all, also had negative results, that is, they were unable to reproduce the disease. Perhaps there are factors, or a factor, in the transmission of influenza that we do not know.

As a matter of fact, we entered the outbreak with a notion that we knew the cause of the disease, and were quite sure we knew how it was transmitted from person to person. Perhaps, if we have learned anything, it is that we are not quite sure what we know about the disease.

[A complete account of the experiment is being published by the U. S. Public Health Service.]

THE EPIDEMIOLOGY OF INFLUENZA *

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The history of influenza so far as it is known, that is, for several centuries, comprises a series of long cycles in which great pandemics alternate with periods of relative quiescence, the length of cycles as measured by the intervals between pandemics being usually a matter of decades. The special characteristics of influenza pandemics are their wide and rapid extension, their high attack rates, and great effect on general mortality rates. Since these cycles are undoubtedly of fundamental significance in the natural history of influenza any proper discussion of the epidemiology of the disease should cover at least one full cycle, preferably the last, from 1889 to the present. The material for such a discussion must, however, be collected from many and diverse sources and laboriously fitted together, since there is no concrete specific and continuous record of the prevalence or mortality of influenza during such a period of years.

LACK OF SPECIFIC RECORDS

During great epidemics there are abundant, if not exact records of prevalence, and the resulting mortality can be determined with fair precision, even though a large proportion of the deaths are classified under diagnoses other than influenza. In the intervals between epidemics influenza becomes inextricably confused with other respiratory diseases, having a general clinical resemblance but no definite etiologic entity, so that the record of prevalence and even of mortality is virtually lost. The first requisites for epidemiologic study; namely, clear differential diagnosis and systematic records of occurrence, are therefore lacking in influenza.

In the absence of these essential records, statistics of mortality from the group comprising influenza and all forms of pneumonia afford, perhaps, the nearest approximation to a record of influenza. It is not intended to suggest that the mortality from this group of diseases furnishes in any sense a *measure* of the prevalence of influenza, but only that it furnishes an

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

index, since it is well established that the epidemic prevalence of influenza markedly affects the mortality from this group of diseases, and since it is at least probable that, even in nonepidemic periods, there may be some intimate and constant relation between the prevalence of influenza and the mortality from pneumonia.

The following discussion, which is necessarily confined to a few broad outlines, is accordingly based on records of mortality from influenza and pneumonia for a series of years; statistics of general mortality during the recent epidemic, and limited morbidity statistics.

INFLUENZA AND PNEUMONIA MORTALITY IN MASSACHUSETTS, 1887-1916

Table 1 and Chart 1 show for Massachusetts, a state in which continuous records are available, the number of deaths and the death rates per hundred thousand from influenza and from all forms of pneumonia, by months, from 1887 to 1916, inclusive.

Chart 1 shows clearly the effect of the epidemic of 1889-1892, developing in three distinct phases, the first phase culminating in January, 1890; the second in April and May, 1891; and the third in January, 1892. It will be noted that the mortality was higher in 1891 than in 1890, still higher in 1892, and that in 1893, although no distinct epidemic occurred, the pneumonia mortality for the year was still higher than in 1892. This corresponds to the experience in England according to Parsons,[1] and apparently represents the general experience in other countries, with some differences in chronology and relative severity of the several phases of the epidemic.

COMPARABLE STATISTICS FOR 1910-1918

As comparable statistics for Massachusetts in 1917 and 1918 are not now at hand, it is necessary to turn to other sources for the record of these years. The U. S. Census Bureau has very kindly furnished to me, from tables prepared for publication in the 1917 mortality statistics, the number of deaths by months during 1917 from pneumonia and influenza in certain registration states and registration cities of over 100,000 population, thus continuing through that year the records of monthly

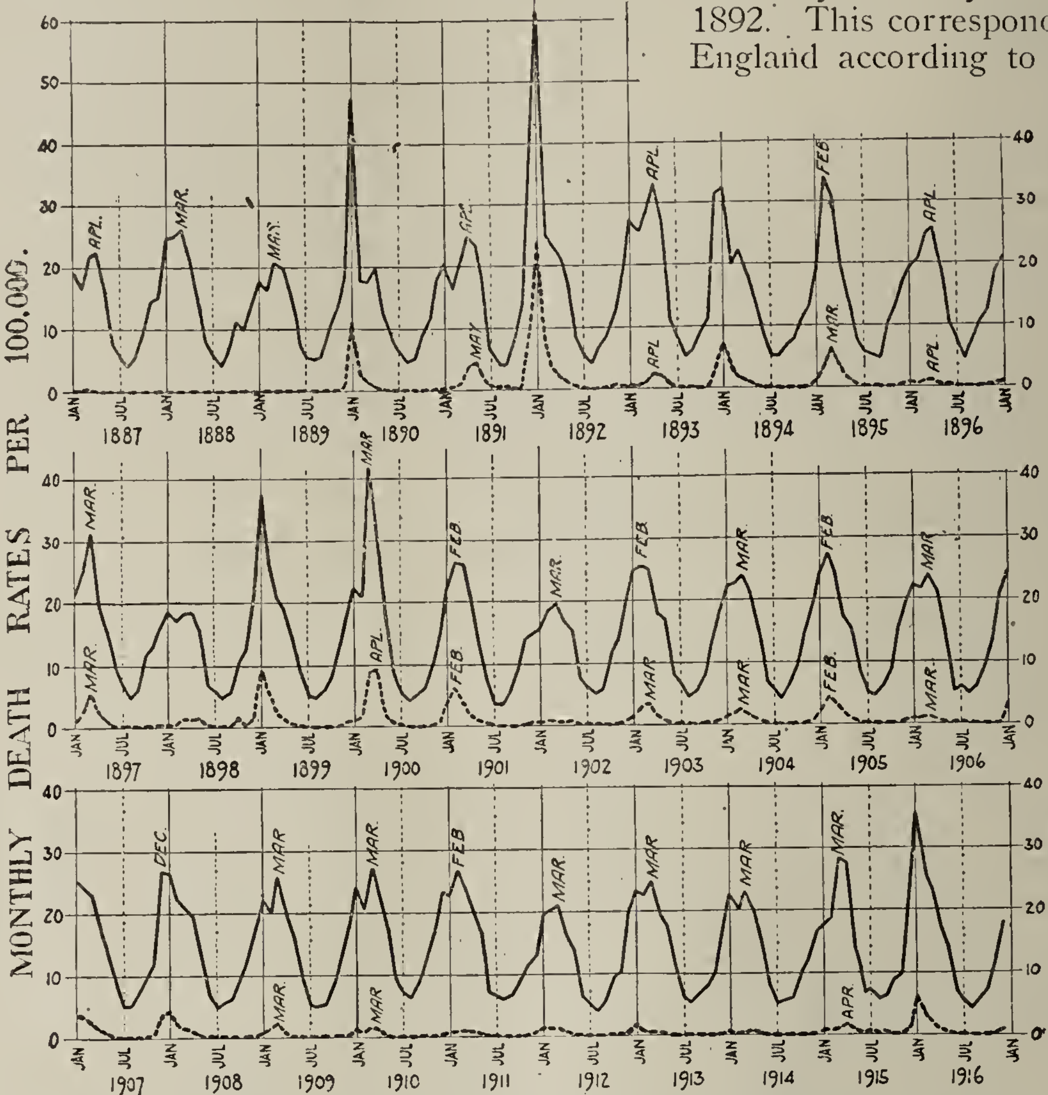

Chart 1.—Monthly death rates per hundred thousand of population, from pneumonia (all forms) and from influenza, in Massachusetts, from 1887 to 1916, inclusive.

TABLE 1.—DEATH RATES PER HUNDRED THOUSAND OF POPULATION, FROM PNEUMONIA (ALL FORMS) AND FROM INFLUENZA, IN MASSACHUSETTS, 1887-1916, INCLUSIVE *

		PNEUMONIA											
Year	Total Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.
1887	159.0	19.5	16.7	1.9	22.6	16.1	7.7	5.5	4.1	5.6	9.0	14.8	15.3
1888	172.7	24.7	25.1	26.4	21.3	16.4	8.0	5.5	4.0	6.2	11.4	9.8	13.9
1889	156.6	17.9	16.3	21.1	19.8	14.9	7.5	5.3	5.2	5.4	10.6	13.2	19.3
1890	180.0	47.8	17.7	17.6	20.1	12.7	8.5	6.2	4.8	5.0	9.4	11.8	18.3
1891	188.5	20.6	16.4	20.6	25.1	23.9	10.1	5.9	4.0	4.0	7.7	13.8	36.4
1892	213.0	61.5	25.2	23.1	21.4	17.0	8.3	5.4	4.2	6.8	8.5	12.5	19.0
1893	225.8	27.3	25.4	28.6	33.1	27.3	11.1	8.0	5.0	6.1	9.8	14.3	31.9
1894	166.0	32.8	19.9	22.7	18.5	14.0	8.5	5.1	5.1	6.8	8.2	11.3	13.6
1895	184.1	19.1	34.4	30.8	20.9	14.4	7.6	5.6	5.3	4.7	10.5	13.4	17.3
1896	182.0	19.5	20.7	24.9	25.9	18.7	10.3	7.6	4.5	7.6	10.7	12.7	18.8
1897	181.6	21.1	24.9	31.5	19.7	15.2	10.2	7.0	4.5	6.0	11.7	13.1	16.9
1898	156.0	18.8	17.1	18.5	18.7	15.7	6.6	6.0	4.8	5.6	10 6	12.8	21.0
1899	181.3	37.5	25.8	20.6	18.4	14.0	8.9	5.0	4 8	5.8	8.2	13.2	19.0
1900	188.3	22.7	21.1	42.0	30.5	17.6	8.7	5.3	4.3	5.3	6.2	9.9	14.7
1901	167.7	22.6	26.6	26.2	19.9	13.9	7.7	3.4	3.4	5.7	9.1	14.2	15.1
1902	158.9	15.7	18.9	19.9	16.8	15.5	8.0	6.2	5.3	5.7	11.8	14.5	20.6
1903	172.5	25.2	25.8	25.4	18.1	16.8	8.2	7.0	4.5	4.6	7.7	13.3	16.9
1904	172.1	22.6	22.7	24.1	21.2	14.2	6.7	5.9	4.4	6.5	9.4	15.0	19.5
1905	178.3	24.7	27.7	23.6	17.1	15.5	8.5	5.4	4.8	6.2	8.9	15.8	20.0
1906	174.1	22.5	21.9	24.1	21.7	14.9	5.1	6.2	5.0	6.0	9.4	13.8	21.0
1907	180.4	25.5	24.4	23.4	18.3	14.3	9.5	5.1	5.1	7.1	9.3	12.7	26.9
1908	165.8	26.6	22.2	21.1	19.4	13.5	6.6	4.9	5.8	6.4	9.2	12.4	17.6
1909	170.3	22.1	20.0	26.1	20.1	16.0	9.7	5.1	5.0	5.4	8.9	13.6	18.3
1910	197.6	24.1	20.7	27.5	23.3	16.9	9.7	7.3	6.3	9.1	12.3	17.0	23.6
1911	174.4	22.6	27.1	23.9	20.2	16.9	7.2	6.7	6.1	6.7	9.0	11.8	16.2
1912	152.0	19.8	20.2	21.2	16.4	13.3	6.2	5.0	4.1	5.8	9.5	10.5	19.9
1913	172.2	23.5	22.8	24.9	19.3	17.1	10.7	6.2	5.4	6.7	8.3	10.4	16.8
1914	166.0	22.9	20.1	23.2	20.4	15.2	8.2	5.1	5.5	6.0	10.1	12.6	16.8
1915	176.0	17.8	19.3	28.5	27.7	13.6	6.6	7.1	5.8	6.0	8.8	9.8	22.1
1916	176.6	35.6	25.5	23.0	17.3	14.0	7.4	5.3	4.1	5.9	7.6	12.8	18.3

		INFLUENZA											
Year	Total Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.
1887	0.90	0.05	0.14	0.28	0.14	0.05	....	....	....	0.05	0.10	0.05	0 05
1888	0.51	0.14	0.05	0.05	....	0.05	....	....	....	0.05	0.14	....	0.05
1889	1.23	0.09	0.09	0.14	0.14	0.05	0.05	0.05	....	....	0.09	....	0.55
1890	18.31	10.96	2.90	1.43	0.94	0.40	0.36	0.22	0.04	0.18	0.22	0.27	0.40
1891	23.74	0.39	0.39	1.00	3.87	4.65	1.57	0.52	0.52	0.52	0.22	0.26	10.08
1892	41.06	24.33	7.64	3.02	1.83	1.10	0.72	0.51	0.17	0.21	0.38	0.68	0.47
1893	12.27	0.58	0.70	1.20	2.57	2.07	0.46	0.17	0.12	0.04	....	0.46	3.90
1894	14.97	7.41	3.16	1.38	1.09	0.40	0.20	0.16	0.08	0.16	0.20	0.16	0.36
1895	18.10	0.79	4.50	6.97	3.29	1.11	0.36	0.24	0.08	0.08	0.04	0.24	0.36
1896	5.81	0.93	0.62	1.16	1.05	0.46	0.39	0.15	0.12	0.04	0.27	0.19	0.43
1897	14.40	0.83	2.42	5.68	2.50	1.02	0.27	0.15	0.23	0.15	0.27	0.27	0.61
1898	8.56	0.59	0.59	1.56	1.30	1.48	0.37	0.11	0.22	0.07	0.19	0.26	1.8
1899	20.72	9.34	5.81	2.18	1.05	0.51	0.29	0.07	0.04	0.07	0.33	0.18	0.84
1900	25.27	1.21	1.50	9.20	9.23	1.85	0.68	0.21	0.07	0.11	0.11	0.32	0.78
1901	18.94	4.32	6.36	4.08	1.51	0.84	0.46	0.14	0.04	0.21	0.18	0.25	0.77
1902	5.89	0.59	0.87	0.90	0.69	0.73	0.24	0.21	0.14	0.03	0.24	0.45	0.80
1903	12.65	1.57	3.08	3.66	1.61	0.82	0.38	0.14	0.10	0.03	0.21	0.34	0.72
1904	10.26	1.45	2.06	2.80	1.38	0.78	0.27	0.20	0.07	0.10	0.17	0.34	0.64
1905	14.69	2.75	4.58	3.48	1.76	0.86	0.30	0.07	0.07	0.03	0.03	0.20	0.56
1906	6.57	1.13	1.07	1.29	0.78	0.36	0.06	0.19	0.13	0.06	0.16	0.16	1.17
1907	16.13	3.61	3.48	2.28	1.04	0.70	0.22	0.03	0.03	0.03	0.19	0.54	3.9
1908	10.42	4.48	2.10	1.51	0.86	0.31	0.12	0.06	0.03	0.19	0.15	0.22	0.37
1909	7.16	0.76	1.93	2.30	0.88	0.36	0.24	0.03	....	0.03	0.15	0.21	0.27
1910	7.40	1.39	1.01	1.75	1.51	0.53	0.09	0.09	....	0.03	0.21	0.35	0.4
1911	4.63	0.87	0.96	0.90	0.79	0.41	0.03	0.09	....	0.03	0.12	0.06	0.4
1912	6.93	1.46	1.35	1.06	0.60	0.26	0.20	0.17	0.09	0.09	0.26	0.17	1.2
1913	5.75	2.00	0.76	0.85	0.51	0.34	0.14	....	0.17	0.14	0.20	0.25	0.3
1914	3.58	0.75	0.39	0.75	0.64	0.36	0.14	0.06	....	0.06	0.03	0.17	0 2
1915	6.34	0.79	0.60	0.98	1.88	0.49	0.16	0.08	0.05	0.08	0.11	0.22	0.8
1916	14.50	6.32	3.04	1.67	0.75	0.56	0.32	0.16	0.13	0.05	0.16	0.43	0.8

* Compiled from number of deaths as given in Registration Reports, State of Massachusetts, 1887-1916, except data for 1912, from Mortality Statistics, U. S. Census Bureau.

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[1] Parsons, H. Franklin: A Further Report on the Influenza Epidemics of 1889-90, 1891 and 1891-92, Local Government edition, London, 1893.

mortality available from published mortality statistics from 1910 to 1916, inclusive; and has also furnished records of deaths in certain of these states and cities, by months, during 1918. The latter figures were compiled and submitted by state and local registrars in compliance with a special request from the director of the census. They are merely provisional and the Census Bureau in no way vouches for their accuracy; but they are believed to be sufficiently exact for present purposes.

Owing to limitations of space, the statistics of only three cities (New York, Cleveland and San Francisco) are presented here. These are, however, fairly representative of the whole group of cities and states for which records are at hand. As may be seen from Table 2 and Chart 2, the mortality from influenza and pneumonia in these cities was fairly regular from 1910 till 1915, as was the case in Massachusetts (Chart 1) and generally throughout the registration area of the United States.

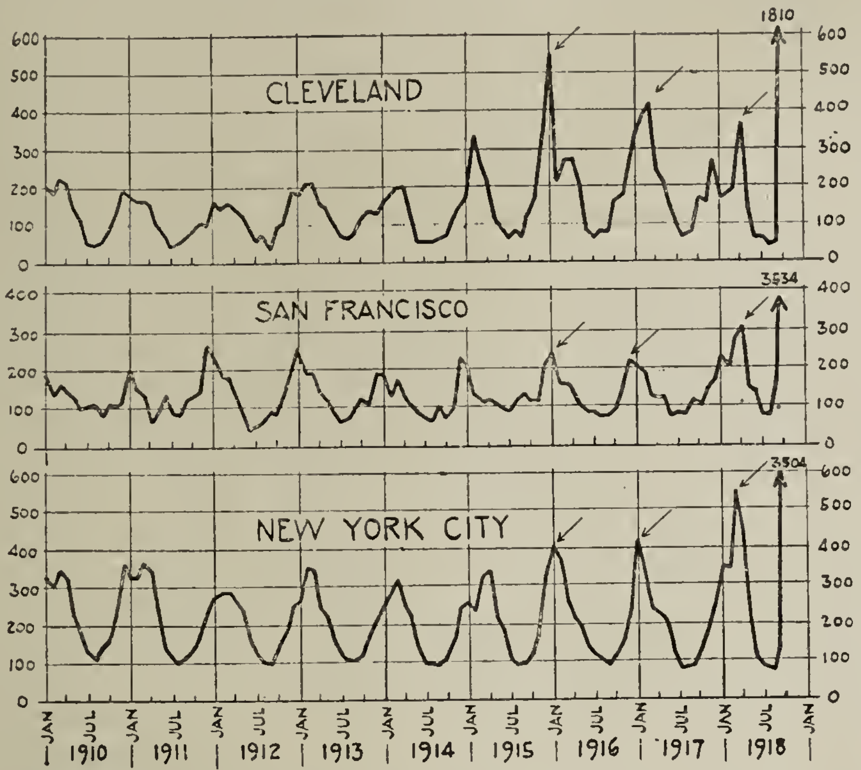

Chart 2.—Annual death rates per hundred thousand from influenza and pneumonia (all forms), by months, 1910-1918, in three American cities.

SIGNIFICANT RISE IN MORTALITY IN DECEMBER, 1915

In December, 1915, and January, 1916, there occurred in New York and Cleveland a sudden sharp rise in mortality. This, though not shown distinctly in San Francisco, was almost universal and synchronous over the whole of the registration area. While this may have no direct significance in relation to the 1918 pandemic, it is at least of interest as indicating the operation of some definite and widespread factor and suggesting in this group of diseases an epidemic tendency which is perhaps not sufficiently appreciated.

In *Public Health Reports* for Jan. 7, 1916, influenza was reported to be epidemic in twenty-three states in all sections of the United States, an epidemic now generally forgotten.

ANOTHER SHARP AND GENERAL RISE IN MORTALITY IN THE SPRING OF 1918

In the spring of 1918, there was another sharp and general rise in mortality from these diseases, clearly evident in Chart 2. In the larger cities on the Atlantic seaboard, this increase occurred generally during January, February and March, when pneumonia mortality normally reaches its maximum, and the increase was not so evident in all these cities as it was in New York City. In the rest of the country, especially in the central and western states, the increase occurred in April, a month during which pneumonia mortality is generally on the decline; and was sufficient to constitute an unmistakable departure from the normal. The increased mortality rate extended quite generally into May and in some areas still longer.

This occurrence has, I believe, a definite significance in relation to a coincident prevalence of influenza, and to the subsequent development of the influenza pandemic. Although there is no definite record of a gen-

TABLE 2.—ANNUAL DEATH RATES FROM INFLUENZA AND PNEUMONIA (ALL FORMS), BY MONTHS, FOR THE YEARS 1910-1918 (INCLUSIVE), IN NEW YORK, SAN FRANCISCO AND CLEVELAND*

		Months											
Years	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						New York							
1910	229.3	327.8	300.2	343.3	303.5	225.4	162.1	125.5	108.0	126.9	154.7	211.6	365.9
1911	217.7	321.3	325.5	359.0	338.7	237.2	137.2	115.8	97.2	107.6	145.0	195.0	240.8
1912	198.6	266.5	284.5	287.9	254.6	238.3	153.5	112.3	99.0	94.9	157.8	178.5	251.6
1913	199.7	265.0	353.0	342.2	242.7	225.1	158.9	113.5	101.9	100.6	118.4	172.9	213.3
1914	184.3	247.3	293.0	319.4	241.8	211.1	131.6	92.5	86.1	88.1	110.0	162.9	234.3
1915	202.7	253.7	232.2	325.4	344.5	212.1	172.0	103.2	89.2	90.8	120.4	167.1	324.4
1916	189.7	402.5	261.7	252.0	210.9	194.6	133.1	113.7	100.5	87.8	116.4	154.0	242.1
1917	191.9	417.9	316.3	237.3	221.2	202.4	122.8	72.6	78.4	89.5	127.6	185.5	237.7
1918	636.4	348.4	339.0	548.0	432.1	201.4	105.4	81.3	71.8	136.2	351.6	1,259.6	549.8
						San Francisco							
1910	128.6	199.9	134.0	168.9	148.2	132.3	101.6	109.8	112.6	87.3	118.2	110.5	118.2
1911	135.7	207.3	150.0	135.6	68.6	91.2	150.0	88.5	83.0	135.0	132.7	144.0	270.9
1912	126.0	236.3	191.6	182.0	131.9	86.9	47.7	51.6	67.9	92.6	84.2	137.5	198.3
1913	139.6	261.7	192.1	194.9	143.5	122.8	91.0	66.8	72.1	99.3	125.5	110.4	194.9
1914	122.6	191.7	130.8	178.5	132.9	107.6	84.1	78.8	63.0	103.1	70.9	97.7	231.0
1915	133.2	214.6	137.4	118.8	125.4	113.6	101.4	90.4	111.0	138.7	116.2	117.4	211.8
1916	133.2	243.9	165.6	162.6	144.3	101.6	84.0	88.9	71.1	76.1	88.9	144.3	221.0
1917	127.5	210.0	185.4	130.0	121.4	125.0	72.3	80.0	77.5	118.8	100.0	144.6	167.5
1918	713.0	231.3	204.3	278.1	310.2	152.6	139.8	78.7	73.8	117.0	3,534.0	2,069.8	1,331.0
						Cleveland							
1910	136.3	198.3	180.0	223.0	213.5	148.3	107.9	54.2	48.3	51.8	85.6	138.0	190.0
1911	106.5	174.3	165.9	164.1	155.0	103.4	77.5	40.5	50.6	67.1	81.0	109.0	93.2
1912	114.6	163.6	141.2	159.7	142.7	126.2	91.7	55.2	75.0	30.6	88.8	110.1	185.4
1913	131.9	179.8	205.1	217.5	152.5	147.4	107.5	68.1	60.6	74.3	115.3	130.9	128.6
1914	117.2	160.1	175.2	197.0	201.8	139.9	53.3	51.6	46.3	59.0	66.4	116.0	143.7
1915	162.7	166.5	333.1	252.6	201.8	109.3	77.4	55.5	78.8	59.2	121.8	170.2	336.8
1916	198.5	545.0	209.2	263.8	266.9	211.2	86.6	57.6	82.1	75.7	153.6	175.0	242.9
1917	210.9	344.0	386.0	415.0	233.8	208.0	145.8	90.2	66.4	72.1	160.0	152.9	267.0
1918	257.1	161.3	178.5	190.4	366.3	142.6	60.0	62.5	43.5	48.0	1,812.0	2,135.0	1,376.0

* Data for years 1910-1916 compiled from Mortality Statistics, U. S. Census Bureau, for those years; data for 1917 from table prepared for publication in 1917 Mortality Statistics, advance sheets being furnished by the Census Bureau; data for 1918 from special reports rendered to Director of the Census by city registrars. Populations used are U. S. Census Bureau midyear estimates.

eralized epidemic of influenza in the United States in the spring of 1918, definite local outbreaks were observed at that time. For example, Vaughan and Palmer[2] have described a mild epidemic prevailing in the Oglethorpe camps in March. The commissioner of health of Chicago[3] states, in his special report on the autumn epidemic in Chicago, that in March, 1918, distinct epidemics resembling influenza were observed in certain groups in that city. Stanley[4] in a recent publication describes three epidemics of influenza occurring in April, October and November, 1918, respectively, in San Quentin prison, California. These three epidemics were quite similar and that of April apparently developed from a newly received inmate, presumably infected in Los Angeles, indicating the presence of the infection there at that time.

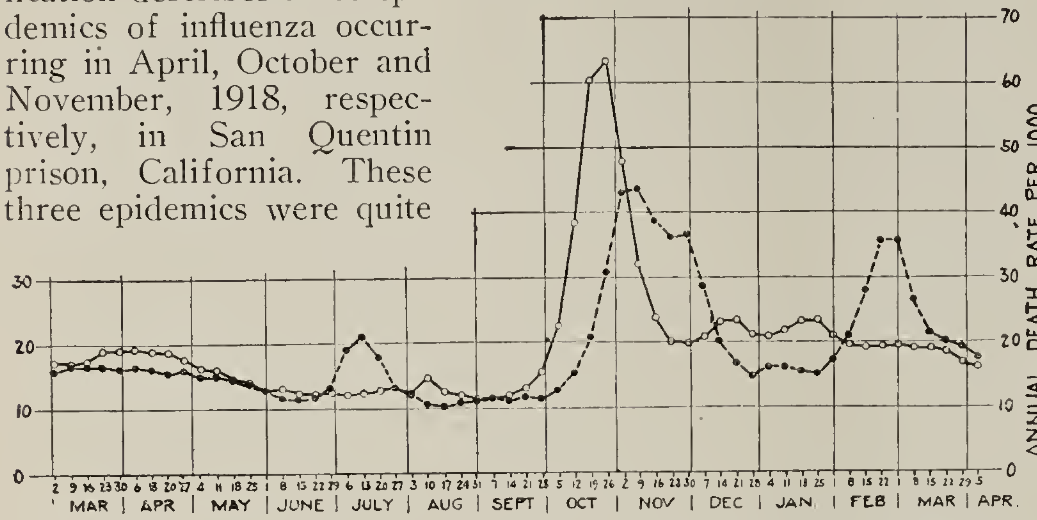

Chart 3.—Annual death rates from all causes, by weeks, March 2, 1918, to April 5, 1919, in forty-five American cities (population, 1918, 22,672,630) and ninety-six large cities of England and Wales (population, 1917, 16,577,344). Continuous line with circles signifies the forty-five American cities, and the broken line with solid dots the ninety-six large cities of England and Wales.

Opie, Freeman and others[5] of the Army Commission, studying pneumonia at Camp Funston, found that recurrent outbreaks of pneumonia observed there in March, April and May, 1918, were definitely associated with coincident epidemics of a mild type of influenza.

The rise in mortality from this group of etiologically heterogeneous diseases in the spring of 1918, is so sudden, so marked, and so general throughout the United States as to point very clearly to the operation of a single definite and specific cause, something largely independent of meteorologic and other local conditions. The observed occurrence of local epidemics of influenza at that time in widely scattered localities, the intimate association established at Camp Funston between the epidemic of influenza and pneumonia, and the subsequent development of the influenza pandemic, all indicate that the increased pneumonia mortality of March and April, 1918, was the consequence of a beginning and largely unnoticed epidemic of influenza, the beginning in this country of the great pandemic which developed in the autumn.

MILD EPIDEMICS OF INFLUENZA IN EUROPE IN APRIL AND MAY, 1918

From various localities in western Europe mild epidemics of influenza are reported in April and May, 1918; and perhaps there may be earlier reports. During June and July extensive epidemics were reported from Great Britain, various parts of continental Europe, China, India, the Philippine Islands and Brazil, with marked effect on general mortality rates in such of these countries for which records are available.

COURSE OF 1918 EPIDEMIC

The course of the epidemic in England and Wales, and in the United States, respectively, is illustrated by Chart 3, which shows the annual death rates from all causes, by weeks, in ninety-six large cities of England and Wales[6] with an aggregate population (1917) of 16,577,344 and in forty-five large American cities[7] aggregating about 22,950,000 population (1918).

In the British cities the epidemic has so far manifested three distinct waves: the first and slightest, in point of mortality, occurring in June and July; the second and most severe in November; the third in February and March. Data which need not be cited here in detail indicate that the course of the epidemic in western Europe, generally, was similar. In cities of India the sequence was similar but the mortality far greater. In the United States the epidemic developed more largely in a single wave, during September, October and November. If, however, the epidemic already mentioned as occurring in the spring be considered the first phase, and the explosive outbreak of the autumn, the second, a third phase or recrudescence is quite evident in many areas, though not shown distinctly in Chart 3, in which are combined a number of widely separated cities the curves of which overlap. In general, this winter recrudescence was less marked in those cities which suffered most severely in the autumn epidemic.

The course of the epidemic in the United States since September is already well known and need not be discussed here in detail. The prevalence of a serious epidemic among the civilian population was first recognized in and around Boston about the first of September. Within about two weeks the epidemic was

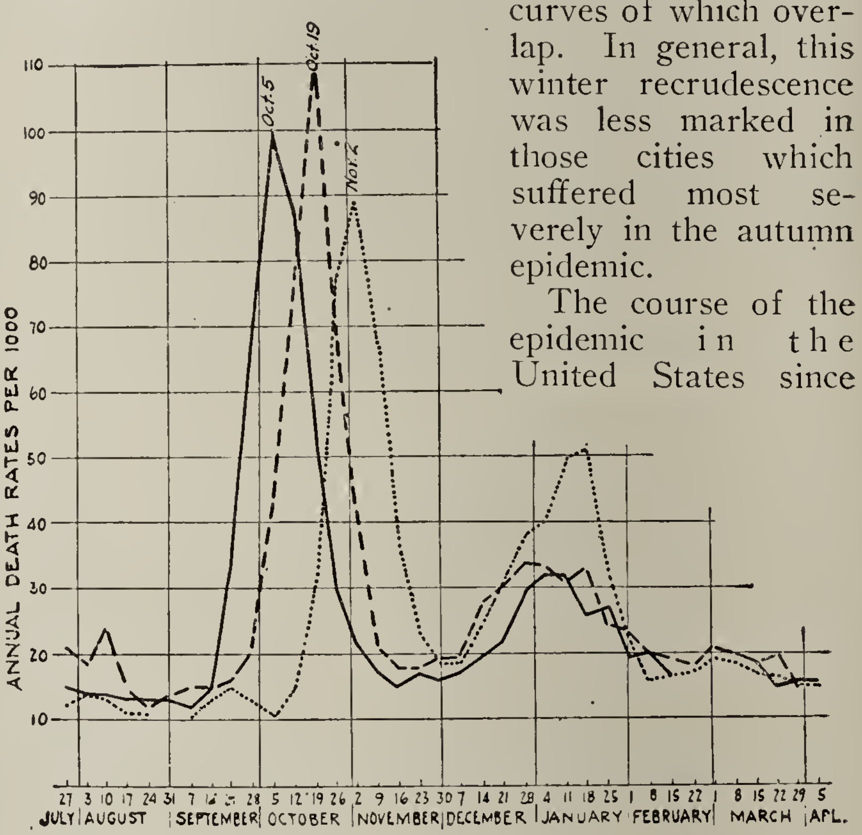

Chart 4.—Annual death rates per thousand from all causes, by weeks, July 27, 1918, to April 5, 1919. The unbroken line is the record of Boston, the dash line of Washington, and the dot line of San Francisco.

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[2] Vaughan, V. C., and Palmer, G. T.: The Communicable Diseases in the National Guard and National Army of the United States During the Six Months from September 29, 1917, to March 29, 1918, Military Surgeon **43**: 392 (Oct.) 1918.

[3] Robertson, J. D.: A Report on an Epidemic of Influenza in the City of Chicago in the Fall of 1918, Ed. Series 15, Department of Health, Chicago, 1918.

[4] Stanley, L. L.: Influenza at San Quentin Prison, California, Public Health Reports **34**: 996 (May 9) 1919.

[5] Opie, E. L.; Freeman, A. W.; Blake, F. G.: Small, J. C., and Rivers, T. M.: Pneumonia at Camp Funston. Report to the Surgeon-General, J. A. M. A. **72**: 108 (Jan. 11) 1919.

[6] Weekly Return of Births and Deaths Registered in London and Ninety-Five other Great Towns of England and Wales, London.

[7] Weekly Health Index, U. S. Census Bureau, Washington, D. C.

general in cities on the Atlantic seaboard, developing a little later among the cities farther west. Rural districts were usually attacked somewhat later than large cities in the same sections. The sequence of the epidemic in three cities (Boston, Washington and San Francisco) is shown in Chart 4. The interval between the peaks of the epidemic in Boston and San Francisco is four weeks, which is approximately the maximum difference between any two large American cities in this phase of the epidemic.

CURVES OF MORTALITY IN VARIOUS AMERICAN CITIES

The curves of mortality differed widely in different cities, as illustrated in Chart 5, showing in Philadelphia a very explosive and abrupt curve, observed more frequently among cities on the Eastern seaboard; in New York a less explosive curve, with a more prolonged high mortality rate, as observed more commonly in middle western cities, often with a more pronounced recrudescence; in Kansas City a still more gradual curve, declining only slightly after the first wave, and with a severe recrudescence, curves of this general character being more common in the middle west.

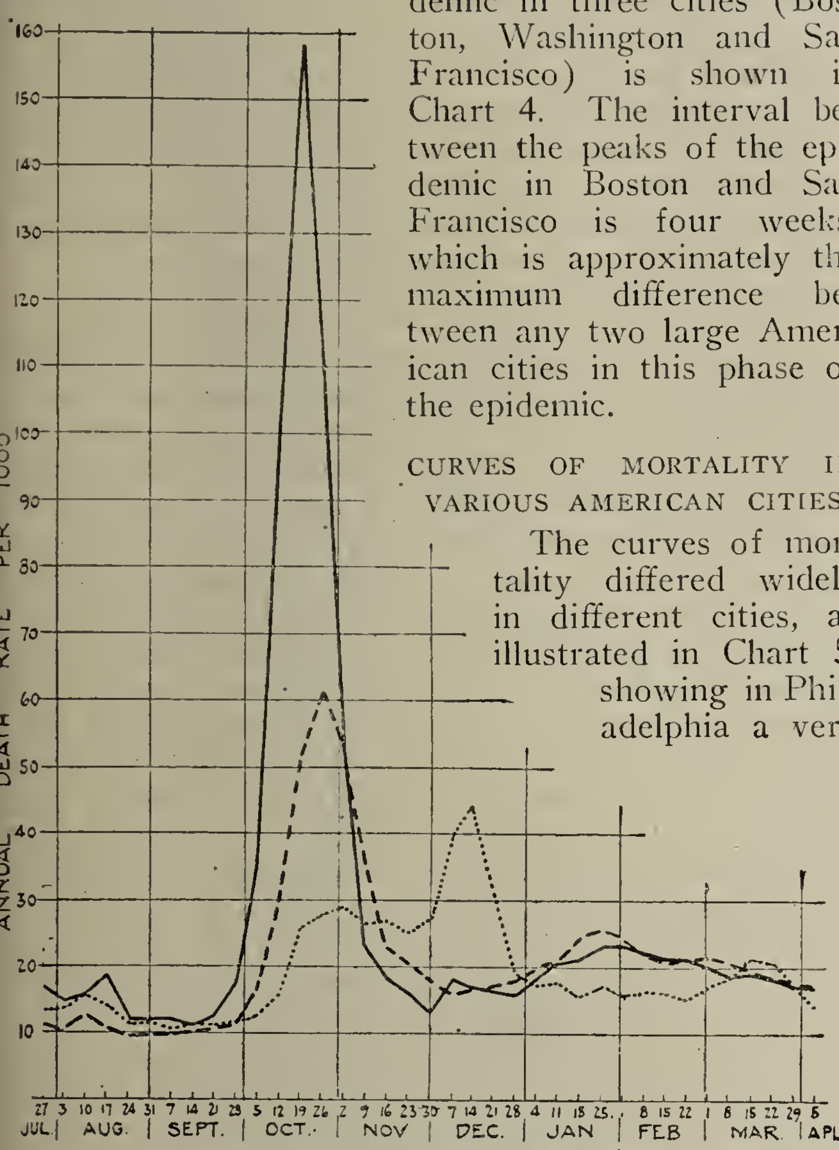

Chart 5.—Annual death rates per thousand from all causes, by weeks, July 27, 1918, to April 5, 1919. The unbroken line is the record of Philadelphia, the dash line of New York, and the dot line of St. Louis.

TOTAL NUMBER OF DEATHS AMONG THE CIVIL POPULATION

Based on incomplete statistics, which represent, however, all the main geographic divisions of the country, including both urban and rural populations, the deaths among the civil population of this country directly attributable to the epidemic are estimated at not less than 450,000, or more than 4.0 per thousand. This rate exceeds even a liberal estimate of the net excess mortality rate in Massachusetts during the four years (1890-1893) following the influenza outbreak in 1889-1890.

DIFFERENCE IN MORTALITY IN VARIOUS GEOGRAPHIC GROUPS

Classifying the forty-five cities of the Weekly Health Index into three broad geographic groups there is a noticeable difference in mortality. In the cities east of the line of the Appalachians, the excess mortality from pneumonia and influenza during the weeks ending Sept. 14, 1918, to March 1, 1919,[8] was approximately 5.6 per thousand; in cities between the Rocky Mountains and the Appalachians, 4.35; and in those of the Pacific Coast, 5.55 per thousand.

Notwithstanding this general geographic relation, there are notably wide differences in the mortality rates of individual cities in the same section, even between cities close together, differences which are not as yet explained on the basis of climate, density of population, character of preventive measures exercised, or any other determined environmental factor.

More intimate details of epidemiology can be given only the briefest mention here. In order to secure reliable statistics of morbidity, the Public Health Service has made special house-to-house surveys in a number of localities,[9] ascertaining the number of persons affected, the dates of onset and a few other simple facts in accurately enumerated groups representative of the general population. Partial analysis of the results of these surveys, in eight localities,[10] giving an aggregate of 112,958 persons canvassed, show the following chief facts of interest:

RESULTS OF HOUSE-TO-HOUSE SURVEYS

The percentage of the population attacked varied from 15 per cent. in Louisville, Ky., to 53.3 per cent. in San Antonio, Texas, the aggregate for the whole group being about 28 per cent.[11] This agrees with scattered observations in the first phase of the 1889-1890 epidemic, when the attack rate seems to have varied within about these limits. The case incidence was found to be uniformly highest in children from 5 to 14 years old, and progressively lower in each higher age group. It was slightly higher in females than in males of corresponding age; usually higher in the white than the colored population.

The ratio of pneumonia cases to total population varied from 5.3 cases per thousand in Spartanburg to 24.6 per thousand in the smaller towns of Maryland. The pneumonia rate showed little correlation with the influenza attack rate.

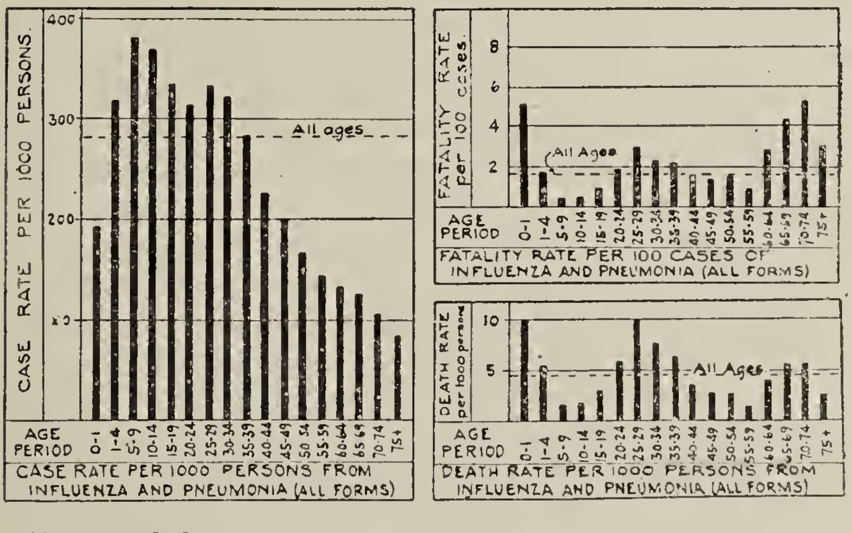

Chart 6.—Influenza records for 1918. Case rates, death rates and fatality rates among persons of different ages in certain areas surveyed in Maryland; San Antonio, Texas; San Francisco; New London, Conn.; Louisville, Ky.; Little Rock, Ark., and Spartanburg, S. C.

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[8] Summary, Influenza Epidemic, U. S. Census Bureau, Weekly Health Index, March 1.

[9] For a description of methods and more detailed statistics of certain localities, compare Public Health Reports **34**: 491 (March 14) 1919.

[10] Data from surveys of population groups as follows: New London, Conn.; Baltimore; certain smaller towns and rural districts in Maryland; Spartanburg, S. C.; Louisville, Ky.; Little Rock, Ark.; San Antonio, Texas; San Francisco.

[11] The surveys were made mostly during December, after the first wave of the epidemic had subsided, but before the second wave. Later figures would add somewhat to the incidence.

The ratio of deaths to population varied from 1.9 per thousand in Spartanburg to 6.8 in Maryland towns. The death rate was by no means parallel to the influenza attack rate, but was correlated closely with the pneumonia rate. In other words, the case fatality of pneumonia tended to be fairly constant, around 30 per cent., except in San Antonio, where it was only 18.5 per cent. The death rate was notably high in children under 1 year old, in adults from 20 to 40, and in persons over 60; higher in males than in females of comparable ages; higher in the white than in the colored.

The case fatality was likewise higher in these age groups: under 1 year, 20 to 40, and over 60 years; and it is this fact, rather than the incidence rates, which determines the death rates in different age groups.

Chart 6 shows the attack rates, death rates and case fatality rates in various age groups.

THE IMPORTANT QUESTION OF IMMUNITY

Concerning the important question of the immunity conferred by an attack of influenza, the evidence is not conclusive, chiefly because of the uncertain differentiation between influenza and other infections. Parsons, from his study of the last epidemic,[1] inclines to the view that an attack of influenza in the earlier years of the epidemic conferred a considerable but not absolute immunity in the later outbreaks.

In Baltimore, where our first canvass of 33,776 people was made between Nov. 20 and Dec. 11, 1918, a second canvass of the same population was made in January to determine the extent of the recrudescence reported in December. Among 32,600 people included in this canvass, 724 cases of influenza were found to have occurred since the previous survey. Of this number 121 cases were reported as second attacks, but on investigation through the attending physicians or by a medical officer, the clinical diagnosis of both attacks as influenza was confirmed in only 26 cases, or 0.37 per cent. of the total, and even in these cases the diagnosis is necessarily uncertain. Considering that 23 per cent. of the population had had influenza prior to December 11, the proportion of second attacks should have been much greater if no immunity had been acquired. A second canvass in San Francisco gave generally similar results. The data collected for a study of this question from other angles have not yet been analyzed.

GENERAL CHARACTERISTICS OF EPIDEMIC

In general, this epidemic has been quite similar to that of 1889-1890 in its early development, first in mild, scattered outbreaks, later in a severe world-wide epidemic; in the rapidity of its spread, and in its high case incidence. It has been notably different in a much higher frequency of pneumonia and consequently much higher mortality, especially among young adults.

Such evidence as has been collected confirms the conclusion previously reached that the infection is transmitted directly by "contact" in the broad sense. It appears probable, however, that the infection was already widely disseminated in this country some time before a serious epidemic was recognized.

PROBABILITY OF RECURRENCES IN THE NEAR FUTURE

The question of most practical and immediate interest is the probability of recurrence in the near future. Recurrences are characteristic of influenza epidemics; and the history of the last pandemic and previous ones would seem to point to the conclusion that this one has not yet run its full course. On the other hand, this epidemic has already shown three more or less distinct phases and has been more severe, at least in mortality, than the three-year epidemic of 1889-1892, facts which may justify the hope, though not the conclusion, that it has run its course already.

It seems probable, however, that we may expect at least local recurrences in the near future, with an increase over the normal mortality from pneumonia for perhaps several years; and certainly we should be, as far as possible, prepared to meet them, by previous organization of forces and measures for attempted prevention, treatment and scientific investigation.

FUTURE STUDY AND CONTROL

As regards preventive measures, the efficacy of those carried out in recent months is not proved, and we can only continue to follow the apparently sound principles already applied. It seems hardly logical to expect that any measure short of effective specific immunization will afford lasting protection to the general population; but we may perhaps hope to delay the spread of infection, thus affording better facilities for treatment of the sick, and this is an achievement well worth while.

With reference to scientific investigations, these should not be conditioned on recurrence of the epidemic. Now is the time to inaugurate comprehensive laboratory and field investigations of influenza and pneumonia, to be continued not for a few months, but for a series of years, since a knowledge of influenza during the intervals between epidemics is essential to the understanding of epidemics. In this connection one of the most essential requisites for a better understanding of the disease is better differential diagnosis of endemic influenza, with more careful observation and recording of the relatively mild, indefinitely diagnosed epidemics of supposed influenza which are noted from time to time in the intervals between definite epidemics. Even in the absence of a definite diagnosis of individual cases, much would be added to the history of influenza by describing such outbreaks more fully and making them matters of more general record.

BACTERIOLOGY OF RECENT PANDEMIC OF INFLUENZA AND COMPLICATING INFECTIONS *

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When the recent outbreak of influenza appeared, it was assumed by all that it was probably due to the same cause as that of 1889. Health officials, epidemiologists and bacteriologists, already overwhelmed by the demands of the war, were called on to investigate and combat the infection.

The first appearance of the epidemic was in Europe. Bacteriologists, while keeping an open mind, naturally first sought for the influenza bacillus isolated by Pfeiffer from endemic cases of influenza-like infections some two years after the 1889 epidemic.

He had established a relationship between this bacillus and infections of the respiratory tract and had assumed that it was the primary agent in the great

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

pandemic. Investigations since then have thrown considerable doubt on this assumption, and many have now come to consider the bacillus as only one of several varieties of bacteria which have a special selective tendency to attack the mucous membranes of the upper respiratory tract.

The reports from different investigations in Europe have been most conflicting. Influenza bacilli were found in some localities to be present in nearly every case, while in others bacteriologists isolated them from only a small minority of the patients.

In their place, pneumococci, streptococci and gram-negative micrococci were found. Frequently, several varieties occurred together. A few observations in France and England indicated that a filtrable virus was present in at least some of the cases. As a filtrable virus had already been demonstrated in outbreaks of common colds, when no epidemic existed, this information, in spite of its great interest, simply added one more line of investigation.

The possibility that more than one epidemic of an influenza-like disease was prevailing in Europe makes it advisable to concentrate our attention on the results of the bacteriologic findings in this country. Here, the unity of the epidemic which swept over the land was unmistakable.

NECESSARY PROOF

To identify a micro-organism as the cause of a widespread epidemic, the germ must be capable of producing the type of disease under investigation; it must be present in the advancing area in all cases at the beginning of the infection, and in any outbreak it must have the same characteristics when freshly isolated from different patients. The repeated transfer of a pathogenic germ from patient to patient allows the most characteristic forms to increase, so that until an epidemic is on the wane we find that isolations from different cases from different localities are practically identical. When the different cultures are grown in artificial mediums, under suitable and similar conditions, the isolations from different sources will continue to hold their characteristics sufficiently to be studied and compared.

Even well trained bacteriologists frequently fail to realize that an epidemic strain is alike everywhere in cases belonging to the epidemic.

Before considering the results so far obtained and drawing our conclusions, let us consider for a moment the special problem before us. Epidemic influenza is a disease primarily attacking the respiratory passages. The symptoms during life and the lesions in the dead, although fairly distinctive in the cases at the height of the epidemic, are by no means so in those occurring after it has passed. Whatever the primary infecting micro-organism may be, there is no doubt that in most cases other pathogenic bacteria are decisively associated. Many of these produce very similar symptoms and lesions. It is perfectly possible that a strain of any one of these bacterial varieties may have increased in virulence to an extent enabling it to initiate an epidemic. The micro-organism responsible for the epidemic may either be a microbe hitherto unknown to us or to a new and more virulent strain of some known form. Even if we assume the latter alternative, we have a difficult problem to obtain the proof, for we must discover how to identify it as a new strain. Supposing that we had found pneumococci in all cases, but that in some we had isolated only Type I and in some only Type II. Instead of this being evidence for a pandemic pneumococcus strain, it would be just the opposite, for two different strains cannot be responsible for one epidemic.

For our purpose, the two types are as distinct as if they were diphtheria and tubercle bacilli; and if either is the pandemic strain, it must occur in all the cases.

Suppose we find in every case a Type II pneumococcus. This is very suggestive, but it is really no proof unless we can show some peculiarity different from that in the cases of respiratory infections before the epidemic. Only then have we probably obtained the culprit. Because of the lack of this evidence, Pfeiffer made his hasty conclusion.

The most delicate test that we have for identity of strains is that animals injected with them produce identical antibodies.

The resemblance between the agglutinins produced is usually selected as the best evidence of identity or dissimilarity. With the filtrable viruses we have to depend on finding some susceptible animal, or revert to human volunteers and if successful in producing infection, test for specific immunity.

RESULT OF RECENT INVESTIGATIONS

The pandemic of 1918 is over. The difficulty of being certain that any suspected cases are due to the pandemic virus is gradually increasing. It is probable that if we have not at the present time gathered sufficiently convincing evidence to convict some germ we shall have to wait for another epidemic to solve the problem. It will be well to summarize very briefly some representative investigations.

Keegan made cultures from a number of cases in the virulent outbreak at the First Naval District at Chelsea, Mass. Cultures from twenty-three cases gave influenza bacilli in nineteen, and in some no other bacteria were found. In four cases he considered a streptococcus of the hemolytic variety the dominant organism and in seven cases the influenza bacillus. The earlier the cultures were taken, the greater was the percentage of influenza bacilli.

Spooner, Scott and Heath found evidence that the cases reacted to the influenza bacillus invasion by the production of antibodies. At the end of the first week agglutinins appeared sufficiently in the blood of some cases to agglutinate influenza bacilli when in a 1 : 50 dilution. In five weeks the serum of some agglutinated when in a dilution of 1 : 800. They found no evidence of strains of influenza bacilli. They did not use the more delicate and accurate absorption methods in their tests. These investigations afforded evidence that in that extensive outbreak the influenza bacilli played an important part either as the primary agent or as a secondary invader. In four cases a hemolytic streptococcus was shown to play an important and even decisive part.

In the Central West, in twenty-three cases of acute influenza in the early stage, Opie, Freeman, Blake, Small and Rivers subjected the patients to examination and obtained influenza bacilli from all. The examination of the sputum from sixty-nine cases of pneumonia revealed influenza bacilli in forty-three.

Pneumococci were found in every case, but were of different types. The men named agree with Keegan as to the etiologic importance of the influenza bacillus in this epidemic. They place the sequence of events as follows: At the time of infection, *B. influenzae* descends into the bronchi; later, pneumococci may invade the inflamed bronchi, enter the lung and produce either lobar pneumonia or bronchopneumonia. Hemolytic streptococci may at any time descend and infect the pneumonic lung.

Although Keegan, Opie and their associates believe that the influenza bacilli are the causative agent, they present no real evidence. Opie demonstrated in some groups of healthy soldiers, that 50 per cent. could be shown to harbor influenza bacilli. No proof was obtained that these bacilli differed in any way from those isolated from the patients. Their evidence is as strong that the bacilli are secondary invaders as that they were the primary ones.

In 278 cases occurring in New York, Williams found influenza bacilli as shown in Table 1.

TABLE 1.—EXAMINATION FOR INFLUENZA BACILLI

Group	Influenza Bacilli Per Cent. Present
Hospital cases	80
Marines*	100
Home for children	98
Material examined:	
Lungs	80†
Tracheas	96
Heart's blood	10

*The marines came from different vessels.
†Seventeen per cent. in fine cultures.

We found that the best site for the material selected, the use of the best mediums and long training in the study of influenza colonies were important in finding the bacilli.

In 100 cases, among civil and soldier patients in Chicago, Nuzum, Pilot, Stangl and Bones found the results given in Table 2.

TABLE 2.—BACTERIA FROM SPUTUM, NASOPHARYNX AND TONSILS

	Pneu. %	B. Inf. %	St. Hem. %	Mic. Cat. %
Washed bronchial sputum	70	4	20	5
Cultures from nasopharynx	38	0	7	5
Cultures from tonsils	74	0	37	7

Five healthy persons volunteered to be inoculated in the nostrils with the filtrate from infected mucus. A very slight coryza in one and a moderate attack in another resulted. They think the results insufficient to indicate the pandemic to be due to a filtrable virus. They believe that in their cases pneumococci of unusual virulence were the most important early secondary invaders. Influenza bacilli were less important than many other bacteria.

Lamb and Brannin, at Camp Cody, Deming, N. M., found in pneumonia, in sputum specimens, the bacteria as shown in Table 3.

TABLE 3.—BACTERIA PRESENT IN PNEUMONIA*

	Cases	Per Cent.
Pneumococcus (all types, but chiefly Type IV)	310	89.1
Streptococcus (one third hemolytic types)	222	63.3
B. influenzae	89	23
M. catarrhalis	21	6

* Blood agar was used for platings.

A careful survey of all the literature leaves the same impression as that left by the brief summary of the few representative investigations I have just given.

There is no proof that any one germ is present in all cases. The influenza bacillus has the lead among the possibilities, partly because of its historical position and partly because, as it requires much training to isolate it from a mixture of other bacteria, the thought remains in the minds of many that the failure to obtain it in some outbreaks is due, not to its absence, but to lack of training in the bacteriologist seeking it.

If isolations from a number of cases proved to have identical characteristics, the probability that the influenza bacillus was the cause of the epidemic would be great, while if many strains were found it would be slight. Williams and I decided, therefore, to test the immunologic reactions of isolations from more than 100 cases. We also tested great numbers of isolations from a few cases. Miss Valentine and Miss Cooper carried out the tests with the utmost care. They used, for every strain, direct and absorption methods.

DIFFERENT STRAINS

It was found that from the same case either all or the great majority of isolations were identical in their reactions, but that the majority of the isolations from different cases differed from each other either completely or essentially. The results seemed to show that influenza bacilli, like pneumococci, have gradually through the years altered on the mucous membranes of healthy carriers into many strains which, while having many essential characteristics in common, are still different in their susceptibility to specific immune substances and perhaps in other reactions.

In order to test the stability of the strains, we passed several strains through a series of animals, and others were grown for many generations on different mediums, but without causing any appreciable change. An interesting observation was made during this work that when a plate culture is made from material containing several strains, apparently pure colonies will not infrequently yield two different strains. The resultant mixed culture will agglutinate with each of the two serums. Even further plating may fail to separate them. If thoroughly shaken before plating, pure cultures of each strain can usually be isolated from the majority of the colonies.

An important point was whether the infecting strain could be depended on to produce the major part of the organisms in a case. If it did, isolations from the plates made from nasopharyngeal cultures could be considered as belonging to the infecting strain.

Some of our laboratory findings are instructive: One of the workers developed an acute bronchitis. Cultures revealed abundant influenza bacilli. Fifty fishings of colonies from the plates were found on testing to give forty-nine identical organisms and one that belonged to a different strain. Another bacteriologist, by accident, received an infection from a freshly isolated culture. About thirty colonies were fished from the plate cultures, and all proved to have identical characteristics. Other tests gave the same results.

PRIMARY AND SECONDARY INVADERS

It seems right, from the results mentioned above, to assume that the infecting strain is in great excess during an infection and that in nearly every case the colony tested will represent the infecting strain and that the proof that the patients are infected by different strains indicates almost certainly that bacilli were present before and that some other virus created conditions permitting the latent bacilli to attack the tissues.

It is perhaps well to state that not only did Miss Valentine and Miss Cooper subject themselves to the most careful controls, but that they also tested the strains with marks of identification that left them in ignorance of the origin of the cultures.

There was no question in our minds of the essential accuracy of the results.

These results appear to us to throw the influenza bacilli in the cases studied as clearly into the class of secondary invaders.

We believe that the other micro-organisms, such as certain streptococci and pneumococci which are under suspicion in different localities will be found after subjection to similar severe tests not to possess the necessary identity of characteristics to allow them to remain under serious consideration as the primary agent in this epidemic, but rather like the influenza bacillus, to be reckoned among the most important of the secondary invaders.

Our final conclusion is, therefore, that the micro-organism causing this epidemic has not yet been identified.

THE SYMPTOMATOLOGY AND COMPLICATIONS OF INFLUENZA *

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To present a paper on this subject at a time when the periodicals are filled with articles of similar title, and to an audience, almost every member of which has had an all too large personal experience with the subject, requires a word of explanation, if not of apology. To be accurate, the title should read "The Symptomatology and Complications of Influenza as Seen in the Army in This Country." No attempt is made to record the manifestations of this disease as they appear in children, in women, or in persons of advanced years; nor as observed in our own, or in other, armies in Europe. Moreover, the statements to be made relate solely to the great epidemic which swept over the country in the autumn of last year. It is interesting to note, however, that in the late winter and the spring of 1918, epidemics of what was regarded locally as influenza appeared in several of the army camps and posts. The symptoms bore a close resemblance to those of the great epidemic six months later, but these local epidemics were distinguished from the latter by the mildness of the symptoms and the rarity of serious complications.

The data on which this paper is based were furnished by reports to the Surgeon-General from seventy-two base and general hospitals scattered throughout the entire country.

In this large number of reports, two features stand out with great distinctness: first, the singularly uniform and clear-cut clinical picture presented by the cases of uncomplicated influenza in the same camp; and, second, the striking agreement by observers in the various hospitals throughout the country as to the characteristic symptoms of the disease. From these reports there can be no possible doubt that, among the soldiers at least, the disease in its march across the country, from the Atlantic to the Pacific, preserved a remarkable uniformity in its clinical picture.

Of forty-seven reports on this subject, thirty-six gave the period of incubation as three days or less. In half of this number it was given as two days or less. In several reports it was stated as being usually not more than twenty-four hours. On the other hand, in several instances, the interval was placed at from three to seven days and, in one instance, at from seven to ten days. In one camp, in the case of five men with whom the interval between exposure and the onset could be accurately determined, the period in each instance was forty-eight hours. It seems safe to conclude, therefore, that the incubation period is, in general, very short and that the most frequent interval is about forty-eight hours.

In what follows it should be clearly understood that, for the moment, only the symptoms observed in simple, or uncomplicated, influenza are being considered.

ONSET

There is practical unanimity in the assertion that the onset is abrupt in the great majority of cases. Most reports give the percentage of abrupt onsets to the whole number as from 80 to 90. The initial symptoms were surprisingly constant and uniform, being chilliness, prostration, fever, headache, backache, and pains in the limbs. Somewhat less frequent initial symptoms were an irritating, dry cough and sore throat. To these symptoms must be added a characteristic mental state and a peculiar facies which will be described later.

SYMPTOMS

Prostration.—This was one of the earliest, as well as one of the most constant, symptoms. Frequently extreme, it varied much in its severity and in its duration; but it was characteristic of many cases that the muscular weakness persisted long after the temperature had become normal and all the other symptoms had disappeared.

Respiratory Symptoms.—There is general agreement that cough was present at some time in almost all cases, even in most of those classed as uncomplicated. During the early part of the illness it was usually of a hard, dry, racking character, with little or no expectoration, and was commonly associated with a feeling of retrosternal soreness or pain. During the later days of the attack it usually became looser and was accompanied by sputum and by the physical signs of tracheitis or bronchitis. The sputum varied much in character and in quantity. At first scanty, tenacious and mucous, it later became more profuse and mucopurulent. Occasionally, even in uncomplicated cases, it showed streaks of blood and, rarely, blood in considerable quantities.

The frequency of hoarseness as a symptom seemed to vary much. Often the husky voice appeared to depend on the dry, congested state of the pharynx, and on the great prostration, rather than on an actual laryngitis.

Coryza was, in most reports, classed as a frequent manifestation. It was by no means constant, however, and, in some hospitals, seems to have been of infrequent occurrence.

Epistaxis was a striking symptom in many patients. It was present in approximately one fourth of the cases, and sometimes was so severe and persistent as to cause very serious concern. Some observers noted that it seemed to be more frequent in those patients who, later, showed evidences of pneumonia, than in those who did not.

The respiratory rate in simple influenza showed very little disturbance. In relation to the height of the temperature it was notably low. A steady rise in the breathing rate was one of the most trustworthy indications of the existence of a complicating pneumonia. The physical signs of the chest were usually quite normal during the first day or two of the illness, and, indeed, not infrequently throughout the attack. Often, however, sibilant and sonorous sounds, with, or without, scattered, coarse râles, were audible in the latter part of the illness.

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Circulatory Symptoms.—There is abundant testimony to the effect that one of the characteristic and striking features of influenza is a slow pulse. Even with a high temperature the rate was usually only 80 or 90 per minute. Rarely was it more than 100, and not infrequently it was as low as 70. A tendency to dicrotism was common. With the fall of temperature at the beginning of convalescence, the pulse sometimes dropped to 50 per minute. Disturbances of rhythm were rare. Changes in the heart's size, or evidences of serious disturbance of the cardiac function were almost unknown. In a certain proportion of the convalescents, however, persistent tachycardia occurred.

The arterial blood pressure seemed to show no characteristic or significant change. A tendency toward unusually low diastolic pressure is noted in one or two reports.

The blood showed a striking and constant feature in the small number of the white blood cells. The count rarely exceeded 10,000 per cubic millimeter, and was usually less than 6,000. A leukopenia of from 2,000 to 3,000 was by no means uncommon. Even in the presence of a complicating pneumonia, the leukopenia tended to persist. The reduction was mainly at the expense of the polymorphonuclear cells.

Symptoms Referable to the Nervous Symptoms.—Of these, pain was much the most conspicuous. Headache, usually frontal, constituted one of the earliest and most constant of symptoms, and was generally associated with severe backache and aching pain in the extremities. As has been said, dull, retrosternal pain was frequently complained of. Abdominal pain was of rare occurrence. Occasionally, but rarely, there was marked general hyperesthesia of the skin and underlying tissues.

Great apathy, mental dulness and somnolence marked the early stage of the attack in most cases, and with these symptoms there were usually also great depression of spirits and loss of "nerve." In a few of the reports, insomnia is described as of frequent occurrence.

In uncomplicated influenza, delirium was rarely seen. The syndrome of meningismus also was very rare. One point in which this epidemic seemed to differ from that of 1889-1890 was in the absence of severe neuralgic pain, either as a symptom or as a sequel.

Gastro-Intestinal Symptoms.—In general, gastro-intestinal symptoms played a very inconspicuous rôle in the clinical picture. In only one out of seventy-two reports were cases with predominant gastro-intestinal symptoms classed as frequent. In almost all the others such cases were described as rare. Nausea was not uncommon, and vomiting occurred occasionally, but was rarely severe or persistent. Troublesome diarrhea was conspicuously infrequent. Abdominal tenderness was sometimes encountered, but seemed usually to be either a part of a general hyperesthesia or related to inflammation in the chest which involved the diaphragmatic pleura. Very rarely it was caused by a complicating local or general peritonitis. A recognizable swelling of the liver or spleen seemed to be no part of the usual clinical picture.

Sore throat was frequently complained of, and was due to congestion and inflammation of the pharynx and soft palate rather than to tonsillitis. The uvula commonly was swollen, red and edematous at its tip.

Cutaneous Manifestations.—Perhaps no group of symptoms was more varied and interesting than that referable to the skin. One of the characteristic and striking initial symptoms was the hot, turgid, flushed appearance of the face which, with the swollen and injected conjunctivae, suggested to many observers the facies of measles without the characteristic eruption. The flushing often extended beyond the face and neck to the chest and trunk generally. Sometimes it assumed the character of a distinct, erythematous rash, which occasionally was so punctate as to bear a close resemblance to that of scarlet fever. This resemblance was sometimes accentuated by the character of the desquamation which followed.

Occasionally, the eruption, instead of being erythematous, was composed of discrete macules scattered over the face and the upper part of the trunk, and showing, at times, a tendency to appear in successive crops.

Herpes of the face and lips was seen in perhaps 10 per cent. of the cases. In spite of the frequency of epistaxis and the occasional tendency to free bleeding from the bronchi, hemorrhagic skin eruptions, either as petechiae or as ecchymotic spots, were extremely rare. Sweating was very common, even in cases in which it could not be ascribed to the use of diaphoretic drugs. Itching of the skin was not a symptom. Jaundice in simple influenza was very rare.

The Organs of Special Sense.—Injection of the conjunctivae was one of the most constant of the early symptoms, and, with the flushed face, the crimson or sligtly cyanotic lips, and the dull, apathetic expression, made up a facies which, by general agreement, is characteristic of and peculiar to influenza.

Another common symptom was pain and stiffness on movement of the eyeballs. Photophobia, while occasionally very marked, was a much less frequent symptom. Loss of power of accommodation was noted in a few cases.

Earache is classed, in most reports, as an infrequent or rare symptom in the uncomplicated cases. Disturbances of hearing were extremely rare, as were also disturbances of the sense of taste and of smell.

Urinary Symptoms.—Among the outstanding clinical features of influenza must, I think, be included the surprising immunity of the kidneys and, indeed, of the whole urinary tract, from damage by the virus of that disease. The testimony is universal that serious injury to the kidneys was almost unknown.

While traces of albumin were not infrequently found in the urine during the febrile period, considerable amounts of albumin were extremely rare, as were also casts in significant number, hematuria and evidences of disturbed renal function.

Inflammation of the pelvis, of the kidneys and of the bladder also were rarely seen.

CONVALESCENCE

The rapidity with which, in cases of uncomplicated influenza, complete recovery was established, varied greatly. In a considerable proportion of cases a very few days were all that were required. In a majority of the cases, however, complete recovery was more gradual, and, in not a few cases, convalescence occupied a period of several, or even of many, weeks. In these cases the chief symptoms during this time were muscular weakness and lassitude, mental depression and persistently rapid heart action.

COMPLICATIONS

In considering the complications of influenza, it must be admitted that it is sometimes difficult to draw a sharp line between conditions which should be regarded as a part of uncomplicated influenza and such as should properly be looked on as definite complications. The distinction must necessarily be a somewhat arbitrary one. This is not the place for a discussion as to the propriety of regarding pneumonia as an intrinsic part of influenza. In spite of the fact that in certain cases the pulmonary inflammation seems to be present from the very onset of the illness, there are, it is believed, sound theoretical and practical reasons for following the usual custom of placing pneumonia in the category of complications.

Pneumonia.—In the Army reports, the incidence of pneumonia among cases of influenza varies from 8 to 23 per cent. These variations are to be explained in part, but only in part, by the difficulties in many instances attending the diagnosis of pneumonia, and by the fact that in different hospitals widely different criteria have been used as the basis for the diagnosis.

In most hospitals the percentage of cases of influenza complicated by pneumonia has been between 10 and 15.

From the extraordinary variety of the pulmonary lesions found in patients dying of influenzal pneumonia, as well as from the multiplicity of types of the infecting micro-organisms, it is not surprising that the clinical picture should be exceedingly varied and complex. To cover in detail all of these clinical variations is far beyond the scope of this review. Only the more important and salient features can be touched on. It is necessary, however, to emphasize the close relation which exists between the purely clinical aspects of the disease and the nature of the dominating organism in the lung. This relation seems to be especially important in the case of *Streptococcus hemolyticus* and of *Staphylococcus aureus.*

Onset: With respect to its mode of onset, influenzal pneumonia may be divided into three groups of cases: first, those in which the symptoms and signs of pneumonia develop almost imperceptibly in the course of the active, febrile stage of the influenza, the patient gradually becoming sicker at a time when convalescence might naturally be expected; second, those in which the pneumonia supervenes after the patient has definitely entered the stage of convalescence, and usually after the temperature has been normal for several days; third, those cases which, from the very beginning of the illness, bear the aspects of a pneumonia. In such cases the onset of the attack is apt to be marked by a distinct rigor. Except in this last class of cases a chill is infrequent as one of the initial symptoms of pneumonia. Usually the onset is marked by a more or less gradual rise in temperature and by an increase in all of the respiratory symptoms.

Outstanding Clinical Features: The following may be classed as the outstanding clinical features of influenzal pneumonia as seen in the Army as compared with primary pneumonia of the familiar type:

The temperature usually showed a less abrupt rise, a somewhat lower range of level, a greater tendency to the remittent type, and, in cases in which the patients recovered, a less critical fall to normal. The pulse rate tended to maintain a somewhat lower level than is customary in pneumonia, and in certain cases was conspicuously slow. In unfavorable cases, however, the rate often became very high.

Much the same may be said of the respiratory rate. In many cases, during the early days of the pneumonia, the breathing rate was hardly greater than normal and, even in the presence of deep cyanosis, the breathing was sometimes surprisingly slow and quiet. This, of course, does not apply to all cases. In some, especially in the fulminant cases with early pulmonary edema, the respiratory distress was a marked feature, and the breathing was often very rapid as well as labored.

The importance of cough as a symptom varied greatly. In many cases it was distressing enough, but in general it may be said that a much larger proportion of influenzal pneumonias is characterized by almost complete absence of cough than is the case with primary pneumonia. The pneumonia wards in the great Army hospitals during the epidemic were often strangely quiet.

The sputum showed extraordinary variations, both in character and in quantity. Usually it was much more profuse and less viscid than in primary pneumonia, and of mucopurulent or of frankly purulent character. Blood was usually present at some time, but less often had the characteristic rusty or brick dust appearance than that of unchanged blood. In many cases, considerable amounts of blood were raised. In the fulminant cases, with early and intense edema, great quantities of pinkish, frothy, watery fluid were poured from the bronchi. In not a few cases there was complete absence of sputum.

The characteristic sharp, stabbing pain of pneumonia was conspicuous by its rarity. A majority of the patients had little or no pain of any sort. Often the pain was referred to the sternum and had a "gnawing" or "burning" character.

The physical signs of the chest were distinguished by their late appearance, their indistinctness, their wide distribution, their slow disappearance and the infrequency of the signs of frank consolidation. The signs were almost always bilateral. They usually appeared first over the lower lobes posteriorly in the form of small areas of fine, crackling râles, impaired resonance, and great diminution or suppression of the vesicular murmur.

Cyanosis.—One of the distinctive features of the pneumonia complicating influenza was the prevalence of cyanosis of a degree which is quite exceptional in the familiar primary type of the disease. When associated, as it often was, with marked pallor, it gave a peculiar dark gray tone to the skin which early came to be recognized as of sinister import.

Chickering[1] associates a special type of cyanosis of "cherry-red indigo-blue color" with those cases in which *Staphylococcus aureus* is the dominant organism in the lungs.

A characteristic feature of the cyanosis, in many cases, was the entire absence of subjective distress and air hunger. Stupor and delirium were common symptoms in severe cases. The delirium was of two types: the active, violent form which required unceasing watchfulness, and the quiet, muttering type which was accompanied by the other usual signs of the "typhoid" state.

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[1] Chickering, H. T., and Park, J. H.: Staphylococcus Aureus Pneumonia, J. A. M. A. **72**: 617 (March 1) 1919.

While leukopenia was not quite so universal as in simple influenza, it nevertheless was present throughout the pneumonia in the majority of cases, and often was very pronounced. Counts of 3,000 or less were not so very infrequent.

Duration: The average length of life in fatal cases, from the time of recognition of the pneumonia, may be stated as between four and five days, and from the onset of the influenza, as from seven to ten days. Among the patients who recover, the average length of the febrile period is somewhat longer.

Fulminant cases: Special reference should be made to a remarkable clinical type which, in a few camps, notably at Camp Sherman, was sufficiently common to form an outstanding feature of the epidemic. The patients, even on admission to the hospital, showed extreme cyanosis, high fever and intense air hunger, and died in from twenty-four to forty-eight hours. The chest was filled with coarse, bubbling râles, and pinkish, frothy serous fluid often poured from the mouth and nostrils. The postmortem findings in the lungs were those of intense congestion and edema, without actual pneumonia. Friedlander[2] compares the clinical picture to that seen after severe exposure to chlorin gas.

Other Respiratory Complications.—Severe acute laryngitis, sometimes with ulceration, was a not uncommon complication in the pneumonia cases.

A certain proportion of influenza patients, instead of having only a mild bronchitis, develop a severe, purulent form which may last for weeks or months and may be associated with multiple, small bronchiectases.

Pulmonary Abscess.—The suppurative processes which frequently complicate the pneumonia of influenza seem to result chiefly, if not entirely, from the action of *Streptococcus hemolyticus* and *Staphylococcus aureus.* Such abscesses are usually small and multiple and are much more frequently found at necropsy than recognized during life. Solitary, large abscesses are rare.

Pleurisy and Empyema.—In general, in influenzal pneumonia, all forms of pleurisy were noticeably rare in cases of pneumococcal origin; and, except in hospitals in which streptococcus cases were numerous, pleural complications were much less frequent than we are wont to expect in primary pneumonia.

In the streptococcus cases, however, the pleura is extremely prone to infection, and empyema, either free or sacculated, was common. An important type clinically was the small, interlobar empyema, so difficult often to recognize, and so frequently mistaken for unresolved pneumonia. The incidence of empyema among the pneumonia cases probably did not average more than 5 per cent.

Subcutaneous Emphysema.—A remarkable but rare complication, a few examples of which were encountered at almost every camp, was extensive, subcutaneous emphysema. It was usually seen in cases of severe pneumonia, and appeared first either in the episternal notch or above the clavicles, extending thence rapidly to the neck, face, scalp, chest, arms and trunk and, sometimes, to the scrotum. The prognosis in such cases seemed to depend rather on the severity of the pneumonia than on the existence of the emphysema. Such emphysema has been proved not to be due to gas bacillus infection. The mechanism of its production is discussed by Berkley and Coffen.[3] In most cases, certainly, the air finds its way to the subcutaneous tissue by the rupture of air vesicles and by passing thence along the vessel sheaths to the hilum of the lung and to the superior mediastinum. In both of two cases with this complication coming to necropsy at the base hospital at Camp Jackson, the lungs showed *Staphylococcus aureus* infection, with multiple miliary abscesses, most numerous just beneath the pleura.

In a few instances the emphysema has been associated with a pneumothorax.

Serious heart complications were conspicuously rare, even in the pneumonia cases. The severer forms of arrhythmia, such as auricular fibrillation and heart block, were occasionally observed, and rarely a pericarditis was found, sometimes during life but usually only at the necropsy table.

The persistent tachycardia, so frequently seen during convalescence from influenza, seems to be a purely functional disorder, belonging to the category of the so-called irritable heart of soldiers, and related to the general asthenic state rather than to any actual heart damage. There is no reason whatever to believe that it indicates a myocarditis or myocardial degeneration. Its tendency is wholly in the direction of complete, if gradual, recovery. This tendency may be largely nullified, however, by the unwise policy, on the part of the physician, of permitting the patient to believe he has some serious heart disorder which demands the strict avoidance of exercise and exertion.

Thrombophlebitis. — This was an infrequent, but important, complication. It usually involved the leg veins and was associated, in an unusually large proportion of the cases, with fatal pulmonary embolism.

A very few instances of thrombosis of the arteries of the leg, with gangrene, are recorded.

Complications Referable to the Nervous System.—Of these, the most important, meningitis, seems to have occurred only in the cases complicated by pneumonia, and even in these cases was comparatively rare, although a considerable number of instances have been recorded. At Camp Jackson, among eighteen cases of meningitis complicating influenza, thirteen were caused by the meningococcus, four by the pneumococcus and one by the staphylococcus.

The types of delirium seen among the pneumonia cases have been referred to. Mental depression, in the frequent cases of slow and tedious convalescence, was often pronounced, and sometimes amounted to a true psychosis with suicidal tendencies. In general, however, the psychoses belong rather to the sequelae than to the complications of influenza and, as such, are beyond the scope of this paper. The relation to influenza of such organic nervous diseases as lethargic encephalitis and epidemic polyneuritis is still obscure and uncertain.

Complications referable to the gastro-intestinal tract are few and infrequent. Inflammation of the parotid gland was occasionally seen among the severe pneumonias. Jaundice, even in the pneumonia cases, was very infrequent. Marked tympanites was a frequent and dreaded symptom among the severe pneumonias.

A few instances of peritonitis, generally of pneumococcal origin, have been reported. Most of these were localized in the diaphragmatic region or the upper abdomen. In a very few instances the peritonitis was general.

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[2] Friedlander, Alfred; McCord, C. P.; Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, J. A. M. A. **71**: 1652 (Nov. 16) 1918.

[3] Berkley, H. K., and Coffen, T. H.: Generalized Interstitial Emphysema and Spontaneous Pneumothorax, J. A. M. A. **72**: 535 (Feb. 22) 1919.

Arthritis.—As a complication, arthritis was rare. Occasionally a pneumococcal arthritis was seen in cases complicated by pneumonia.

Disturbances of the kidneys, as has been said, formed no part of the clinical picture of simple influenza. In a few of the cases complicated by pneumonia, evidences of nephritis appeared; but such cases were rare and the nephritis usually mild in type.

Inflammation of the Middle Ear.—This is classed, in most reports, as an infrequent complication. Figures are available from one base hospital (Camp Hancock) in which systematic and regular examinations of the ears of all influenza patients were carried out. Among 7,800 cases of influenza, an otitis media sufficiently pronounced to call for incision of the drum was found 300 times, or in about 4 per cent. of the cases. Among these 300 cases of otitis, a mastoiditis of sufficient severity to demand operation occurred only four times. There is much testimony to the effect that, in most camps, mastoiditis was a rare complication of influenza.

Inflammation of the Accessory Sinuses.—This was, clinically speaking, a very infrequent occurrence. Only rarely were frank examples of frontal or maxillary sinusitis encountered; but the postmortem findings in patients dying of pneumonia told a very different story. In these fatal cases, purulent inflammation of the sinuses was very commonly found. Among fifty-five necropsies at the base hospital at Fort Riley,[4] the sphenoidal sinus was shown to be involved in 68 per cent., the ethmoidal sinus in 31, and the mastoid cells in 41. The frontal sinus was affected in only two cases.

COMPARISON OF RECENT EPIDEMIC WITH THAT OF 1889-1890

For one who, as a hospital intern, had a personal experience with the influenza epidemic of 1889-1890, it is interesting to review the clinical features of that epidemic and to compare them, one by one, with those of the recent pestilence. After such a review no one can, I think, have the least doubt as to the identity of the two epidemics. Not only is there a striking similarity in the modes of onset and in the symptoms of the disease proper, but, in the tendency to special complications, and in particular to pneumonia of an unusual type, the resemblance is extremely close. All the well known diagnostic features of the present epidemic find their counterparts among those of the earlier one; the abrupt onset, the prostration, the pains, the injected conjunctivae and painful eyes, the characteristic skin rashes, the prevalence of respiratory symptoms—all these are features common to both epidemics.

Certain differences, chiefly of degree, can be noticed, however. The virulence of the recent epidemic was unquestionably greater. A larger proportion of the population seems to have been attacked; the incidence of pneumonia has been greater, and its mortality has also been somewhat greater, apparently.

Examples of the so-called cerebral and gastro-intestinal types of influenza, concerning which much was said and written in the earlier epidemic, have been so rare in the present one as to raise a question as to the propriety of such a classification. In the present epidemic there has been, for all practical purposes, only a single type—the respiratory.

11 East Forty-Eighth Street.

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[4] Stone, W. J., and Swift, G. W.: Influenza and Influenzal Pneumonia at Fort Riley, Kansas, J. A. M. A. **72**: 487 (Feb. 15) 1919.

THE MAXILLOFACIAL SERVICE OF THE AMERICAN ARMY IN THE WAR *

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Among the many special problems listed on the preparation program of the Surgeon-General of the Army was the care of injuries of the face and jaws. These had been a particularly trying problem in the Allied armies in the earlier part of the war. In July, 1917, a section of the Division of Surgery of the Head was organized to take over this duty. The motif of preparation was the conviction that the earlier proper treatment could be instituted and continuously carried out, to a proportionate extent would conservation displace reconstruction. To make this practicable would require: first, a sufficiently large personnel to be available at every advanced and at all intermediate and base hospitals; second, a definite general plan of treatment which, instituted in the advanced hospitals, would be carried out without radical change in each of the hospitals to which the wounded would be subsequently evacuated, and thirdly, and not unimportant, suitable equipment.

The proper treatment of maxillofacial injuries rests on the same surgical principles as that of wounds in any other part of the body; but because the proper splinting of a fractured jaw requires dental splints, or splints with dental attachment, and because few surgeons have familiarized themselves with the physiology and the special pathology of the oral structures, to do the work efficiently requires, as a rule, the cooperation of a surgeon with a dental surgeon who has made a special study of the subject.

We had available in this country a large number of dental surgeons who had made this special study, and of surgeons fitted for this cooperation.

EARLY PREPARATION

The Surgeon-General, with the generous and wholehearted cooperation of both the medical and dental professions, and especially of the institutions to be named, established special short courses in the Northwestern University Dental School; in the Evans Dental Institute, University of Pennsylvania, and in Washington University; but the selection of teachers was not confined to the faculties of these particular schools. A large number of surgeons and dentists were sent to take the courses, not with the idea that they could be created into specialists, but that the dentists and surgeons could be shown the plan of cooperation, while splint making, the more likely problems, and the anatomy of the parts were being reviewed. Not the least important of the things accomplished by these schools was the data obtained as to the qualifications of officers for the work, which requires also the cooperation of the ophthalmologist and otorhinologist; and the close association of the latter sections with the maxillofacial in the Division of Surgery of the Head simplified the arrangement for this cooperation, which has been harmoniously carried out ever since.

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In the matter of equipment, everything asked for was allowed by the Surgeon-General and assembled into sets adapted to advanced and base hospitals.

FRENCH AND BRITISH COOPERATION

In April, 1918, the preliminary work in this country having been carried as far as practicable, the Surgeon-General sent a unit of about twenty surgeons and twenty dental surgeons to the chief surgeon of the American Expeditionary Forces with the request that they be given the opportunity to observe the method in practice for caring for face and jaw injuries in the hospitals of our allies, and through the courtesy of the authorities they were distributed among several British and French hospitals especially devoted to this work, namely, the various Paris hospitals, Queen's Hospital at Sidcup, King George Hospital, England, and British General Hospital No. 20 at Boulogne. Later, as their services were required in our own hospitals, they were gradually withdrawn from these stations. It would be very ungracious if I did not pause in this hurried review to acknowledge the debt we owe to the British and French authorities for the help they gave us in this manner, and I mention, among others, especially Collyer, Gilles, Cole and their staffs; Lemaitre, Pont, the late Moristan, Villain and Kazanjian, who did everything they could to make their experiences available to us.

ORGANIZATION OF OPERATIONS IN FRANCE

Shortly after we arrived in France, a senior consultant for maxillofacial surgery for the American Expeditionary Forces was appointed, and a policy for the care of these cases was outlined, which differed a little from the plan contemplated by the Surgeon-General. Information as to the general plan for evacuation and treatment of these patients was sent out. France was divided into seven areas, to each of which a local or area consultant for maxillofacial surgery was appointed. In each American hospital center the cases were concentrated as far as practicable in one hospital, where they were attended by a local consultant for the center, in cooperation with specially selected dental surgeons. In each area, comprising several hospital centers, the area consultant, while he was free to travel throughout his area, was attached to a certain hospital to which he could request to have evacuated any patient who could best be treated at his own hospital, or to Hospital No. 115 at Vichy. The latter had been especially designated and equipped to care for face and head injuries.

LACK OF SURGEONS AND EQUIPMENT

The atmosphere of war, in spite of intense concentration, is one of distraction. All plans of specialization are more or less ideal, and it takes time to put any subordinate plan into operation, especially if it is far-reaching in its application. Each hospital organized in the Surgeon-General's Office had attached to it a surgeon and a dental surgeon designated for this work; but in the earlier part of the severe fighting, all specialization was overshadowed by more vital problems. It is no secret that, owing to the lack of transportation, we were short of surgeons and dental surgeons in the American Expeditionary Forces, and that at Chateau Thierry most of the surgical consultants were ordered to form general operating teams, and they stood twelve hour shifts at the table at any hospital where they could find space; while the dental surgeons were often giving anesthetics, carrying the stretchers or giving first aid treatment. I have seen a hospital with an operating room capacity of 360 cases per twenty-four hours, at 2 o'clock in the afternoon, in all the confusion of raising the tents, and which, before seven the next morning had received 750 severely wounded—with the stream unabated; and I know of instances of even greater congestion. At one rail head, two consultants formed a team and carried stretchers for nearly a day.

The foregoing instances are mentioned to illustrate just one of the reasons why it took time to establish these special services.

I believe our service abroad had some success in its work. In my own mind I am very enthusiastic about its accomplishments. When all of the special records of these cases are received from abroad, we shall have definite figures to judge from. Until then, its accomplishments can be measured only by inference. After August 20, there was a breathing spell, during which this service really got on its feet; and from the Battle of the Argonne, September 25, it was on the job and delivering the goods at all stations, if I may be allowed to use this expression. It was a bit of a handicap that little of our special equipment ever became available; but shells and food take precedence over other things. This worried the dental surgeons, who were not backward in worrying the consultant, and the consultant worried every one.

During the St. Mihiel drive, a dental surgeon of a mobile hospital telephoned the local consultant of the advanced area, asking what he could use to take care of the jaw injuries that were accumulating. The consultant replied, "Use your wits," and slammed down the telephone. He had been asked this question once too often. To the credit of our dental surgeons, they used their wits, and by piecing out our own supplies with what the chief dental surgeon could obtain from the French; by beating two franc pieces into splints; by robbing the shell-cut telephone wires, and by cutting meat tins into splints, from the beginning of the Argonne there were few patients who reached the base hospitals unsplinted.

NUMBER AND RECORDS OF CASES

We have at present no definite figures as to the total number of these cases. Taking the statistics for the Union forces in the Civil War, the Prussian forces for the War of 1870-1871, and the British forces for the present war up to Christmas, 1917, as a basis for calculation, they should average at least 1 per cent. of all wounds, which, according to the last report of wounded May 31, 1919, would give a total of more than 2,371 cases.

There have been evacuated to this country to date about 600 patients, and practically no more remain abroad. Of these 600, 260 have been discharged, and eighty-five are ready to be discharged. For the 339 patients now in hospitals, making liberal estimates of the time necessary for total recovery, there are ninety-two who will require two months; eighty-two, four months; fifty, six months; eleven, eight months; seven twelve months, and one, eighteen months before they can be discharged as well; but it is estimated that the time that will necessarily be spent in the hospital wil average from two weeks to ninety days for the foregoing cases. In my recent inspection of four centers did not see one case in which there was a free discharge of pus; in fact, any pus at all in these cases i very rare.

In this country, these cases have been concentrated in four hospitals, and an arrangement with the Public Health Service is under way which will assure the continuance of their treatment nearer their homes of men who wish their discharge.

In the general planning, the matter of records was included. Abroad, every maxillofacial case was recorded in some detail on a special form designed for that purpose, and these are to be returned to this country, to be correlated with the records here. At certain centers abroad, photographs, casts and wax models were made of the earlier conditions, and tracings of the roentgenograms. At each of the four centers in this country there is attached to this service an artist, a sculptor, a photographer and a stenographer, and an officer is assigned to supervise and assemble the records. The Surgeon-General has sent out instructions as to the general plan of these records, and has ordered that on completion of the work all should be sent to Washington to be assembled with the records from abroad, for a permanent exhibit in the Army Medical School Museum. Part of this record is on exhibit in the Exhibition Hall here.

MASKS

The matter of making masks to camouflage these face injuries was investigated extensively by the Surgeon-General, and a personnel trained for the work. A few were made for our soldiers by the Red Cross in Paris, and several here, by our own staff; but the men will not wear them, preferring plastic reconstruction. There is not, to my knowledge at present, a single mask in use by our soldiers, and Major Gilles of the British service tells me that the soldiers have the same preference. We do, however, use prosthetic reconstructions within the mouth.

IMPORTANCE OF EARLY TREATMENT

In this review of the work it is impossible even to mention technic, but there is one thing that observation has strongly emphasized, and that is that delayed recovery and restoration are on the whole much more dependent on delayed treatment and infection than on primary loss of tissue, and that early treatment will prevent or control infection. It was brought out more strongly than ever before that infection is the chief factor in delayed union or reformation of the jaw bones, not necessarily accompanied by free flowing pus or extensive induration, but a quiet process, often difficult to detect, usually kept up by want of proper drainage and the presence of a foreign body, most likely an exposed tooth root or a piece of denuded bone. No matter how often the observation is repeated, it is interesting to note with what rapidity bony consolidation frequently follows the removal of a tooth or bone spicula from or near a fracture line that was apparently perfectly clean, but in which union had hung fire for months.

The great majority of cases requiring bone grafting do so not from the primary loss of all bone-forming tissue, but because of one or several of the following reasons: The bone-forming structures are destroyed by infection, which causes scar tissue to replace bone reproduction; or there has been a want of proper early splinting, which in itself predisposes to infection. It is usually a combination of both these factors that is responsible for a total loss of a segment, which is more apt to occur if, at the time of the injury, bone fragments are removed. Instances in which all of the bone-forming tissues are destroyed by the original injury are the exception. Altogether, about seventy-five cases will require grafting, or have been grafted, for bone loss in the lower jaw. Most of these will be pedicle grafts, which require less time for union and are more certain in result than the free bone graft. It has been the policy throughout to restore the normal occlusions rather than to bridge defects by shortening the body of the jaw.

The last jaw case in which I saw an operation performed in the American Expeditionary Forces was a fair illustration of the working of our plan for conservation. Going into the operating tent of a mobile hospital, I watched a young surgeon whom I did not know and one of our dental surgeons assemble, splint and repair a mandible that was shattered from angle to angle, with the lip, chin and floor of the mouth torn open to the hyoid. When they completed their work, the bony fragments were in their proper position, and the soft parts repaired, all with proper drainage. There was left only a slight defect in the lower lip. Had this treatment been delayed thirty-six hours, the patient would have represented one of those horrible cases of total loss of the chin and body of the mandible which have been so frequently depicted. I never saw the patient again, that is, to recognize him, but with the subsequent treatment we were prepared to give it is probable that the soft tissues healed primarily with bony consolidation within three to six months.

NECESSITY OF DENTAL SURGERY

There are two other cases coming to my earliest observation, between which I have frequently made mental comparison. Before cooperation had been made practicable, April 25, 1918, one of the best operators in the American Expeditionary Forces had treated a case with bad laceration and comminution by ordinary surgical methods, with wiring of the fragments. The patient was evacuated and subsequently treated as though his were a general surgical case. Within a short period there entered the service of the same surgeon a rather similar case, which was treated by him and the dental surgeon jointly. I reencountered the second patient a month later at a base hospital. The soft tissues had healed with linear scars, the jaw fragments were firmly splinted and in good position, and there was no pus. Six months later I again found the first patient; he was profoundly septic, with fragments of dead bone protruding from the cheek wounds, and there was great deformity. He still will require a bone graft on each side of the body of the lower jaw, and has no lower teeth by which to fix the fragments. "One swallow does not make the summer," but one case will illustrate the surgical principle.

ABSTRACT OF DISCUSSION

Dr. Robert H. Ivy, Milwaukee: I had the privilege of being associated with Colonel Blair practically from the beginning in the organization of the plastic and oral surgery section in the Surgeon-General's Office, and was later at a center in France where a large number of maxillofacial injuries were treated. Our work consisted largely in getting the wounds out of the infected stage so that they would be in proper condition for bone and plastic operations later. A certain percentage of cases of gunshot fracture of the mandible with loss of substance resulted in nonunion in spite of the best of treatment in the way of fixation and removal of sources of infection. At the Walter Reed General Hospital we are employing two methods of grafting: (1) Taking the pedicled bone graft from the mandible itself, as described by Cole. The graft consists of a piece of the lower border removed from the anterior fragment, with a pedicle of muscle and fascia attached to it below for nourishment. This method is suitable for cases of fracture of the body of the mandible, where the angle is not involved, and where the loss of bone does not exceed 4 cm. We have employed it in two cases, obtaining primary union of the operative wound, and firm bony union in one case. In the other case, bony union is apparently taking place two and a half months after the operation. (2) Where the angle and ascending ramus of the mandible are involved or where there is great loss of substance, we are employing the osteoperiosteal method of Delagenière. This method, on account of its simplicity and the good results obtained by French surgeons, deserves to be better known in this country than is the case. The fragments having been previously splinted in their proper relations, the ends are exposed by careful dissection and removal of scar tissue. Especial care must be taken not to open into the mouth. If this happens, the operation should be discontinued immediately. A bed is prepared for the grafts by the creation of pockets between the bony ends and the surrounding soft tissues. The material for the grafts is taken from the tibia, and consists of a thin shaving of the outer layers of the bone with the overlying periosteum attached. The osteoperiosteal method has been used by us in eight cases with losses of substance ranging from 2.5 to 10 cm. Primary operative union followed in all cases except one, in which a hematoma occurred, followed by some suppuration and extrusion of small shreds of bone from the graft. Even in this case, encouraged by the experience of Delagenière, we have good reason to believe that union is taking place. It is too early yet to report as to the final outcome in these cases. The splints will not be removed for at least three months.

Dr. George M. Dorrance, Philadelphia: I do not agree fully with Colonel Blair in regard to suturing these wounds at the front. They should be drained unless one can control the cases and do not have to transport them to the rear. If you are going to transport the men 300 or 400 miles, the wound should be drained. In cases where I sutured the wound and retained the patient, he did well; when I sent the patient back, he did not do as well. Later, when I was in the rear, I saw many cases which had been sutured and the wound later broke down, necessitating operating over again. My feeling is just to suture the wound sufficiently to give adequate drainage. The important thing is to understand skin grafting of the mouth. At Queen's Hospital, Sidcup, they developed free skin graft in the mouth with practically no failures. We have not had a single failure at the Cape May hospital. The operation consists of incising through the mucous membrane or scar and producing a cavity one third larger than is required, thus allowing for subsequent contracture. A model of the cavity is made with modeling compound and later attached firmly in position to the teeth, after a thin Thiersch skin graft is placed over it. If the graft rides beyond this area, it does not make any difference. It is held in there by pressure for a varying length of time, on an average of three to five weeks. We have failed with skin grafts on the outside of the body in a certain percentage of cases. In the reconstruction of noses, we have gone back to the Indian method. We have learned to use the new method adding inverted skin to make the lining of the nose; if this cannot be done, use the inside flap turned down by the Indian method. Every flap for the mouth or for the nose must be lined. In performing these plastic operations, do not plan them so that the patient looks beautiful when he comes off the table, because there is always considerable shrinkage. It is better to turn the skin edges out so that they look like protuberances.

Dr. John B. Roberts, Philadelphia: Those practicing general surgery found that they could not treat infected fractures of the jaw well, especially when there was loss of bone from injury or from secondary infection. Now there are all over this country, thanks to the activity of Surgeon-General Gorgas and Col. V. P. Blair, men who do beautiful work in such fractures. One point of which Dr. Blair spoke is that of using Thiersch epithelial grafts for replacing the mucous membrane in the mouth. That is a great improvement in oral plastic surgery. Those of us who do plastic surgery know that if one takes mucous membrane from the lower lip and sets it in the orbit after enucleation of the eye to enlarge the socket for glass eye, the mucous membrane graft will grow in the eye socket, although the wound is not truly aseptic. To know now that Thiersch skin grafts may be substituted for the mucosa is a great gain.

Dr. Vilray P. Blair, St. Louis: Until the special reports are obtained from abroad it will be impossible to say how many of these injuries we had, but we probably had about 2,500. The great majority of these cases occurred after July 15, 1918. We have returned to this country less than 600 men. Of these 280 are already discharged.

URETERAL TRANSPLANTATION IN INOPERABLE CONDITIONS OF THE BLADDER *

WILLIAM E. LOWER, M.D.
CLEVELAND

Perhaps no class of patients makes a more piteous appeal to the surgeon than those with inoperable new growths in any location. And perhaps saddest of all are those patients with growths of the bladder in which the irritation and pain are constant and intense and a resection cannot be made, because either the entire bladder is involved or the area around the internal sphincter—conditions which preclude the possibility of a resection and restoration of function. In most of these cases the suprapubic drain does not give the desired relief, for it does not prevent the urine from coming through the bladder and flowing over the raw and ulcerated surfaces. Even large doses of opium do not afford much relief. The only possible method by which any relief can be secured is by preventing the stream of urine from passing through the bladder.

This may be accomplished by transplanting the ureters into one or two practical locations—into the loins, or into some portion of the large intestine, preferably the sigmoid or rectum as near the bladder as is possible.

If the ureters are transplanted into the loin, a mechanical contrivance to catch the urine is required; and even the most convenient appliance for this purpose is not, as a rule, satisfactory. On the other hand, if the ureters are transplanted into the large intestine, the patient is subjected to but little annoyance, for the sphincter ani becomes adapted to the new condition, and effectively controls the urine.

Various kinds of technic, etc., have been devised, perhaps the best of which in suitable cases is that of Coffey. The operation is preferably performed in two stages, transplanting one ureter first and then waiting a sufficient time to be sure that the ureter is functioning in its new location, and to allow the sphincter ani to become adapted to the new condition, when the second ureter is transplanted. Preferably the right ureter is transplanted first, as, if adhesions follow, as they often do, the rectum becomes more or less fixed and cannot so readily be drawn into the cut.

In certain cases, at a third operation, the entire bladder may be removed and the patient's comfort be still more increased and life also materially length-

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* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

ned. I have performed this final radical operation in wo cases after transplanting the ureters. One of these patients survived for two and one-half years and during most of that time was able to carry on his normal vocation, while previously he was unable to do so because of the great pain and frequent annoying urination. I lost track of the second patient six months after the operation, and have not been able to ascertain how long he survived. In both these instances, the relief was immediate, and the operation was fully justified.

In two other cases, the ureters were transplanted simply for relief, for the growth was so extensive as to preclude the possibility of a more radical operation. In neither of the latter cases did the patient survive for any great length of time, but in each the patient was relieved of his previous annoying symptoms.

The intense relief to the patient from an almost intolerable condition seems to me to indicate that this method should be adopted in those extreme cases which cannot be relieved by any other operation. If these patients present themselves early enough for a complete extirpation of the bladder after the ureters have been transplanted, the life may be much prolonged and occasionally a complete cure is accomplished.

The division of the operation into two stages—or three, if extirpation of the bladder is possible—not only affords an opportunity of noting that the ureters are functioning properly, but also aids in conserving the patient by dividing the trauma of the massive operation.

REPORT OF CASES

I. TRANSPLANTATION OF URETERS WITH EXTIRPATION OF THE BLADDER

Case 1.—A man, aged 42, consulted me in July, 1916, because of pain in the small of the back, blood in the urine and frequency of urination. There was difficulty in starting urination, and much pain until the clots of blood were passed. Frequency of urination had increased until the patient was obliged to void every twenty or thirty minutes. The patient thought he had lost about 30 pounds since he first felt symptoms of his present illness in the preceding March. A mass could be felt in the region of the bladder. No satisfactory cystoscopic examination could be made.

July 31, an exploratory operation disclosed a large infiltrating, indurated mass which seemed to involve the whole of the bladder and, at one point, extended through the wall. As nearly every point of the bladder appeared to be involved, resections of any part seemed impossible.

August 8 and 22, respectively, the right and the left ureters were transplanted into the rectum.

September 15, the final operation was performed, in which the entire bladder, which was almost filled with an extensive carcinoma involving the internal sphincter, was extirpated. September 30, the patient was discharged from the hospital. He was feeling much better; the pain was relieved, and he had fine control of the anal sphincter. This patient survived for two and one-half years, returned to his work, and was quite comfortable until the growth recurred in the peritoneal cavity and involved the intestine.

Case 2.—A man, aged 53, was first seen in January, 1917, having been transferred from the Medical Service at Lakeside Hospital, as he was thought to have some prostate trouble. He complained of much pain in the left kidney region. Cystoscopic examination disclosed a growth of considerable extent occupying the right side of the bladder in the neighborhood of the right ureter and involving the most of the internal sphincter.

February 6 and March 3, respectively, the right and left ureters were transplanted into the sigmoid.

March 27, the final radical operation was performed, the entire bladder being extirpated. The growth was a carcinoma.

April 8, the patient was discharged. All drainage tubes had been removed; there was a very slight discharge of seropurulent material. Discomfort had almost entirely disappeared and the patient had good control of the anal sphincter.

The patient was last heard from six months after the operation, at which time he was comfortable and in good general condition. How long he survived after that I have not heard.

II. TRANSPLANTATION OF URETERS WITHOUT EXTIRPATION OF THE BLADDER

Case 3.—A man, aged 50, was first seen in January, 1915, when he gave a history of frequency of urination for thirty years. He stated that ten years previously he had been operated on for an abscess between the rectum and the bladder. Lately he had passed gravel, and the frequency had been more marked. At this time and again in November of the same year operations for stone in the bladder were performed.

In March, 1919, the patient returned with the same complaint of frequency, which had become much aggravated during the preceding three or four months.

March 11, an exploratory operation disclosed a hard nodular bladder about the size of an orange. Numerous nodules varying from the size of a pea to half an inch in diameter were found within the bladder wall and on the peritoneum. No further metastases were found, though they undoubtedly existed.

It was obvious that the only aid which could be given the patient must be palliative through the transplantation of the ureters. Thereupon, March 22, and April 3, respectively, the right and left ureters were transplanted into the sigmoid. The patient survived only a short time, but was entirely relieved of the pain while he lived.

Case 4.—A man, aged 57, seen in October, 1918, first began to suffer from frequency and burning of urination three years before. During this period he received continual medical treatment and was relieved at times.

In July, 1918, blood began to show in the urine. At times the patient suffered from dribbling, but never had complete incontinence. Cystoscopic examination revealed a massive growth in the bladder.

October 3, a suprapubic cystotomy disclosed a large cauliflower fungating tumor mass, growing from the base of the bladder, the limits entirely occupying the bladder capacity. As in our other cases here reported, it was obvious that the best we could do would be to supply what comfort we might to the patient by transplanting the ureters. Therefore, October 11 and 23, respectively, the right and left ureters were transplanted to the sigmoid. The patient lived only two weeks after the second operation, but it supplied the only relief he had had for six months.

In all these cases the kidneys were involved.

CONCLUSION

The transplantation of ureters for inoperable malignant growths of the bladder is not new, but it has not been as common as it seems to me it might be; and in the occasional case, a complete extirpation of the bladder may be done not only with the promise of prolonging life, but with the possibility of an occasional complete cure.

ABSTRACT OF DISCUSSION

Dr. B. A. Thomas, Philadelphia: My experience is limited to a few cases, in some of which the ureter was transplanted into the loin by the process of ureter fistulization. In others a bilateral nephrotomy was done; and in still others the ureters were transplanted into the bowel. It seems to me that we can, perhaps, entirely exclude the utility of ureteral fistulization in the loin. In my own experience every patient died very shortly afterward of pyonephrosis by reason of the poor drainage which seems to be obtained by that method.

Therefore, we have to decide between a bilateral nephrotomy or a bowel implantation. Dr. Lower referred entirely to malignant conditions of the bladder, that is, carcinoma. These patients will not live a long while. In a few weeks, or a few months, or occasionally a year or so, they will die of an ascending renal infection. Bowel implantation is the preferable procedure, so far as the comfort of the patient is concerned. Therefore, I believe it should be selected in all cases of carcinoma of the bladder, where longevity is in doubt anyhow. The patient will be more comfortable. However, in a condition such as multiple papilloma or degeneration of the bladder, we might resort to loin nephrostomy and obtain a better result.

HYPERTENSION IN WOMEN *

DAVID RIESMAN, M.D.
PHILADELPHIA

The habitual use of the blood pressure instrument has brought me a number of surprises, none greater than the frequency with which hypertension occurs in women. The majority of the cases can be classified in a distinct and definite group having the following features in common:

1. The patients are usually stout, overweight and undersize.
2. They have borne many children.
3. They have neither a history nor any stigmata of syphilis.
4. They are over 45 years of age, the greater number falling between 50 and 60 years.
5. They are practically all constipated and some of them suffer from intestinal indigestion.
6. Up to a certain point they show an amazing tolerance to pressures of high degree.
7. In most instances the heart is enlarged, chiefly to the left.
8. The arteries are soft and even the retinal vessels rarely show any involvement.
9. The kidneys, as far as it is possible to determine, are competent.

The absence of gross renal and arterial changes has led writers to speak of such hypertension as essential, a word of little meaning though quite adequate for concealing our ignorance of the cause of the trouble. A similar hypertension is met with in men; but in them it is less frequent and in general less innocent.

When we come to search for causes, the points that stand out prominently are:

1. Multiple gestations. In nearly every case there have been not only two or three, but often five and six children. I have gotten the impression that the worries incident to raising a large family may count for no less than the repeated pregnancies. Inquiry has not elicited a history pointing toward any noteworthy abnormalities either in the pregnancies or in the lying-in periods.

2. Worry. Serious worry is rarely absent: on the one hand, heavy household cares; on the other, special trials and tribulations of the soul.

3. Constipation and intestinal indigestion, especially of the flatulent variety. Just what share to assign to these it is difficult to say. They may play a very important rôle as possible sources of autointoxication. I have, however, seen hypertension of this type in women in whom there was perfect function of the alimentary canal.

4. The menopause. The hypertension begins in such a high percentage of cases during the menopause that this constitutes an unquestionable etiologic factor. The relationship suggests the thought that this form of hypertension in women is based on some endocrine disturbance, not improbably arising in the ovary. Nearly 50 per cent. of the patients were widows.

Whatever the cause may be, whether it is of endocrine origin or some toxic substance made in the intestines or the slow poisoning from a focus of local infection, the effect is an increased vascular tonicity which gradually leads to an actual thickening of the muscular coat of the vessels.

It is interesting to note the symptoms presented by the patients in the early stages of the disease, the inaugural symptoms, to employ a useful phrase of Moynihan's. They are dizziness, ringing in the ears, dyspnea on effort, anginoid pains, palpitation, gaseous distention, and vasomotor disturbances. Though several of these symptoms may be found in the same patient, the disease is often monosymptomatic in the beginning. In a very large proportion of cases the complaints, such as brachial neuritis, sciatica, migraine, have no apparent connection with the hypertension.

The chief physical findings are as follows:

The complexion is usually florid; obesity is practically constant; the area of cardiac and of aortic dulness is increased; a systolic murmur at the aortic area, transmitted upward and into the clavicles, and a ringing second aortic sound are common findings. In the later stages a soft systolic murmur can often be heard at the apex. The temporal arteries may be tortuous, but as a rule they are not conspicuous in women. The peripheral arteries are soft, in striking contrast to the blood pressure. An almost constant finding in patients of this type coming to the office is a slight elevation of temperature, between 99 and 100 F.

The average age of the patients was 54 years. The youngest patient was 43, the oldest, 71. The average systolic pressure was 211; the average diastolic pressure, 105; the average pulse pressure, 106; the highest systolic pressure, 310; the highest diastolic pressure, 160, and the highest pulse pressure, 150.

The highest tension, that of 310, was found in a woman, aged 46. Her sole complaint was dizziness. The year previous she had had a uterine hemorrhage. The physician who brought her to me and I myself were completely taken aback when we found the tension so high. From the woman's complaints we had not been led to expect it.

Another patient had a systolic pressure of 290, normal urine, normal eye grounds, and was well and active. She was able to play golf and had practically no complaint save ringing in the ears.

Of course, the type of hypertension I have described is not the only one met with in women. Chronic nephritis with high pressure is fairly common. It may be set down as a general rule that hypertension in women under 35 is practically always nephritic; it gives a bad prognosis, much worse than any other form of hypertension. In some of the nephritic cases the arteries are soft and impalpable; in others, they are hard, tense and rigid. Strange to say, the latter condition is more frequent in the younger patients.

There is, furthermore, the arteriosclerotic group in which the etiology, symptoms and course do not differ from those of the same disease in men.

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* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

I shall merely mention, without further comment, hypertension in acromegaly and in exophthalmic goiter. I want, however, to say a few words about a closely allied type which I would call non-goitrous thyrotoxic hypertension. This form is of considerable clinical interest; like the one of which I spoke first, it occurs with preponderating frequency in women. The patients are near or past the menopause, are not overfat, sometimes spare, often single. They complain chiefly of palpitation and headache; are emotional, and have a tendency to sweating. The heart is rapid, even to the point of tachycardia; the hands are tremulous. There is often a von Graefe sign, but no exophthalmus and no goiter or other tangible abnormality of the thyroid gland. The systolic pressure ranges from 150 to 210, with a diastolic pressure of from 90 to 120. While there is no positive proof of a thyroid cause, and while the patients are nearly all beyond the age at which hyperthyroidism usually appears, the symptoms nevertheless closely resemble those of a thyrotoxicosis. To be sure, the condition may be pluriglandular in origin. It is apparently not renal or arteriosclerotic. A point of interest and in a sense contributory evidence of thyroid origin is the fact that the iodids do not benefit but rather harm these patients. The thyrotoxic form is more incapacitating than the first variety of which I have spoken.

With regard to prognosis, the first type, the so-called essential hypertension, is in a sense benign; even high pressures are well tolerated for many years, as I have pointed out in earlier papers on this subject.[1] Hence, it is both unwise and unnecessary to alarm these patients. Many have been unduly frightened by being told that they had very high blood pressure. Though the physician, in dealing with them, may well be optimistic, nevertheless, for the patients' sake it is important that he keep them under surveillance on account of the possible catastrophes that lie in wait for them. Three major accidents may happen:

1. Angina pectoris, which is much more frequent in women than is believed, and is especially common in the so-called essential type of hypertension. It is probably due to an extension of aortitis to the coronary arteries.
2. Apoplexy with hemiplegia, which latter in the majority of my cases has been left-sided.
3. Decompensation, a late stage of the disease resulting from myocardial exhaustion.

TREATMENT

In this, as in all chronic diseases not definitely infectious in character, our powers of cure are very limited. That being so, the great desideratum is to find means of prevention. To this end we must learn to recognize hypertension in the making and then to remove such removable factors as are concerned in its production. As there may be nothing in the symptomatology in the early stages to attract attention to the circulatory system, there is but one way to discover incipient stages—by routine blood pressure examination and careful determination of the size of the heart. A comparison of records made at intervals would then show us in which patients the pressure was on the upgrade.

In the treatment of the established condition, harm may readily be done by too much interference. Just as we have gotten away from using digitalis on the mere discovery of a murmur when the valvular defect is compensated, so we should not try to lower the blood pressure to any great degree in patients in whom the hypertension is well borne—in whom it is adequately compensated. If the patients know that they have high blood pressure, one may honestly assure them that the dangers of this symptom have been overemphasized.

Regulation of the diet is necessary, more often in the direction of quantity than of quality. I have found this class of patients as a rule to be heavy eaters, and have come to feel that they do better on a restricted diet, especially on one that is largely lactovegetarian. A lamb chop, a little chicken and fresh fish are permissible. Rest, at times a semirest-cure, is desirable in many instances. In some persons, however, graduated exercise, walking and moderate golf playing may safely be advised.

With regard to drugs, I am not in the habit of using them as a matter of routine. The nitrites are not indicated in patients who do not suffer from their hypertension. Though high-geared, the circulation may be well maintained and vasodilators only serve to upset the equilibrium. The iodids may be used in the essential type of hypertension in small doses over a long period. Lately, I have secured apparently striking results from the use of corpus luteum extracts. The pressures were lowered without any untoward effects, and the subjective symptoms were markedly improved.

Baths and electricity may at times be employed with benefit. When the cases approach the danger line, nothing is so valuable as venesection; when this cannot be done, then leeching from the mastoid process is a very good substitute.

In the thyrotoxic cases, rest is of the greatest importance. Patients of this type should take their breakfast in bed and lie down for an hour or an hour and a half after the noon meal. Tea and coffee should be forbidden. Medicinally, the bromids, at times, with small doses of tincture of veratrum, seem to do good. I may add that in the dizziness of hypertension, tincture of veratrum has often given me very satisfactory results.

The patients of all types of hypertension should be urged not to worry, but the mere injunction "not to worry" carries small weight. It is necessary for the physician to analyze with judgment and with great patience the worry-breeding conditions of the person's life and to convert his patient, if possible, to a more philosophic attitude. By considering all the details of the patient's daily life, one may often point out definite ways of easing the strain.

ABSTRACT OF DISCUSSION

Dr. Joseph H. Pratt, Boston: Dr. Riesman has done well to emphasize the tolerance with which high blood pressure is borne for a number of years by certain patients, especially by women of middle age and above who exhibit no signs of renal disease. The cases I have studied of high blood pressure with normal renal function may be divided into three groups: 1. Vasomotor neurosis with transitory hypertension. The blood pressure is unusually labile. Slight emotion produces a marked rise. These cases are properly regarded as neurasthenia with vasomotor disturbances. The rise in blood pressure is attributed to vasomotor spasm. Other symptoms due to spasm of the vessels are frequent 2. Primary permanent hypertonia. Elevated blood pressure may be the only sign of disease and there may be no subjective symptoms. Most of the patients at the time they come under observation have enlargement of the heart. I have seen cases, however, in which there was no evidence of cardiac hypertrophy. Dr. O'Hare, in an unpublished study, has found in hypertonia without renal disease a marked increase in the blood pressure after an injection of epinephrin. This indicates a state of increased tone in the sympathetic nervous system. 3. Localized arteriosclerosis with hypertension. In a large number of cases in this group of localized arteriosclerosis there is evidence of cardiosclerosis. As Dr. Riesman states that in his cases there is an increased area of aortic dulness and a systolic murmur at the base, as well as an enlargement of the heart, it would seem as if they should be placed here. Is the hypertonia primary and the heart hypertrophy secondary, or are the physical signs of involvement of the heart found in the earliest stage? Orthodiagrams and teleradiograms of the heart taken at intervals beginning, if possible, before hypertonia developed and continued over a series of years, would yield information of value. As evidence of emotional instability of the blood pressure is such a marked feature in essential hypertonia, it may be that some of the cases with transitory elevation of blood pressure tend to pass into the second group characterized by a persistent hypertonia. Cases of this type sooner or later exhibit definite signs of localized arteriosclerosis and then belong in the third group. This progression from one group to the next indicates that we may be dealing with different stages of the same disease process which begins with a transitory spasm of the vessels and ends with widespread arteriosclerosis.

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[1] Riesman, David: Penn. M. J. **18:** 193-202 (Dec.) 1914; Am. J. Obst. **71:** 428-133 (March) 1915; Am. J. M. Sc. **165:** 487-494 (April) 1913.

Dr. Louis Faugeres Bishop, New York: The whole question of the disposition of these very high blood pressure people is so important that it is well to emphasize some practical points in their care. What shall we do with these people so that they will live for a long time? For the last twelve years I have done nothing but treat blood vessel and heart cases and refer now to pressures of from 210 to 260. I have taken care of many of these persons for long periods of time. And there are certain things that are absolutely the best for them. In the first place, I would select the best remedy of all as outdoor exercise. If you can get these women with very high blood pressures and all the nervous symptoms and everything else that goes with them to take a long walk every day, you have won half the battle in taking care of them, because exercise is the best heart stimulant in the world; it is the best lung stimulant; it is the best kidney stimulant; it is the best antidote to worry. Next to that I would place diet. The most essential element in the treatment of this group is the exclusion of eggs from the diet. Some are sensitive to eggs, but not all of them. But, as a matter of strategy, the exclusion of eggs is essential. If you exclude eggs from the cooking, you exclude a great deal of the protein. In our present economic status eggs are very objectionable, because of poor quality. Of course, excess of meat should be avoided. The third important element is care of the intestinal tract. Most of these people are laxative fiends. They have been taking laxatives all their lives and they suffer from autointoxication which comes to people who abuse laxatives. Castor oil is the best of all. I give them a full dose on alternate nights for a week, then skip a week, then two weeks, then three weeks and then advise a full dose once a month as long as they live.

Dr. J. M. Anders, Philadelphia: The fact is recognized that chronic hypertension is of the greatest aid in the recognition of chronic nephritis. It is important to recollect, however, that this symptom has not quite the same value in the female as in the male, for the reason that the female hypertension of vasomotor toxic origin is more frequent than in the male. We meet with many cases of chronic hypertension at the time of the menopause due to endocrine causes, and most of them are quite independent of the group so well described by Dr. Riesman. Then again in true exophthalmic goiter, and also in the cases which have been referred to by Dr. Riesman, as "thyrotoxic symptoms without thyroid disease or exophthalmos," we have instances of chronic toxic hypertension under conditions that do not lead to chronic nephritis as a rule. There is a form of chronic myocardial disease, with which chronic hypertension is often associated, in which there is more or less myocardial insufficiency, but the blood pressure is abnormally high. There is a vasomotor compensatory mechanism operative in such cases; this is practically proved by the fact that as you strengthen the myocardium the blood pressure falls. This particular variety of myocardial disease is more common in the female than in the male. These subjects are often obese; they have reached middle life and commonly anemia of the secondary type is found in association; and both the obesity and the anemia must be taken into account in the treatment since both are causally related to the myocardial condition. I have seen several cases which belong to the group first described by Dr. Riesman in which cardiac hypertrophy with hypertension, and the basic systolic murmur, angina and elevation of temperature were the principal symptoms. To the causes which he mentioned of this condition, menopause and mental worry, I would add overeating with insufficient systematic muscular exercise. The murmur is not due to stenosis at the aortic orifice but doubtless to a roughening of the valve segments or of the intima of the aorta. The slight fever is most probably due to an associated aortitis, and if we accept Allbutt's view, the aortitis accounts for the angina pectoris. Of the two cases I have seen which belong to this group one patient died of angina pectoris and the other has recently had her first attack. In regard to the treatment of this condition, I feel that the two most important elements are: first, proper restriction of the diet, particularly the fat-forming elements, and, second, systematic physical exercise, as Dr. Bishop has pointed out, provided the arterial changes referable to the aorta are not too far advanced. If there is extension of the aortitis to the coronaries with marked arrhythmia, then, of course, this question of systematic physical exercise must be taken up with great care and caution.

Dr. David Riesman, Philadelphia: What Dr. Pratt says about sclerosis of the aorta is true. However, though there may be arterial changes elsewhere, the peripheral arteries are usually so soft and pliable that unless one is careful to take blood pressures, the circulation will be considered normal. The patients come to us when they are in the state of hypertension. To detect the earliest stages we must, as Sir James Mackenzie suggests, make complete examinations and take full histories of all patients, even if the complaints are trivial. Reviewing the histories of those cases that develop hypertension, it will eventually be possible to know the beginnings of the disease. Something may, perhaps, be learned from the periodic examinations inaugurated by some insurance companies. Dr. Bishop's observations are most interesting. If I lived in New York I should probably agree with him regarding eggs. I am, however, not in favor of a high protein diet in hypertension cases. Patients have told me that they felt better on a diet largely lactovegetarian and they do not want to return to a meat diet. But in the last analysis it is probably more important to reduce quantity than to alter quality. What Dr. Anders says about taking blood pressures, in order to recognize nephritis, is most important, as the blood pressure often gives us a better idea of the duration and gravity of the disease than the urine. Anemia is sometimes an important feature and patients are frequently helped by treatment directed against the state of the blood. Regarding exercise, I believe there are periods when it is better not to allow it. One must be governed by the response of the circulation to physical activity. In many cases golf undoubtedly proves beneficial, perhaps as much by reason of the mental relaxation as for any other reason.

Itch.—"Itch" is a term frequently applied to occupational disease; thus we hear of grocer's itch, barber's itch, bricklayer's itch, prairie itch, hatter's itch, washwoman's itch, lumberman's itch, sugar refiner's itch, etc. While some of these conditions are incidental, many are the result of occupation. The itching resulting from occupational irritants is sometimes due to the irritation due to repeated friction, sometimes to the effects of chemicals (as acids and alkalis) while under other conditions it is due to infectious processes. —S. Bana Hubbard, M.D., *Monthly Bulletin,* New York City.

SOME EXPERIENCES IN NEUROLOGIC THERAPEUTICS *

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PERKINISM AND BURQUISM

Toward the end of the eighteenth century a Connecticut physician, named Elisha Perkins, aroused much interest among the medical profession and the public, especially the latter, by a pamphlet in which he advocated the use of what were termed "metallic tractors" in the treatment of a variety of diseases. The tractors were small rods of different metals the extremities of which were applied to parts supposed to be diseased. Wonderful cures were reported and exhibitions of the value of the tractors were given throughout the country. The fame of the treatment crossed the ocean to Denmark, England, France, and other parts of Europe. Books and pamphlets concerning it were published, but after a decade or two it passed into innocuous desuetude.

Many years after Perkins and his disciples, at first at Milan and afterward at Paris and elsewhere, one Dr. Burq appeared and advocated the use of metals both in the diagnosis and in the treatment of neurotic affections, his efforts receiving attention under the designations of metalloscopy and metallotherapy. Burq published a small book in 1882. He was taken up by Charcot after he had been extensively patronized by the public.

In the ninth decade of the last century I became much interested in the publications of Charcot and Richer on the subject of hypnotism and also in Burquism, which belonged after all in the same domain. I had a series of metallic disks of uniform size made—of copper, zinc, tin, iron, lead, silver and other metals. These are probably still to be found stowed away in some closet at the Philadelphia General Hospital. For my experiments with gold I generally used a twenty dollar gold piece, which, I presume it is unnecessary for me to explain, was not left at the hospital.

Experimentation was carried on not only as regards the external metalloscopy and metallotherapy of Burq, but also into what was termed internal metallotherapy. Disks first of one metal and then another and another were applied to blindfolded patients, especially hysterics, and when the metal to which the patient responded —that is, which created some peculiar sensation under the point of application—was found, this metal was used to dispel, transfer, or in some instances to produce anesthesia and other phenomena. The method was used in efforts to relieve contractures as well as anesthesias and paralyses of presumably functional type. Sometimes when I found that the patient was responsive to a particular metal, I would administer in addition to the external applications, this metal or some of its salts internally (internal metallotherapy). The results, as might be expected, were somewhat irregular, although at times they were rather striking. Soon, however, I tired of these performances, as of my various experiments in hypnosis, which were often interesting but rarely resulted in any permanent good to the patient. One thing they did was to strengthen the views that I held, even then, as to the importance of suggestion and countersuggestion.

THE SUSPENSION TREATMENT OF LOCOMOTOR ATAXIA

Motchoukowski of Odessa published a pamphlet in 1883, describing the advantages of using suspension in the treatment of locomotor ataxia, having arrived at his ideas through the accident of observing a patient suffering from this disease apparently obtain relief from the application of a plaster-of-Paris jacket. Professor Raymond, traveling in Russisa, observed Motchoukowski's results and brought an account of them to Paris.

Charcot, whose endorsement brought Burquism into more or less undeserved repute, was also responsible in considerable part for the attention which the neurologic profession gave to the treatment of tabes by suspension. He and his assistant, Gilles de la Tourette, experimented with Salpêtrière patients with what were believed to be gratifying results. The improvements reported by Motchoukowski and Charcot in some of the ataxic patients were said to be remarkable. Some of these were changes for the better in the Romberg symptom; improvement of gait in walking; diminution of lancinating pains; beneficial effects on sexual power; and better control of the bladder. As might be expected the absent knee jerks and pupillary phenomena were not favorably affected.

Neurasthenia, Friedreich's ataxia, and paralysis agitans were other diseases reported as improved by suspension. The rationale of the improvement was not explained with any clearness. It was supposed, however, that the spinal circulation was benefited and that some stretching of nerve fibers occurred, the latter supposition being altogether doubtful. At that time the fact was not generally recognized, as at present, that locomotor ataxia, like general paresis, is a true syphilitic disease due to the presence of spirochetes.

The apparatus used by Charcot was that contrived by Dr. Sayre of New York in the treatment of his cases of spinal caries by suspension. Charcot first published his results in a lecture given Jan. 15, 1889. It is noteworthy that many patients with tabes reported as having undergone this treatment expressed a sense of having been much benefited by the suspension. This is probably to be explained by the well known optimism of tabetics.

Dr. S. Weir Mitchell, in the *Medical Times*, April 13, 1889, described an improved apparatus for suspension, the chief peculiarity of which was that the suspension was in part made from the elbows, the arms being held to the side by a strap, and additional suspending apparatus being applied to the chin and occiput.

Cases were reported to Philadelphia societies as to many others. The Orthopedic Hospital and Infirmary for Nervous Diseases, of this city, and not a few other institutions, were supplied with suspension apparatus, and some enterprising neurologists saw to it that their offices were similarly equipped. The merry dance—or rather the merry hanging—went on for a time with what was supposed to be advantage to the suffering tabetic. This treatment soon passed to the therapeutic limbo.

THE SURGEON AND EPILEPSY

With epilepsy I have had many interesting experiences, both medical and surgical. I will speak here only of the latter. From times remote, considered in the light of a century or a half century, numerous suggestions and experiments have been made regarding the relief and cure of epilepsy. Very early in my professional life I knew something of the efforts that were made on the basis of the old "reflex" hypothesis to rescue the unfortunate epileptic. Children were circumcised; women were deprived of their ovaries and occasionally of the clitoris; a nerve in the hand or the foot or at the root of a tooth or somewhere else, according to the apparent indication, was resected, and much more of a similar sort was done to exorcise a constitutional disorder which refused to respond to the rites employed to banish it.

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The term epilepsy is here used in a broad sense to cover several forms of convulsive seizures. Long ago the trephine or trepan was sometimes used without any particular care or skill or selection of site for the relief of spasms. Bloodletting was at one time so heroically employed in the hope of relieving epilepsy as to become almost entitled to be included under surgical procedures.

When, some fifty years ago, the modern doctrine of cerebral localization obtained a sure footing in physiology and neurology, operations soon began to be suggested and performed, the surgeons being guided as to the choice of site by the principles of localization. Cranial fracture, localized hemorrhage, abscess, and tumor became the frequent objects of surgical intervention, often with marked or even brilliant success. It is not my intention, however, to go into this subject at any length. I merely refer to it to introduce a few remarks regarding two or three of the surgical procedures which since then have been generally laid aside.

One of these was cortical excision, which was advocated by Horsley and others, and for which I was sometimes responsible. The idea in these cases was that even in the absence of any clear evidence as to a gross lesion, if the spasm could be shown to be of a local or jacksonian type, trephining should be employed. After fixing the exact center or area likely to cause such spasm by means of faradization of the exposed cortex, this center or area was then excised. On the whole, the operations of cortical excision, of which a considerable number were performed, did not prove successful, although in some instances the spasm did not recur for a long time after the operation. One of the results in these cases was, of course, that a local paralysis in the limbs or part controlled by the centers excised necessarily occurred. This in most cases became less and less marked and would not have contraindicated operation if a positive relief of the spasmodic attacks had been obtained.

I had brought under my observation a number of cases of so-called idiopathic epilepsy in which operation was suggested or in which an opinion was sought as to the propriety of such operation. In these cases jacksonian spasm; that is, a monospasm or hemispasm involving the face or arm or leg, or one or two of these parts, was usually present as part of the general motor paroxysm. I soon learned that a frequent, if not the most frequent, source of so-called jacksonian spasm was idiopathic epilepsy, a fact to which attention was called by Collier. As I spoke of the matter in one of my papers, the jacksonian attacks occur inside the general epileptic seizure and their presence simply emphasizes an opinion long since expressed by that great neurologist, Hughlings Jackson, that if epileptic fits were sufficiently well observed it would be found that in nearly all cases such seizures began with some form of local spasm. This, of course, is often overlooked and even acute, sharp-eyed observers, whom I have frequently employed in my wards, have sometimes failed to note its occurrence, so quickly does the initial spasm radiate to other parts and eventually to all portions of the body musculature. In a number of cases which came under my observation and in which I was responsible for the procedure, trephining, guided by these jacksonian manifestations, was used, no lesion being revealed. In some cases, however, considerable benefit in the way of suspension of the paroxysms occurred.

In recent years the surgeon has extended his efforts for the relief of epilepsy to the abdominal cavity. One distinguished surgeon, some dozen years ago, recommended for the relief of epilepsy the operation known as appendicostomy. Various considerations were advanced in the discussion of epilepsy at the time of this recommendation, but into these I cannot take the time to go. They were based chiefly on the idea that epilepsy was due to some form of intestinal toxemia. A hole was made into the intestine in the appendical region, and a course of irrigation of the colon was begun, usually with warm water. This, of course, was at first under the direction of the surgeon himself and of the nurse, but later, in some of the cases in which this treatment was employed, the patient was taught to treat himself while lying in bed, by passing a tube through the opening into the intestine and then allowing slow irrigation to occur, the fluid and whatever it carried with it being received in a bed pan or other receptacle. A very few striking results were reported; that is, cases in which the epileptic or epileptiform attacks had ceased for several months or perhaps longer. So far as I know, no results of absolutely permanent value were obtained. This was a rather striking procedure, but one, it always seemed to me, not likely to become acceptable to the patient who was expected to keep on with this process of irrigation on his own hook.

A western surgeon more recently described the operation of cecostomy which he used in cases of constipation mechanically produced, and also for the treatment of epilepsy. It was practically the same operation as that to which I have just referred, except that the opening was perhaps an inch or two away from the appendical orifice.

The same skilful and distinguished surgeon, in the course of his operative procedures for the relief of constipation mechanically produced, came across some constipated epileptics in whom the frequency of the attacks was much diminished by the operations performed, which were usually on the colon and need not here be described.

Going a little further into the subject of epilepsy, he learned, what I am sure has been the common knowledge of neurologists, that most epileptics were subject to constipation and therefore, perhaps, the constipation and the epilepsy had the relation of cause and effect. He advocated procedures similar to those which were used for constipation in nonepileptic patients. Noting that, while epileptics were generally of constipated habits, the multitude of the constipated were only in rare instances the victims of epilepsy, he found it necessary to look a little further into the subject. Doing this by methods which are well known to the profession, he came to the conclusion that epilepsy was due to some form of bacterium or bacillus which probably originated in the duodenum, and whose habitat eventually became the great intestine, or colon. The steps that followed were rather extraordinary and yet I suppose logical from the standpoint of this observer. Not being able always to establish a proper fecal current through the torpid, diseased and absorbing colon, he came, in the process of time, to the idea of getting rid of the colon, and in this way the operation of colectomy was introduced, and not a few epileptics were reported as cured or greatly benefited by this extirpating operation.

Personally I cannot help thinking that this large part of our intestinal tract called the colon has some valuable function in the average human being, and while it may be a convenience to the individual at times to have his bowels short-circuited from the ileocecal region to the anus, this procedure may have its physiologic and pathologic drawbacks.

Eventually the surgeon to whom I have referred, because of the negative results of laboratory investigations made by others, and also under his personal supervision, was obliged to withdraw his endorsement of the idea that the special convulsion-producing germ had been found in the intestine.

DENTAL INFECTION AND THE PSYCHOSES AND NEUROSES

Some years ago I presented a brief paper before the Stomatological Society of Philadelphia on "Obsessions Regarding the Mouth and Teeth." After discussing the subject of obsessions in general I gave details of a few interesting dental cases. One patient had the idea that she was suffering from some discomforting affection at the root of a tooth. This was removed. The distress then began to change its dental habitat, and the patient went through a series of tooth-removing campaigns, but still no relief was obtained. When I first saw her she had only one tooth left, and this was soon extracted by a dental surgeon. At last a distinguished oral surgeon engaged in a vain search for her elusive pain by probing the antrum. She became an alcoholic habitué, and eventually died broken down by her obsessions and her excesses.

In another case the mind of the patient was turned to her teeth until they were all removed and plates were substituted, and later, from time to time, no relief being obtained, she had one plate after another made until the number had increased to twenty-two.

It has seemed to me in recent years that the obsessions regarding the teeth have taken possession of the medical profession. Numerous papers have been written about the rôle of focal infection originating at the roots of the teeth in the causation of mental and nervous maladies. Teeth by the score, many of them of excellent quality, have been sacrificed, and in not a few instances cures or great benefit have been alleged as a result of the treatment. The matter is one of much importance, and has been emphasized by my observation of a number of victims of the dental forceps.

Dementia praecox, manic-depressive insanity, epilepsy, neurasthenia, hysteria, and psychasthenia are only a few of the diseases that have been attributed to dental infection.

The usual procedure in private practice is for the patient, who has probably been seen by one or several neurologists or alienists, to seek, because of the wide exploitation of the subject, a physician who is known to lay stress on the importance of tooth infection. The patient is then sent to the roentgenologist, who almost invariably discovers and is able to mark out a series of alleged abscesses, which are in some instances at least, absorptive lacunae, innocuous foci, or mistaken observations. I do not mean to say that real abscesses are never demonstrated, but as one of my dental friends has pointed out to me, these are frequently not to be found even by the probe in the hands of a skilful surgeon. In a majority of cases, however, the teeth are sacrificed on this altar of focal infection.

The tooth extraction sometimes has an unintended outcome. The patient's mind, already obsessional from the very nature of the malady, becomes fixed on the teeth as a source of his ailments, and what is perhaps worse, the same obsession takes hold of the minds of relatives or guardians. After three apparently good teeth had been removed from one of my patients, she, like the first patient cited in this section, became possessed with the idea that the work of tooth extraction should go on, this obsession pursuing her at all times.

In another case of dementia praecox, as I was told by the mother and the caretaker, the boy had his teeth roentgenographed. Nothing was found, but the advice was given that it would be a good thing to remove a couple of teeth anyhow.

One of my medical friends had a rather interesting experience in connection with this subject. An old gentleman, who was not only a patient but a family connection, had suffered with pain in the neighborhood of the sacro-iliac synchondrosis, and had been treated therefor by the usual therapeutic procedures for affections of this locality, with, however, only partial relief. A consultation came about with a physician and a roentgen-ray specialist, and one of the consultants without any examination of the mouth or jaws expressed the opinion that the probable source of the trouble would be found in abscesses at the root of the patient's teeth. My friend, after allowing him to go on with his dissertation a short time, said casually, "It may be, but I must remark that our patient hasn't had a tooth in his head for the last five years."

LINEAR CRANIECTOMY AND OTHER METHODS OF CRANIECTOMY FOR THE RELIEF OF IDIOCY OR IMBECILITY

Lannelongue of Paris[1] reported his experience in two cases of microcephalic idiocy in which he performed the operation of linear craniectomy. One of the patients was apparently benefited, although, as the recorder notes, training of the patient was resorted to in addition to the surgical procedure. My first experience with this operation was with Dr. W. W. Keen of Philadelphia, who, shortly after the publication of Lannelongue's article, began to make use of the operation for cases similar to those described by the French surgeon. The usual procedure was, with certain technical precautions, after lifting a flap of the scalp of sufficient length and breadth, to cut out a strip of bone about one-fourth inch in width and about 4 to 6 inches in length. Dr. Keen published several articles describing his experiences with this operation. As he has recently informed me, he finally gave it up, the results obtained not justifying a continuance of the surgical measure.

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[1] Lannelongue: L'Union méd. Series 3, **50**: 42 (July 8) 1890.

Dr. C. L. Dana of New York published two articles on the subject.[2] He had the surgeon undertake the procedure described by Lannelongue and Keen with, however, some modifications as regards the character and extensions of the bony removals. Dana, like Lannelongue and Keen, believed that he obtained a few good results which strangely enough he ascribed to the "pedagogic" influence of the surgical procedure. I must confess that this explanation never strongly appealed to me. It seemed to savor of the explanation of the treatment of delusions by the repeated administration of shower baths until the insane subject finally concluded it was better (for the time being, at least) to give up his delusions rather than further endure the punitive measures. These delusions usually promptly returned when the patient was assured he was out of further danger from the cold douching. The operations were also to some extent reminders of the disciplinary measures—carried out with clubs, whips, or even incisions—in order to improve the manners and morals and presumably the intellects of obdurate criminals.

The wonderful theory, however, advanced to support this procedure was usually not pedagogic or disciplinary, but was based on the idea that by removing strips or variously shaped pieces of bone from the cranium the retarded brain of the microcephalic or demimicrocephalic idiot or imbecile would then be given an opportunity to expand and develop. It was sometimes argued that the fontanels and sutures of the infantile skull had closed prematurely, thereby holding in check a brain that would otherwise develop to fair proportions. The argument in favor of the operation, however, was, to my mind, founded entirely on false premises. It entirely overlooked the fact that the arrest of the brain, like the arrest of the skulls in these cases, is due to biopathologic processes, hereditary and embryonal. As my colleague, Dr. James Hendrie Lloyd, once remarked during a discussion of Lannelongue's operation at the Philadelphia Neurological Society: "It is not possible to improve the quality of a bad nut by making a hole in the shell which encases it."

My chief object for recalling this operation, as in referring to much else in this paper, is to show how prone neurologists and surgeons have been to have recourse, without due consideration of principles, to procedures that could not possibly be of any practical service.

Operations in porencephalic and hydrocephalic cases have proved as futile, in my experience, as the craniotomies for the microcephalic. It proved a great temptation to myself, as well as to others, in the earlier days of my localization experiences, to operate in cases of convulsion, with or without mental deficiencies, when the sites for such operations could with accuracy be easily indicated. In the main, these cases were examples of porencephaly, the residua of previous hemorrhages, or of focal encephalitis after various infective disorders. Due consideration was not given to the significance of the cavities, which were in fact in most instances, whatever their origin, conservative or partly protective. Many of the cases ended disastrously, if it can be regarded as disastrous to have such patients perish in the hands of the neurologist and surgeon. In a limited number of cases in which the cysts were shallow some good seemed to result, but in others, if the patients escaped death, there was often an increase in the excitability of the cortex.

Tapping the ventricles for hydrocephalus was in my experience equally lacking in efficacy, even when the operation was accompanied, as it infrequently was, by an imperfect effort at slow compression of the skull.

NERVE STRETCHING

About thirty-five years ago, the operation of nerve stretching for a variety of sensory and motor disorders began to be used. John Marshall in 1883 delivered the Bradshaw lecture before the Royal College of Surgeons of England on "Neurectasy or Nerve Stretching for the Relief or Cure of Pain." This lecture, which was carefully prepared and founded in considerable part on experimentation, helped to give the operation a scientific status. Dr. Christian Fenger[3] of Chicago and Dr. W. W. Keen of Philadelphia, among others, made valuable contributions to the subject of nerve stretching. Unquestionably this operation was sometimes successful in relieving severe pain, especially when it seemed of a purely neuralgic type. The operation was also resorted to occasionally, but with less favorable results, for tabetic pains.

Among the motor disorders in which nerve stretching had varying success, were facial tic and spasmodic torticollis, many cases of the latter affection really belonging in the category of tics, although this was not at first generally recognized. I recall two cases of facial tic in which operation with good results was performed by Dr. Keen. The stretching force exerted in these cases usually amounted to 4 or 5 pounds of weight. The nerve was exposed near the stylomastoid foramen, and the stretching was done steadily—not with sudden force. The first result of this operation on the facial nerve was complete paralysis, the tic disappearing. The paralysis was gradually recovered from, and in one or two instances which fell under my observation, without return of the spasm. This, however, was not the usual result, and the operation was soon largely abandoned. The cause of such tics was either partial nuclear degeneration or a faulty cortical discharge, neither of which could be banished by operative procedure.

I had considerable experience with spasmodic torticollis. One of my earliest papers was concerned with this affection. It is not necessary to tell an audience of neurologists that this is one of the most intractable of diseases. Stretching of the spinal accessory nerve was employed for its relief, but without success. Equal want of success, however, attended other operations, as for instance tying the accessorious with silver wire, sectioning it, cutting the muscles presumably involved, and excising the spinal nerve roots. The lack of success in this operation seemed to be due to the fact that the spasmodic disorder was one which probably had its seat in instability of the motor cortex. When the affection was closely studied it was found to be not a neural or muscular affection, but a disorder of movement involving a group of cooperating muscles.

Shortly after the period in which nerve stretching was advised and resorted to for the relief of pain and local spasms, the operation began to be recommended in the treatment of several forms of sclerosis, as symmetrical lateral sclerosis (a rare affection), disseminated sclerosis, and spasmodic paraplegia. In one of my cases of disseminated sclerosis nerve stretching in the lower extremities by the method without cutting; that is, by forcibly flexing the extended leg on the trunk, was used, and no beneficial result having been obtained, Dr. Keen stretched the sciatic nerve by a cutting operation in which after exposing the nerves he subjected them to a slowly continued pull corresponding to about 25 pounds of weight. This operation, as might have been expected, also resulted in failure.

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[2] Dana, C. L.: A. J. M. Sc., New Series **110**: 24 (Jan.) 1896.

[3] Fenger, Christian: Collected Works of Christian Fenger, M.D., 1840-1902, Philadelphia, W. B. Saunders Company, 1912, Vol. I.

Looking backward on these surgical procedures, their futility is easily recognized. It is evident that, at the most, they could have only temporarily affected the spasmodic disturbance. In other words, the operation was not based on a proper consideration of the nature of the disease, and therefore was not a really rational procedure.

GLANDULAR THERAPY AND ABDERHALDENISM

Foremost among the methods of glandular therapy to be tried out by me personally was the use of preparations of thyroid. In a well known line of cases these proved invaluable, as in myxedema and myxedemoid and cretinoid cases, in adiposis dolorosa, and in forms of adiposis not of the Dercum type. This treatment in a strict sense was not curative, but when the amount which could be administered without too much constitutional reaction was determined by trial, the various preparations of the glands of the sheep or of other animals were given with continued advantage and sometimes with remarkable success. As a rule, however, it was necessary to keep up the administration as a part of the regular diet of the patient.

In a limited number of cases of epilepsy I have had decidedly beneficial results from the use of thyroid with bromids and arsenic and special forms of diet, as for instance the so-called purin-free diet. In addition to thyroid, pituitary preparations have also proved of value in cases of epilepsy with dyspituitarism.

With preparations of other glands, like testicle, ovary, mammary gland, and suprarenals, my experience has not been promising, although I have seen some benefit accrue from the use of suprarenal or pancreatic extracts, especially in melancholia and epilepsy.

In connection with this question of glandular therapy, that of glandular removal comes naturally into the foreground. Every neurologist and alienist will remember the rage in the early days of safe, that is, of aseptic and antiseptic, surgery for removing ovaries for the relief or cure of neuroses and psychoses. The fashion was so rampant for a time that there promised to be partial race suicide by way of the surgeon's knife. Directly or indirectly, I came in contact with much of this work. My experience might be included in the simple statement that nine tenths of such removals did not result in the relief of nervous maladies. In a considerable percentage of the cases the postoperative mental or nervous state was such as clearly to indicate that the operations had done harm rather than good. These operative procedures in some instances were the source of traumatic affections, especially troublesome adhesions, and in other cases of new or more confirmed obsessions. It is rather interesting to note the contrary manner in which the two sexes were treated as regards the sexual glands. The woman suffering from a variety of mental or nervous disorders had her ovaries removed, while, forsooth, the man afflicted in the same or a similar manner was treated by the administration of testicular preparations. So far as results were concerned, however, it mattered little; one was about as effective as the other.

When a few years ago (about 1912) the investigations and theories of Abderhalden of Halle were published, a new stimulus was given to glandular therapy. I do not feel competent to pass fully on the subject of Abderhaldenism, as I have found it somewhat difficult in the limited time and opportunity at my disposal to determine from scientific considerations the value of the methods both of diagnosis and of therapeutics suggested by a study of the protective or defensive ferments of the body. Some of my own patients, and other patients of whom I have knowledge, have been subjected to these investigations and have had made on them therapeutic applications of the results of such investigations. The cases to which I refer particularly include examples of dementia praecox, melancholia, and hysteroneurasthenia, especially the first.

As the result of painstaking Abderhalden tests, guarded by all the precautions suggested to those who work in this field, certain glands have been determined as most likely to be beneficial because of their supposed or known antagonistic action to other glands, which the investigator has found to be dysfunctioning. Preparations of testicle, for instance, have been used when the pituitary was the offender; of the suprarenal when the suprarenal was at fault; or of the pancreas when the indications were of pancreatic infantilism or deficiency. For instance, certain glands are given to replace a supposed deficiency in the corresponding glands, and their opponents are administered to subdue hypersecretion. Results apparently beneficial but usually temporary were obtained in some of these cases. In a very few instances more permanent results were in evidence. I have never been thoroughly convinced, however, that the clinical course of a genuine case of dementia praecox was halted for more than a brief period—a period similar to that which one sometimes observes in these cases without the use of Abderhalden or any other form of therapeutics.

The observations of Ludlum on psychopathic patients cured or greatly benefited by the use of either acid or alkaline preparations—according to the result of investigations into the acidity or alkalinity of the saliva, urine, stools, perspiration and blood—in combination with preparations of ovarian gland when the blood pressure is high, and of suprarenal extracts when it is low, are of decided interest and open up a field of therapy for the neurologist and alienist.

One of the points which has always impressed me when studying reports of this sort and the theories on which the treatments suggested in such records have been based, is that due consideration is not given the teratologic origin of the affections which it is hoped to cure by changed acidity or alkalinity, or by these combined with the use of glandular preparations. The fact is too often overlooked that the glandular condition, and even the state of acidity and alkalinity in some instances, are themselves only a part of an ordained embryonal state which cannot be successfully combated, or at least cannot be attacked with full success on chemical and other theories of such limited import.

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SATURDAY, AUGUST 2, 1919

ANTISCORBUTICS: II

In a previous issue of The Journal,[1] reference was made to some of the experiences which have led to the development of diverse sorts of antiscorbutic products available for the purposes of infant nutrition. It is not necessary to refer back to the older expeditions in search of the North Pole or to the experiences of our Civil War to learn how essential antiscorbutic foods may be to an adult as well as to the growing infant. The changes in our food supplies have altered the dietary habits of mankind;[2] and, although in normal peace times the tendency toward a liberal supply of varied foods is likely to avert widespread deficiencies of essential factors, this is far from being the case under war-time conditions. Scurvy made its appearance in Europe among troops and civilians when the exigencies of the situation in which they were inadvertently placed compelled them to subsist on unsuitable foods. This does not necessarily mean that the energy furnished was insufficient or that the protein was inadequate; but it has shown that even in the midst of plenty the quality of our foods may be dangerously defective.

The knowledge that heat may affect the stability of vitamins and more particularly the antiscorbutic property of foods has focused attention on the effects of cookery, canning and various other modes of food preparation and preservation on the integrity of the accessory food factors. We shall not claim the ability to render a final judgment as to either the safety or the nocuousness of any of the varied methods of conservation. A few references to the outstanding facts ought, however, to serve as an indication of the great uncertainties which have been raised, and the probable considerable significance of the questions at issue for practical dietetics. The keynote was sounded by Holst seven years ago. The striking demonstration of the loss of antiscorbutic potency as the result of desiccation and cooking furnished by Givens and Cohen[3] of Yale with regard to cabbage and potatoes has been substantiated at the Lister Institute in London.[4] We are told that, so far as animal experiments can be depended on to furnish evidence, there is a loss in antiscorbutic properties of more than 93 per cent. when cabbage is dried at a low temperature and stored subsequently for from two to three weeks at laboratory temperature. After drying and storing for from five to six weeks at laboratory temperature, a further loss of antiscorbutic properties is suffered. After storage for three months, nearly all the protective value of the fresh material is lost (about 96 or 97 per cent.). The fact that less loss through desiccation takes place if the product is first steamed or plunged into boiling water suggests at once that something other than mere heating or desiccation is concerned in the deteriorating influences of these preservation processes.

From the standpoint of culinary food preparation, Delf[4] suggests that these facts have some bearing on methods of cooking green vegetables, and indicate broadly that the least loss of antiscorbutic properties will be obtained by cooking green vegetables for a short time at a higher temperature rather than for a longer time at a lower temperature. Hess and Unger[5] have lately reported that carrots lose much or all of their antiscorbutic potency through cooking. They have, furthermore, called attention to the added factor of the maturity of the plant. As they express it, from a nutritional standpoint carrots cannot be looked on as a uniform article of diet. There is a marked difference in various lots of carrots, and probably also of other vegetables, according to whether they are fresh and young, or are old. It was found, for example, that if, instead of employing the carrots which were ordinarily fed to their laboratory animals, they gave the same amount of fresh young carrots, plucked only a few days previously and cooked, not only did the animals not develop scurvy, but they gained steadily in weight for a long period.

Hess and Unger[5] remark that the freshness and age of the vegetables sufficed also to enable them to retain their antiscorbutic potency after dehydration. This is a statement of considerable importance because it points to a further variable that may need to be considered in evaluating food preparations from the standpoint of their antiscorbutic effects. If, to the problem of the effect of heat, oxidation, preliminary treatment and age of the fresh product, there is added the question as to the possible influence of different reactions—of acid and alkali as they occur naturally in foods or are added incidental to their manipulation

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[1] Antiscorbutics: I, editorial, J. A. M. A. **73**: 271 (July 26) 1919.

[2] Mendel, L. B.: Changes in the Food Supply and Their Relation to Nutrition, Yale University Press, 1916.

[3] Givens, M. H., and Cohen, B.: The Antiscorbutic Property of Desiccated and Cooked Vegetables, J. Biol. Chem. **36**: 127 (Oct.) 1918.

[4] Delf, Ellen Marion: The Antiscorbutic Value of Cabbage, I, The Antiscorbutic and Growth Promoting Properties of Raw and Heated Cabbage, Biochem. J. **12**: 416 (Dec.) 1918. Delf, Ellen Marion, and Skelton, Ruth Filby: The Antiscorbutic Value of Cabbage, II, The Effects of Drying on the Antiscorbutic and Growth Producing Properties of Cabbage, ibid., p. 448.

[5] Hess, A. F., and Unger, L. J.: The Scurvy of Guinea-Pigs, III, The Effect of Age, Heat and Reaction on Antiscorbutic Foods, J. Biol. Chem. **38**: 293 (June) 1919.

—the complexity of the project of retaining the antiscorbutic potency becomes more apparent.

This is a time for cultivating the "open mind" in reference to the true nutritive value of conserved foods. If some desiccated vegetables have proved to be devoid of antiscorbutic efficiency, it must, nevertheless, be admitted that the loss can probably be averted entirely or partially when the conditions which determine it are definitely ascertained. Fruit juices have already been concentrated, and tomatoes have already been dehydrated without becoming impotent in respect to the factor under discussion. Hess and Unger assure us that it would be an error to infer from such experiments as are now on record that milk necessarily loses its antiscorbutic potency when it is reduced to a dry state. Enough specific instances of contradictory facts are on record to warn us, on the one hand, against condemning canned goods or dehydrated vegetables or their analogues from the standpoint of their vitamin potency; or of praising any of them without specific information as to each product. The offhand statements which are beginning to emanate from partisan or inadequately informed sources must not be accepted. The time is not yet ripe for "expert opinions" that are all comprehensive in their information. Knowledge in relation to vitamins is in the making. Fortunately, at the point where chemical analysis utterly fails, the physiologic experiment is proving to be a dependable guide. Let us get the facts first of all.

HOW SHALL WHEAT BE USED AS FOOD?

Whether or not our wheat supply is advantageously used depends on a variety of factors, some of which already have been considered. It is evident that wheat flour can be "stretched"; that is, the nutrients can be increased by raising the current extraction of from 70 to 75 per cent., represented by patent flours, to from 85 to 88 per cent. by simply including some of the wheat germ. From the producers' standpoint it must be acknowledged that, owing to the fact that the germ-containing portions spoil more quickly, losses in the trade would undoubtedly occur if all the wheat in America were milled either to a European war standard of from 85 to 88 per cent., or prepared as whole wheat flour and distributed through the American market as at present controlled. Furthermore, even the enthusiast must be forced to admit that breads made from flours of high degrees of extraction have not gained popularity. Taylor,[1] who has had exceptional opportunities to study the war bread situation, asserts that "the revulsion against this bread has been audible in every country; the people have repeatedly petitioned that they be given less bread and better bread." Finally, one cannot overlook the repeated reports that the breads prepared from high extraction flours do not agree with some individuals. Here it must be admitted, however, that apparently the causes for any disturbance of intestinal function may lie in changes produced in the bread by the germ fraction rather than the bran; for thousands of persons use with apparent impunity graham breads made of flour prepared by returning bran to standard flour.

A somewhat novel aspect of the subject has been presented through recent investigations by Osborne and Mendel,[2] to whom we owe fundamental researches on the nutritive value of proteins from different sources. They have shown that flour, when used as the sole source of protein, is inferior to other foods in maintaining adult rats, and especially in promoting the growth of the young, but that when the wheat proteins are combined with about one third of their weight of proteins furnished by eggs, milk or meat, they are so greatly enhanced in value that flour is thus used most advantageously. These investigators point out that, since the nutrients of bran are poorly utilized by mankind, a waste of food, though probably not large, results when the bran is included in the flour.

Although the constituents of the embryo have a high nutritive value, the embryo forms so small a part of the entire kernel, and so impairs the keeping qualities of the flour, that probably the nutritive advantages of including the embryo in the flour are more than counterbalanced by the practical disadvantages. On the other hand, when the bran is used in the production of meat and milk, it is converted into proteins which serve to supplement the wheat proteins in human nutrition far more effectively than bran proteins do. To quote the observations of Osborne and Mendel: "Bran and embryo together form about 17 per cent. of the wheat kernel; the endosperm, from which flour is made, forms the remaining 83 per cent. About one half as much flour eaten with the animal products, in such proportion that one third of the protein is furnished by the latter, is capable of satisfying the protein requirements as when flour alone furnishes all of the protein."

If, therefore, about 80 per cent. of the wheat kernel can be so improved in nutritive value by adding animal products to the diet that a much smaller amount of flour will satisfy the protein needs of nutrition, it may well be that the use of the by-products of milling for the production of meat, milk or eggs will result in a greater economy in the use of flour than if these were used directly for human food. In other words, since by far the greater part of the flour used in this country is eaten in combination with those food products which successfully supplement the nutritive deficiencies of its proteins to a far greater extent than do the bran and embryo of the entire kernel, no practical advantage on this score can be expected by converting the entire grain into flour. Bread and milk, eggs on toast, and the sandwich in its diverse varieties, represent supplementary combinations that find their justification in the latest scientific researches. Man cannot live on bread alone, even if it be made of whole wheat.

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[1] Taylor, A. E.: War Bread, New York, Macmillan Company, 1918.

[2] Osborne, T. B., and Mendel, L. B.: The Nutritive Value of the Wheat Kernel and Its Milling Products, J. Biol. Chem. **37**: 557, 1919.

THE DIAGNOSIS OF TUBERCULOUS COLITIS

Tuberculous lesions of the intestine are frequently found at postmortem examinations (from 60 to 90 per cent.) whenever a tuberculous process has existed in the lungs for any length of time. The inevitable lodgment of some of the tubercle bacilli which pass almost continuously along the gastro-intestinal tract of the tuberculous patient is to be expected. Clinical recognition has, however, lagged far behind the reasonable expectancy that postmortem experience seemed to warrant, perhaps because we concentrate our clinical attention so firmly on the pulmonary involvement that we disregard the rest of the body, or explain away possible intestinal symptoms on the basis of the general intoxication; more likely, though, because the great majority of the intestinal lesions, especially if located above the ileocecal junction, give rise to only an indefinite symptomatology.

Even with our attention focused on the abdomen as a result of suggestive symptoms, the means of certain diagnosis are still lacking. The mere finding of tubercle bacilli in the stool is of no value, for in virtually every open pulmonary case we get the same result on careful examination. This uncertainty is the more unfortunate because medical or surgical aid, if it is to be of value, depends entirely on the early recognition of the disease extension. When once the stage of distinct abdominal tenderness, of severe pain and of intermittent diarrhea has been reached, our corrective measures are virtually useless.

As an aid in just this situation, Brown and Sampson[1] emphasize the value of systematic roentgen examination as a routine measure in tuberculosis, basing their conclusions on a study of 110 cases. Two definite observations have been contributed by them: In tuberculous ulcerative colitis there exists a well marked hypermotility of the large intestine, particularly of the cecum, together with a distinct spasm of the cecal musculature. These findings, when observed in a tuberculous patient, with or without definite abdominal symptomatology, seem of considerable diagnostic importance. In the clinical and roentgen correlation, Brown and Sampson found that of sixty-eight moderately advanced pulmonary cases, forty-four were negative, fifteen doubtful and nine positive on roentgen examination. Of the nine positive cases, four were proved positive at operation and five cases did not come to operation. Of twenty-two far advanced pulmonary cases, five were doubtful, the balance positive. Of these positive cases, nine were verified at operation, three resulted fatally, and five did not come to operation. Contrasted to these moderately advanced and advanced cases, the examination of incipient cases (eleven in number) yielded only three that were positive. Of these, one was proved at operation, one terminated fatally, and one did not come to operation.

While our diagnosis of tuberculous colitis has thus advanced considerably in this regard, the recognition of tuberculous ulceration of the intestine above the colon is still a baffling problem and one that, for the time being, will bring into demand the greatest amount of medical judgment and careful analysis of the patient. It is unfortunate, too, that therapy (apart from surgical measures), even when considered merely from the standpoint of amelioration, is quite unsatisfactory. Saxtorph[2] suggested the intravenous injection of calcium chlorid, and Fishberg[3] has reported some success in a limited number of cases. At times a single injection (5 c.c. of a 5 per cent. solution) is said to relieve the distressing intestinal symptoms. When, however, the ulceration is extensive and the inflammatory reaction about the lesion includes areas of localized peritonitis and of adhesions to neighboring viscera, the chance even for palliative measures is poor.

FACTS AND FANCIES CONCERNING LACTATION

What incites the development of the true secretory tissue of the mammary gland and provokes the process of lactation continues to be an interesting subject for speculation despite the attempts of numerous investigators for years past to solve the riddle. There seems to be convincing evidence that the development is not necessarily evoked by the central nervous system; for there are duplicated records of the growth of the glands and the secretion of milk at parturition in animals in which all nerve connections of glands were severed during pregnancy. Current tendencies in physiology have given free play to the hormone hypothesis which assumes the liberation and distribution, from some gland or organ, of a chemical substance which acts as the stimulus to the elaboration of the mammary function. The uterus, placenta, fetus, corpus luteum and other structures have been called on in turn to account for the liberation of the galactagogue. They have been alleged to act as the sources of excitation or inhibition; and, indeed, many of the theories concerning mammary development can marshal potent facts in their defense. Now and then, however, nature furnishes a stumbling block which furnishes the occasion for investigations in new directions.

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[1] Brown, Lawrason, and Sampson, H. L.: The Early Roentgen Diagnosis of Ulcerative Tuberculous Colitis, J. A. M. A. **73**: 77 (July 12) 1919.

[2] Saxtorph, S. M.: Ugesk. f. Læger **80**: 1763 (Nov. 7) 1918.

[3] Fishberg, Maurice: Calcium Chlorid as a Palliative Agent in the Treatment of Intestinal Tuberculosis, J. A. M. A. **72**: 1882 (June 28) 1919.

A recent instance of a well authenticated observation illustrating the inadequacy of current hypotheses is cited by Hill[1] of the Maryland Experiment Station. A suckling kid spontaneously commenced to secrete milk without having reached sexual maturity, and without udder manipulation or any other known stimulus to mammary growth. There are on record numerous instances in which young animals have been brought into lactation by being suckled or by having the udder manipulated; hence the oft made assertion that a mechanical stimulus is a fundamental factor in the genesis of milk secretion. The kid observed by Hill, however, had not reached sexual maturity, so that, as he points out, any theory of mammary growth or milk secretion involving the ovaries, corpora lutea, fetus or placenta is not applicable.

Of further interest in this rare case is the observation that the nonremoval of the milk for nineteen days from the lactating kid did not inhibit the secretion as it commonly does in analogous cases of adult milk producers. The milk produced had the composition of normal goat's milk for months, even when the animal was milked at intervals one week apart. None of the milk secreted resembled colostrum. Hill suggests that colostrum secretion must be caused by some special stimulus due to pregnancy and is apparently not associated with the commencement of milk secretion, as was formerly supposed, unless there is an accompanying pregnancy. Here are unique facts of a sort that could doubtless be multiplied if attention were concentrated on the subject. Even with the aid of the obscure and undemonstrated theories of the newer endocrinology, who shall venture a tenable physiologic explanation?

Current Comment

WATER SUPPLY IN PALESTINE

The reclamation of Palestine by the British has at last fully opened the Holy Land to the enterprise of the West. Captain Carson, of the American Red Cross Commission which followed General Allenby, tells us that the first problem of improvement encountered was that of water supply.[2] That part of Palestine south of Beersheba has been piped with water from the Nile by British royal engineers with American equipment—the realization, it is said of a dream thousands of years old. "Several million gallons" a day are pumped from the canal near Kantara across the Suez Canal into Palestine. At Kantara, rapid sand filters are used. The pipes are laid at least 18 inches deep in the soil or sand of the desert in order to protect them and the water from heat. North of Beersheba there is plenty of water under the surface, though very little, owing to the geologic formation and meteorologic conditions of Palestine, remains easily available. On the western slopes, however, the valleys form excellent reservoir sites for collecting the winter rains, though they would often have to be treated to prevent loss by percolation. The problem of the water supply of Jerusalem has been attacked by such noted men as Hezekiah—who constructed a tunnel which is today an "almost unexplainable" engineering feat—Solomon, Pontius Pilate and Herod. In the spring of 1918, the British, using much of the Roman work, installed a 6-inch line from the springs of Wady-el-Arub, about 16 miles south of Jerusalem, through which more than 200,000 gallons a day are now flowing into the city. It is said that Jerusalem could be furnished with more than 20,000,000 gallons a day of pure water. Almost every house in the city has its rainwater cistern, and these, with proper inspection by the newly organized health department, are being filled with safe water. It is to be expected that the disappearance of the picturesque water venders of Jerusalem will be accompanied by the passing of the terrible water-borne diseases prevalent under Turkish rule.

THE THERAPY OF BUCCAL CANCER

Connected with the subject of the therapy of buccal cancer are two great factors. The first is that of early diagnosis—a factor of paramount importance in any case, but in none more so than in cancer of the buccal cavity. There is little excuse for failure in this respect, yet it is of frequent occurrence. There still are physicians who profess a great "fear of the knife," and are willing to carry patients for weeks and months until the disease has made such progress that the use of a knife does, indeed, become a fearsome thing. There is a second group of men, intelligent and honest, who, because the patient gives a history of chancre or a positive blood Wassermann reaction, forget the possibility of cancer in the presence of an ulcerating sore on the tongue and lose precious time in a vain endeavor to cure the lesion with arsphenamin and mercury. The second factor to be considered is the exceedingly rich lymphatic supply of the mouth and neck. This is important for two reasons: first, the possibility of early, deep-seated metastases, and second, the difficulty which it adds to efficient use of the roentgen ray and radium. Every one is familiar with patients in whom clean excision of a cancer of the mouth associated with persistent postoperative raying of the neck by competent roentgenographers has nevertheless been followed by the early appearance of deep cervical metastases. Since the roentgen ray exerts its influence in limiting cancer metastases by causing proliferation of connective tissues and of the endothelial cells of lymphatics to an extent sufficient to obliterate the lymph channels and tissue spaces, and also by a direct inhibitory effect on the cancer cells, it is obvious that, to a large extent, the richer and the more deeply situated the lymphatic supply, the less effective will be treatment by the roentgen ray. This tendency of buccal cancer to cervical metastasis has led to the ultraradical, so-called "block dissection" for its cure, which consists in an attempt to remove the cancer and the lymphatic bearing structures of the neck en masse. High morbidity and mortality from infection, and failure to eradicate the tumor by this method, have caused many surgeons to go to the other extreme and to content themselves with local excision with the actual cautery or some form of high frequency current, and ligation of the external carotid artery, thus attempting to minimize recurrence by starving the tumor, and such limitation of metastases in the neck as may be afforded by the roentgen ray. While this method avoids the danger of infection to a large extent, it also fails to cure. Much has been claimed for radium in the treatment of cancer of the tongue; but while its usefulness as an adjunct to other measures is generally admitted, its dependability when applied by present methods to any but the most superficial lesions is yet to be demonstrated. In the management of buccal cancer we are, therefore, brought face to face with the one great, outstanding fact in present-day cancer therapy, namely, the utter necessity of early diagnosis, without which invasion of the rich lymphatic field of the face and neck places an enormous handicap on curative treatment.

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[1] Hill, R. L.: An Exceptional Case of Milk Secretion and Its Bearing on the Theories Concerning Mammary Development, J. Dairy Sc. 2: 19 (Jan.) 1919.

[2] Carson, H. Y.: Ancient, War-Time and Present Water Supply in Jerusalem, Engineering News Record 82: 1092, 1919.

FISH AS A FACTOR IN MOSQUITO CONTROL

The attempt to enlist nature on the side of man in combating man's natural foes has been made with great ingenuity in several well known instances. The importation of parasites preying on injurious insects is a familiar example. The value of the dragon-fly as an enemy of the mosquito has been frequently pointed out, although practical utilization of this factor is difficult. Many writers have regarded the activity of fish in devouring mosquito larvae as offering possibilities for more extensive exploitation. Some pertinent observations on this point have recently been published.[1] As the result of work extending over a considerable period, it is concluded that the top minnow (*Gambusia affinis*) is especially suitable for an anti-mosquito campaign because it seeks its food at the surface where the mosquito larvae dwell; is very prolific and viviparous; frequents areas in which mosquito larvae would otherwise thrive, and holds its own in the presence of predacious fishes, provided it has shallow water for refuge. It is said from first-hand observation to "eliminate the wriggler (i. e., mosquito larva) completely from ponds which are fairly free of protective vegetation and débris." Somewhat similar results were reached by Geiger and Purdy in their observations on experimental mosquito control in rice fields.[2] The presence of the top minnow meant a considerable reduction in mosquito larvae, especially in the roadside ditches. The authors believe, however, that under the special conditions obtaining in rice fields the preference shown by the minnow for the deeper, flowing water along levees and their evident avoidance of the midfield make them a doubtful control measure. This should not affect their utilization under favorable conditions.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending July 26, there were 11,065 officers in the Medical Corps, a decrease of 690 from the previous week. The Medical Reserve Corps contained 3,015 officers. The total number of physicians discharged since the beginning of the war is 21,457.

Examination to Fill Vacancies in Regular Army Medical Corps

There exist at this time 600 vacancies in the Medical Corps of the Regular Army. A circular just issued by the Surgeon-General's Office announces the holding of an examination on Aug. 25, 1919, for the purpose of filling these vacancies. Applications will be received up to August 16, but consideration will not be given to those received after that date. A special circular issued by the Surgeon-General's Office states that vacancies will be filled by appointments in the following order:

a. Emergency medical officers now in service.

b. Members of the Medical Section, Officers' Reserve Corps, who served with credit as officers during the war.

c. Former emergency medical officers who served with credit during the war.

It is required that applicants shall be citizens of the United States, between the ages of 22 and 32 years. All persons desiring to apply should address a letter of application for examination to the Adjutant-General of the Army at once, furnishing the following data: Name in full; date and place of birth; permanent home address, medical school or schools from which graduated; professional experience and military service during the emergency, including the organizations in which served and inclusive dates; present organization, if still in the service; grade in which originally appointed; present grade, if still in the service; date, place of discharge and rank at time of discharge, if no longer in the service; also complete statement of any service as a Contract Surgeon; in the Medical Reserve Corps; or in the Medical Section of the Officers' Reserve Corps.

Applications from candidates still in the service should be forwarded to the Adjutant-General through military channels. After a consideration of the applications, selected applicants will be sent letters authorizing them to appear for examination.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Birmingham—Grace, F. G. (C.)
Hanna, H. P. (L.)
Gantt—Blair, W. M. (C.)
Forest Home—Wall, C. (C.)
Montgomery—Burke, R. P. (L.)
Mason, E. M. (M.)
Smith, J. L. (C.)
Renfroe—Sims, J. A. (C.)
Sprott—Pryor, R. B. (C.)
Troy—Sanders, J. G. (C.)

ARKANSAS

Fort Smith—Bungart, C. S. (C.)
Foster, M. E. (C.)
Helena—Butts, J. W. (L.)
Holly Grove—Johnson, P. E. (M.)
Lockesburg—Musser, J. F. (C.)
Texarkana—Hibbitts, W. (C.)

CALIFORNIA

Alameda—Hall, C. (C.)
Berkeley—Cheney, M. C. (L.)
Coronado—Berggren, T. J. (C.)
Davis—Schoff, C. E. (M.)
Long Beach—Rogers, T. L. (L.)
Los Angeles—Allen, A. (C.)
Dolan, P. E. (L.)
Ray, F. S. (C.)
Van Meter, S. Y. (C.)
Pasadena—Markolf, H. F. (C.)
Portola—Sproat, S. M. (L.)
Riverside—Rolph, W. D. (M.)
San Francisco—Hulen, V. H. (M.)
Watsonville—Watters, H. G. (C.)

COLORADO

Colorado Springs—Forster, A. M. (L. C.)
Denver—Simon, S. (C.)

CONNECTICUT

Hartford—Clason, F. P. (C.)
Monaghan, W. A. (L.)
Story, T. L. (L.)
Kensington—Griswold, M. H. (C.)

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[1] Hildebrand, S. F.: Fishes in Relation to Mosquito Control in Ponds, Pub. Health Rep. 34: 1113 (May 23) 1919.

[2] Geiger, J. C., and Purdy, W. C.: Experimental Mosquito Control in Rice Fields, J. A. M. A. 72: 774 (March 15) 1919.

ansfield Depot—Hackett, J. F. (C.)
eriden—Murdock, T. P. (L.)
iddletown—Gibson, E. T. (L.)
  Melvin, G. M. (L.)
ew Haven—Barnes, W. S. (C.)
  Brides, A. E. (C.)
aterbury — Kirschbaum, E. H. (C.)

DELAWARE

ilmington—Pawlikowski, S. B. (L.)

DISTRICT OF COLUMBIA

ashington—Burke, J. W. (M.)
  Fischer, M. B. (L.)
  Morris, R. T. (L. C.)
  Nolan, F. M. (L.)

FLORIDA

acksonville—Bowen, F. J. (C.)
  Erwin, S. (L. C.)
ensacola—Ginsberg, H. M. (C.)
ampa—Marney, C. R. (L.)

GEORGIA

thens—Stewart, J. S., Jr. (L.)
tlanta—Clay, G. E. (C.)
  Maner, E. N. (L.)
  McCord, J. R. (L.)
  Reynolds, H. L. (L.)
  Wiggins, L. W. (C.)
ugusta—Mulherin, F. X. (L. C.)
riffin—Miles, W. C. (M.)
lains—Wise, B. J. (C.)
uitman—Wade, H. W. (C.)
andersville—King, T. B. (L.)
avannah—Edwards, D. B. (C.)
  Lang, G. H. (C.)
  Train, J. K. (C.)
albotton—Pugh, T. E. (C.)

IDAHO

t. Maries—Platt, O. D. (C.)

ILLINOIS

lton—Jones, F. W. (C.)
urora—Darmer, G. A. (M.)
armi—Sibley, F. C. (M.)
hicago—Andrews, E. (L.)
  Aron, B. (C.)
  Bailey, A. S. (L.)
  Bolka, B. J. (C.)
  Busk, R. H. (C.)
  Clancy, E. G. (M.)
  Favill, J. (C.)
  Frederickson, F. O. (M.)
  Gapinski, L. B. (L.)
  Hirsch, E. W. (L.)
  Johannes, H. C. (C.)
  Kubik, C. S. (C.)
  Lamping, T. J. (L.)
  Lee, W. G. (M.)
  Link, C. A. (L.)
  Little, H. T. (L.)
  Little, Z. J. (L.)
  Mabee, M. (C.)
  McKinley, J. J. (M.)
  Morrill, A. B. (M.)
  Orr, H. D. (Col.)
  Rogers, D. W. (L. C.)
  Schott, C. (M.)
  Sullivan, R. C. (C.)
  Tmompson, W. J. F. (C.)
  Weber, A. T. (C.)
Cicero—Savinsky, L. (C.)
Elgin—Dowell, R. F. (L.)
Granite City—Darner, L. D. (C.)
Greenville—Hall, W. L. (C.)
Harrisburg—Nyberg, R. B. (C.)
Harvard—Blodgett, P. R. (C.)
Hopedale—Kunce, F. E. (L.)
Joliet—Krohn, J. W. (L.)
Lanark—Hendricks, E. L. (C.)
  Wales, A. H. (C.)
Latham—Bressmer, W. A. (L.)
Lincoln—Coleman, W. W. (C.)
  Lowe, C. R. (C.)
Monroe Center — Davis, H. H. (C.)
Mount Morris—Price, C. J. (C.)
Mount Vernon—Hall, C. W. (M.)
Olney—King, R. (C.)
Ottawa—Pettit, R. T. (C.)
Salem—Rainey, W. R. (M.)
Serena—Scheppler, F. E. (C.)
St. Francisville—Snider, R. (C.)
Sullivan—Williamson, O. M. (M.)
Westfield—Houser, H. C. (L.)
West Salem—Weber, T. C. (C.)
Witt—Adams, J. W. (C.)
Woodstock—Windmueller, E. (M.)

INDIANA

Aurora—Jackson, J. M. (C.)
Columbus—Daggy, B. T. (C.)
Dana—Myers, W. C. (C.)
Fort Wayne — Farnham, W. C. (M.)
  Hunter, F. P. (L.)
Cary—McMichael, F. J. (L.)
Hebron—Kleinman, F. (L.)
Indianapolis—Bush, E. R. (L.)
Lafayette—Laws, H. J. (L.)
  Pearlman, S. (C.)
  Ruschli, E. B. (C.)
Markle—Johnston, R. G. (L.)
Muncie—Quick, J. M. (L.)
National Military Home — Kelly, J. E. (C.)
Plymouth—Preston, H. P. (C.)
Solsberry—Deem, F. S. (C.)
South Bend—Goodwyn, T. P. (L.)
  Panek, A. F. (L.)
Terre Haute—Bohn, J. C. (C.)
Warsaw—DuBois, C. C. (C.)
Whiting—Newton, E. K. (L.)
Windfall—Chance, B. V. (C.)

IOWA

Akron—Kerr, J. H. (C.)
Burlington—La Force, E. F. (C.)
Carbon—Amdor, W. F. (L.)
Cedar Rapids—Keech, R. K. (C.)
Clarion—Bernard, R. D. (M.)
Davenport—Glynn, C. E. (C.)
Des Moines—Dunlap, W. A. (C.)
  Young, G. B. (C.)
Harlan—Dunshee, J. D. (C.)
Maquoketa—Swift, F. J. (M.)
Princeton—Johnson, W. G. (C.)
Redfield—Kleinberg, H. E. (L.)
Sioux City—Brady, J. R. (C.)
Spencer—Taylor, R. D. (C.)
St. Ansgar—Lott, G. A. (L.)
Waterloo—Rohlf, E. L. (M.)
Waucoma—Smittle, J. M. (C.)

KANSAS

Emporia—Trimble, C. S. (C.)
Fredonia—Thomas, C. A. (C.)
Goodland—Beckner, E. J. (C.)
Great Bend—Lawrence, E. K. (L.)
Harper—Westfall, G. A. (L.)
Hardtner—Hammer, J. E. (C.)
Harveyville—Davis, G. F. (C.)
Hoisington—Atkins, E. H. (C.)
Hutchinson—Hall, C. W. (C.)
Independence — Shelton, F. W. (C.)
Wichita—Walker, F. J. (C.)
Winfield—Guy, W. P. (C.)

KENTUCKY

Campbellsville — Shiveley, O. H. (C.)
Central City — Ferguson, J. M. (C.)
Covington—Prewitt, J. M. (L.)
Cunningham — Robertson, D. S. (L.)
Florence—Grant, J. H. (C.)
Frankfort—Sleet, J. A. (L.)
La Center—Martin, J. W. (L.)
Lexington—Garr, C. C. (M.)
  Wyatt, W. S. (M.)
Louisville—Baas, A. L. (C.)
  Yenowine, G. H. (C.)
Waddy—Shewmaker, O. F. (L.)

LOUISIANA

Alberta—Archibald, E. E. (C.)
Homer—Wilkinson, J. A. (L.)
Jackson—Levy, E. M. (L.)
New Orleans—Davis, B. B. (C.)
Shreveport — Billingsley, W. H. (C.)
Truxno—James, D. H. (C.)

MAINE

Bangor—Chapman, H. M. (M.)
  O'Brien, C. R. (C.)
Brunswick — Lippincott, L. S. (M.)
Portland—Thompson, P. P. (M.)
Winterport—Smith, L. H. (L.)

MARYLAND

Baltimore—Feinglos, I. J. (L.)
  Millea, W. L. (C.)
Newport—Jameson, F. E. (C.)
White Hall—Bortner, N. M. (L.)

MASSACHUSETTS

Amherst—Rockwell, H. G. (L.)
Boston—Cook, R. J. (L.)
  Dalrymple, A. T. (C.)
  Godvin, B. A. (C.)
  Hodgdon, F. W. (L.)
  Klein, A. (L.)
Brookline — Blanchard, W. H. (M.)
  Gilman, C. S. (C.)
  King, D. S. (L.)
Cambridge—Dearborn, G. V. (L.)
Charleston—Hurley, D. J. (C.)
Chicopee Falls—Dillon, W. J. (M.)
Gardner—Underwood, G. B. (M.)
Gloucester—Choate, A. J. (L.)
Holyoke—Cox, S. C. (C.)
Hyannis—Chase, H. B. (C.)
Lowell—Alling, M. L. (L.)
  Jewett, H. W. (C.)
Manchester—Long, R. W. (L.)
Marlboro—Armstrong, I. F. (L.)
New Bedford—Senecal, R. E. (L.)
North Adams — Carpenter, R. J. (M.)
Northampton—Cobb, C. T. (C.)
Pittsfield—Littlewood, T. (C.)
Quincy—Dolan, W. F. (L.)
  Smith, E. E. (C.)
Somerville—Meyer, E. J. (L.)
Springfield—Birnie, J. M. (L. C.)
  Deems, O. M. (C.)
  Moriarty, P. M. (C.)
Westboro — Walker, M. H., Jr. (C.)

MICHIGAN

Ann Arbor—Beebe, H. M. (M.)
Caro—Bender, F. P. (C.)
Detroit—Bolasny, J. R. (C.)
  Kaminski, L. R. (C.)
  Kelly, J. F. (C.)
  Lippold, P. H. (C.)
  Smith, A. L., Jr. (L.)
Dollar Bay—Schulte, R. M. (C.)
Flint—Phillips, R. L. (C.)
Mount Pleasant—McRae, D. H. (L.)
Rochester—Strain, C. S. (C.)
South Hillsdale — Green, B. F. (M.)
Wyandotte—Honor, W. H. (L. C.)

MINNESOTA

Adrian—Cowin, C. C. (L.)
Alexandris—Boyd, L. M. (C.)
Bricelyn—Gullixson, A. (C.)
Detroit—Sorose, B. N. (L.)
Elgin—Bleifuss, W. F. (C.)
Mankato—Hielscher, J. A. (M.)
Minneapolis—Giessler, P. W. (C.)
  Knight, R. T. (M.)
Ponemah—Neal, L. G. (C.)
Rochester—Heard, J. E. (C.)
St. Paul—Crothers, B. (M.)
  Staley, J. C. (L. C.)

MISSISSIPPI

Columbus—Cox, J. W. (C.)
Duck Hill—Caruthers, S. S. (C.)
Olive Branch—Wilkins, E. L. (L.)
Rara Avis—Paton, E. A. (M.)
Vicksburg—Ewing, J. S. (C.)

MISSOURI

Charleston—Boone, J. C. (C.)
Clarksdale—Elliott, J. R. (C.)
Cole Camp—Schwald, N. A. (C.)
Columbia—Meanwell, W. E. (C.)
Crane—Smart, R. W. (C.)
Joplin—Chenoweth, J. A. (L.) (C.)
Kansas City — Hamilton, H. D.
  Powers, J. W. (C.)
Kennett—Presnell, U. A. (L.)
Malden—Beall, H. E. (C.)
Malta Bend—Sewell, M. F. (L.)
McFall—Treasure, B. R. (L.)
Meadville—Clint, M. L. (M.)
Middletown—Floyd, W. N. (L.)
Mound City—Perry, D. C. (L.)
Sedalia—Matlock, W. L. (L.)
  Wheeler, W. M. (C.)
Sikeston—Miller, T. V. (L.)
St. Clair—Williams, R. H. (L.)
St. Joseph—Hartigan, F. X. (L.)
  Paul, T. M. (C.)
St. Louis—Cameron, S. (M.)
  Ferris, D. P. (L.)
  Fletcher, P. R. (M.)
  Hutton, J. L. (L.)
  Lyttle, G. C. (L.)
  Pringle, J. A. (L.)
  Schumacher, H. W. (C.)
  Scott, E. A. (C.)
  Timberman, D. (C.)

MONTANA

Forsythe—Huene, H. J. (L. C.)
Great Falls—Madden, W. D. (L.)
Plevna—Baskett, L. W. (M.)
Three Forks — Gaertner, L. P. (L.)

NEBRASKA

Bayard—Rice, G. C. (L.)
Bloomfield—Peters, G. E. (L.)
Burwell—Wood, J. F. (L.)
Clarks—Christie, R. C. (C.)
Columbus—Campbell, C. H. (M.)
Cozad—Fochtman, L. H. (C.)
Dannebrog—Pedersen, H. C. (C.)
Kearney—Gibbons, C. K. (M.)
Omaha—Greenberg, A. (L.)
  Lynwood, E. A. (C.)
  McLean, E. H. (C.)
Stanton—Peters, W. R. (L.)

NEVADA

Goldfield—Turner, D. A. (M.)

NEW HAMPSHIRE

Concord—Metcalf, C. R. (L. C.)
Hooksett—Togus, L. T. (C.)
Manchester—Powers, J. J. (M.)
Nashua—Black, D. L. (L.)

NEW JERSEY

Bayonne—Cook, J. (C.)
Bloomfield—Pilch, A. G. (C.)
Elizabeth—McCallion, W. H. (L.)
Freehold—Stokes, E. B. (C.)
Hoboken—McKiernan, T. J. (L.)
Jersey City—Cobham, J. L. (L.)
  Finneran, M. B. (L.)
Newark—Doremus, W. E. (M.)
  Mockridge, O. A. (L.)
  Staehle, R. H. (L.)
Oxford—Millick, H. C. (C.)
Passaic—Vreeland, R. D. (L.)
Tenafly—MacKellar, J. M. (L.)
Trenton—West, E. L. (C.)
Union—Quigley, F. J. (L. C.)
Union Hill—Brady, W. A. (C.)
Westerfield — Sisserson, W. W. (C.)

NEW YORK

Auburn—Sisson, L. B. (L.)
Blodgett Mills — Stanton, D. I. (C.)
Brooklyn—Andrews, M. M. (L.)
  Bernstein, B. M. (L.)
  Blank, J. M. (L.)
  Gray, R. H. (L.)
  Rynd, C. E. (C.)
  Tenopyr, J. (C.)
  Weintraub, F. (L.)
Buffalo—Becker, G. A. (C.)
  Forrestel, E. P. (L.)
  Lewis, J. H. (C.)
  Sharp, E. A. (M.)
  Zielinski, W. E. (L.)
Cobleskill—Myers, R. E.)L.)
Elmira—Hodgson, F. G. (M.)
Fordham—Lebkicher, W. (C.)
Jasper—Wilbur, L. M. (C.)
Kingston—Sibley, E. F. (C.)
Ludlowville—Allen, I. A. (M.)
Mayville—Young, A. D. (C.)
Mohawk—Williams, H. H. (C.)
Moores—Taylor, A. B. (L.)
New York — Armstrong, E. M. (C.)
  Bliss, W. P. (C.)
  Bogan, J. (L.)
  Boyd, J. R. (L.)
  Brown, D. L. (C.)
  Brown, S. (C.)
  Burns, W. A. (C.)
  Camac, C. N. B. (L. C.)
  Canfield, A. (L.)
  Dodd, R. C. (C.)
  Eaton, E. H. (C.)
  Epstein, S. (L.)
  Hennessy, J. P., Jr. (L.)
  Hofheimer, A. (L.)
  Janney, N. W. (C.)
  Kenney, J. S. (C.)
  Korowitz, S. (L.)
  Lampe, H. F. (C.)
  Lesser, H. R. (C.)
  LeWald, L. T. (M.)
  Liss, I. E. (L.)
  Lowry, T. C. (C.)
  Maddox, R. C. (L.)
  Martinson, H. (L.)
  Marvel, P., Jr. (L.)
  McLean, S. (C.)
  Mester, C. (L.)
  Nardiello, V. A. (L.)
  Nicoll, A. (L. C.)
  Ornstein, M. E. (C.)
  Pomeranz, M. M. (L.)
  Robinson, L. B. (L.)
  Rowell, R. W. (L.)
  Schapiro, J. (L.)
  Scudder, G. F. (L.)
  Sheinberg, G. (L.)
  Siegler, S. L. (L.)
  Silkworth, W. D. (L.)
  Stam, H. V. (C.)
  Stephens, R. (C.)
  Stetten, D. (M.)
  Varner, H. H. (C.)
  Warner, J. W. (M.)
  Watkins, H. M. (L.)
  White, G. M. (L.)
  Wilson, F. N. (L. C.)
Olean—Clark, J. J. (C.)
Ossining—Helm, R. W. (C.)
Rochester—DeVita, M. R. (L.)
  Lebendig, A. (L.)
Schenectady—MacDonald, H. (L.)
  Ransom, C. C. (C.)
Staten Island—O'Neill, V. J. T. (C.)
  Rieger, C. (L.)
Syracuse—Coon, C. E. (M.)
Troy—Connally, E. F. (M.)
  Gifford, C. L. (L.)
Utica—Dimon, J. W. W. (L.)
  Sullo, N. A. (C.)
Westfield—Willse, H. R. (C.)

NORTH CAROLINA

Charlotte—Austin, D. R. (C.)
Garysburg—Suiter, W. G. (C.)
Raleigh—Pendleton, A. S. (L. C.)
Stevens, R. S. (C.)
Thompson, H. A. (C.)
Statesville — Sherrill, C. L. (L. C.)
Todd—Hagaman, J. B. (L.)
Wendell—Moore, J. L. (C.)
Zebulon—Flowers, C. E. (C.)

NORTH DAKOTA

Brocker—Engesather, J. A. (L.)
Fargo—Hanna, J. F. (L.)
Grand Forks—Johnson, J. A. (L.)

OHIO

Bloomville—Fellers, D. W. (C.)
Cincinnati—Burns, F. M. (C.)
Cross, F. B. (C.)
Krieger, G. M. (L.)
Pfeiffer, A. (L.)
Robbins, E. C. (L.)
Tangeman, H. F. (C.)
Wooley, P. G. (M.)
Cleveland—Forbes, R. P. (C.)
Mahrer, M. (L.)
McGay, N. P. (M.)
Medlin, W. A. (C.)
Quittner, S. S. (L.)
Schoolfield, E. C. (C.)
Clyde—Baker, E. A. (C.)
Columbus—Miller, W. H. (L.)
Jewett—Thompson, R. L. (L.)
New London—Reese, J. W. (C.)
Parkman—Heeley, J. A. (L.)
Portsmouth — Mytinger, G. S. (M.)
Ripley—Tyler, G. P., Jr. (C.)
Scott Town — Mayberry, I. W. (C.)
Tiffin—Chamberlin, W. K. (C.)
Toledo—Chapman, G. L. (C.)
Maxwell, W. F. (C.)
Steinfeld, A. L. (C.)
Van Wert—Bartholomew, A. C. (C.)
Warren — Knappenberger, M. T. (C.)
Wauseon—Campbell, C. S. (C.)
Youngstown—Hauser, C. D. (C.)

OKLAHOMA

Avant—Clark, I. F. (C.)
Bigheart—Colley, K. L. (C.)
Broken Arrow—Myers, F. C. (C.)
Carmen—Dersch, W. H. (L.)
Chickasha—Emanuel, L. E. (M.)
Cooperton—Siberts, P. R. (C.)
Henryetta—Riley, J. L. (C.)
Oklahoma City—Mraz, J. Z. (C.)
Reed, H. (C.)
Wells, W. W. (C.)
Pawhuska—Jones, F. F. (L.)
Sallisaw—Jones, S. B. (C.)
Wirt—Davis, P. R. (L.)

OREGON

La Grande — Underwood, H. L. (C.)
Long Creek—Newmyer, P. L. (C.)
Orenco—Dinsmore, J. B. (C.)
Portland—Palmer, D. L. (C.)
Salem—Garnjobst, J. H. (L.)

PENNSYLVANIA

Allegany—Colcord, A. J. (M.)
Altoona—Taylor, J. S. (C.)
Arnot—Ditchburn, D. T. (L.)
Bellevue—Henry, E. B. (L.)
Bradenville—Sillamon, J. W. (C.)
Bryn Mawr—Scarlett, H. W. (L.)
Burgettstown—McKee, G. L. (C.)
Chambersburg—Asper, G. P. (L.)
Chester—Cross, G. H. (C.)
Parker, J. R. (L.)
Claridge—Stockberger, H. J. (C.)
Coatesville—Francis, W. G. (C.)
Kingsbury, O. J. (C.)
Delaware Water Gap — Stearns, J. H. (L. C.)
Doylestown—Fox, C. D. (L.)
Musgrave, P. (C.)
Dunbar—Dowds, S. C. (L.)
Erdenheim—Sheeham, W. C. (C.)
Franklin—Zerbe, J. I. (C.)
Freeland—Redelin, A. N. (L.)
Johnstown—Sagerson, R. J. (L.)
Kittaming—McClister, E. H. (L.)
Mapleton Depot—Simpson, F. P. (M.)
Monongahela—Wall, P. W. (C.)
Mont Alto—Sloane, M. T. (C.)
New Castle — Blackwood, J. M. (M.)
Steen, W. L. (C.)
New Kensington — Alter, J. G. (C.)
Wolff, R. A. (L.)
Philadelphia—Baron, A. I. (L.)
Bates, H. L. (L.)
Bowne, C. J. (L.)
Fetterman, W. B. (C.)
Herbert, J. F., Jr. (L.)
O'Brien, J. P. (C.)
Schnabel, T. G. (M.)
Wittman, P. C. (L.)
Wurster, L. E. (L.)
Pittsburgh—Alexander, J. H. (C.)
Hartung, F. A. (L. C.)
Hughes, W. P. (C.)
Metzger, I. D. (C.)
Mitchell, J. W. (L.)
Stifel, R. E. (C.)
Watson, W. S. (C.)
Pittston—O'Malley, F. C. (L.)
Rohrerstown—Denlinger, M. M. (C.)
Royersford—Melvin, A. M. (C.)
Sharpsburg—Cramer, G. E. (L.)
Southwest Post Office — Walker, D. A. (C.)
Swoyersville—Lavin, J. L. (C.)
Waltersburg—Carothers, J. R. (L.)
West Philadelphia — Steinhilber, E. A. (L.)
York—Throne, J. E. (L.)

RHODE ISLAND

Providence—Anderson, A. F. (L.)
Caldarone, A. A. (C.)
Ferguson, J. B. (M.)
Giovanni, T. G. (C.)
McCabe, J. E. (L.)

SOUTH CAROLINA

Charleston—Revenel, J. J. (L.)
Greenville—Brown, A. E. (L.)
Ninety-Six—Fouche, J. S. (C.)
Simpsonville—Smith, M. C. (C.)
Summerville — Graham, W. F. (M.)

SOUTH DAKOTA

Burke—Quinn, R. J. (L.)
Garretson—Reagan, R. (C.)
Sioux Falls—Stevens, G. A. (M.)
Watertown—Haraldson, O. (L.)

TENNESSEE

Bolivar—Sain, W. C. (C.)
Columbia—Faucett, P. H. (C.)
Jasper—Price, J. A. (C.)
Johnson City—Cass, H. M. (C.)
Memphis—Wilhelm, G. T. (L.)
Nashville—Jones, A. B. (L.)

TEXAS

Arlington—Collins, J. D. (L.)
Canyon—Griffin, S. R. (C.)
Corsicana—Miller, D. (C.)
Dallas—Gambrell, J. H. (M.)
El Paso—Wilson, R. A. (C.)
Fall City—Pawelek, I. L. (C.)
Fort Worth—Chilton, W. E. (C.)
Galveston—Jones, J. S. (C.)
Raney, D. H. (C.)
Greenville—Handley, J. J. (C.)
Honey Grove—Gain, O. O. (C.)
Houston—Aves, C. M. (L. C.)
Taft—Devendorf, L. E. (C.)
Troy—Crawford, J. L. (C.)
Wichita Falls—Kiel, O. B. (C.)

UTAH

Murray—Spangler, H. B. (L.)
Price—Chamberlain, E. F. (C.)
Salt Lake City — Evans, J. O. (C.)
Sunnyside—Cook, J. O. (C.)

VERMONT

Barre—Wark, J. A. (L.)
Derby—Aldrich, F. N. (C.)
Glover—Buck, P. E. (L.)
Orwell—Rowe, L. B. (L.)
Rutland—Graham, H. L. (C.)
Saxtons River — Bowen, W. D. (C.)

VIRGINIA

Blackstone—Hooks, A. (L.)
Crabbottom—Stover, J. F. (C.)
Flatridge—Shuler, J. E. (L.)
Fordwick—Hankins, J. L. (L.)
Hampton—Hope, J. W. (M.)
Howe, H. D. (L.)
Sinclair, M. W. (C.)
Hopewell—Elder, J. N. (L.)
New Glasgow — Tucker, W. S. (L.)
Newport News — Caudill, W. C. (C.)
Kagey, T. J. (C.)
Norfolk—Wilcox, C. (L.)
Onancock—Robertson, J. W. (L.)
Portsmouth—Roper, L. J. (M.)
Richmond—Hawkins, H.. T. (M.)
Hutcheson, J. M. (M.)
Simmons, W. D. (C.)
Sycle, M. C. (C.)
Tyler, D. G. (C.)
Roanoke—Divers, D. S. (L.)
Taylors Store—Haynes, L. C. S. (C.)
Temperanceville — Nevitte, R. R. (L.)

WASHINGTON

Seattle—Edwards, O. M. (C.)
Fullerton, L. A. (L.)
Smith, E. H. (C.)
Tacoma—Jonez, H. D. (L.)
Smeall, J. S. (C.)

WEST VIRGINIA

Beverly—Harper, W. G. (C.)
Charleston—Cannaday, J. E. (M.)
Gamoca—Grisinger, G. F. (C.)
Huntington—Lyons, J. W. (C.)
Kingston—Willis, C. G. (C.)
Pemberton—Covey, W. C. (C.)
Petersburg—Grove, J. B. (L.)
Sherrard—Ferguson, J. H. (C.)
Staley, E. B. (L.)
Sterling—Eltinge, R. L. (M.)
Weirton—Clemmer, C. A. (C.)

WISCONSIN

Black Creek—Walch, F. C. (L.)
Independence—Kulig, A. H. (C.)
Madison—Nelson, N. O. (M.)
Milwaukee—Bundy, H. E. (L.)
Salinko, S. (C.)
Wolters, H. F. (C.)
South Germantown—Dehmel, R. W. A. (C.)
Spring Green—Nee, F. (L.)
Stevens Point — Shippy, V. J. (C.)
Sturgeon Bay—Huff, F. C. (M.)

WYOMING

Casper—O'Donnell, J. F. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

Los Angeles—Horton, J. C.
Stockton—Ratchford, I. N.

DISTRICT OF COLUMBIA

Washington—Legge, K. D.

GEORGIA

Quitman—Smith, L. A.

ILLINOIS

Chicago—Dooley, H. J.
Naperville—Petterson, H. C.

INDIANA

Indianapolis—Segar, L. H.

KANSAS

Garfield—Wolcott, C. C.

MASSACHUSETTS

Boston—Haigh, G. W.
Sleeper, F. W.
Chelsea—McPhail, J. G.
Reaves, R. G.

MISSOURI

Kansas City—Walker, J. M.

NEBRASKA

Omaha—Levey, P.

NEW JERSEY

East Orange—Nichols, J. N.

NEW YORK

Beacon—Polk, G. T.
Brooklyn—De Yoanna, S. A.
Schilling, E. R.
Wildman, A.
College Point—Williams, R. V.
Niagara Falls—Walker, O. F.

NORTH CAROLINA

Fayetteville—Gainey, J. W.
Monroe—Stewart, H. D. L.

PENNSYLVANIA

Philadelphia—Dean, A. C.
Kelly, T. C.
Stork, E. G.
Toland, J. J., Jr.

TEXAS

Houston—Kirkham, H. L. D.

VIRGINIA

Petersburg—Brunet, W. M.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

New Wing for Clinic.—The Memorial Laboratory and Clinic for the study and treatment of nephritis, gout and diabetes, founded by the late Dr. Nathaniel Bowditch Potter of New York City, is about to occupy a new wing of the Santa Barbara Hospital, which will be utilized as a complete metabolism unit.

Dr. A. E. Taylor to Deliver Lane Lecture.—The Lane Medical Lectures, which are held biennially at the Stanford University Medical School, will this year be given by Dr. Alonzo Engelbert Taylor, professor of physiologic chemistry at the University of Pennsylvania. Dr. Taylor has been representative secretary of agriculture on the War Trade Board for the past two years, and his lectures will deal with the results of his nutritional and medical survey of European food conditions. The exact date has not been definitely decided on, but will be about Dec. 12, 1919.

ILLINOIS

Ricketts Prize Awarded.—The Ricketts prize of $250, given by the University of Chicago each year to its students for the best research work in bacteriology, was divided between E. B. Fink and F. W. Mulson, both doctors of philosophy.

Poliomyelitis.—Infantile paralysis is said to have appeared in Putnam, Bureau and LaSalle Counties, where several cases have been reported. Dr. Charles E. Crawford has been sent by the state department of health to take charge of the situation.

Cleminson Restored to Practice.—Dr. Haldane Cleminson, Chicago, who recently was paroled from the state penitentiary, Joliet, was reinstated as a practitioner of medicine by the State Department of Registration and Education at its meeting, July 25.

Charge Dismissed.—A charge of practicing medicine without a license, preferred against Chosta Chacomas, Chicago, by Inspector Zuran of the State Department of Registration and Education, was dismissed by Judge Jarecki, July 22, on payment of court costs.

Sanatorium to Open.—The McLean County Tuberculosis Sanatorium will be formally opened, August 17. The principal address will be delivered by Dr. George T. Palmer of the state department of health, and patients will be received in the institution on the following day.

Lecture in Graduate School.—The eighth lecture of the graduate summer quarter in medical science of the University of Illinois was delivered, July 30, by Eben J. Carey, D.Sc., assistant professor of anatomy in the Creighton University Medical School, Omaha, on "The Biomechanics of Primary Bone and Muscle Origin."

Personal.—Dr. Samuel J. Walker, Chicago, who has been for about ten months in Greece and Macedonia in the service of the American Red Cross, returned home, July 24.——Albert H. Roler, Lieut.-Col., M. C., U. S. Army, Evanston, who has been in charge of a hospital train in France, was discharged, July 10.——Dr. Jacob M. Furstman has assumed his duties as health director of Springfield.

Hospital Association to Meet.—A general meeting of the Illinois Hospital Association will be held at the Leland Hotel, Springfield, at 10 a. m. Monday, August 4, under the presidency of Dr. M. L. Harris, Chicago. The object of the meeting is to discuss and take action on numerous matters of vital importance to hospitals in this state, with especial consideration of the needs of the smaller hospitals.

INDIANA

Physician Indicted.—Dr. Frederick W. Krueger, Richmond, was indicted on a charge of manslaughter, following an investigation of his throwing a deformed infant, while still alive, on a city dump two weeks ago. Dr. Krueger said he believed the child was a monstrosity and would have died anyway. His statement to the effect that when he was health officer he had advised other physicians to dispose of deformed children in this manner, prompted an investigation by the grand jury to ascertain if the practice was a common thing among Wayne County physicians. Fifteen physicians appeared before the grand jury. Investigation showed that only one such offense has ever been committed in said county, and this was investigated and an indictment returned. When Dr. Krueger was examining physician of a selective service board, he was forced to resign under pressure of public opinion following alleged pro-German utterances.

Sanatorium Report.—From Sept. 1, 1917, to Dec. 31, 1918, 274 patients were admitted to Sunnyside, the Marion County Tuberculosis Sanatorium at Oaklandon. At the time this report was made, 202 of the patients had been discharged. Statistics show that ninety of the victims were between 20 and 30 years old; fifty-seven were between 30 and 40 years, and thirty-eight were between 11 and 20 years. Housewives and domestics formed the largest class affected, sixty-two of them being admitted. Skilled and unskilled workmen fell victims alike, forty-six of each being patients. Fifty-one schoolchildren were given treatment.——The Marion County Tuberculosis Association has announced the appointment of a committee, which, in its campaign against disease, will have as its goal the erection of a tuberculosis hospital for receiving advanced cases of the disease. An estimate places the total of tuberculous persons in Marion County between 6,000 and 7,000. For the 300 advanced cases there are now available only twenty-five beds at the Flower Mission. No place is available in the county for the care of the colored patients in the advanced stages of the disease.

KANSAS

Will Erect Building for Medical School.—The building for the Kansas University Medical School for which $200,000 was appropriated by the recent legislature, will be erected provided the city of Rosedale furnishes the additional ground needed, which is valued at $60,000.

New Officers.—At a meeting of the Cloud County Medical Association, held in Concordia, July 8, Dr. William B. Newton, Glasco, was elected president; Dr. Frank De Vilbiss, Clyde, vice president; Dr. Leo E. Haughey, Concordia, secretary, and Dr. William F. Sawhill, Concordia, treasurer.

Personal.—Dr. Florence B. Sherbon, Lawrence, has succeeded Dr. Lydia A. DeVilbiss, Topeka, resigned, as head of the child hygiene division of the state health department.——Dr. Charles F. Howe, Atchison, is reported to be critically ill.——Dr. Clarence R. Hepler, health officer of Riley County, has been appointed city health officer of Manhattan.——Dr. George L. A. Hamilton, Kansas City, has volunteered to work for the Red Cross, and sailed for Vladivostok, July 5.——Dr. Orton S. Hubbard, Parsons, superintendent of the State Hospital for Epileptics, has been appointed a member of a commission of forty to make investigations in mental hygiene among the children of the state.——Dr. Harry P. Mere has been reappointed city physician of Abilene.

LOUISIANA

Quarantine Stations for New Orleans.—A measure has been introduced by Congressman O'Connor appropriating $750,000 for the erection and equipment of a quarantine station at New Orleans.

State Clinic Transferred.—The Louisiana Anti-Tuberculosis League has formally transferred its physical property, consisting of a clinic on Tulane Avenue and Camp Hygeia in St. Tammany Parish, to the Orleans Parish Anti-Tuberculosis League.

Personal.—Dr. W. T. Browne has been appointed district medical officer for the Sixth District Federal Board for Vocational Education which includes the states of Alabama, Mississippi and Louisiana, and Dr. A. W. West has been appointed assistant district medical officer.

Welcome to Service Men.—The Orleans Parish Society, July 8, entertained men who had seen service in the Army and Navy during the war at a welcome home stag held in the Grunewald Hotel. More than 100 physicians were guests of the society and Dr. Paul J. Gelpi, New Orleans, was chairman of the committee of arrangements.

Health Board Loses Test Case.—The Louisiana State Board of Health was unsuccessful in its first attempt to confiscate an alleged illegal shipment of a habit-forming drug into Louisiana because the act is badly framed. Although its purpose is mainly penal, no penalty maximum and minimum is provided. This decision dissolved a writ of sequestration issued against a quantity of morphin said to have been shipped by a drug company of St. Louis to a pharmacist in New Orleans.

Hospitals to Be Erected.—Plans for the John Dibert Tuberculosis Hospital, New Orleans, were approved by the board of trustees, July 5. The hospital will be located at Carrollton and Tulane Avenues, on property purchased by the city. The building will be of brick, three stories in height and will accommodate 162 patients. The hospital has been made possible through the generosity of Mrs. John Dibert.——It has been decided by the board of administration of the Charity Hospital, New Orleans, to erect an electric power house for the institution at the cost of about $90,000.——The city board of Brockhaven has agreed to provide $25,000 in bonds for the establishment of a Methodist hospital in that city on a site donated by Mr. S. E. Morton.——Drs. Dave B. Davis, Edward G. Sewell, A. Marshall Haas and Edgar S. Matthews, Bunkie, have announced their intention of erecting and conducting a sanatorium capable of caring for the needs of the surrounding country.——The third branch of the New Orleans Lying-In Hospital was opened, June 15. It is located in Ursuline Street.

MARYLAND

Personal.—Dr. Henry A. Naylor of Pikesville, who recently returned to his home after serving with the Medical Corps, U. S. Army, has been appointed sanitary officer for the third district of Baltimore County, a position which he held before entering the service.

Typhus Fever Reported.—The first case of typhus fever to be reported to the health department in several years was brought to the attention of Health Commissioner John D. Blake, Baltimore, and the patient, a woman, 50 years of age, was immediately sent to quarantine. In an investigation to determine the cause of typhus fever, Dr. C. Hampson Jones, Baltimore, chief of the state bureau of communicable diseases, requested the assistance of the U. S. Public Health Service and Surg. Arthur M. Stimson, with one of his laboratory assistants, came to Baltimore and took blood cultures of the patient, while Surg. Joseph Goldberger investigated the case and confirmed the diagnosis.

Nurse Shortage Grave.—There is a serious shortage of nurses in Baltimore. Hospitals are beginning to feel the pinching effects of a lack of enthusiasm on the part of young women for a profession that always has been held as the highest a woman could enter. One of the direct and most serious effects of the situation is that no attempts at expansion can be made by the hospitals, because no nursing forces are available. More space, more buildings and more beds are a necessity in Baltimore at this time because the number of patients seeking admission to the hospitals is greater than it has been for many years. Virtually all the hospitals are crowded to capacity, and the patients are being turned away. It is estimated that 150 trained nurses could be placed in hospital positions immediately. It is hoped that the return to normal civilian life of hundreds of Baltimore young women who have been engaged in war work may go far toward relieving the present shortage of nurses.

Typhoid Fever in Baltimore Annex.—For the first six months of 1919, the new annex of Baltimore city showed a big lead on the old city in the morbidity rate from typhoid fever, according to a statement prepared by Dr. William T. Howard, assistant commissioner of health, for the purpose of showing the necessity for an adequate supply of filtered water in the new territory. Many small communities outside the original twenty-four wards get their water from wells and the health department has closed several, because of pollution. The morbidity per hundred thousand population for the first six months of 1919 for the old twenty-four wards was at the rate of 21.49 per annum, in comparison with 27.01 for 1918, while in the annex for the first six months of 1919 the typhoid morbidity was at the rate of 102.5 per annum. Therefore, the morbidity rate for typhoid fever for the first six months of 1919 was nearly six times greater in the annex than in the original twenty-four wards of the city. On account of the very high incidence of typhoid fever in the annex territory, the typhoid fever rate for the whole of Baltimore for 1919 promises to show a decided increase over 1918, the morbidity rate being already for the six months nearly one third greater than the rate in 1918.

MISSOURI

Teaching Center for Nurses.—The St. Louis Chapter of the American Red Cross has completed arrangements for conducting a teaching center for public health nurses in St. Louis. An area in the congested district in the southern portion of the city has been mapped out and a large building on South Broadway, formerly occupied by a saloon, has been rented for the clinic center. Miss Welsh, formerly instructor in public health nursing at the Henry Street Center in New York, has been engaged and placed in charge of the practical work. It is the purpose of this teaching center to supply nurses trained in public health work for community service in the southwestern states. Information regarding the courses can be obtained through the Southwestern Division of the American Red Cross, or at the St. Louis Chapter, Frisco Building.

Former Medical Officers Organize.—July 9, an organization composed of ex-medical officers, U. S. Army, residing in southwest Missouri, was perfected at Springfield. Dr. William A. Delzell, Springfield, was temporary chairman. About forty men were present from the following counties: Vernon, Barton, Jasper, Newton, McDonald, Barry, Lawrence-Stone, Dade, Cedar, St. Clair, Hickory, Polk, Christian, Taney, Webster, Dallas, Camden, Laclede, Wright, Howell, Oregon, Texas, Pulaski and Greene. The temporary committee on organization, composed of Drs. James E. Dewey, J. LeRoy Atherton and Otto C. Horst, all of Springfield, was made a permanent committee to complete a constitution to be submitted at the next annual meeting. It was voted that the first meeting be held at Joplin, November 11, the anniversary of the signing of the armistice. The following officers were elected: president, Dr. William A. Delzell, Springfield; vice president, Dr. Louis M. Edens, Cabool; secretary, Dr. Horace A. Lowe, Springfield; treasurer, Dr. James H. Fulbright, Springfield; corresponding-secretary for Jasper County, Dr. Robert M. James, Joplin.

NEBRASKA

Microscope Stolen.—Dr. Sydney S. Wilson, Nebraska City, announces that a Bausch & Lomb microscope, valued at $125, has been stolen from his office. He also states that a few days prior to the stealing of his microscope, a microscope was stolen from a physician's office in Pawnee City.

Medical Arts Building.—The Medical Arts Building, to be occupied by physicians' offices, which is about to be erected in Omaha, is being constructed by two department stores. Physicians are being solicited to buy stock in the undertaking. The sixteenth floor of the building will be occupied by the Omaha-Douglas County Medical Society and the seventeenth floor will contain rest and lounging and dining rooms.

Personal.—Dr. Benjamin F. Williams, Lincoln, received his discharge from the United States service, June 30, and immediately assumed his position as a member of the state board as commissioner of state institutions.——Dr. Arthur C. Stokes, Omaha, who organized Base Hospital No. 49, and who recently returned from overseas, has been cited by General Pershing for meritorious service.——Dr. Varro M. Boal, after more than thirty-five years of practice at Auburn, has disposed of his practice and will move to California.——Dr. Roy A. Dodge, Omaha, has been elected grand chancellor of the Knights of Pythias.

Hospital Notes.—A campaign for a general hospital for Nebraska City and Otoe County has been inaugurated.——Plans for the Good Samaritan Hospital at Kearney have been approved. The building is to cost about $125,000.——Plans are being prepared for the new Lord Lister Hospital, Omaha, to be erected at Twenty-Sixth and Dewey Streets by Dr. Edwin C. Henry. The building will be six stories and a basement in height, will cost more than a quarter of a million dollars and will have capacity for 140 patients.——The Order of the Eastern Star of Nebraska has purchased a 16-acre tract of land north of Fremont on which a hospital will be erected at a cost of $150,000, to be used in connection with the Masonic Orphanage.——Three registered nurses have closed a deal for the purchase of the G. O. Burns residence at Columbus, which they will convert into the Columbus General Hospital.——A site has been purchased in Ainsworth for the Brown County Hospital.

NEW JERSEY

New Health Officers Organized.—Organization of the Health Officers' Association of Essex County was effected at Newark, July 7.——Dr. Charles V. Craster, Newark, was elected president and William B. Palmer, milk inspector of the Oranges, secretary.

Personal.—Dr. Elfie R. Graff, Somerville, who has been assistant physician at Vassar College for several years, has sailed for Turkey where she will be assigned to work among Armenian women.——Dr. Charles B. Sitgreaves, Pemberton, has resigned as medical superintendent of the Burlington County Tuberculosis Sanitarium, New Lisbon.

New Wing for Hospital.—With simple ceremonies the new wing of the Monmouth Memorial Hospital, Long Branch, erected by Mr. and Mrs. Charles A. Wimpfheimer, New York City, in memory of their son, Jacques Wimpfheimer, who died in the military service a year ago, was dedicated, July 19. The new building has cost $150,000 and was presented to the board of governors by former Ambassador Abraham I. Elkus and accepted for the hospital by its president, Mrs. William B. Harper. The new wing doubles the capacity of the hospital.

NEW YORK

Smallpox Follows Small Circus.—A communication from the Pennsylvania to the New York State Department of Health, it is said, reports that cases of smallpox have appeared in the wake of the Spark's circus which has been traveling through Virginia, Maryland and Pennsylvania, and was last heard of in Ohio.

Public Health Association Organized.—At a reunion of the health officers who have taken the course for health officers at Syracuse University under the direction of Sanitary Supervisor Frederick W. Sears, M.D., the Central New York Public Health Association was organized with an initial charter membership of sixty-two.

Personal.—Dr. Carl R. Comstock, Saratoga Springs, who has just returned after two years' service in the Army, has been appointed instructor in diseases of the heart in the Albany Medical College.——Fred M. Meader, Major, M. C., U. S. Army, Albany, director of the division of communicable diseases, state board of health, has returned from France and has resumed his position.

Tuberculosis Clinics in Albany.—The state department of health has inaugurated a series of eight tuberculosis clinics in Albany. The first was held, July 29, and the last will be given, August 8. These clinics are open to individuals not under the care of a physician or who are referred by a family physician and who have had influenza followed by a persistent cough with other significant symptoms.

More Public Health Nurses to Be Employed.—The Essex County Chapter of the American Red Cross has voted to employ a public health nurse.——Wheatland, Livingston County, has appointed a community nurse.——Appropriations for public health nurses have also been made at Fort Plain and St. Johnsville.——Mount Morris is to have the services of a community nurse and Madison County has recently appointed a tuberculosis nurse.

State to Care for Tuberculous Men.—According to an announcement recently made by the tuberculosis committee of the State Charities Aid Association, of the men called to military service in New York state, outside of the city of New York, 3,411 were rejected by the local draft boards because of tuberculosis. The names, but not the addresses of these men, have just become available and steps are being taken by the association, in conjunction with the state department of health, for placing them under the care of local health authorities and tuberculosis societies.

Cooperation of Volunteer Health Organizations Requested.—In order to secure the maximum cooperation between existing health agencies, the state health department is desirous of securing an up-to-date list of all organizations working for public health in any of its various divisions. Reports and regular publication of these organizations are solicited and in return the state department of health will be glad to send such publications as may be requested. It is particularly desired that the state health department should be kept informed of new exhibit material, posters, panels, lantern slides, films, etc., in order that exhibit work may be coordinated.

New York City

Doctors and Nurses Sail for Serbia.—A party of twenty doctors and nurses sent by the Serbian Relief Committee of America sailed, July 26, on the *President Wilson* for Patras and thence to Saloniki. The party is under the direction of Dr. Barton W. Brush, U. S. Navy, Flushing, N. Y.

Jacobi Memorial Hospital.—A campaign committee has made plans for raising funds for the erection of an Abraham Jacobi Memorial Hospital for the Washington Heights section. This locality has been chosen because of its lack of hospital facilities. The active campaign will not be begun until November. Dr. S. Robert Schultz is executive director of the campaign and has issued a call for volunteer workers. A resolution will be introduced in the board of aldermen at the first fall meeting, proclaiming Heights Hospital Week from November 15 to 22.

Foundation for Destitute Children.—The will of Mrs. Rosa E. Spang makes a bequest estimated at more than $1,000,000 for the relief of the poverty and distress of children and babes who are in want through abandonment or the death of their parents. Former Atty.-Gen. George W. Wickersham, Col. Michael Friedsam and Dr. Henry Dwight Chapin are named as directors and executors of the fund. The will provides that the foundation shall be known as the Rosa Spang Foundation and that its chief work shall be to select children sent to orphanages and homes and make provision for their education and instruction.

Asks War Hospital to Keep Personnel.—A report on the war work of Base Hospital No. 8, prepared for the trustees of the institution by Dr. Charles Gordon Heyd, contains a communication from Surgeon-General Ireland commending the work of the unit and asking that the personnel be kept intact so as to be prepared for work in case of future emergencies. The hospital was opened in the village of Savenay, France, in August, 1917, with 127 beds. At the time of the signing of the armistice the bed capacity was 18,000. The commanding officer was Lieut.-Col. Joseph F. Siler, the director of surgery, Major Samuel Lloyd and the director of medicine, Major R. Julian Estill.

Personal.—Dr. Nelson W. Janney, formerly chief of the medical services of Base Hospital No. 99, American Expeditionary Forces, has resigned his professorship in the New York Post-Graduate Hospital to succeed the late Dr. Nathaniel Bowditch Potter in the directorship of the Memorial Laboratory and Clinic for the Study and treatment of Nephritis, Gout and Diabetes, Santa Barbara, Calif.——Mr. Howard Fonda has returned to his position in the department of bacteriology in the Long Island College Hospital, Brooklyn, after eighteen months' service in France.——Dr. Caldin Brewster Coulter has begun his duties as assistant professor of pathology in the Hoagland Laboratories.——Dr. Carl H. Laws, Brooklyn, has been elected president of the Clinical Society of the Long Island College Hospital.——Phillip Moen Stimson, Capt., M. C., U. S. Army, who was severely wounded by shrapnel near Ypres, and for nearly a year has been adjutant of American Red Cross Military Hospital No. 2, Paris, has received a citation from General Pershing for "exceptionally meritorious and conspicuous service."——Dr. Charles Theodore Graham-Rogers, who served during the war as a line officer with the 27th Division, has been appointed captain, M. C., N. Y. N. G., and is attached to the 47th Infantry.

Economic Conditions Create Health Problems.—The bureau of preventable diseases of the New York City Health Department, under the direction of Dr. Louis I. Harris, has just made public the results of a pioneer investigation into some of the medical aspects of the high cost of living. An investigation of the living conditions of 2,084 families visited by public health nurses, primarily for the purpose of supervising cases of tuberculosis, diphtheria and scarlet fever, forms the basis of this report. The families consisted of 4,991 adults and 5,612 children, an average of 5.08 persons and 2.69 children per family. It is believed that these families represent a fairly typical cross-section of conditions in New York City. Of these families 51 per cent. had a total income not exceeding $900 a year and a total of 72 per cent. had an income not exceeding $1,200 a year. A study of the increased cost of living on the normal dietary of the families showed that in 37 per cent. of these families meat was entirely eliminated; in a slightly larger percentage eggs were entirely eliminated. In 293 families the use of bottled milk was given up; in 71 per cent. of the families the amount of milk consumed by the children was considerably reduced. In 370 families the use of butter was eliminated and sugar was omitted from the dietary of children in seventy-one of these families. In these families the effect of these conditions of daily life on sickness and on the period of convalescence was studied. It was found that in 287 cases out of a total of 2,183 cases of illness, or in a little over 13 per cent., recovery was definitely retarded because of the increased cost of the essentials of life.

Health Department Has Legal Right to Treat Drug Addiction.—The health commissioner has received an opinion from Corporation Counsel William P. Burr supporting Dr. Royal S. Copeland's position that drug addiction should be considered a disease to be dealt with by the health department and not a criminal condition calling for punishment in penal institutions. He holds that there is no legal bar to prevent the use of the city's farm at Warwick, N. Y., as a colony for the treatment of drug addiction. Corporation Counsel Burr's opinion holds that the facts disclosed by the Mayor's Public Welfare Committee, which was created by him in the interest of public health, morals and safety to investigate the evil of drug addiction in this city, are most alarming. The records of recent trials in the federal courts in this district show the close connection between the dishonest druggists and physicians, it having been ascertained that eight physicians recently arrested for illegally practicing in this traffic between them wrote more than 1,500,000 narcotic drug prescriptions in less than one year's time. Dr. Copeland declares that he has doled out 167,000 grains of morphin and heroin to addicts within seven days. Dr. Walter R. Herrick, commissioner of the state department of narcotic drug control, says that there are three things that must be done before the disease of drug addiction can be eliminated, namely, drug smuggling and peddling must be stopped, the manufacture and importation of heroin must be prohibited, and there must be a national registration of drug addicts. The corporation counsel also expresses the opinion that there is no legal reason why the health department is not free to accept the offer of the Rockefeller War Demonstration Hospital.

OHIO

Night Clinics Inaugurated.—Night clinics have been established in Cincinnati at all public health stations, every Friday night from 7 to 10 p. m. At the Sands School, Cincinnati, this clinic is being held every Thursday from 7 to 10.

Personal.—Dr. Gertrude E. Sturges, Mansfield, who has been in service in Italy, arrived in New York, July 5.——Frank W. Hendley, Major, M. C., U. S. Army, Cincinnati, who has just returned from Army service, has been added to the staff of the public health stations of the city.

Typhoid Fever.—Eight of the five larger cities of Ohio had a typhoid death rate last year of less than 10 to 100,000 of population but for the state at large the 1918 rate was nearly 15 deaths for 100,000 population. The reports for 1919, thus far, indicate a typhoid prevalence much below normal.

Health Supervisors Appointed.—The state department of health has announced the appointment of the following district health supervisors: Dr. Carroll H. Skeen, Greenfield; Percey K. Holmes, Delaware; Walter S. Bennett, Cardington; Jackson A. Frank, Columbus; Charles R. Deeds, Fresno, and Henry E. Cock, Cincinnati. Two other appointments will be announced later. The first work of the supervisor will be to promote the reorganization of the local health administrative changes of the state in accordance with the Hughes Act.

Health Propaganda.—The state department of health has prepared an exhibit which it plans to install at eleven county fairs. The dates thus far arranged are: at Wellston, July 22 to 25; at Athens, August 19 to 22, and at Logan, September 24 to 27. The exhibit will be in service continuously until October 18. The care of babies, sex hygiene and venereal disease control are to be emphasized in displays, and the exhibit is accompanied by a lecturer and a nurse.——A venereal disease clinic has been opened at Ashtabula, which is the eighteenth Ohio city to be equipped with such clinical facilities. The clinic will be maintained jointly by the city, state and federal governments.

PENNSYLVANIA

Mosquito Bill Vetoed.—Governor Sproul has vetoed the bill providing a method of getting rid of mosquito breeding places, saying it would make a radical innovation in the assessment laws of the state.

State Appropriations.—The following shows the appropriations made by the last legislature to the state institutions, sanatoriums, hospitals and semistate institutions:

	Appropriated	Approved
State institutions	$13,409,073	$13,215,073
Semi-State institutions	2,005,560	2,005,560
Hospitals	6,343,300	6,227,900
Sanatoriums	2,939,595	2,939,595

New Lehigh Valley Officers.—At the annual meeting of the Lehigh Valley Medical Association held at the Delaware Watergap, July 24, the following officers were elected: president, Dr. Jacob A. Trexler, Lehighton; vice presidents, Drs. Samuel P. Mengel, Wilkes-Barre; Harry C. Fisler, Easton; Frederick A. Fetherolf, Allentown, and James M. Reese, Phillipsburg, N. J.; secretary, Dr. Alexander Armstrong, White Haven (reelected); assistant secretary, Dr. Roger P. Batchelor, Palmerton (reelected), and treasurer, Dr. David H. Keller, Bangor (reelected).

Special Training Bill Passed.—The Lanius bill, which provides for the handicapped children in the public schools, has been signed by Governor Sproul. The measure is an amendment to the school code, and was drawn by the Public Charities Association. Mental and medical clinics are provided to ascertain the children who are tuberculous and need open-air school treatment; children who because of defects in sight or hearing need special training, as well as the children who are incorrigible or who are retarded because of weak intellects. Dr. Thomas E. Finegan, state superintendent of public instruction, worked the general plan out. It is estimated that out of the 1,500,000 children now in the public schools, one tenth, or 150,000 would be reportable, because of either physical or mental defects. Out of this 150,000 only 15,000 could be classed as feebleminded, or 1 per cent. of the entire school population.

Philadelphia

Indict Licenseless Physicians.—William J. Looker and Phillip S. Dailey were indicted, July 24, charged with practicing medicine without a license.

Health Director Warns of Epidemic.—Dr. Wilmer Krusen, director of Public Health and Charities, has issued a warning to the public to keep roofs intact and keep water out of cellars in order to prevent a wave of sickness following nine days of rain.

Expect Hospital Merger.—The Women's Medical College and Hospital and the Woman's Hospital of Philadelphia will soon be merged. With the opening of the fall term at the college, definite steps to unite the interest of the college and hospital are expected to be taken.

Prohibition Hits Hospitals.—William D. McAllister, superintendent of "Blockley," states that admissions from July 1 to 15, were one half as large as for the same period last year. Superintendent McAllister said that the number of inmates of the women's almshouse department at Blockley and in the men's department at Holmesburg is the lowest it has been for some time. There are 811 men and 631 women. Rum and social disease are stated to be responsible for 70 per cent. of the admissions to the almshouses.

Infant Mortality Drops.—Infant mortality in Philadelphia for the first six months of 1919 dropped 23.31 per thousand compared with the death rate of 1918, according to a statement issued by Director of Health and Charities Krusen. During the first six months of this year, 1,838 babies, under the age of 1 year, died, a mortality rate of 85.69 per thousand, compared with 2,338 death in 1918, a rate of 109.0, and 2,159 deaths in 1917, a rate of 100.65. The decrease is due to the work of the Division of Child Hygiene, and this division has mapped out an extensive campaign of child conservation.

Insanitary Soda.—Dr. Wilmer Krusen, director of public health and charities, has issued a statement on cleaning up the soda fountains. Dr. Krusen states that the most fertile source of disease and disease dissemination lies in the unclean drinking glass. Improperly cleansed glasses used at the soda fountain may be responsible for the spread of tuberculosis, typhoid, diphtheria, sore throat, infectious colds and diarrheal diseases. Ordinary rinsing does not clean the glass from a health standpoint. It requires boiling water with soap or a suitable disinfecting solution to make them safe for reuse. When this cannot be done it is better to use the individual cup which can be destroyed. Soda fountain dealers who use dangerous dyestuffs and artificial sweetening, it is declared, should be placed on trial before the public.

CANADA

Decrease in Smallpox.—There has been a marked decrease in smallpox cases in Halifax, N. S., during the past two weeks, and there are now only fifteen patients at the hospital. The paratyphoid epidemic has also died out.

Personal.—Dr. W. P. Eakins, Montreal, who has been overseas several years, has accepted an appointment as professor of therapeutics at Edinburgh University.——Dr. Harris C. Mersereau, Notre Dame de Grace, Quebec, has returned from overseas.

Limit Liquor Prescriptions.—The Medical Council of British Columbia has passed a resolution to the effect that the liquor prescriptions of practitioners shall not exceed 100 per month, and this resolution has been forwarded to the minister of education.

Military Medical Services.—At the annual meeting of the Canadian Medical Association in Quebec, in June, a special committee was appointed to deal with a resolution unanimously passed with regard to the Military Medical Services of Canada. The resolution was proposed by Dr. Herbert A. Bruce, Toronto, and seconded by Dr. George E. Armstrong, Montreal. It provides for the teaching, in the medical schools, of the medical history of the great war, the reorganization of the Canadian Army Medical Corps, so that full advantage may be taken of modern scientific knowledge of medicine; and that the rate of pay in the service may be advanced to that prevailing in the Royal Army Medical Corps.

University News.—The University of Toronto has authorized a new degree for those wishing to specialize in the different branches of medical research—B.Sc. (Med.)—Bachelor of Science in Medicine. It will be given to students who, on the completion of the first three years of the six years' course, obtain honor standing and proceed to one year in research work.——The University Hospital Supply Association of Toronto has held its last meeting. During the four years of war $121,107.25 was raised, and $117,007.21 disbursed. The grand total of surgical articles sent overseas numbered 1,808,257. The balance of $4,100 left in the treasury was divided between Pearson Hall for blind soldiers, Toronto, and the Orthopedic Hospital.

Hospital News.—The government of Ontario is not in a position to confirm recent rumors that the Ontario military hospital at Orpington, England, has been sold to English capitalists. If it is not sold, the full equipment will be brought back to Canada and used in the provincial institutions of Ontario.——The Provincial Hospital for the Insane in Toronto is rapidly being evacuated of patients, and they are daily being removed to the Whitby institution, which has been handed back to the government by the military authorities. There are yet about 1,000 patients in residence, and it will take two months to effect their removal.——Toronto is to have a brand new reception hospital. It will cost about

$84,000, and will have accommodations for sixty patients. It is understood that a site has been selected in the northwestern section of the city.——Dr. Elizabeth Kilpatrick, assistant physician at the Northampton State Hospital, Northampton, Mass., has been appointed an assistant physician in charge of the women's wards of the Nova Scotia Provincial Hospital.——The federal government has granted $62,500 to the St. John (N. B.) General Hospital. The sum goes to defraying the expenses in connection with sick mariners, and will provide for twenty-five beds on a basis of $2,500 each.

GENERAL

Physical Reconstruction Treatment.—July 1, 25,600 officers and enlisted men of the army were undergoing treatment in twenty hospitals equipped for physical reconstruction work. These patients will be obliged to remain under treatment from two to four months.

Tristate District Society Meeting.—The annual meeting of the Tristate District Medical Society will be held in Rockford, Ill., September 1 to 4. Elaborate plans are being made for the entertainment of the visitors by the Winnebago County Medical Society, of which Dr. John E. Tuite, Rockford, is president.

Reduction of Army Patients.—Between May 31 and June 21 the number of patients in the army hospitals decreased from 50,387 to 42,648 and on the latter date there were 21,261 vacant beds in the hospitals. During June, fifteen hospitals with a capacity of 12,959 beds were closed, and during July, seven hospitals were closed.

Personal.—By a vote of 9 to 7, July 25, the senate military committee ordered a favorable report on the appointment of Lieut.-Col. Robert E. Noble to the permanent rank of Brigadier-General, Medical Corps.——John H. C. Scudder, Major, M. C., U. S. Army, who went to Siberia in command of Field Hospital and Ambulance Company No. 4, was the first acting surgeon-general of the Philippine National Guard and organized the medical department in the Philippine Islands.

Bill for Retired Army Nurses.—The Senate Committee on Military Affairs has made a favorable report to the senate on Senate Bill 2496, introduced by Senator James W. Wadsworth, Jr., of New York, authorizing the retirement of members of the Army Nurse Corps who have had twenty years' active service. The bill provides that the nurses shall receive 75 per cent. of their active pay, exclusive of foreign service pay. The committee recommends passage and it seems to be assured that the measure will pass.

Motor Clinic.—An automobile truck known as the "Child's Welfare Special" has been put into the field by the Children's Bureau of the United States Department of Labor to test the usefulness of the automobile in carrying the message of better babies into the rural communities. The truck is completely fitted as a model baby clinic and has a government physician and nurses in charge to examine children and give the mothers advice concerning the care necessary to make and keep the babies well.

Army Roentgen-Ray Work.—The training of officers and enlisted men of the Medical Corps of the Army in roentgen-ray work will soon be concentrated at the Army Medical School, Washington, D. C., under the section of roentgenology of the Office of the Surgeon-General. Henry C. Pillsbury, Lieut.-Col., M. C., is to be appointed professor of roentgenology at the school. A class of eighteen began the three months' course, July 1, and on graduation these officers will be eligible for assignment to duty in the roentgen-ray department in any military hospital.

Appropriation by Congress for Investigation and Combatting Influenza.—Four measures appropriating funds and authorizing the United States Public Health Service to investigate and combat a recurrence of the influenza epidemic are now before congress. Senator Warren G. Harding of Ohio has introduced a joint resolution appropriating $5,000,000 for an investigation of influenza and pneumonia. His measure cites that the recent influenza epidemic caused 550,000 deaths in the United States. The Public Health Service and research institutions are authorized to make this investigation. A bill introduced in the House by Congressman Simeon D. Fess of Ohio, authorizes the Public Health Service and the medical departments of both the Army and the Navy to investigate and combat the disease and appropriates $1,500,000 for this purpose. Congressman William W. Larsen of Georgia and Congressman Black of Texas have introduced similar bills for making an investigation of influenza and allied subjects. The Larsen and Black measures carry an appropriation of $500,000 each. All four measures charge the United States Public Health Service with carrying out the provisions of the act, although cooperation with the army and navy medical departments is advised.

Infant Mortality Rates in the United States.—The New York Milk Commission has recently issued a report on the infant mortality rates of the different cities of the United States for the year 1918. This report shows that the infant death rate for New York City was 92 per thousand living births. Although the estimates show that the death rate for the country increased seven points last year, the milk commission believes these rates are remarkably low when all the elements conspiring against the baby are considered. The infant mortality rate for seventy-nine cities with populations under 50,000 was 97.2. The rate for thirty-eight cities of between 50,000 and 100,000 was 113.8, and that for forty-five cities of 100,000 population was 103.5. The average baby death rate for the registration area of the United States is 104. Twenty two of the cities of 100,000 are above this average, and twenty-two are below. The rates for a number of the larger cities are reported as follows:

Chicago, 104.3; Philadelphia, 126; Boston, 114.9; Baltimore, 147.8; Pittsburgh, 122.5; Buffalo, 121.5; Milwaukee, 108.2; Cincinnati, 104.1; Newark, N. J., 104.7; New Orleans, 123.3; Washington, D. C., 110.9; Jersey City, 118.7; Louisville, Ky., 117.3; Denver, 107.3; Syracuse, N. Y., 117.4; Birmingham, Ala., 133.5; Memphis, Tenn., 145; Scranton, Pa.; 144.3; Richmond, Va., 146.3; Fall River, 161.3; Lowell, Mass., 159.1; Albany N. Y., 107.4. Only three cities reported baby death rates below 50. These cities are all of the class below 50,000. Brookline, Mass., has the lowest rate, 35.4; Madison, Wis., is next with 38.1, and Pasadena, Calif., third, with 43.8.

FOREIGN

Physician Wounded by Maniac.—An inmate of the asylum for the insane at Alessandria recently severely wounded Dr. L. Gualino, the physician in charge. One of the wounds is in the thorax and the prognosis is grave. The same maniac ten years ago tried to kill another man, and in 1914 nearly strangled the physician in charge at that time, Professor Frigerio.

Belgian Conference to Discuss Professional Matters.—The sixteenth Congrès de médecine professionelle was held last week at Antwerp under the auspices of the Féderation médicale belge. The main topics up for discussion were contract medicine; dentistry and physicians; organization of cooperative purchasing and medical printing and medical cooperative work in general.

Raising Medical Fees in Paris.—The Syndicat des médecins de la Seine, the representative association of the medical profession in the Seine district for other than strictly scientific purposes, has issued a notice to the general public of Paris stating that henceforth medical fees are to be increased to just twice the fees current before the war. Professional calls demanded after 7 p. m. and on Sunday will be charged for at double rates, and when the physician is summoned between 9 p. m. and 7 a. m. the rate will be tripled.

Deaths in the Profession Abroad.—Dr. **L. Bonaventura** of Rome succumbed recently to typhus contracted in medical services to Austrian prisoners of war doing agricultural work.——The cable reports the death of **Emil Fischer,** professor of chemistry at the University of Berlin and chief of its Chemistry Institute, aged 67. He was given the Nobel prize in chemistry in 1902 for his research on sugars, synthesis of albumin, polypeptids, etc. He also received the Helmholtz medal in 1909, and the Franklin Institute of Philadelphia awarded him the Elliot Cresson gold medal in 1913.

The Paris Child Welfare Institution.—The Institut de puériculture de la Faculté de médecine de Paris was formally inaugurated, July 1, with much ceremony. The first million francs for it was offered by the American Red Cross and this was doubled by another million donated by French philanthropists. Professor Roger, dean of the Paris faculty, expressed the gratitude of the French and spoke in particular of the penny contributions of the children of America, their contribution to the work totaling 500,000 francs. He urged that a similar *Oeuvre du sou* be started in France. A society was organized at the same time, the Societé de l'Institut de puériculture, and the constitution and by-laws adopted.

Italian Newspaper's Sanatorium.—The *Giornale d'Italia* opened a subscription list for a sanatorium for the children of soldiers. Large sums were collected, and the newspaper was tendered the use of a sanatorium for crippled children that had been founded on a large scale as a memorial to the son of the Princess Chigi, killed early in the war. The sanatorium has extensive grounds, on a lake, near Ariccia, and was modeled on the most approved plans. The combination of the two enterprises has resulted in a model institution of the highest grade, it is said, with accommodations to date for 120 children. The issue of the *Italia Sanitaria* for June 25 is devoted almost entirely to an illustrated description of it.

Congress for Medical Radiology.—The second annual meeting of the Società Italiana di Radiologia Medica is to convene at Genoa, Oct. 20, 1919. There is to be an exhibition in connection open to exhibitors of the allied nations. The subjects appointed for discussion are the biophysical bases of radiotherapy, and the radiologic picture of pulmonary tuberculosis. The congress is to be open to physicians, biologists, physicists, designers and technicians interested in the scientific and practical development of medical radiology. The subscription fee is 10 lire ($2) for persons not members of the society. For information address the secretary of the congress, Dr. G. Pesci, Ospedale Pammatone, Genoa, Italy.

Red Cross Activities.—In a report of the Bureau of Hospital Administrations of the American Red Cross, prepared for the War Department, it is shown that during the war the Red Cross furnished more than 1,110,000 days of hospital care for the American soldiers, and admitted to its hospitals a total of 89,539 patients. At the cessation of hostilities, the organization had in operation twenty-two military hospitals with 14,326 beds. In addition to this, assistance of many kinds was extended by the bureau to 2,800 French hospitals. During the last nine months of 1918, the Red Cross delivered more than 64,000,000 dressings, pads, sponges and bandages, and nearly one and one-half million splints and accessories. During the influenza epidemic the work rooms of the Red Cross in Paris made and delivered more than 600,000 influenza masks to the American troops.

LATIN AMERICA

Drugstores in Cuba.—The last report of the Department of Sanidad y Beneficencia of Cuba shows that at the beginning of the year 1919 there were in Cuba 958 drug stores.

Physician Appointed Consul from Colombia at Baltimore.—The *Repertorio de Medicina y Cirugia* of Bogotá mentions that Dr. Daniel Molano has been appointed consul ad honorem for the Republic of Colombia in the city of Baltimore.

Personal.—Dr. M. Escudero Vargas, physician in charge of the hospital at Iquique, Chile, has been designated by the government of that country to make a study in the United States of matters relating to infant surgery and children's hospitals.

Death of Dr. Hernández.—It is reported from Caracas that Dr. José G. Hernández, one of the most prominent physicians of Venezuela, also a scientist of note, was killed there, June 30, in an automobile accident. A period of public mourning has been declared.

Influenza in Rio de Janeiro.—A recent report of the Department of Public Health of Rio de Janeiro shows that influenza caused a total of 12,720 deaths in that city during the year 1918. The epidemic reached its crest in October, when the deaths rose to 8,817 from 48 the previous month of September. In November the deaths amounted to 3,287, decreasing to 284 in December. The mortality was nearly equally divided among the sexes in the Brazilian native population, namely, 5,319 males and 5,329 females. Among the foreigners, the proportion was naturally heavier among the males who predominate in numbers. Next to influenza, tuberculosis caused most deaths during the year, namely, 4,909. During the year the estimated population of Rio de Janeiro decreased from 911,721 in January to 875,477 in December. The total number of deaths was 35,113, the mortality rising from an average of 1,700 during the first eight months of the year to an average of 6,524 for the last three months.

Blindness in Mexico.—The subject of blindness in Mexico has lately been attracting much attention in that country. Dr. José Joaquín Izquierdo has recently published a study of the prevalence of blindness and its distribution and causes. It seems that in the eighteenth century blindness was very rare in Mexico. According to the last censuses, in 1900 the proportion of blind was 95.2 per 100,000 and in 1910 of 78.2, the last figures being probably more correct. Blindness is proportionally more prevalent in the north of the country, this condition being less prevalent in the lower and warmer regions near the seashore. Judging from the records of the National School for Blind People, smallpox was the most frequent cause of blindness during the first years (1870-1879) of the foundation of the school. Ophthalmia neonatorum, which at the beginning caused 30 per cent. of the blindness, has been increasing gradually until in the period of 1910-1914 was responsible for 75.6 per cent. of all cases. The cases due to smallpox have also been increasing during the last eight years probably due to the neglect in the enforcement of vaccination. All the data available seem to indicate that trachoma is very rare in Mexico, contrary to the opinion prevailing abroad.

PARIS LETTER

Paris, July 3, 1919.

The Smallpox Record in Paris from August, 1914, to June, 1919

At a recent meeting of the Academy of Medicine, Dr. R. Wurtz, hospital physician and university professor at the Paris School of Medicine, reported that there had recently been in Paris an epidemic of smallpox which had awakened some anxiety. There were, it seems, fifteen cases during the month of April, and twenty-two cases during May. This is all the more regrettable because, from the beginning of the war until March, 1918, the mixed assemblage of people in Paris had enjoyed almost absolute immunity. Thus, there were only six cases recorded in 1914; seven in 1915; four in 1916; six in 1917; fifty-five in 1918, and forty-seven during the first five months of 1919. During the war the various public services were untiring in their efforts to prevent a smallpox epidemic. The high degree of frequency of positive vaccinations has been noted; for example, 98 per cent. being successful in the case of an agglomeration of 3,000 employees.

The reappearance of smallpox is due, in part, to foreign importation from such countries as Morocco, Spain, Italy and Algeria; in part to the violation of sanitary regulations, particularly as regards crossing from North Africa to France, and in part to the obstinate refusal, on the part of the public, to be vaccinated. More than 60 per cent. of the hospitalized patients had refused revaccination since childhood.

An Appeal to Civilian Physicians

A circular which has been issued by the undersecretary of state for the medical department of the army, with reference to medicolegal questions in regard to claims for disability, makes the suggestion that the officers of the medical department shall, in case of need, call on civilian physicians for assistance. Appeals may be made to former medical experts of the special reeducation centers, the medical experts attached to the civil courts and physicians holding diplomas of the Medicolegal Institute of Paris. Also specialists may likewise be called on to perform the functions of experts in respect to disabilities.

Extraction of an Intracranial and an Intrapulmonary Projectile

At one of the recent meetings of the Société de chirurgie de Paris, Dr. André Lapointe, hospital surgeon, reported an interesting personal observation. He had occasion to extract from a patient (a young woman suffering from a revolver wound) an intracerebral bullet and an intrapulmonary bullet, near the region of the heart. This was done in one operation, controlled by fluoroscopy. The intracerebral bullet, entering by the left temple, had penetrated to a depth of 7 cm. and was located 3 cm. back of the frontal bone. Under local anesthesia induced by procain and epinephrin, a strip of scalp was excised, the opening was gently enlarged by means of a gouge, and under fluoroscopy, without any special instruments, simply by the use of ordinary blunt forceps, in a few seconds the track of the bullet was located, followed up and the bullet extracted. Irrigation of the encephalic focus by means of warm saline solution was carried out without curettage of the track of the bullet. The original opening was resected and then closed by means of a suture to the center of the strip of scalp, without drainage. The operation had been so simple and the patient had stood it so well that an immediate fluoroscopic examination of the thorax was decided on, this time with the patient in a recumbent position, the first examination having been made with the patient standing upright. In this connection an interesting discovery was made. In the upright position it had been impossible by the rotation of the screen to differentiate the shadow of the projectile from the heart's shadow, whereas in the ventral decubitus position the two shadows were easily dissociated: the projectile was therefore intrapulmonary. The second procedure was immediately decided on and carried out. An incision was made in the sixth intercostal space; the pleura was opened; but the moment the forceps approached the projectile it disappeared, and a small sanguinolent area was noticeable. After renewed fluoroscopic examination, it was discovered that the bullet had dropped into the pleura, where it was found without difficulty. The postoperative course was excellent and ended in complete recovery.

The point to emphasize in this connection is the great utility of operations controlled by fluoroscopy, for in a case like the present one this is the only means of combining the two procedures in one single operation.

Tetanus and Antitetanic Injections

At one of the recent meetings of the Paris Surgical Society, Dr. Lenormant, hospital surgeon and agrégé professor of the Paris School of Medicine, contributed an interesting communication on the subject of tetanus and antitetanic injections. The war, in this case, as in so many other matters, furnished a wide field for the gaining of experience, and it is important to consider carefully the question of antitetanic serotherapy of which Lenormant is an earnest advocate. First, one must consider the limits of its use both as to time and as to quantity. It is without doubt a matter of paramount necessity to suppress the further elaboration of toxins by the removal of foreign bodies, but it is wrong to assume that such removal brings about the sterilization of the wounds. It is therefore indispensable that the serum be continued in doses sufficiently large (20 c.c.) and that the treatment be kept up as long as the wounds are suppurating. Lenormant saw cases of tetanus at the beginning of the war, in September, 1914, at Montdidier; then again in 1916, while he was chief surgeon of the sector in the Fifth Region and received directly from the front the moderately wounded. He observed under these conditions thirty cases of tetanus, almost all of them being late cases which developed from five to eight weeks or more after the wounding. A comparison of these two series of cases is very striking. In 1914 the cases were generalized and were all fatal. In 1916 the tetanus was almost always localized at the outset (painful spasmodic contractures in the wounded member), rarely complicated by trismus, but if so, resulting in quick death. The mortality was only 50 per cent., as compared with 100 per cent. in 1914. The wounded men of the second series had received repeated injections of antitetanic serum. Tetanus immediately became less frequent and less severe in its manifestations and often remained localized. Under these circumstances how can one deny the value of the serum? However, Lenormant reported having seen two soldiers who, in spite of repeated injections of antitetanic serum, presented, one month after being wounded, a typical tetanus with opisthotonos and generalized spasmodic contractures, but even these cases ended with recovery. The serum seems, therefore, to have been incapable of preventing the appearance of the tetanus, although it did lessen its gravity. In delayed operations the practice of injecting antitetanic serum as a preventive seems to be an excellent use, for one must not attach too great importance to anaphylactic accidents, and it is better to give a patient an injection unnecessarily than to have a case of tetanus break out. Pierre Delbet is of the same opinion. He injects 30 c.c. at each injection. The preponderance of localized cases and the benign character of the tetanus as observed in 1916 prove that the serum brought about a relative immunity in the soldiers. As for anaphylactic accidents, Delbet says he has never seen any. He called attention to the fact, moreover, that one should not mistake serum accidents for anaphylactic accidents.

Professor Quénu and Dr. Walther, agrégé professor at the Paris School of Medicine, have never used preventive injections of antitetanic serum in connection with delayed operations on the war wounded, and yet they have never seen any cases of tetanus develop. Walther has been for several years the director of an important service for the reparation of scars, and has performed a considerable number of delayed operations; yet he has had no cases of tetanus. Likewise, Dr. Petit, who has extracted in delayed operations a considerable number of intrathoracic projectiles, has encountered no cases.

Dr. Sieur, a university professor of Val-de-Grâce, continued the discussion, remarking that Roux and Vaillard long since declared that the injection of the serum alone was not sufficient, for by the injection only a certain unknown quantity of the toxins would be neutralized. If the operation has not been complete in every particular, if a focus of infection persists, new toxins develop and tetanus appears. The proper course, therefore, is to make sure, on the one hand, of careful surgical treatment, and, on the other hand, to provide for repeated injections of serum.

Marriages

William Roscoe Jepson, Assistant Surgeon, Lieut. (j. g.), U. S. Navy, Sioux City, Iowa, to Miss Gladys Lee Wiles of Peconic, Long Island, N. Y., July 9.

Bascom Franklin Morris, Major, M. C., U. S. Army, to Miss Yvonne Randolf Stemmler, both of New York City, July 14.

Minor LeRoy Hartman, Garden Prairie, Ill., to Miss Minnie Larish of Scranton, Pa., at Elgin, Ill., July 9.

Roy Pilling Potter, Marshfield, Wis., to Josephine Fritch of Cumberland, Wis., at Minneapolis, July 2.

William C. Spannagel to Mrs. Ella C. Nelson, both of East St. Louis, Ill., at Waterloo, Ill., July 1.

Benjamin Lloyd Knight, Kenwood Park, Iowa, to Miss Florence McCollister of Iowa City, July 8.

Thomas Stanley O'Malley, Madison, Wis., to Miss Orpha Kingsbury of Salt Lake City, July 11.

Frank Ray Steelsmith, Des Moines, Iowa, to Miss Norma Jones of Marengo, Iowa, June 29.

Thomas Dyer Allen, Chicago, to Miss Florence Waring See of Hamilton, Ohio, July 21.

Edward Clark Morse to Miss Alice Beauregard, both of New Orleans, July 7.

Lee Washbon Prescott to Miss Gladys G. Gates, both of Sloan, Iowa, June 25.

Joseph Heiney to Miss Irene Rosengard, both of New York City, July 15.

C. Lunsford Nuckols to Miss Ida Umberger, both of Baltimore, July 4.

Deaths

Charles Porter McNabb, Knoxville, Tenn.; University of Tennessee, Knoxville, 1884; aged 61; a member of the Tennesse State Medical Association; professor of diseases of the digestive system in the Lincoln Memorial Medical College, Knoxville; formerly dean of the faculty and professor of theory and practice of medicine in Tennessee Medical College, Knoxville; died at his home, July 14.

Norman G. Burnham, Denver; Eclectic Medical Institute, Cincinnati, 1851; Homeopathic Hospital College, Cleveland, 1855; aged 89; a member of the Colorado State Medical Society; for forty years a practitioner of Denver; a member of the County Hospital staff, the Denver Board of Health, and one of the founders of the Denver Homeopathic College; died at his home, July 19.

Wellington Wykoff Leonard, Akron, Ohio; College of Physicians and Surgeons, Baltimore, 1883; aged 62; from 1885 to 1889 assistant physician at the Cleveland State Hospital; first president of the People's Hospital, Akron; a director of the Central Savings and Trust Company; died in Mansfield, Ohio, July 13, from nephritis.

Boaz Baxter Cox ⊕ Lieut., M. C., U. S. Army, Morgantown, W. Va.; Jefferson Medical College, 1907; aged 39; who entered the United States service, July 13, 1918, was sent overseas in October and was on duty with the American Expeditionary Forces at Dijon and connected with Base Hospital No. 103; died at Dijon, May 9.

Griffin H. Austin, Delcarbon, Colo.; Queen's University, Kingston, Ont., 1893; aged 50; surgeon to the Sunnyside Coal Company, Strong, Colo.; died in a hospital in Pueblo, Colo., July 14, from bullet wounds, said to have been inflicted the day before, by two Mexicans with whom he had gone on a fishing trip, near Walsenburg, Colo.

Harry Pepper ⊕ Detroit; Detroit College of Medicine and Surgery, 1906; aged 36; chief of staff of the Jefferson Clinic and a member of the medical staff of St. Mary's Hospital, Detroit; was stricken with cerebral hemorrhage at Union City, Mich., July 7, and died the same day in a sanitarium at Battle Creek, Mich.

George Frederick Mish, Middletown, Pa.; University of Pennsylvania, Philadelphia, 1853; aged 92; a member of the Medical Society of the State of Pennsylvania; surgeon of the Fifteenth Pennsylvania Volunteer Cavalry during the Civil War; died at his home, July 14, from senile debility.

⊕ Indicates "Fellow" of the American Medical Association.

Edward LeRoy McCoy, Indianapolis; Indiana University, Indianapolis, 1908; aged 38; who had been on duty as lieutenant, M. C., U. S. Army, with Base Section No. 3, Services of Supply, American E. F., in London, and was discharged, January 18; died suddenly in Gary, Ind., July 15.

John Brennan Moran ⊕ Boston; Harvard University Medical School, 1864; aged 81; first instructor in hygiene in the public schools of Boston; for nine years a member of the Boston school board; a sanitary surgeon in the Civil War; died at his home in Allston, Boston, July 14.

Lindley Ninde Blackledge, Orosi, Calif.; Penn Medical University, Philadelphia, 1880; aged 59; a member of the Medical Society of the State of California; while driving his car over a grade crossing at Orosi, July 16, was struck by a train and instantly killed.

Ellwood B. Warner, Philadelphia; Jefferson Medical College, 1882; aged 59; for nine years school director and for a long time president of the board of council of the Penn Widow's Asylum; died at his home, July 15, from endocarditis and acute enteritis.

Bryan Anderson Barlow, Fort Wayne, Ind.; Johns Hopkins University, Baltimore, 1916; medical director of the Lincoln National Life Insurance Company of Fort Wayne; was killed at Walker, Wis., July 14, by the overturning of his automobile.

William Henry Price, Atlantic City and Point Pleasant, N. J.; University of Pennsylvania, Philadelphia, 1889; aged 54; formerly instructor in diseases of children in his alma mater; died at the Jefferson Hospital, July 8.

Townsend Seely Carpenter, Hinkley, Ill.; Northwestern University Medical School, Chicago, 1892; aged 54; a member of the Illinois State Medical Society; died at his home, July 8, from carcinoma of the stomach.

Samuel Wixom Meade, Farallone, Calif.; Long Island College Hospital, Brooklyn, 1876; aged 70; died at his home, June 29, from an incised wound of the arm, believed to have been self-inflicted with suicidal intent.

Howard Fowler Holmes, Georgetown, Mass.; Harvard University Medical School, 1901; aged 48; a member of the Massachusetts Medical Society; died in Cambridge, Mass., May 22, from tuberculosis.

Ernest Victor Keller ⊕ Major, M. C., U. S. Army; St. Louis; Atlanta (Ga.) School of Medicine, 1911; aged 45; on duty at Fort McPherson, Ga.; died in that post, June 3, from cerebrospinal meningitis.

Julius Otto, Chicago; Northwestern University Medical School, Chicago, 1876; Rush Medical College, 1877; aged 61; died at his summer home in McHenry, Ill., July 20, from organic heart disease.

William T. Ferguson, Fort Wayne, Ind.; Royal College of Surgeons of Ireland, Dublin, 1857; aged 84; a pioneer practitioner of Allen County; died at his summer home at Clear Lake, Ind., July 12.

Thomas Franklin Mayo, Newton, Mass.; Tufts College Medical School, Boston, 1909; aged 41; a traveling representative of the United Drug Company; died in a hospital in Macon, July 13.

Clara M. Freeman, San Francisco; California Eclectic Medical College, Los Angeles, 1885; aged 56; died in the San Francisco Hospital, July 12, from carcinoma of the breast.

Emmett Robertson Bradley, Highland Springs, Va.; Medical College of Virginia, Richmond, 1912; aged 29; a member of the Medical Society of Virginia; died at his home, July 10.

Eugene G. Lewis, Stockton, Calif.; Lincoln (Neb.) Medical College, Eclectic, 1896; who has been living on a farm near Modesto, Calif.; died, June 2, from tuberculosis.

Dorman Baldwin, Oneonta, N. Y.; Albany (N. Y.) Medical College, 1877; aged 71; for many years a pharmacist of Jamestown, N. D.; died at his home, June 26.

William Brewster Sawyer, Riverside, Calif.; Harvard University Medical School, 1879; aged 64; local surgeon for the Sante Fe system; died at his home, July 9.

Harry W. Holmes, Cumberland, Ohio; College of Physicians and Surgeons, Baltimore, 1886; aged 62; died at his home, July 10, from cerebral hemorrhage.

John W. Pratt, Coatesville, Pa.; Hahnemann Medical College, Philadelphia, 1873; aged 69; at one time a member of the assembly; died at his home, July 15.

George Barnard Hibbs ⊕ Mitchellville, Ia.; University of Illinois, Chicago, 1889; aged 55; died at his home, July 14, from chronic parenchymatous nephritis.

Thomas A. Bounell, Jamestown, Ind. (license, Indiana, 1897); aged 71; a member of the Indiana State Medical Association; died at his home, July 8.

Fred Cannon Peregoy, Barnesville, Ohio; Starling Medical College, Columbus, Ohio, 1890; aged 49; died at his home, June 25, from disease of the kidney.

Ellen Adelaide Curtis Richards ⊕ Streator, Ill.; College of Medicine and Surgery (Physio-Medical), Chicago, 1897; aged 51; died at her home, July 8.

Wesley A. Trotter, Memphis, Texas; Medical College of Virginia, Richmond, 1852; aged 94; died at the home of his daughter in Memphis, July 6.

George Benton Mitchell, Kansas City, Kan.; Missouri Medical College, St. Louis, 1879; aged 72; died at his home, July 5, from acute gastritis.

Anson Buck, Palermo, Ont.; Jefferson Medical College, 1852; M.R.C.S. (Eng.), 1853; aged 85; died in Toronto, Ont., April 18, from myocarditis.

Rufus Alexander Markham, Waco, Texas; Missouri Medical College, St. Louis, 1885; aged 71; died at his home, July 8, from heart disease.

Edwin S. Muir ⊕ Winona, Minn.; University of Minnesota, Minneapolis, 1894; aged 58; twice mayor of Winona; died at his home, July 14.

John Peck Brooks, Providence, R. I.; New York Hygio-Therapeutic College, New York City, 1866; aged 75; died at his home, about July 14.

Florence Henry Ottmer, Eureka, Calif.; Cooper Medical College, San Francisco, 1887; aged 58; died at his home, June 3, from pneumonia.

Robert Samuel Brown, Sterling City, Calif.; Columbus (Ohio) Medical College, 1883; aged 63; died in Chico, Calif., April 1, from diabetes.

William O. Stone, Bloomington, Ind.; Eclectic Medical Institute, Cincinnati, 1861; aged 85; died at his home, near Bloomington, June 25.

Harris J. Cornish, Walworth, N. Y.; Albany (N. Y.) Medical College, 1870; aged 70; died at his home, April 14, from cerebral hemorrhage.

Silas G. Hertz, Philadelphia; Medico-Chirurgical College of Philadelphia, 1889; aged 87; died at his home, July 8, from cerebral hemorrhage.

Henry W. Latham ⊕ Latham, Mo.; Washington University, St. Louis, 1872; aged 67; died at his home, June 25, from cerebral hemorrhage.

Edward Grewer, Hazleton, Pa.; University of Pennsylvania, Philadelphia, 1874; aged 81; died at his home, July 7, from cerebral hemorrhage.

Leon Rivers Harrison, Fayette, Miss.; Kentucky School of Medicine, Louisville, 1894; aged 62; died at his home, July 9, from acute gastritis.

Willis Clifford Bills, Durant, Iowa; State University of Iowa, Iowa City, 1885; aged 63; died at his home, July 6, from heart disease.

George L. Dunn, Kansas City, Mo.; College of Physicians and Surgeons, St. Joseph, Mo., 1879; aged 64; died at his home, July 5.

Charles P. Reid, Hampshire, Vt.; Loyola University, Chicago, 1872; aged 70; died at his home, May 13, from valvular heart disease.

Jacob L. Magee, Pine Bluff, Ark. (licensed, Arkansas, 1907); aged 46; died at his home, July 13, from cerebral hemorrhage.

William Gaines, Mount Jefferson, Ohio; Hospital College of Medicine, Louisville, Ky., 1893; aged 65; died at his home, July 7.

Harry Lovell Gillette, Buffalo; Niagara University, Buffalo, 1890; aged 59; died at his home, June 30, from gastric ulcer.

Frank Summers, Dyersburg, Tenn.; Hospital College of Medicine, Louisville, 1877; aged 65; died at his home, July 2.

William Rolfe Whitnall ⊕ Puyallup, Wash.; University of Illinois, Chicago, 1884; aged 67; died at his home, June 25.

John F. Gibbon, San Francisco; Loyola University, Chicago, 1877; died at his home, July 11.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

"ARSENOVEN S. S." AND "ARSENO-METH-HYD"

Report of the Council on Pharmacy and Chemistry

The Council authorizes publication of the following report. This report declares Arsenoven S. S. of the S. S. Products Company and Solution of Arsenic and Mercury (formerly called Arseno-Meth-Hyd) of the New York Intravenous Laboratory, inadmissible to New and Nonofficial Remedies. The Council takes this opportunity to repeat its warning against the abuses—often dangerous—to which patients are frequently subjected when "intravenous therapy" is employed.

W. A. Puckner, Secretary.

Because of inquiries received, the Council took up the consideration of Arsenoven S. S. and Arseno-Meth-Hyd (now sold as Solution of Arsenic and Mercury). The preparations having been referred to a committee for consideration, this committee reported:

ARSENOVEN S. S.

"Arsenoven S. S." is a preparation put out by the S. S. Products Company, Philadelphia. The claims are made that it is "a simplified office treatment for syphilis" and is "a combination of arsenic and mercury for office use, offering maximum efficiency, safety and convenience." According to the company, "Arsenoven S. S." contains Dimethylarsenin 15.4 grains, Mercury biniodid $\frac{1}{10}$ grain, Sodium iodid $\frac{1}{2}$ grain. With regard to the identity of "dimethylarsenin" the company claims: "This product is a compound of cacodylic acid similar to sodium cacodylate but with a more pronounced therapeutic action." The committee recommends to the Council that "Arsenoven S. S." be declared inadmissible to New and Nonofficial Remedies because of unwarranted therapeutic claims.

ARSENO-METH-HYD

"Arseno-Meth-Hyd," is sold by the New York Intravenous Laboratory, New York City, for the treatment of syphilis. It comes in three dosages, 2 gm., 1.5 gm., and 0.7 gm., respectively. The claim is made that "Arseno-Meth-Hyd 2 gm." contains "2 gm. (31 grains) of Sodium Dimethylarsenate (Cacodylate), U. S. P., and Mercury Iodid 5 mg. ($\frac{1}{12}$ grain)" in 5 c.c. of solution. Physicians are told:

> "In primary and early secondary case administer Arseno-Meth-Hyd 2 gm. every sixth day and Mercury Oxycyanide .008 ($\frac{1}{8}$ grain) intravenously between each injection."
>
> "In Tertiary cases and those of long standing alternate with intravenous injection of Sodium Iodid 2 gm."

The following claims are made for the alleged effectiveness and safety of the cacodylate:

> "This methyl compound of arsenic has come into almost universal use for syphilis. On account of lack of toxicity an aggressive routine can be carried on. The simple technic and absence of reactions make it most desirable for the regular practitioner. This large dose gives more uniform results both as healing manifestations and negative Wassermanns."
>
> "Much discussion has surrounded the use of the Methyl Compounds of Arsenic and it has been demonstrated beyond doubt that Cacodylate of Soda proves an effective remedy for syphilis provided that it is properly administrated." [*sic*]
>
> "The low toxicity of this Methyl compound of arsenic is remarkable. It is contraindicated only where a decided idiosyncrasy for even small doses of arsenic exists."

These statements are essentially false and misleading. Cacodylate has *not* come into universal use in the treatment of syphilis, nor has its usefulness been "demonstrated beyond doubt." On the contrary, H. N. Cole (The Journal, Dec. 30, 1916, p. 2012) has shown that doses so large as to produce renal injury were almost totally ineffective against syphilis. Obviously, "effective doses" if such exist, are not harmless. The dosage advised for Arseno-Meth-Hyd may not produce acute toxic symptoms; nevertheless smaller doses have produced nephritic phenomena. The "Arseno-Meth-Hyd" treatment includes the intravenous injection of about $\frac{1}{4}$ grain of a mercury salt. Although this is less than the usual dose (about 1 grain per week), the mercury is probably more effective than the cacodylate.

The committee recommends to the Council that, because of the unwarranted therapeutic claims, "Arseno-Meth-Hyd" be held inadmissible to New and Nonofficial Remedies.

The Council adopted both reports of the committee and declared "Arsenoven S. S." and "Solution of Arsenic and Mercury" ("Arseno-Meth-Hyd") inadmissible to New and Nonofficial Remedies. The committee's reports on these two products impel the Council again to call attention to the undesirable and dangerous abuses to which "Intravenous Therapy" lends itself. There is a distinct field for the intravenous administration of drugs in those cases in which immediate drug action is necessary, or when the medicament is likely to be changed if absorbed through the ordinary channels. Unless such indications exist, however, intravenous administration involves not only inconvenience and expense to the patient, but what is more important, unnecessary danger. The fact that indiscriminate intravenous administration is peculiarly profitable to certain manufacturing houses makes it all the more necessary for the medical profession to be on its guard in this matter.

In this connection it is well worth while to quote the closing paragraph from an editorial on "Intravenous Therapy" that appeared in The Journal, Nov. 11, 1916. It is as true today as when it appeared:

> "Intravenous therapy will be most securely advanced if its employment is restricted to such well defined fields. [As those mentioned above.] These fields can be satisfactorily determined only by a scientific pharmacologic study of the action of these drugs when so administered in animals, as well as in man, under conditions in which the results are carefully controlled. The intravenous method is an impressive one, approaching in preparation almost to that which goes with a surgical operation. The patient is usually interested and impressed by this new, and, to him, mysterious method. There is a psychic element in his reaction to the injection which is not a factor in his reaction to the same drug when given by mouth. The intravenous injection of a complex mixture would appear to be particularly reprehensible. Little is known, as has been stated, of the results to be expected from intravenous therapy, even with simple substances. The use of complex mixtures will without doubt react against the proper use of the method."

After the report on Arseno-Meth-Hyd had been presented to the Council, a letter was received from the New York Intravenous Laboratory announcing that the preparation "Arseno-Meth-Hyd" was now called "Solution of Arsenic and Mercury" and expressing a desire to have its products accepted for inclusion in New and Nonofficial Remedies. In view of this letter, the committee's report on "Arseno-Meth-Hyd" and the Council's protest against promiscuous intravenous therapy were sent the New York Intravenous Laboratory for consideration.

The reply of the New York Intravenous Laboratory contained nothing which permitted a revision of the preceding report. The change of the name of "Arseno-Meth-Hyd" to "Solution of Arsenic and Mercury" means little as the name still does not disclose the important fact that the arsenic is present as sodium cacodylate, nor does it tell the character of the mercury compound. The Council voted that "Solution of Arsenic and Mercury" and "Arsenoven S. S." be declared inadmissible to New and Nonofficial Remedies because the therapeutic claims advanced for them are unwarranted (Rule 6) and because the names of these pharmaceutical preparations are not descriptive of their composition (Rule 8).

In filing its reply with the Council, the New York Intravenous Laboratory announced that that document would be circulated to the medical profession. This is of course the firm's privilege. The Council notes, however, with interest, that the reply is devoted almost entirely to points which were not raised by the Council and that it fails to discuss the objections which were actually made.

The reply constantly confuses the efficiency of cacodylate in anemia and in syphilis. The Council's report on "Arseno-Meth-Hyd" does not discuss or even touch on the question of cacodylates in anemia. It is confined to a discussion of the disappointing results obtained with cacodylates as such (i. e., without mercury) in the treatment of syphilis. This attempt on the part of the New York Intravenous Laboratory to confuse the issue and to attribute to the Council an opinion that it has never stated or held is an inexcusable misrepresentation. The company in its reply said:

> "We believe that you have previously stated that a solution cacodylate of soda possesses no more action than so much water. In other words, it was inert. Now you try to show that it produces renal injury."

The Council has never declared that cacodylates are inert. In the report it is merely stated "that doses so large as to produce renal injury were almost totally ineffective against syphilis." Neither has the Council stated that cacodylate is "peculiarly dangerous." In fact the absolute toxicity of cacodylates is low but Cole's results were quoted as a caution that "effective" doses are not harmless. A great portion of the remainder of the reply is devoted to disparaging arsphenamin—a product that is not involved in this action of the Council, and one about which the physician is amply informed.

As regards the editorial on intravenous therapy, a concession may be made the New York Intravenous Laboratory: intravenous injections are no longer quite as "impressive" as in 1916, but that does not alter the fact that they should be used only when a distinct advantage is to be gained.

"ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY"

Under the caption given above, the *Journal of the Missouri State Medical Association,* in its July issue, speaks editorially as follows:

> The Council on Pharmacy and Chemistry of the American Medical Association is a department of our national organization that has not received the plaudits and encomiums of a wildly joyous medical profession nor the grateful praises of the enthusiastic manufacturer of pharmaceuticals. The Council seems indeed to be the unloved child of the entire family of subsidiary bodies of the association. Perhaps the reason for this may be found in the character of its duties, for the Council must expose fraud, sometimes in high places, and protect the physician from being duped by avaricious persons and by persons who are themselves sometimes the victims of their own credulity. It thus happens that the sale of some proprietary article previously held in high esteem by the practitioner proves valueless, perhaps even fraudulent. The practitioner, however, may have credited much of his success in treating certain conditions to that preparation and the maker has had success in accumulating dollars from its sale and both parties emit a loud and vicious roar against the Council, because they both lose money. Nobody wants to be "protected" against making money—make it honestly, if possible, but make it—but this black sheep among the Councils of the American Medical Association insists on their making their money honestly!
>
> Despite many obstacles thrown into its path, the Council on Pharmacy and Chemistry has serenely pursued its allotted tasks, corrected its mistakes, improved its methods, and today stands as the only medium to which the honest physician may turn for information—not misinformation—regarding proprietary articles. During the war the Council and the chemical laboratory were in close cooperation with the Surgeon-General's Office, testing and investigating every article offered to the government for the treatment of the sick soldiers. The variety and the number of fakish and fraudulent stuff offered to the Surgeon-General was a pitiable exhibit of the mental gymnastics of some people. Just now the Council and the laboratory have a new and important field before them, i. e., to protect the physicians against worthless and useless serums, vaccines and synthetics. It will be the Council's unpleasant duty to expose the fraudulent and useless among these articles and stamp truth on those found worthy.
>
> We seem to have wandered from the topic in our caption but not so in reality because the burden of our thought is to lend our influence to the spread of the motto of the Advertising Clubs of the World, namely, "Truth in Advertising." It is our purpose to stimulate a larger degree of enthusiasm for the work of the Council on Pharmacy and Chemistry and the Chemical Laboratory, a more generous flow of inquiries concerning articles unfamiliar to the physician, and particularly to urge that the words "accepted by the Council on Pharmacy and Chemistry of the American Medical Association" be printed on the label and on all advertising circulars of proprietary articles that have been admitted to New and Nonofficial Remedies. Then, when pamphlets and circulars are received by physicians they will read the statements of manufacturers with sympathetic understanding and with full confidence in the verity of the declarations. The importance of creating just that sort of receptivity in the mind of the prospective buyer is so well known to the astute publicity expert that it is needless for us to dwell on its advantages. Every proprietary article advertised in our journal, in The Journal of the American Medical Association, and in the other state association journals, as well as in several well-edited privately owned journals, does in effect say to the reader that the articles so advertised are accepted by the Council because only proprietary articles so accepted are accepted by us. The fact is further acknowledged when these firms are permitted to exhibit their goods at our annual sessions for again the rule is enforced that only proprietary articles which have been approved by the Council may be placed on display.
>
> Why not complete the circle of ideas—it would not be a "vicious circle"—by printing on labels, in advertisements and circulars, the words: "Accepted by the Council on Pharmacy and Chemistry"?

Correspondence

"USING VARICOSE VEINS FOR INTRAVENOUS INJECTIONS"

To the Editor:—I agree with Dr. Rosenheck's statement (The Journal, July 19, 1919, p. 214) that physicians who administer arsphenamin occasionally encounter a case in which the veins in the cubital space are difficult to locate. I do not, however, agree with his suggestion to select the varicose veins of the legs. Varicose veins, from a pathologic standpoint, are in a state of subacute or chronic inflammation. This explains the frequent occurrence of acute phlebitis in the lower extremities of females after slight or no trauma. The introduction of an irritant drug, such as arsphenamin, into the veins is sufficient to excite an acute exacerbation resulting in thrombosis and complete obliteration. This, perhaps, does not generally follow after the first injection, but will appear in one of the later ones. To improve on this, I have found the dorsal surface of both hands and wrists convenient places to locate veins without any difficulty. A tourniquet is placed over the lower third of the forearm, and within a minute several veins can be seen to stand out prominently.

Charles Wolf, M.D., New York.

OPERATION VERSUS ROENTGEN-RAY TREATMENT OF UTERINE MYOMA

To the Editor:—The paper of Dr. Arthur Stein on this subject in The Journal, July 12, p. 95, needs further comment on the other side of the question. Dr. Stein questions the propriety of radiation instead of operation in the first place because of the risk of mistaking a sarcoma of the uterus or ovary for a myoma; and he cites as an instance the case of a young girl in her twenties in which a proposed radiation was abandoned in favor of operation. He then reveals that the resulting operation did not cure the patient. My impression is that the indications in this case pointed to radiation as the most hopeful treatment, particularly at this age. The question of the prevalence of sarcomas among supposed fibromyomas of the uterus has received undue prominence. The differential diagnosis, moreover, is by no means difficult if the patient's history is considered, bearing in mind that sarcomas present a history measurable in months, while fibromas or myomas may be traced back for years in practically all cases at the time that they reach the gynecologist. One should also suspect the sarcomatous character when a reasonably large growth is discovered in a woman under, say, 28 years of age. But all this is beside the question of the treatment of fibroids, for sarcomas are so rare as to present no practical problem in the matter.

Concerning other possible errors in diagnosis in the absence of an operation, it may be said that radiation is not the worst way to discover these mistaken diagnoses. The possible loss of time cannot seriously impair the result of a subsequent operation. An unnecessary operation, on the other hand, is far more serious.

I question, further, the correctness of the view that the presence of chronic inflammation of the adnexa renders a fibroid not amenable to radiation, for I have frequently employed the screened roentgen ray, and there have been many instances giving the clinical symptoms of inflammatory or catarrhal tubes which yielded ultimately to patient collateral treatment, and in which finally recovery occurred without operation. Barring encysted pus alone in this situation as unsuitable to anything but operation, these cases may be counted on to result in symptomatic cure, with varying degrees of subsequent decrease or disappearance of the harmless residue.

G. Betton Massey, M.D., Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SODA ASH IN WATER

To the Editor:—We have for some time been using soda ash in the feed water of our locomotives, about a half pound to 1,000 gallons. Our employees occasionally drink this water. Is there anything harmful in this practice?

George K. Meynen, M.D., Jamaica, N. Y.

Answer.—Caustic lime and soda ash are commonly used together for water softening. The amount of soda ash used in the case cited does not seem excessive, but no data are given as to the original hardness of the water. If the water is bacterially pure it is not likely that the health of those drinking the softened water would be endangered. The process of water softening by filtration through artificial zeolite, as suggested by Jackson in the *Journal of the American Water Works Association,* March, 1916, p. 423, is worthy of special attention.

ELIMINATION OF ANTS

To the Editor:—I want to ask you if you can tell me how to kill or eradicate ants that take the entire place, especially the drug room. They are the little red ants. I have tried everything; they still come in. Let me hear if you have anything for them.

J. P. Brandon, M.D., Essex, Mo.

Answer.—A special bulletin prepared by the Department of Agriculture, known as "Farmers Bulletin 740," by Dr. C. L. Marlatt, entitled "House Ants: Kinds and Methods of Control," may be had free on application to the department. This bulletin describes the various ants occurring in North America, giving their habits and life history, and a very particular article on "Means of Controlling House and Lawn Ants." In brief, it is suggested that efforts be made to locate the nest of the ant and that this be destroyed by injecting carbon disulphid, kerosene or gasoline into the opening. Ants, of course, are attracted to houses by food substances, and all food substances should be placed in ant-proof metal containers or in ice boxes. It is not believed that the repellent substances, such as camphor or naphthalene flakes or moth balls, have any value. It is suggested that the ants may be collected by the placing of attractive baits, such as small sponges moistened with sweetened water. These baits may be collected several times a day and the ants swarming on them destroyed by immersion in boiling water. A more efficient remedy is a syrup poisoned with sodium arsenate. The formula for the preparation of this syrup is: 1 pound of sugar dissolved in a quart of water, to which should be added 125 grains of sodium arsenate. The mixture should be boiled and strained, and on cooling used with the sponges as described. Precautions must be taken in preparing this syrup and safeguarding it afterward to prevent its being the cause of poisoning to human beings or domestic animals.

SUGAR IN FORMULA FOR DIARRHEA IN INFANTS

To the Editor:—In an article entitled "The Etiology and Treatment of the Diarrheal Diseases in Infancy" (The Journal, June 7, 1919, p. 1653), Dr. Lewis Webb Hill, speaking of the treatment of fermentative diarrhea says: "All sugar should be omitted from the milk modification, and the solution boiled for three minutes. One teaspoonful of compound chalk mixture should be added to each bottle." Now, from the first sentence in this quotation, we learn that "all sugar should be omitted from the milk modification"; and in the next sentence, the author advises to add one teaspoonful of compound chalk mixture to each bottle, which means to add a little sugar to each feeding, because compound chalk mixture contains 10 per cent. of sugar. If the author meant that a little sugar given in the shape of compound chalk mixture can do no harm in fermentative diarrhea, his emphatic statement: "*All* sugar should be omitted from the milk modification," does not imply that. There are many physicians who hold that *no sugar at all* should be fed to infants with fermentative diarrhea; and not knowing that compound chalk mixture contains sugar would, on the strength of Dr. Hill's advice, prescribe the mixture to their little patients, and thus administer sugar unintentionally. It is in this way that the quotation from Dr. Hill's article is inconsistent and misleading.

Louis Buckle, M.D., New York.

Answer.—The question was referred to Dr. Hill, who replies that "the small amount of sugar in chalk mixture does no harm. If any one believes that it may do so, he may use a prescription of chalk and water instead."

GROUP MEDICINE

To the Editor:—Please send me any information or data you may have in connection with group medicine and its practicability for the general practitioner, particularly in rural districts.

E. R. Hunter, M.D., Washington, D. C.

Answer.—The following references may be consulted to obtain a general view of the subject:

Gutmann, J. H.: Cooperation in Medicine, *Albany M. Ann.,* October, 1912.
Poe, F.: Professional Cooperation, *J. Kansas M. Soc.,* October, 1912.
Crumbine, S. J.: Getting Together in Kansas, The Journal, Feb. 15, 1913, p. 539.
Knapp, H. B.: Cooperation Among Doctors, The Journal, May 16, 1914, p. 1578.
Birtch, F. W.: A "Group Study" Plan for a Diagnostic Team Acting as a Laboratory for the Profession, The Journal, May 27, 1916, p. 1672.
Medical Partnerships—So-Called Group Plan, *Bull. M. & Chir. Fac. Maryland* **8**: 226 (June) 1916.
Axtell, J. T.: Team Work in Medicine, *J. Kansas M. Soc.* **16**: 258 (Sept.) 1916.
Behlow, W. W.: Group Study, The Journal, Feb. 3, 1917, p. 360.
Pollock, R.: *Interstate M. J.* **24**: 840 (Sept.) 1917.
Savage, A. J. B.: Group Medicine, *Mod. Med.* **1**: 98 (June) 1919.
Lewis, F. P.: Group Study a Necessity in Ophthalmic Research, The Journal, June 28, 1919, p. 1893.

EPINEPHRIN TEST FOR HYPERTHYROIDISM

To the Editor:—Please give directions for applying the epinephrin test for hyperthyroidism.

R. R. Elmore, M.D., Louisville, Ky.

Answer.—The test referred to is that called the "skin reaction of Goetsch." Eight minims of a 1:1,000 solution of epinephrin hydrochlorid are diluted with an equal quanity of sterile water and injected hypodermically into the arm. Immediately there is formed an area of blanching around the point of injection, and about the margin of this usually a red areola gradually shading off into the surrounding tissue. In about half an hour the center of the white area becomes bluish gray to lavender, and at the end of from one and a half to two hours, the red areola takes on the bluish or lavender color, while that in the center disappears. This lavender areola remains for about four hours from the time of injection, and is the most characteristic part of the test. Accompanying the local action may be increase in pulse rate with palpitation of the heart and an exaggeration of the tremor and nervous symptoms in general.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.

Hawaii: Honolulu, Sept. 9-11. Sec., Dr. J. R. Judd, Honolulu, Hawaii.

Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.

New Hampshire: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.

New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.

A BOGUS MEDICAL DIPLOMA IN AUSTRALIA

The information collected at the headquarters of the American Medical Association regarding medical colleges and the medical profession is now sufficiently complete to prevent the issuing of bogus medical diplomas without an early discovery. Through this information the fraudulent nature of some diplomas issued years ago is being brought to light. For example, the following report gives an account of a diploma which appears to have been issued illegally twelve years ago to an individual now residing at Hobart, Tasmania. Thus the information collected by the American Medical Association is rendering a service to other countries as well as to the United States.

In June, 1917, a letter was received from Mr. Arthur E. Hayward, secretary of the Tasmania Branch of the British Medical Association, Hobart, asking in regard to the legal status of the Harvey Medical College of Chicago, and the character of the medical training given in it. The reply was that the college named became extinct in 1903.

In a second letter, received in September, 1917, Mr. Hayward asked whether any one could have received a degree from the Harvey Medical College in 1907, and requested some legal declaration to prove that no degrees had been issued by that college after 1905. In reply, a certified copy of a resolution which appeared as an insert in the annual announcement of the Jenner Medical College, Chicago, issued in 1905, was sent showing, that after the organization of a "Harvey-Jenner Medical University," the Harvey Medical College affiliated itself with, and requested its remaining students to enroll for the session of 1905-1906 in, the Jenner Medical College. Sept. 7, 1917, we wrote to the secretary of state of Illinois, asking what final disposition had been made of the charter of the Harvey Medical College. The reply stated that the charter was canceled, July 1, 1902, for default in filing an annual report. A copy of the reply was forwarded to Mr. Hayward.[1]

Nothing more was heard until in October, 1918, when two cablegrams were received signed "Scott, President, Medical Council," asking whether a student named Ratten had, at any time, attended or graduated from Harvey Medical College. The cablegram stated that Ratten held a diploma from the college named, dated March 8, 1907. The president was informed that Ratten was not recorded either as a student or a graduate of the Harvey Medical College.

In December two more cablegrams were received from Dr. Scott asking whether any Harvey Medical College was existing in Chicago in March, 1907. The reply was in the negative.[2]

The reason for the inquiries was made more clear in January, 1919, when a letter from Dr. Robert E. Scott, president of the Medical Council of Tasmania, explained that the cablegrams referred to one Victor Richard Ratten. He said that the council of which he was president and which was a statutory body, constituted for the purpose of keeping a register of the qualified practitioners of Tasmania, was on the point of being abolished because it had dared to run counter to the premier, and had questioned Ratten's qualification.

A copy of the Hobart *Mercury* of Dec. 12, 1918, enclosed with Dr. Scott's letter, contained a report of a "Ratten Royal Commission" which, it was shown, had been appointed by the premier of Tasmania to inquire into charges against Ratten made by the Tasmania Branch of the British Medical Association. In the commissioner's report a diploma said to have been held by Ratten was reproduced as follows:

HARVEY MEDICAL COLLEGE

Chicago Coat of Arms. Illinois.

To all to whom this Diploma shall come, Greeting:

Be it known that Victor Richard Ratten, having completed the Course of Study required by this institution and having passed a satisfactory examination and recommendation by the Faculty as qualified to enter upon the practice of Medicine and Surgery; and by virtue of the powers vested in us by the State of Illinois, we hereby confer upon him the Degree of

Doctor of Medicine

with all the rights, privileges, immunities, and honours pertaining thereto.

In Testimony Whereof, the Harvey Medical College has caused this Diploma to be signed by the President and Secretary of the Board of Directors, and the official Corporate Seal to be hereto affixed at the City of Chicago in The State of Illinois, U. S. A., this eighth day of March, A. D., 1907.

Harry P. Husley, M.D., Dean of Faculty,
M. A. Brown, M.D., Secretary of Faculty,
W. E. Warner, M.D., Secretary of Board of Directors,
William Gale French, A.M., M.D., President of Board of Directors.

INQUIRY BY COMMISSIONER

In his report, the commissioner said he had seen the cable replies from the Council on Medical Education in regard to the nonexistence of the Harvey Medical College but, as a result of other inquiries, concluded, nevertheless, that it still existed. The commissioner stated that he had sent the following cablegram *to two individuals whose names were attached to Ratten's diploma*—a paper, the validity of which had been questioned:

> Have before me diploma of Victor Richard Ratten issued by you and others on behalf Harvey Medical College, dated March, 1907. Did you issue same, and what are relations of Harvey Medical College and Harvey-Jenner College?

To this the commissioner states he received the following replies:

> Am looking up records; will cable to-morrow.—W. G. French.

And on the next day:

> Diploma issued Victor Richard Ratten, March, 1907, by me and others on behalf Harvey no connection with Harvey-Jenner College.—W. G. French.

Cabled information received by the commissioner through the Continental and Commercial Bank of Chicago showed that Harvey Medical College, Chicago, was in 1907 a duly chartered institution.[3] Then follows the account of an examination of "Dr." Ratten. In answer to questions asked by the commissioner, Ratten is reported to have stated under oath that he was surgeon-superintendent of Hobart General Hospital; that he recognized the certificate (evidently the diploma of the Harvey Medical College already reproduced), and that it had been issued to him by the Harvey Medical College which, he said, was then an existing institution. No questions are recorded in the report, asking whether the college ever held classes or carried on medical teaching or whether Ratten was ever in attendance, or studied medicine at the Harvey Medical College. In his report the commissioner concluded that the Harvey Medical College existed in 1907 and that the diploma which Victor Richard Ratten produced in 1907 was granted to him by the college named.

COMMENTS REGARDING THE INVESTIGATION

Notwithstanding the fact that evidence was presented which questioned the validity of Ratten's diploma, the commissioner, according to the reports, secured evidence from those whose names were attached to the diploma and *who would not be expected to show that the diploma was invalid!*

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[1] That more than one Harvey Medical College had been chartered was not suspected by the writer; it was not mentioned in the letter from the secretary of state of Illinois, and was not revealed until later, as shown in this report.

[2] As shown later in this report, the charter of the Harvey Medical College had been revived in 1907; the statement is true, nevertheless, that since 1905 no institution of that name has had a bona fide existence, with headquarters, faculty, published announcements, or which had openly enrolled students or conducted medical teaching.

[3] The cable did not ask whether the college existed on March 8, 1907, the date on Ratten's diploma.

The character of the investigation is further referred to in an editorial appearing in the *Medical Journal of Australia* of Dec. 28, 1918, page 523, as follows:

> Notwithstanding the fact that a well-known official of the American Medical Association, the most reputable and representative medical institution in the United States of America, maintains that the Harvey Medical College did not exist in 1907, and that Ratten was neither a student nor a graduate of that body, the Royal Commissioner has found that a Harvey College not only existed in 1907, but actually issued a diploma to Victor Richard Ratten, setting out that he had passed through the prescribed course of study, and had satisfied the "Faculty" that he was qualified to practice medicine. It will be noted from the proceedings of the Commission that the Royal Commissioner failed to wait for information from the Attorney-General of Illinois, and merely announced his intention of obtaining the assistance of the American Government. Instead of seeking and acquiring official information from the most reliable source, the Royal Commissioner adopted the extraordinary procedure of communicating with the persons whose names appear on the diploma produced by Ratten. It is significant that those names are, so far as we are aware, unknown in Australia, and that, despite the repeated statement of the Secretary of the American Medical Association that the Harvey Medical College did not exist in 1907, the cabled assertion of the persons named on the document appears to have been accepted as final.

MORE RECENT INFORMATION

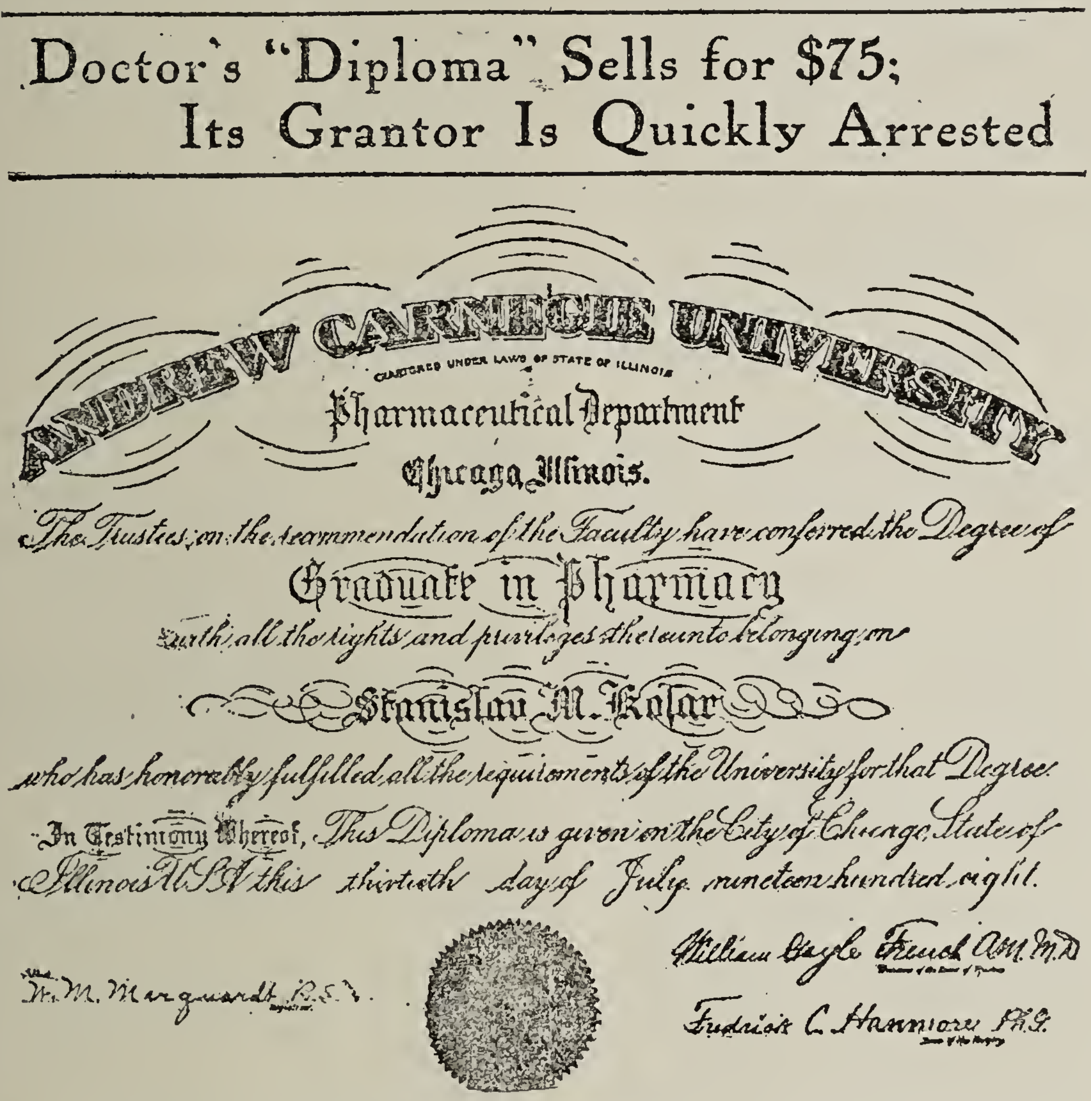
The information received from Dr. Scott and from the commissioner's report led to a further investigation in regard to the Harvey Medical College by the Council on Medical Education. Following a conference with Mr. Francis W. Shepardson, director of the department of registration and education, the latter examined the records in the office of the secretary of state and discovered that, instead of one, three institutions had been incorporated which bore, or included, the name of the "Harvey Medical College." Mr. Shepardson reported these as follows:

1. Harvey Medical College incorporated, Nov. 23, 1891, by Alva Camp, Willard P. Case and Charles D. Camp. The subscribers to the capital stock were W. P. Case, 2 shares; G. E. Giles, 1 share; J. C. Ivey (or Irey), 10 shares; Charles D. Camp, 237 shares. Ivey and the two Camps and Frank C. Vierling, Frank Baker and J. R. Holmes made up the first board of trustees. This charter was canceled, July 1, 1902, because of failure to file an annual report.[4]

2. Harvey Medical College, incorporated, Aug. 28, 1894, by James A. Stough, George Warren Reynolds and Charles D. Camp. These were the subscribers to the capital stock and the members of the first board of trustees. This college made annual reports until 1903. The charter was canceled by the secretary of state, March 5, 1904. It was reinstated, March 19, 1907. It has made annual reports each year up to and including Feb. 11, 1918. In that report it is said that the corporation is not now in actual existence, but "said corporation expects to resume active business as a medical college and desires to keep its charter intact." President, Dr. Frances Dickinson, 2750 W. 35th St., Chicago, care of Albert Dickinson Seed Company. Secretary and treasurer, Phillip S. Brown, Montana Bldg., Missoula, Mont. Their term of office "until their successors are elected." The statement also says that "the corporate seal is mislaid."

3. Harvey Medical College and Hospital, incorporated, Jan. 9, 1907, by William Gayle French, Harry P. Hurley, W. E. Warner and L. W. Rowell. Nov. 2, 1908, the name of this institution was changed to Jackson University, W. M. Marquardt was named as secretary, and W. G. French as president. Sept. 27, 1909, the name was changed to Jefferson University, W. M. Marquardt being secretary, E. S. Stafford, vice president, and W. G. French signing his name as notary public. This charter was canceled, on May 17, 1912, a proper notice of dissolution being filed by French and others.

Statements in the catalogues of the only bona fide Harvey Medical College—the only one which had the essential teachers and laboratories; the only one which openly enrolled students and issued annual announcements—show that the first two charters were secured for that school. Its last announcement that of 1904-1905, contains a historical statement which says that the Harvey Medical College was first incorporated in 1891 and for certain reasons obtained a new charter in July, 1894.



Doctor's "Diploma" Sells for $75;
Its Grantor Is Quickly Arrested

ANDREW CARNEGIE UNIVERSITY
CHARTERED UNDER LAWS OF STATE OF ILLINOIS
Pharmaceutical Department
Chicago, Illinois.

The Trustees, on the recommendation of the Faculty have conferred the Degree of
Graduate in Pharmacy
with all the rights and privileges thereunto belonging, on
Stanislav M. Kolar
who has honorably fulfilled all the requirements of the University for that Degree.
In Testimony Whereof, This Diploma is given in the City of Chicago State of Illinois U.S.A. this thirtieth day of July nineteen hundred eight.

William Gayle French A.M. M.D.
W. M. Marquardt B.S.
Frederick C. Hammore Ph.G.

The above is a reproduction of a diploma of the Andrew Carnegie University as it was reproduced in the Chicago *Tribune* of Aug. 2, 1908, accompanying the printed news item, which is also reproduced herewith. The two lines above the diploma were added in the *Tribune's* article. Note the signatures on the diploma.

The information on file in our biographical department shows that the Harvey Medical College ceased to hold classes and teach students at the close of the session of 1904-1905; that in the session of 1905-1906 the students remaining were urged to enroll and finish their training in the Jenner Medical College; that its charter had expired in 1904, and that, although the charter was reinstated, March 19, 1907, the college did not resume medical teaching.

WAS RATTEN'S DIPLOMA VALID?

From August, 1894, to July 1, 1902, the bona fide Harvey Medical College had two charters. The first of these was canceled, July 1, 1902, and the second was canceled in 1904. The latter was not revived until March 19, 1907—eleven days after the date on the diploma issued to Victor Richard Ratten. According to Mr. Shepardson's statement, in their reports, the officers of this college stated that the corporation was not in actual existence, but expected at some future time to resume active business as a medical college and for that reason desired to keep the charter intact. This shows that the institution was making no attempt to conduct classes or to teach medical students and, therefore, was not issuing degrees. As will be noted, neither of these charters were alive, March 8, 1907, the date on the diploma issued to Victor Richard Ratten.

Charter 3, that of the French-Hurley-Warner-Harvey Medical College and Hospital, incorporated, Jan. 9, 1907, is the only one which was legally alive, March 8, 1907. The names of the incorporators appear to be identical with those signed to Ratten's diploma. Although the name Harry P. Husley appears on the printed reproduction of Ratten's diploma, this could easily be due to mistaking the written "r" in Hurley for an "s." Note, however, that the name of the institution on the diploma issued to Victor Richard Ratten is not the "Harvey Medical College *and Hospital*" but the "Harvey Medical College"—an institution which was not alive, March 8, 1907. This confusion of names throws still more doubt on the validity of Ratten's diploma.

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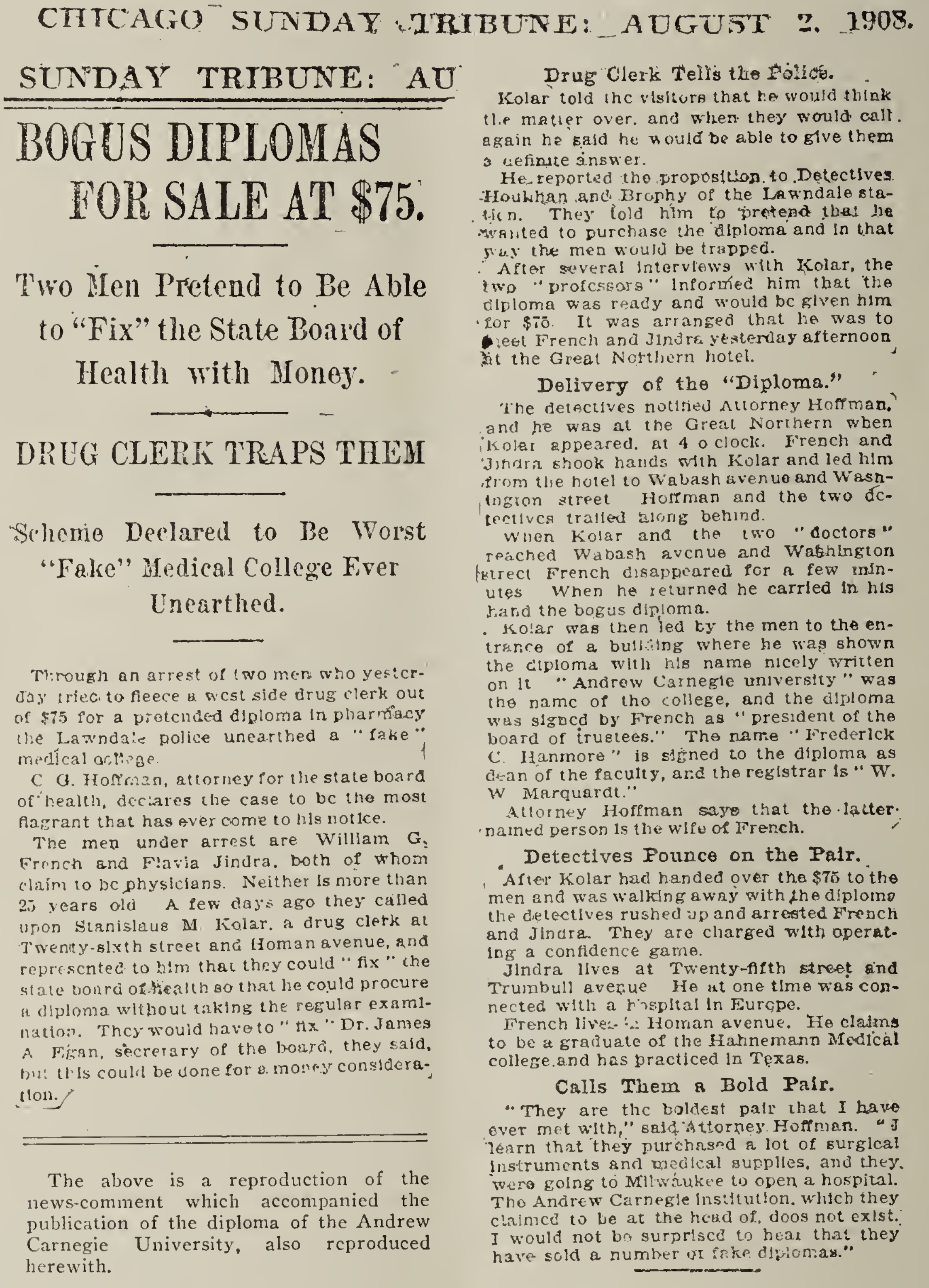
[4] This is evidently the institution referred to by Secretary of State Emerson in his letter of Sept. 10, 1917, to which reference has already been made in this report.

Even after securing a charter for an institution, which seems to have had no existence except on paper, the French-Hurley-Warner crowd appears to have issued a diploma to Victor Richard Ratten under the name, not of the institution they had chartered, but under the name of what was a bona fide institution between 1891 and 1905. Additional light is thrown on the practice of those who incorporated the Harvey Medical College and Hospital by the fact that after a year and ten months the name of that institution was changed to the "Jackson University," and ten months later was again changed to the "Jefferson University." Note also in Mr. Shepardson's account of the Harvey Medical College and Hospital that after the name was changed to the Jackson and Jefferson Universities, one W. M. Marquardt was named as secretary and W. G. French as president. This indicates a relationship between the French-Hurley-Warner crowd with another institution reported to have existed on paper only, the Andrew Carnegie University, which in 1908 issued an alleged illegal diploma bearing the names of W. M. Marquardt and William Gayle French. Another statement bearing on the validity of Ratten's diploma is that of Dr. Frances Dickinson, who was president of the bona fide Harvey Medical College during its existence, who says that any diploma of Harvey Medical College issued after 1894 was invalid unless it bore her personal signature. She also says that neither French, Hurley nor Warner ever had any relationship with the Harvey Medical College either as officers or as faculty members.



CHICAGO SUNDAY TRIBUNE: AUGUST 2. 1908.

SUNDAY TRIBUNE: AU

BOGUS DIPLOMAS FOR SALE AT $75.

Two Men Pretend to Be Able to "Fix" the State Board of Health with Money.

DRUG CLERK TRAPS THEM

Scheme Declared to Be Worst "Fake" Medical College Ever Unearthed.

Through an arrest of two men who yesterday tried to fleece a west side drug clerk out of $75 for a pretended diploma in pharmacy the Lawndale police unearthed a "fake" medical college.

C. G. Hoffman, attorney for the state board of health, declares the case to be the most flagrant that has ever come to his notice.

The men under arrest are William G. French and Flavia Jindra, both of whom claim to be physicians. Neither is more than 25 years old. A few days ago they called upon Stanislaus M. Kolar, a drug clerk at Twenty-sixth street and Homan avenue, and represented to him that they could "fix" the state board of health so that he could procure a diploma without taking the regular examination. They would have to "fix" Dr. James A. Egan, secretary of the board, they said, but this could be done for a money consideration.

Drug Clerk Tells the Police.

Kolar told the visitors that he would think the matter over, and when they would call again he said he would be able to give them a definite answer.

He reported the proposition to Detectives Houlihan and Brophy of the Lawndale station. They told him to pretend that he wanted to purchase the diploma and in that way the men would be trapped.

After several interviews with Kolar, the two "professors" informed him that the diploma was ready and would be given him for $75. It was arranged that he was to meet French and Jindra yesterday afternoon at the Great Northern hotel.

Delivery of the "Diploma."

The detectives notified Attorney Hoffman, and he was at the Great Northern when Kolar appeared, at 4 o'clock. French and Jindra shook hands with Kolar and led him from the hotel to Wabash avenue and Washington street. Hoffman and the two detectives trailed along behind.

When Kolar and the two "doctors" reached Wabash avenue and Washington street French disappeared for a few minutes. When he returned he carried in his hand the bogus diploma.

Kolar was then led by the men to the entrance of a building where he was shown the diploma with his name nicely written on it. "Andrew Carnegie university" was the name of the college, and the diploma was signed by French as "president of the board of trustees." The name "Frederick C. Hanmore" is signed to the diploma as dean of the faculty, and the registrar is "W. W. Marquardt."

Attorney Hoffman says that the latter-named person is the wife of French.

Detectives Pounce on the Pair.

After Kolar had handed over the $75 to the men and was walking away with the diploma the detectives rushed up and arrested French and Jindra. They are charged with operating a confidence game.

Jindra lives at Twenty-fifth street and Trumbull avenue. He at one time was connected with a hospital in Europe.

French lives at Homan avenue. He claims to be a graduate of the Hahnemann Medical college and has practiced in Texas.

Calls Them a Bold Pair.

"They are the boldest pair that I have ever met with," said Attorney Hoffman. "I learn that they purchased a lot of surgical instruments and medical supplies, and they were going to Milwaukee to open a hospital. The Andrew Carnegie institution, which they claimed to be at the head of, does not exist. I would not be surprised to hear that they have sold a number of fake diplomas."

The above is a reproduction of the news-comment which accompanied the publication of the diploma of the Andrew Carnegie University, also reproduced herewith.

RECORD OF WILLIAM GAYLE FRENCH

The commissioner's report gives "William Gale French, A.M., M.D., President of Board of Directors." The records of the American Medical Association show that William *Gayle* French was born in 1885; graduated from Hahnemann Medical College and Hospital, Chicago, in 1906; was licensed in Texas and in Michigan in 1907, in Indiana in 1908 and in Illinois in 1913. The medical directories show frequent changes of address as follows: In 1906 in Brook, Ind.; in 1909, Greensburg, Ind.; in 1910, Indianapolis; in 1912, Kingsbury and Laporte, Ind., and 1914 and 1916, inclusive, Chicago. It is William *Gayle* French also who is reported among the incorporators of the Harvey Medical College and Hospital. The cablegrams received by the commissioner at Hobart leads one to believe that this is the French whose name appears on the diploma issued to Victor Richard Ratten. It is not probable that there are two individuals having names so nearly alike.

In the Chicago *Tribune* of Aug. 2, 1908, was published a photographic reproduction of another alleged bogus diploma—one from the "Andrew Carnegie University" which bears the name of William Gayle French as "President of the Board of Trustees," and of W. M. Marquardt as "Registrar."[5] According to the report in the same paper, French was arrested by two detectives in the act of delivering the diploma and receiving $75 for it. The report also says that the Andrew Carnegie University has no existence except on paper. This report indicates, therefore, that William Gayle French was not averse to handling bogus diplomas.

News clippings from the Chicago *Herald* for Oct. 5, 1915, and the Chicago *Tribune* for Oct. 20, 1915, report the arrest of William Gayle French and another physician in connection with an alleged abortion produced on a young woman who died under the operation. The man with French seems to have been held to the grand jury; French, himself, was exonerated. French then changed his address to Detroit, Mich. A clipping from the Detroit *Times*, June 26, 1918, under the head "Warrants Out For Quacks," states that warrants were issued for the arrest of Dr. W. G. French charging him with violating the state law against advertisements for the cure of venereal diseases. In the Detroit *Times* of July 1, 1918, under the heading "Quacks on the Jump to Escape," the following statement appears:

> The quacks are on the run. Dr. W. H. French whose "sick men" advertisements were the delectation of readers . . . of family newspapers, has left the city two jumps ahead of the warrant which Special Prosecutor Henry A. Montgomery swore out against him.

The Chicago and Detroit papers made other statements similar to those quoted reflecting on French's character.

A letter dated July 23, 1918, from B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, says:

> Dr. William Gayle French, Detroit,—Two warrants issued against him, one for immoral advertising and the other for obtaining money under false pretenses. Warrants were not served owing to the fact that he left for parts unknown before service could be effected.

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[5] See the reference to these men in the description of the French-Hurley-Warner-Harvey Medical College and Hospital.

CONCLUSION

As we have seen, two institutions were chartered bearing the name of "Harvey Medical College," and one was chartered with the title "Harvey Medical College and Hospital." The last named was the only institution having a legal existence, March 8, 1907, the date on the diploma issued to Victor Richard Ratten; but even this was not chartered until Jan. 9, 1907, only two months prior to the date on Ratten's diploma, and the signatures on Ratten's diploma would also indicate that this is the institution which issued it. It was not in existence long enough, however, to have given even a single term of instruction, and there is no evidence to show that it ever had a college building large enough for the conducting of classes, that it ever possessed a faculty or laboratory equipment, or that it ever issued an announcement or did actual teaching. Note, also, that the legal title of this institution is the "Harvey Medical College *and Hospital*," whereas, the heading of the diploma issued to Ratten, as reproduced in the royal commissioner's report, was the "Harvey Medical College." Again it is evident that the names signed to the diploma issued to Ratten are of persons who had no connection, official or legal, with the institution which issued it. Again, the institution named on the diploma issued to Ratten had no actual existence later than 1905, so far as an organized faculty, laboratory equipment and teaching facilities are concerned, and its charter, which had been canceled in 1904, was not revived until March 19, 1907, eleven days after the date on Ratten's diploma. All these facts indicate the fraudulent character of the diploma issued to Victor Richard Ratten, which evidence is strengthened by the fact that a year later one of the persons named as having signed Ratten's diploma is reported to have been caught in the act of selling an alleged bogus diploma to another individual.

This matter is still under investigation by the Tasmania Branch of the British Medical Association.

Social Medicine, Medical Economics and Miscellany

THE HEALTH OF MUNITION WORKERS

The final report of the British Committee on Health of Munition Workers, reprinted in this country by the Bureau of Labor Statistics in Bulletin 249, contains a large amount of data accumulated by the committee during the four years of its existence. Different sections of the 375-page pamphlet are devoted to almost every phase of industrial welfare. In the concluding section of the report, the committee has summarized its findings in ninety-two paragraphs which constitute a concise summary of the industrial experiences of the five years of war.

The committee finds that there has been an increased appreciation of the whole subject of industrial hygiene: that the environment and conditions of employment of the worker are vastly better than they were, although there is still much need for further improvement. This development is attributed to three causes: the adoption of the recommendations contained in previous reports of the committee; the establishment of a health and welfare section under the Ministry of Munitions, and the increased powers for securing the welfare of workers conferred on the home office. Regarding the relation of fatigue and ill health to industrial efficiency, the report says, "Without health there is no energy; without energy there is no output. More important than output is the vigor, strength and vitality of the nation. The conditions essential to the maintenance of health are, first, personal conditions favorable to the body itself (e. g., food, fresh air, exercise, warmth and adequate rest, and, secondly, a satisfactory environment, including sanitary factories, suitable hours of work, good housing accommodation and convenient means of transit."

Regarding the industrial employment of women, which has greatly increased during the war, the committee finds that up to the present there has been no marked breakdown in the health of women in industry. As to hours of labor, the scientific data collected and the experience gained during the past two years show that the length of hours recommended in January, 1916, namely, thirteen to fourteen hours a day, are too long and can be reduced without loss of output; that by economizing time the hourly output can be increased, and that the time is now ripe for further substantial reduction in working hours. Sunday labor is unpopular, uneconomical, and not productive of increased output. Night work is uneconomical owing to higher wages, inferior heating and lighting and more difficult supervision. Lost time is due to many causes, as sickness, accidents, bad housing, poor transportation and bad weather. The proportion of lost time due to sickness is greatly underestimated. Any sound system for dealing with industrial disease must be aimed at prevention, and the treatment must deal with the beginnings of the disease. The committee finds that a large number of industrial accidents are preventable and that it is to the interest of all parties that they should be reduced to a minimum. Cleanliness in factories is essential, not only for health, but also on account of its bearing on the self-respect of the worker. Regarding welfare work in industry, the committee feels that the time has not yet come when a definite judgment can be passed, nor is it possible to prophesy its future lines of development. The confidence and support of the workers has yet to be obtained. The report contains a large amount of detail material, charts, photographs, tables, etc., on all the problems that have arisen in the munition factories during the time of the war.

THE CONTROL OF INFECTIOUS DISEASES IN THE DURAND HOSPITAL

What may be accomplished by a careful control of infectious diseases is brought out in the recent report, by Dr. George H. Weaver, on the work of the Durand Hospital of the John McCormick Institute for Infectious Diseases, Chicago, covering the first five years of its existence. The hospital is conducted for poor patients. During the five years, 2,817 patients were admitted, the service being largely devoted to diphtheria, measles, scarlet fever, poliomyelitis and epidemic meningitis. However, a large number of other infections are listed in the table of diagnoses.

One of the great dangers of hospital care of infectious disease is cross—or double—infections. During the five years, there were twenty-three cases of such infections in the hospital, or 0.8 per cent. of the admissions. Eight of these cases were traced to exposure in isolation rooms on entrance, and could have been avoided if each patient had been individually isolated. The record, however, is excellent, since another large infectious disease hospital, also conducted on aseptic technic, shows an existence of cross infection varying from 1.1 to 4.6 per cent. In an effort to prevent secondary infections entirely, each patient is isolated in a separate room until the incubation period for extramural infection has passed. Such procedure is necessarily expensive, but the cost is offset by the shorter time of hospital care and by the elimination of severe—and sometimes fatal—results that follow double infections.

During the five years, 802 patients with diphtheria were treated. There was a mortality of ninety-three cases, or 11.6 per cent. Excluding patients who died within twenty-four hours after entrance, the rate is 5.6 per cent. This difference is an indication of the importance of early administration of diphtheria antitoxin. Seventy-two patients, or 9 per cent., developed secondary paralysis. The average amount of antitoxin given in a single case was 22,000 units. This was usually injected intramuscularly, but in a few serious cases directly into a vein. Severe shock sometimes observed after intravenous injections has led the hospital to abandon this method except for very urgent cases.

The experience of the hospital with diphtheria carriers has been described in various publications. After a study of numerous methods, it has been found (as reported by Friedberg) that the removal of the tonsils is practically always followed by prompt disappearance of the bacilli.

Apparently the conditions in the diseased tonsils prevent not only the action of antiseptics and other substances but also the ready entrance of antibodies from the blood.

Of 164 patients with measles, eleven died, or 6.7 per cent. In the differential diagnosis from German measles and scarlet fever, it has been found that the examination of throat smear is of value because the bacterial pictures are quite characteristic in each disease.

Of 1,305 patients with scarlet fever treated in the hospital, fifty-six died, a death rate of 4.3 per cent. This figure is slightly below that recorded for 850 cases in the Alexandria Hospital of Montreal with a mortality of 8 per cent., or 1,529 cases in the Providence City Hospital, with a rate of 5.1 per cent. Nephritis was present in 150 cases, or 11.4 per cent., this including only cases which exhibited microscopic evidence of nephritis. Polyarthritis, nonsuppurative in character, occurred in 158 patients, or 12.1 per cent. Otitis media was found 220 times, or in 16.8 per cent.; mastoiditis fifteen times, or 1.1 per cent. The experience in the cases of mastoiditis has further impressed the conclusion that it is dangerous to wait for spontaneous cure, and that an early operation offers the only opportunity for avoiding extensive local destruction of tissues and general septic infection. Appendicitis developed as a secondary complication in four cases.

In a study of the development of infections among nurses and attendants, it was found that certain infections must be attributed to mouth spray. For this reason, gauze masks were first employed in the hospital and have been continuously employed since June 1, 1916. It is encouraging to note that good results have been achieved in the protection of nurses and attendants by this method.

Medicolegal

Pregnancy and Good Health

(*National Council of the Knights and Ladies of Security v. Glenn (Fla.), 80 So. R. 516*)

The Supreme Court of Florida, in affirming a judgment in favor of plaintiff Glenn, on a beneficiary certificate issued by the defendant to his wife, holds that pregnancy is not a personal ailment or condition of bad or unsound health, so as to violate an agreement or stipulation that a member of a beneficiary society shall not be reinstated after suspension for nonpayment of dues, unless such member is in good health at the time of the reinstatement. The court holds further that a plea that the insured was "not in good health" at the time of her reinstatement was too vague and indefinite, and that the defendant might be required to set forth definitely and specifically in what respect the insured was not in good health, and the nature of her ill health.

Physician Not Liable for Testifying as to Insanity

(*Corcoran v. Jerrel (Iowa), 170 N. W. R. 776*)

The Supreme Court of Iowa, in affirming a judgment that was rendered on a directed verdict in favor of the defendant, a physician, who was sued for damages for alleged libel, says that a brother of the plaintiff caused an information, addressed to the commissioners of insanity, to be filed in the office of the clerk of the district court, alleging that the plaintiff was insane and a fit subject for custody and treatment in the state hospital. A warrant was issued and delivered to the sheriff of the county commanding him to take her into custody, and bring her before the commissioners. The return of the sheriff was not dated but certified that he took the plaintiff into custody. She was not, however, taken before the commissioners. The defendant, who had been previously employed as her physician, was subpenaed, sworn, and examined on the trial before the commissioners. His testimony was reduced to writing and signed by him. He testified that, in his judgment, the plaintiff was insane and should be sent to the hospital for proper care and treatment. All the foregoing proceedings were had on the day the information was filed. On the following day the plaintiff was taken by the sheriff to the hospital at Mount Pleasant, where she was confined for a period of about five months, when she was paroled to her mother, and later she was discharged as cured.

The plaintiff in her petition in this case demanded damages in a large sum, alleging that the statements uttered and signed by the defendant before the commissioners were false, malicious and libelous. The principal defense relied on by counsel for the defendant was that the statements complained of were made by the defendant as a witness under oath on the trial, and therefore privileged. The plaintiff sought to avoid the plea of privilege on the ground that no notice was served on her of the proceedings before the commissioners, and that they were wholly void. But the Iowa statute does not require notice of the filing of an information alleging insanity, or of trial thereon, to be served on the person whose sanity is to be investigated. Section 2265 of the code provides that the accused shall be taken before the commissioners, unless they shall be of the opinion that to do so would probably be injurious, or attended with no advantage to the person alleged to be insane, in which case the hearing may be conducted without his presence. Any citizen of the county or relative of the person alleged to be insane may appear and resist the application in person or by counsel. Provision is also made for an appeal, as well as that all persons confined as insane shall be entitled to the benefit of a writ of habeas corpus, and that the question of insanity shall be decided at the hearing thereon. The record did not disclose an affirmative finding by the board that the condition of the plaintiff was such that it would be injurious for her to be present at the trial, or that this would not be of advantage to her, but presumptively such was the judgment and finding of the commissioners.

There was nothing in the record to indicate that the defendant was actuated by improper motives, or that he acted in bad faith toward the plaintiff. He was subpenaed, sworn, and examined as a witness, and his testimony was corroborated by that of other witnesses. Whether an action for libel could be maintained against him, if the proceedings had been for some reason invalid, the court need not determine, as that question was not before the court. The proceedings before the commissioners were, so far as the record disclosed, in all respects regular and valid, and all of the statements made by the defendant were clearly privileged.

Husband Communicating Venereal Disease to Wife

(*Holmes v. Holmes (Iowa), 170 N. W. R. 793*)

The Supreme Court of Iowa, in affirming a decree granting the plaintiff a divorce for alleged cruel and inhuman treatment by the defendant in communicating gonorrhea to the plaintiff, his wife, says that the authorities are uniform that an act such as was complained of here, if proved, constitutes cruel and inhuman treatment, under the statute, such as justifies the granting of a divorce. The holding is that the communication by a husband of a venereal disease to his wife, knowingly, is good and sufficient cause for a divorce, and is cruelty of the most flagrant kind. However, the mere fact that the wife is found infected with this disease after marriage is not in itself sufficient to justify the court in granting a divorce. In *Holthoefer* v. *Holthoefer,* reported in 47 Mich. 260, 643, 11 N. W. 150, it is said, in substance, that the evidence from the physician and nurses attending disclosed that the complainant was afflicted with a venereal disease. No charge was made and no suspicion suggested against the chastity of the complainant. On the other hand, there was no evidence against the defendant except the single fact that his wife was found to be diseased. If it were impossible that a virtuous wife should contract such a disease otherwise than from the husband, perhaps the facts already stated should, under the circumstances, be sufficient proof of his guilt. But it was conceded that the wife may innocently acquire the disease in other ways, and the wife's case must be supported by negative testimony that she was not in any manner exposed.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Colorado Cong. of Ophth. and Oto-Laryn., Denver, August 4-5.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN ASSOCIATION OF ANESTHETISTS

Seventh Annual meeting, held at Atlantic City, N. J., June 9-10, 1919

The President, Dr. William B. Howell, in the Chair

The Acid Base Regulatory Mechanism During Anesthesia

Dr. S. P. Reimann, Philadelphia: In anesthesia there results a compensated acidosis in from 30 to 85 per cent. and an uncompensated acidosis in from 15 to 20 per cent. of routine operative cases. The reduction in the bicarbonate, which has been found to occur after anesthesia and operation, in our studies, averaged from 5 to 15 c.c. of carbon dioxid per hundred cubic centimeters of plasma. This decrease, in the majority of cases, does not approach the limit of compensated acidosis. It now seems thoroughly established that the sum total of ketone bodies in both the urine and the blood after anesthesia and operation practically determine the amount of alkali which has been withdrawn from the available quantity in the body. The protection of the patient from acidosis rests in limiting suboxidation and in supplying the body with alkali. Further studies have confirmed that the ammonia and titrable acidity of the urine are increased after anesthesia. These acids are neutralized, as they are formed by sodium bicarbonate and ammonia and also by other available but less easily mobilized bases, such as calcium and magnesium. The salts of the acids are then excreted and thus eliminated from the body. The symptoms which acidosis will produce vary in intensity from headache, nausea, and vomiting, gas pains and mental dulness, to coma and death. Clinically, acidosis plays an important part in unfavorable postoperative symptomatology. The following factors were found to influence uncompensated acidosis: extreme age, impaired kidney function, exhausting diseases, prolonged sepsis, duration and depth of anesthesia, hemorrhage and preoperative fasting. The condition of shock is always associated with uncompensated acidosis. It is important, clinically, to realize that patients who show a low alkali reserve before operation will always show a greater diminution after operation. In handling acidosis a patient, before operation, showing a bicarbonate content of 58 c.c. or less should be given the benefit of alkalization by means of sodium bicarbonate, although further studies may show the use of magnesium and calcium to be equally important. It must be remembered that too much alkali may do as much harm as excess acidity. Consequently a second analysis two hours after alkalization should be made to indicate whether the desired result has been effected.

Toxic Effect of General Anesthetics in Naturally Nephropathic Animals

Dr. William de B. MacNider, Chapel Hill, N. C.: My experiments warrant the following conclusions: (1) The use of an anesthetic is associated with a reduction in the alkali reserve of the blood, which is very marked in naturally nephrophatic animals; and (2) a decrease in kidney function; and (3) that if the alkali reserve of the blood during an anesthetic can be kept above 7.9, the animals not only remain diuretic, but also responsive to various diuretic solutions. Histologically the animals with marked reduction of alkali reserve, anuria and nonresponse to diuretics show a severe swelling and necrosis of the tubular epithelium, especially that of the convoluted tubules, and the occurrence of large amounts of fat in the tubular epithelium, especially that of the ascending limb of Henle's loop.

A Simple Method of Administering Ether with Oxygen, and Its Advantages

Dr. Joseph E. Lumbard, New York: In this method the oxygen from a low pressure tank is sent through the ether container to a special facemask, covered with gauze and a rubber dam, with an air vent left on which induction by the drop method of ether or ethyl chlorid may be carried out. The oxygen may be sent through the vapor devices of Gwathmey, Lumbard and others to secure dosimetric control, but the simpler method suffices for all routine operations, even in the largest hospitals. Of all methods it gives the operator the utmost relaxation and deepest surgical anesthesia consistent with the safety of the patient, and a rapid and uncomplicated postanesthetic recovery. With proper accessories, the technic may be used for oral, nasal or endopharyngeal anesthesia, in which methods the use of oxygen is especially advantageous when the operative puncture is apt to embarrass respiration.

Influence of Age in Surgical Prognosis

Dr. Albert H. Miller, Providence, R. I.: A study of 1,000 case records, classified as good, fair or poor risks, was made to establish the degree of danger attending operations on the aged. All patients recorded as good risks are expected to recover. Fair risks are operated on with less assurance, and major procedures are performed only when urgently required. In hazardous risks a high mortality rate is rather expected. The mortality rate in the cases of 271 patients over 50 years of age is eight times as great as in 729 persons less than 50 years of age.

(To be continued)

AMERICAN SURGICAL ASSOCIATION

Fortieth Annual Meeting, held at Atlantic City, N. J., June 16-18, 1919

(Concluded from page 294)

Surgical Problems in Reconstruction of Peripheral Nerve Injuries

Dr. Charles H. Frazier, Philadelphia: In our treatment of 550 cases at General Hospital No. 11, the proportion of cases in which operation was justifiable was 30 per cent. I observed the rule not to operate until three months after the wound had healed. In many instances, six months would elapse before the operation was undertaken. The great problem of peripheral nerve surgery is the bridging of defects after resection. Discarding as unworthy of consideration the flap method, tubulization, lateral anastomosis and suture distance, the surgeon must turn to nerve-stretching, nerve transposition, the position of the limb, the nerve transplant, and an operation for which I have coined the term "implantation suture." The latter is applicable in the arm, where a healthy nerve may lie in juxtaposition to the injured nerve, and differs from lateral anastomosis in that a portion of the healthy nerve is sacrificed. Tendon transplantation should be held in reserve for certain residual palsies, notably those of the fingers in musculospiral palsies and those of the feet in external popliteal palsies (foot drop).

Foreign Bodies in Stomach

Dr. Randolph Winslow, Baltimore: Multiple objects are swallowed either by the insane or by mountebanks. Practically all of these individuals come to operation sooner or later. I removed 1,290 different objects from the stomach of an insane woman. This, I believe, is the largest number of individual articles reported in the literature as having been removed successfully from the stomach of a living human being. The woman made an uneventful recovery. While many single objects pass through the intestinal canal and are safely extruded, multiple foreign bodies usually lodge in the stomach and require to be removed by gastrotomy. This operation is a comparatively safe one and the percentage of recoveries is very high, even when the foreign bodies have remained in the stomach a long time.

DISCUSSION

Dr. S. J. Mixter, Boston: In a case seen in the operating room some time ago with a lump just above the umbilicus having the appearance of an abscess, incision revealed a quantity of yellowish pus which proved to be actinomycosis. The case was the first, I think, recognized in Boston as human actinomycosis. In this abscess were two large fish bones.

Dr. Willy Meyer, New York: Some years ago, before the advent of the roentgen ray, I was called to operate for what seemed to be a gastric condition. I found a large knitting needle sticking out of the stomach.

Operative Treatment of Peptic Ulcer

Dr. John B. Deaver, Philadelphia: Other things being equal, excision of the ulcer or resection followed by gastro-enterostomy is the procedure of choice. Gastro-enterostomy of itself is a curative measure for a time, but to insure a positive result the ulcer must be removed. It has been my experience that a gastro-enterostomy properly made and properly placed, with a patulous pylorus, does not close. Resection plus gastro-enterostomy presents the same advantages as the less complete operation, with the added benefit of a direct attack on the ulcer. The proper time for medical treatment for the results of chronic indurated peptic ulcer is after and not before the operation, if treatment is then still needed. Carcinomatous degeneration of gastric ulcer is a menace which cannot be ignored. Probably nowhere does the personal equation of the operator enter more than in the operative treatment of peptic ulcers. In ulcer distant to the pylorus with very little exudative induration, simple excision may suffice. This applies also to saddle-back ulcers and those situated on the lesser curvature toward the cardia, for which circular resection is the indicated operation. From my experience on two occasions, I am becoming convinced of the advantage of following circular resection with a gastro-enterostomy. For perforation of a duodenal ulcer, I find it best after closing the perforation to plicate the duodenum and fortify the area by covering it over with the gastrocolic and the gastrohepatic omentum and complete the operation with a posterior gastro-enterostomy.

Cancer of Stomach

Dr. Charles H. Mayo, Rochester, Minn.: More than one third of the cancers in men and more than one fifth of the cancers in women appear in the stomach. From Oct. 1, 1897, to Jan. 1, 1919, 2,094 operations for cancer of the stomach were performed at the clinic. Seven hundred and thirty-six of these were resections, with a mortality of 13.7 per cent.; 746 were explorations with a mortality of 2.9 per cent., and 612 were palliative operations with a mortality of 11.1 per cent. For the last three years the anterior instead of the posterior Polya operation has been done in the clinic. Better after-results seem to be obtained by turning the bowel to the right, isoperistaltic, by closing the end of the stomach in toward the lesser curvative, and protecting the closed portion by suturing the unopened bowel over it.

DISCUSSION

Dr. Arthur D. Bevan, Chicago: I am convinced that the great majority of gastric and duodenal ulcer patients can be cured medically and can be kept cured under proper after-treatment. With the opportunity of studying a large series of cases, surprising results of surgical management will be seen in recurrences after gastro-enterostomy for ulcer. I believe, however, that most medical men push the matter of medical therapy too far. An ulcer persisting after proper medical treatment is a surgical matter. The treatment of cancer of the stomach is as definitely surgical as is carcinoma of the breast. Within the last month I have resected three stomachs in which there was very early carcinoma. Carcinoma of the stomach is one of the most curable carcinomas in the body if it is early recognized.

Dr. Frank E. Bunts, Cleveland: The curative result of a gastro-enterostomy is not to be measured by the immediate result of the operation, but such cases demand the most careful attention following the operation that can be given by the best medical men.

Abscess of Rectus Muscle Following Influenza

Dr. Homer Gage, Worcester, Mass.: Next to empyema, the principal complication of surgical interest in the influenza epidemic at Camp Devens was a group of localized abscesses, most often periarticular and intramuscular, not involving the joints or any of the internal organs usually involved in metastatic processes. Of especial interest in this group were three cases of abscess of the rectus muscle.

They were first observed about a month after the onset of the pneumonia. Two patients had no other complication; a third had empyema and an abscess in the chest wall. Culturally all showed pneumococci, two Type I, one untyped. All patients recovered promptly after incision and drainage.

In the necropsy reports by Dr. S. Burt Wolbach, nine cases presented clearly defined Zenker degeneration of the rectus muscles with rupture of the muscle fibers and intramuscular hemorrhage. To a lesser degree the same process was observed in other muscles of the abdomen and in muscles of the chest. It seemed quite evident that these abscesses represented infected muscle hematomas and that the infection was blood borne. They presented themselves late in the disease, were not accompanied by manifestations of general sepsis, and were not readily diagnosed because unsuspected.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

July, 1919, 9, No. 7

Narcotic Drug Addiction: Public Health Problem. E. S. Bishop, New York.—p. 481.
Narcotic Drug Addiction. C. E. Terry, New York.—p. 489.
Medical Aspects of High Cost of Living. L. I. Harris, New York.—p. 491.
*Lipovaccines, with Special Reference to Public Health Work. E. R. Whitmore, U. S. Army.—p. 504.
Avian Paratyphoid Bacilli. F. W. Muslow, Chicago.—p. 508.
Endemic Goiter as Public Health Problem. M. Tolman, Charleston, W. Va.—p. 511.
Prostitution and Community Syphilis. H. Goodman, New York.—p. 515.
Plans of Division of Industrial Hygiene. C. D. Selby, U. S. P. H. Service.—p. 521.

Lipovaccines for Immunization.—It is believed by Whitmore that the lipovaccines overcome some of the difficulties in the way of active immunization in public health work. The one great advantage of the lipovaccines is that the entire amount of vaccine can be given at one dose; and as the absorption is slow, the reaction is not marked, and the immunity response is at least as good as with saline vaccine. As the vaccine keeps for at least a year, it can be carried in stock for a reasonable time. Since it is possible to give a very large dose of bacteria in lipovaccine without severe reaction, it is possible to include two or more organisms in the single vaccine. While the lipovaccines have great advantage for use in proctective inoculation, it does not appear that they are suited for use as therapeutic vaccines. In advising the use of lipovaccines, Whitmore says that it is necessary to guard against the danger of considering whether they allow of putting a large number of different organisms into one vaccine. One of the present dangers of bacterial vaccines is the tendency to include a large number of different organisms in one vaccine, without regard to whether there is any specific action on the part of such organisms. Whitmore discourages the use of "shotgun" vaccines, for the use of which there is no specific practical basis and for which the usual excuse is that they do no harm.

Archives of Internal Medicine, Chicago

July, 1919, 24, No. 1

*Pneumonia and Complications at Camp Bowie. J. C. Greenway, New Haven, Conn.; C. Boettiger, New York, and H. S. Colwell, Worcester, Mass.—p. 1.
*Criterions for Distinguishing Endameba of Amebiasis from Other Organisms. Chas. A. Kofoid, Berkeley, Calif.; S. I. Kornhauser, Evanston, Ill., and O. Swezy, Berkeley, Calif.—p. 35.

*Irritable Heart in General Practice. S. Neuhof, New York.—p. 51.
*Duration of Normal Convalescence. E. W. Bridgman, Baltimore. —p. 65.
*Uric Acid Content of Blood Compared with Renal Dietary Test. L. Paumann, G. H. Hansmann, F. A. Stevens, and A. C. Davis, Iowa City.—p. 70.
*Clinical Evidence in Involvement of Suprarenals in Influenza and Influenzal Pneumonia. D. M. Cowie and P. W. Beaven, Ann Arbor, Mich.—p. 78.
*Auscultatory Phenomena of Heart in Normal Men and in Soldiers with Irritable Heart. J. T. King, Baltimore.—p. 89.
*Influenza and Neurosyphilis. K. A. Menninger, Topeka, Kan.—p. 98.
Fever and Water Reserve of Body. J. O. Balcar, W. D. Sansum and R. T. Woodyatt, Chicago.—p. 116.

Pneumonia at Camp Bowie.—A large percentage of the 2,344 cases of pneumonia analyzed by Greenway and his associates followed an epidemic of influenza. Following the epidemic of measles, the predominance of hemolytic streptococcus as the infecting organism determined the high mortality and the high incidence of complications, especially empyema. Following the epidemic of influenza the incidence of hemolytic streptococcus was less, but when present the lesions produced did not vary from those present in cases of the year previous. In addition to the streptococcus infections there was a large group of cases of mixed bacteriology with pneumococcus, especially Group 4 predominating. Definite evidence of the presence of *B. influenzae* as a determining factor in pneumonias following the epidemic of 1918 was not obtained. Postmortem studies showed that the pneumococcus is constantly present in lobar pneumonia, while the hemolytic streptococcus, with a variety of other organisms, and the pneumococcus was found in the bronchopneumonia cases. Comparison of sputum examinations with more accurate bacteriologic data from the same cases, has shown correspondence in a large percentage of cases. Clinical differentiation between lobar pneumonia and bronchopneumonia to accord with postmortem findings has been impossible. For this reason it is suggested by the authors that the term acute pneumonitis, followed by a statement of the predominating organism in the sputum, be used to designate those cases of pneumonia which are not frankly lobar in type, but caused by one of the fixed types of pneumococcus. The incidence of empyema was highest among the pneumonias following measles. For the entire period, cases complicated with empyema constituted 10.6 per cent. of the total pneumonia deaths. The appearance of the pleural exudate caused by *Streptococcus hemolyticus* was characteristic. Repeated aspiration of such fluids, followed by operation after the acute pneumonitis had subsided, has given the more satisfactory results. The occurrence of encapsulated pus was very common, especially in the streptococcus infections. These pockets were frequently multiple and offered great difficulties from an operative standpoint.

Differentiation of Endameba of Amebiasis.—The point is emphasized by the authors that repeated successive examinations are essential to establish an adequate diagnosis and that flagellate infections are most readily detected in fluid stools after a saline purge, whereas the encysted phases of these and of the endamebas are more readily found in the formed stools of infected persons. The intermittent or rhythmic appearance of the encysted phases of the intestinal protozoa necessitates these repeated examinations to detect infections. Three successive examinations at intervals of several weeks are desirable in critical cases. All tests of cure after treatment should rest only on several repeated series of examinations to be conclusive.

Irritable Heart in General Practice.—According to Neuhof the irritable heart as observed in general practice is similar to that found in soldiers. Vasomotor symptoms are more pronounced in the former. The etiologic factors are similar, but because of training and war conditions, dormant and latent neuroses crop out oftener and are more readily evoked, consequently the cardiac syndrome is more violent and lasts longer. Infection is a factor only in so far as it induces and produces nerve and muscular fatigue and psychasthenia. There is no pathologic change in the cardiovascular system. The fundamental cause of the cardiac neurosis with its various manifestations seems to be due to hyperexcitation of the sympathetic nervous system.

Duration of Normal Convalescence.—Bridgman claims that he has made the first direct attempt to employ actual physical tests for the determination of the optimum period of convalescence, and that the periods determined seem so much longer than are generally employed.

Blood Uric Acid and Diet.—Baumann and his associates have carried out during the past three years about 180 renal dietary tests and blood analyses. Of 100 cases showing moderate and slight abnormality, respectively, all showed renal involvement from the clinical point of view. Sixty per cent. had an abnormality in the dietary test, while 74 per cent. showed an increased concentration of uric acid in the blood. It follows from this that the uric acid concentration of the blood is a delicate, if not the most delicate, index of renal function. An abnormal dietary test with normal blood findings was found in 8 per cent. of the cases. An abnormally high urea with a normal uric acid concentration was encountered in only six instances. The advantages of the bland diet are that it is easily prepared, and that it may be used where a high protein diet is undesirable or where digestive disturbances are present.

Suprarenals in Influenza.—The possible existence of disturbed function of the suprarenal glands as a cause of the asthenia present in all cases of influenza during the course of the disease and during convalescence led Cowie and Beaven to make an experimental investigation. The most common and the most marked symptom of suprarenal insufficiency is asthenia (prostration). Low blood pressure, another cardinal symptom of suprarenal insufficiency, has been commonly observed by clinicians as being characteristic of influenza and influenzal pneumonia. The authors endeavored to determine, on purely clinical grounds, if possible, whether a hypo-adremia or a disturbance of the chromaffin system could be shown to be at the bottom of the symptom group so much in the foreground of this disease. Necropsy revealed hypoplasia of the suprarenals and evidence of suprarenal dysfunction. The occurrence of suprarenal dysfunction in influenza and influenzal pneumonia may be regarded as indicated by the cardinal symptoms, the characteristic rise in blood pressure following the prolonged administration of epinephrin, and the prolonged blood pressure curve following the administration of epinephrin. That an endocrinal disturbance is present in influenza and influenzal pneumonia is further suggested by prolonged blood sugar curve after injection of epinephrin. Hypoglycemia is not present in influenza and influenzal pneumonia as has been found to be the case in some diseases of endocrinal origin. However, therapeutic tests showed that if epinephrin is of any use in the treatment of symptoms of suprarenal dysfunction, the proper method of administering the epinephrin seems not yet to have been found.

Auscultatory Phenomena of Normal Heart.—A report is made by King of the various adventitious sounds and murmurs found in the examination of hearts of 500 supposedly healthy soldiers who had done army duty. A few unusual murmurs and sounds found in the examination of almost 1,500 supposedly healthy soldiers are recorded. King concludes that murmurs and adventitious heart sounds probably have only an accidental relationship to the "irritable heart of soldiers."

Influenza and Neurosyphilis.—The interrelation of coincident infections was studied by Menninger from the data presented by cases of neurosyphilis affected by attacks of influenza. Cases are cited to illustrate three effects of influenza on neurosyphilis: The precipitation of profound symptoms in previously latent neurosyphilis by influenza; the augmentation of symptoms and signs of neurosyphilis by influenza; the absence of palpable effect of influenza on the neurosyphilitic process. The latent, incipient, and early cases of neurosyphilis seem to be susceptible to precipitation or augmentation by the added neurotoxic effects of influenza; the advanced cases are not usually perceptibly altered in symptomatology or course. No instances of improvement of neurosyphilis following influenza were observed by Menninger. The scanty literature is collected and epitomized.

Archives of Neurology and Psychiatry, Chicago

July 1, 1919, **2**, No. 1

*Histopathologic Study on Two Cases of "Central Neuritis"; New Granule ("Nucleoproteid-Like Granule") in the Neuroglia Cells. K. Marui, Sendai, Japan.—p. 1.
*Histopathology of Epidemic ("Lethargic") Encephalitis. P. Bassoe and G. B. Hassin, Chicago.—p. 24.
*General Paralysis Treated by Intraventricular Injection of Arsphenamin. I. J. Sands, Brooklyn.—p. 41.
Congenital Tumor of Brain (Telangiectasis) and Associated Cerebral Movements. W. G. Spiller, Philadelphia.—p. 50.
*Treatment of Neurosyphilis by Arsphenamin Intravenously and Auto-Arsphenamized Serum Intraspinally. G. M. Goodwin, New York.—p. 58.
*Pernicious Anemia with Mental Symptoms. L. A. Lurie, Cincinnati.—p. 67.

Central Neuritis.—A thorough histopathologic study in two cases of "central neuritis," and many other cases were made by Marui. Almost all the Betz cells in both cases and some cells of the spinal cord of the first case showed the typical axonal reaction; in the first case the fever alteration was superimposed on this picture. Fragmentation of the intracellular neurofibrile was found in the glassy area. The alteration of neurofibrils keeps pace with the dissolution of the Nissl bodies. Besides Marchi degeneration of myelin sheaths, a very interesting picture of axis cylinders was disclosed. Ameboid glia cells showed the Alzheimer fuchsinophil granule, a finding which indicates an increased scavenger activity of the neuroglia tissue. In two cases of central neuritis and many other cases in ameboid and preameboid glia cells, on the one hand, and in case of hemorrhage in granule cells on the other hand, a new "nucleoproteid-like granule" was demonstrated. The author concludes that neuroglia has a constructive function besides a scavenger function, and that this granule is given the neurologia cells in an afferent direction.

Epidemic Encephalitis.—The pathologic changes in epidemic (lethargic) encephalitis found by Bassoe and Hassin involve the entire central nervous system. These changes are both parenchymatous and interstitial. The former principally involve the cortex, the latter the peduncles, internal capsule, lower pons, bulb and cord. In the basal ganglia and midbrain both parenchymatous and interstitial changes are pronounced. In its histopathology epidemic (lethargic) encephalitis differs from the various types of hemorrhagic encephalitis, but it is identical with that of African sleeping sickness (trypanosomiasis). It differs from typical cases of paralytic dementia by the topography of the lesions and by absence of vascular wall changes, which probably are due to the more chronic course of the latter. It also differs from the various types of traumatic and experimental encephalitis and from acute anterior poliomyelitis. It is pathologically a distinct morbid entity, a disease *sui generis,* and does not resemble the conditions previously described as influenzal encephalitis. The similarity between the pathologic changes in African sleeping sickness and epidemic encephalitis suggests a close relationship of their etiologic factors, that is, the epidemic encephalitis may be caused by a parasite akin to a trypanosome.

General Paralysis Treated by Intraventricular Injection of Arsphenamin.—Sands claims that this is the first case which has received this form of therapy and has been studied clinically as well as at the postmortem. The patient was a man, aged 40, who had one living child, a negative family history, but an alcoholic personal history, who had no knowledge of any venereal disease. He began to show lapses of memory in December, 1915, which increased in severity so that he was obliged to discontinue his work in the middle of 1916; he then became irritable, showed speech defect and became ataxic; in March, 1917, he received one intraventricular injection of arsphenamin through a trephined opening in the skull. May, 1917, he showed disorientation, poor memory, expressed grandiose ideas; showed marked speech defect, pupils were unequal and reacted very sluggishly to light, and the spinal fluid showed positive globulin, fifty-four cells, and a positive Wassermann reaction. He soon began to soil himself, became very euphoric and died following a convulsion. The postmortem examination showed the characteristic lesions of general paralysis in the brain; namely, a thickened pia showing a characteristic milky exudate in the anterior two thirds, atrophy of the anterior poles of the cortex, lymphoid and plasma cells infiltration into the pia, neuroglia increases, cortical disorganization and perivascular exudation of lymphoid and plasma cells, many mast cells and a few rod cells, granulations on the floor of the ventricles, syphilitic aortitis and bilateral bronchopneumonia and pulmonary edema; the lesions in the left side of the brain which received the arsphenamin were more intense than those on the right side.

Treatment of Neurosyphilis by Arsphenamin Intravenously and Auto-Arsphenamized Serum Intraspinally.—In this series of twenty-one cases, 214 intraspinal treatments were given by Goodwin and Scott. Severe reactions have occurred, but no permanent injury or ill effects resulted from the intraspinal use of auto-arsphenamized serum. The treatment has uniformly been of benefit in its effect of increasing the patients' comfort by lessening the severity and frequence of their pains, in frequently improving bladder control, and in improving their nutrition. Improvement in station and in gait has frequently been observed in these cases, and in some, to a very marked extent.

Pernicious Anemia.—In speaking of the neuropathology of pernicious anemia, Lurie says it is not sufficient merely to describe the lesions found in the spinal cord. The brain changes are too numerous and definite to be omitted. The neuropathology of pernicious anemia should include the entire central nervous system. He records the findings in four cases.

Boletín de la Asoc. Méd. de Puerto Rico, San Juan

June, 1919, **13**, No. 123

Marriage from Medical Standpoint. F. del Valle Atiles.—p. 1.
*Prevention of Prostitution. F. del Valle Atiles.—p. 3.
*Meningococcus Infection. P. Gutiérrez Igaravídez.—p. 25.
*Epinephrin in Typhoid in the Tropics. J. Barreiro.—p. 38.
*Ulcerating Granuloma of Genital Organs. S. Guiliani.—p. 53.
*Blunders in Diagnosis. A. Marotínez Alvárez.—p. 55.

Prostitution from Sociological Standpoint.—Atiles reports the detailed study of the reasons for taking to prostitution in 168 cases, and compares his findings with those that have been published by others. Nearly 5 per cent. of the women were of illegitimate birth, and only eighteen of the total 168 were able to read and write, although some of the others had attended school. His conclusions confirm those of others in regard to prophylaxis of prostitution as inevitably connected with uplift movements in general, economic, educative, biologic and legislative.

Epidemic Meningitis.—Igaravídez reports four cases of epidemic meningitis. He claims that the first case mentioned was the first instance of the disease known in Porto Rico, and that the case was published in The Journal A. M. A., Dec. 21, 1918, under the title "Early Diagnosis of Cerebrospinal Meningitis by Examination of Stained Blood Films." Two of the patients were children, and the others were women, one the mother of the second child. The last three cases all occurred in May, 1919. The infection was of such a fulminating type in two of the cases that death occurred before the meningitis had had time to develop. In all the cases meningococcus sepsis was evidently responsible for the fatal termination. The diagnosis was made in each case from the blood films, and he urges examination of blood from a finger tip as an early routine measure, making from four to six slides and taking the blood count. The discovery of the meningococcus in the blood may render it possible to give the antiserum in time to ward off the invasion of the meninges. He mentions Laveran's statement that cerebrospinal meningitis is a winter disease, dying out in the summer, and that its range is from latitude 60 N. to 36 S.

Epinephrin in Typhoid.—Barreiro says he has only twenty odd cases to report, but the benefit from epinephrin treatment was so great that he does not wait for further experience before proclaiming the advantages of suprarenal treatment in typhoid in the tropics. The benefit from epinephrin in the exhaustion of the soldiers in the trenches was mentioned early in the war, and he was impressed with the similarity between the conditions as described in this war exhaustion from overwork and the exhaustion of patients early in typhoid. This suggested suprarenal treatment in typhoid, as the patients are often in an exhausted condition from the cares and work of business or from late hours and dissipation. He adds that the food in the tropics is too often defective and inappropriate, so that dyspepsia and liver disease are more prevalent in Porto Rico than among the soldiers in the trenches, as the diet of the latter was more rational than is the custom in the tropics. The perpetual summer climate promotes intestinal fermentations and autointoxication. The suprarenals soon become unequal to their task, as is evident from the intense weakness and low blood pressure early in typhoid. The theoretical indication to supply the lacking suprarenal element was abundantly confirmed by the prompt improvement under suprarenal treatment. In a day or two the benefit was plainly evident, the patient feeling stronger, replying lucidly to questions, and the amount of urine increasing while it grew more normal in appearance. It was an actual resurrection in some cases by the second day after 3 drops of the 1 : 1,000 epinephrin had been given by the mouth in a glass of water, twice a day. The improved muscle tone was particularly evident in the tongue which at first was not under control at all. The epinephrin was continued until defervescence in one case described in detail. After suspension for four days, the pulse ran up to 120. An immediate injection of 0.5 c.c. of the epinephrin solution corrected this, and convalescence continued without further mishap. In another case the fever kept up for thirty-three days, but the epinephrin tided the patient along into convalescence. There was no tendency to intestinal hemorrhage in any of the patients given the epinephrin. Another feature of epinephrin treatment is that the stools lose their diarrheic character; the epinephrin passing through the alimentary canal seems to induce vasoconstriction and thus checks the tendency to diarrhea and averts danger of hemorrhage. Since he began this routine use of epinephrin in tropical typoid he has not lost a case.

Ulcerative Granuloma of Genital Organs.—Guiliani reports the first two cases in Porto Rico in which *Bacterium granulomatosis* has been cultivated from a granulomatous lesion on the genital organs. He adds that these lesions in the past may have been mistaken for syphilis or cancer.

Blunders in Diagnosis.—As already mentioned in The Journal, April 26, p. 1253, Alvarez is inaugurating a series of confessions of blunders in medical practice. He opens the series himself and relates three rather mortifying experiences from his earliest year of practice, although none were exactly blunders.

Boston Medical and Surgical Journal

July 17, 1919, **181**, No. 3

Psychic Manifestations Precursory to Mental Disease. A. H. Mountford and W. J. Vivian, Worcester, Mass.—p. 56.
*Blood Transfusion in War Surgery in British Army. E. G. Crabtree, Boston.—p. 60.
Occupational Therapy. H. T. Crane, Rutland, Mass.—p. 63.

Blood Transfusion in War Surgery.—Crabtree believes transfusion to be indicated in anemic cases, anemic from previous loss of blood, amputations, sepsis or a combination of these, which have open wounds which will require to heal by granulation; anemia, often seen in multiple wound cases when none of the wounds are severe, yet all are septic, is a well known war condition; postoperative hemorrhage in deep subsiding gas infected wounds, occurring days after the primary operation, has been the trial of the war nurse and surgeon alike.

California State Journal of Medicine, San Francisco

July, 1919, **17**, No. 7

Etiology of Influenza. K. F. Meyer, Berkeley, Calif.—p. 216.
Influenzal Pneumonia. H. P. Hill and G. E. Ebright, Berkeley, Calif. —p.224.
Methods Used in Control in Influenza. W. H. Kellog, Sacramento, Calif.—p. 228.
Clinical Features of Present Pandemic of Influenza as Compared with Pandemic of Thirty Years Ago. H. Lisser, San Francisco.—p. 231.
Treatment of Postinfluenzal Pneumonia in Army Hospital. W. W. Roblee, Riverside, Calif.—p. 236.
Pulmonary Conditions Wrongly Diagnosed as Tuberculosis. W. C. Voorsanger, San Francisco.—p. 238.

Canadian Medical Association Journal, Toronto

July, 1919, **9**, No. 7

*Albuminuria of Pregnancy. E. P. Davis, Philadelphia.—p. 593.
Focal Infection and Chronic Urticaria. H. MacKay, Winnipeg.—p. 603.
*Auricular Flutter and Treatment. J. Meakins, Montreal.—p. 606.
Diagnosis in Affections of Urinary Tract. H. E. Paul, Toronto.—p. 614.
Application of Morrison's Technic (Bipp) of Wound Treatment to Civil Surgery. F. N. Gurd, C. A. M. C.—p. 625.
Reconstruction of Circulation of Liver, Placenta and Lung in Health and Disease. L. Gross, Montreal.—p. 632.
Radical Cure of Hernia. A. B. Rankin, C. A. M. C.—p. 635.
Stricture of Esophagus in Child. E. M. Eberts, Montreal.—p. 630.
Congenital Malformation in Scrotum: Two Testes and Uterus in Right Portion of Scrotum. D. W. MacKenzie.—p. 641.

Albuminuria of Pregnancy.—According to Davis the treatment of an infant born of a toxemic mother is copious irrigation of the intestine, warmth, the free administration of water, predigested milk and thorough and frequent cleansing of the skin. The prognosis in these cases is doubtful or grave.

Auricular Flutter and Treatment.—Meakins emphasizes the frequency of auricular flutter, the importance of its recognition and the persistent treatment by digitalis under proper control until the normal rhythm is reestablished, or symptoms of digitalis poisoning develop necessitating the abandonment of the treatment.

Colorado Medicine, Denver

July, 1919, **16**, No. 7

Seminal Vesiculitis: Its Treatment. W. M. Spitzer, Denver.—p. 164.
Three Radical Deficiencies in Medical Curriculum: Climatology, Hydrology, Gymnastics. H. Sewall, Denver.—p. 168.
Absolute Rest in Treatment of Pulmonary Tuberculosis. S. W. Schaefer, Colorado Springs.—p. 174.
Necessary Cooperation in Natal Care and Obstetrics. F. H. Cary, Denver.—p. 180.

Florida Medical Association Journal, St. Augustine and Jacksonville

June, 1919, **5**, No. 12

Vital Statistics. S. G. Thompson, Jacksonville.—p. 247.
Trained Nurse in Relation to Public and Medical Profession. R. R. Kime, Lakeland, Fla.—p. 250.

Illinois Medical Journal, Chicago

July, 1919, **36**, No. 1

Acute Gangrenous or Perforative Suppurative Retrocecal Appendicitis. J. N. Jackson, Kansas City, Mo.—p. 1.
*Temperature Variations in Infancy and Early Childhood. I. A. Abt, Chicago.—p. 5.
Importance of Anaerobic Bacteria to Man. W. L. Holman, Pittsburgh. —p. 10.
Cyst of Thyroglossal Duct. O. T. Freer, Chicago.—p. 12.
Unwarranted Sacrifice of Tonsils, Especially in Children. H. M. Harrison, Quincy, Ill.—p. 14.
Simple and Accurate Technic of Foreign Body Localization. J. R. Buchbinder, Chicago.—p. 19.

Temperature Variations in Infancy and Early Childhood.—Abt lays emphasis on the fact that temperature observations in newly born and young infants have not only scientific interest but a clinical bearing. The proper interpretation of the temperature fluctuations in infants is of fundamental importance, but like other fundamental phenomena is rarely emphasized. The peculiar levels and irregular temperature curves in young infants should be recognized. Changes in temperature in infants have not necessarily the same significance as in adults. Sudden high temperatures in newly born infants are of frequent occurrence. Abt says that he has been able to follow many children through infancy and childhood who thrive and seem to be in perfect health and constantly show a temperature of 99 F., 99.5 F. and even 100.5 F.

Journal of Bacteriology, Baltimore

May, 1919, **4**, No. 3.

Metabolism of Actinomycetes. S. A. Waksman, N. J.—p. 189.
*Rôle of Amino Acids in Metabolism of Bacillus Diphtheriæ. L. Davis and N. S. Ferry, Detroit.—p. 217.
Interpretation of B. Coli Test Results on Numerical and Comparative Basis. M. F. Stein.—p. 243.
Use of Nitrate Reduction Test in Characterizing Bacteria. H. J. Conn and R. S. Breed, Geneva, N. Y.—p. 267.

Water Supply for Syringe Bath. R. R. Mellon, Rochester, N. Y. p. 291.
Modification of Wright-Buchner Anaerobic Tube. R. R. Mellon, Rochester, N. Y.—p. 295.

Studies in Diphtheria Toxin.—Davis and Ferry were unable to cultivate *B. diphtheriae* in a synthetic medium composed of amino-acids and mineral salts adjusted to the optimum H-ion concentration. Addition of the extractives, creatin and creatinin and the purine bases, xanthin and hypoxanthin, was of no advantage. Typical luxuriant growth of *B. diphtheriae* was obtained in a mixture of 99.5 per cent. synthetic medium and only 0.5 per cent. of bouillon. Production of active toxin, however, required the presence of 10 per cent. bouillon. Cystin, when added to plain beef infusion, a culture medium just capable of maintaining growth of *B. diphtheriae,* not only permitted rapid and heavy vegetation, but a strong toxin (minimum lethal dose equals 0.0075 c.c.) was also elaborated. This appears to be a true toxin capable of neutralizing the corresponding diphtheria antitoxin. The results obtained favor the belief that diphtheria toxin is not a synthetic product, but rather a catabolic substance elaborated by *B. diphtheriae* only in presence of certain amino-acids and accessory factors, in the latter probably of a vitamin character.

Journal of General Physiology, Baltimore

July 20, 1919, **1**, No. 6

Intercellular Acidity in Valonia. W. J. Crozier, Urbana, Ill.—p. 581.
Control of Response to Shading in Branchae of Chromodoris. W. J. Crozier, Urbana, Ill.—p. 585.
*Iodin and the Thyroid. W. W. Swingle, Princeton, Mass.—p. 593.
Effect of Various Acids on Digestion of Proteins by Pepsin. J. H. Northrop, Baltimore.—p. 607.
Respiratory Rate of Sciatic Nerve of Frog in Rest and Activity. A. R. Moore, New Brunswick, N. J.—p. 613.
Growth of Higher Plants in Soils Free of Microorganisms. E. B. Fred, Madison, Wis.—p. 623.
Etching of Marble by Roots in Presence and Absence of Bacteria. E. B. Fred and A. R. C. Haas, Madison, Wis.—p. 631.
Inheritance of a Fluctuating Character. T. H. Morgan and C. B. Bridges, New York.—p. 639.
Vermilion Deficiency. C. R. Bridges, Washington.—p. 645.
Nature of Latent Period in Photic Response of Mya Arenaria. S. Hecht, Omaha.—p. 657.
Physiologic Basis of Morphologic Polarity in Regeneration. J. Loeb, Baltimore.—p. 687.
Influence of Electrolytes on Electrification and Rate of Diffusion of Water Through Collodion Membranes. J. Loeb, Baltimore.—p. 717.

Iodin and the Thyroid.—Swingle offers further evidence in support of the theory that the thyroid is an organ the function of which is the extraction from the circulation, storage and supplying to the organism, under the pressure of its needs, the small quantities of iodin taken into the body. The chief function of this gland, then, is the utilization of iodin taken into the body in small quantities.

Journal of Industrial Hygiene, New York

July, 1919, **1**, No. 3

*Problem of Ascertaining Actual Rise in Mortality Caused by Unhealthy Trades. A. D. Reiley, New York.—p. 109.
*Pathologic and Clinical Manifestations Following Inhalation of Dust. H. R. M. Landis, Philadelphia.—p. 117.
Methods for Study of Dust Contents of Air. H. F. Smith, Philadelphia.—p. 140.
*Back Strain; An Accident or a Disease? R. B. Osgood, Boston.—p .150.
War Surgery and Industrial Surgery. J. J. Moorehead, U. S. Army. —p. 158.

Mortality from Unhealthy Trades.—From an analysis of all the data available Reiley concludes that the actual mortality from chronic lead poisoning is small, even making all possible allowance for dilution of exposures by lives not dangerously in contact with the poison. Painting is not so dangerous a trade as working directly in lead compounds, as occurs in white lead works, glaze rooms in potteries, smelting and refining works and storage battery plants. Miners' consumption ranks on a par with lead poisoning as the most dangerous disease. This disease is principally dangerous when the mining is done in silicious ores. In this, as in lead poisoning, the actual rise in mortality must be looked for from other immediate causes than miners' consumption, principally from tuberculosis and pneumonia.

Inhalation of Dust.—Landis points out that it is not always easy to differentiate between the fibrosis resulting from tuberculosis and pneumoconiosis and were it not for repeated negative sputum examinations, sometimes extending over a number of years, it would not be easy to say that tuberculosis was not present. The clinical history of pneumoconiosis is reviewed in detail.

Back Strain: Accident or Disease.—The question asked in the title is answered by Osgood in this way: either, or neither, or both. He says that unless the most careful examination is made, and unless the most accurate diagnostic methods are employed, physicians will continue to be puzzled by the persistence of the symptoms and patients will continue and often obtain osteopathic, chiropractic and nostrum relief. Forcible manipulation is not without danger nor is a back brace a panacea. The diagnosis of hysterical spine should rarely be made. The diagnosis of railroad spine means nothing. The diagnosis of functional spine is usually a confession of ignorance of the true cause of the trouble. Each case should be analyzed, and also a knowledge of the normal and the commonly symptomless variations is needed.

Kansas Medical Society Journal, Topeka

July, 1919, **19**, No. 7

Empyema. W. P. Callahan, Wichita, Kan.—p. 149.
Nonsurgical and Surgical Treatment of Prostatic Obstruction of Bladder. L. O. Nordstrom, Salina, Kan.—p. 152.
Fractures of Femur. R. C. Lowman, Kansas City, Mo.—p. 154.

Laryngoscope, St. Louis

June, 1919, **29**, No. 6

Amyloid Tumors of Larynx. G. H. New, Rochester, Minn.—p. 327.
Surgery of Trifacial Nerve. J. F. Barnhill, Indianapolis.—p. 342.
Study of Aural Complications of Recent Influenza Epidemic with Special Reference to Clinical Picture. F. T. Hill, Oglethorpe, Ga.—p. 351.
Case of Fibrosis of Tissues Lining External Auditory Canal and Tissues Overlying Mastoid. L. W. Dean and M. Armstrong, Iowa City, Ia.—p. 365.
Simple, Safe and Rapid Tonsil Enucleation Technic for Local or General Anesthesia. L. Gatewood, New York.—p. 369.
Practical Value of Ear Studies. L. Fisher, Philadelphia.—p. 374.
Foreign Body in Esophagus. F. W. White, U. S. Army.—p. 379.

Medical Record, New York City

July 19, 1919, **96**, No. 3

Food Conditions and Nutritional Diseases in Europe; Etiology of Pellagra. S. Harris, Birmingham, Ala.—p. 89.
Results of Duodenal Alimentation in Peptic Ulcers. M. Einhorn, New York.—p. 95.
Hayfever in Children. W. Scheppegrell, New Orleans.—p. 97.
Signs of Thyroid Disturbance. J. H. Leiner, New York.—p. 99.
Prophylaxis of Sequels of Influenza. T. J. Tudor, Keokee, Va.—p. 101.

Minnesota Medicine, St. Paul

July, 1919, **2**, No. 7

Graphic Recording of Reflexes, Clonus and Tremors, E. M. Morris, Minneapolis.—p. 237.
Etiology and Treatment of Acute Poliomyelitis. X. E. C. Rosenow. Rochester, Minn.—p. 253.
Poliomyelitis. W. P. Greene, St. Paul.—p. 256.
Rickets. G. A. Scherer, Duluth.—p. 260.
Automatic Syringe. A. N. Bessesen, Minneapolis.—p. 265.

Missouri State Medical Association Journal, St. Louis

July, 1919, **16**, No. 7

*Chronic Endometritis. O. Schwartz and C. O. Kohlbry, St. Louis. p. 209.
Physician's Service. M. P. Overholser, Harrisonville, Mo.—p. 214.
Dedication of Flag to Members of Missouri State Medical Association Who Enlisted in War. H. E. Pearse, Kansas City.—p. 215.
Base Hospital No. 28. G. H. Hoxie, Kansas City.—p. 217.
Suggestions for Conducting Genitourinary Service at Base Hospital. O. L. Suggett, St. Louis.—p. 219.

Chronic Endometritis.—As a result of the study of a large number of uterine curettings, Schwartz and Kohlbry feel that chronic interstitial endometritis is rather frequently encountered. Their cases included many cases with neither history of inflammations or with clinical inflammatory findings, and many were cases of incomplete abortion. The number of small round cells in the early premenstrual, late postmenstrual and interval phases is never very great, and their arrangement does not correspond to what is found in a chronic inflammatory process. The authors feel that the presence of small round cells alone in marked numbers, as was the case in twenty-four instances of their series, is sufficient evidence on which to base a diagnosis of chronic interstitial endometritis.

Modern Hospital, Chicago

July, 1919, **13**, No. 1

House Surgeon's Memories of Lord Lister. S. Thomson, London. —p. 1.
Aseptic Nursing in American Hospitals. D. L. Richardson, Providence.—p. 10.
Maternity Pavilion at Santa Barbara. W. Soule, Santa Barbara, Calif. —p. 14.
Meaning of Surgical Asepsis. A. E. Hertzler, Halstead, Kan.—p. 23.
Fighting the Bacteria that Cause Infection. F. J. Hall, Kansas City, Mo.—p. 27.
What Is Meant by Surgical Asepsis? A. Nelken, New Orleans.—p. 30.

New Jersey Medical Society Journal, Orange

July, 1919, **16**, No. 7

Complement Fixation Test for Tuberculosis. O. Lowy, Newark. —p. 225.
Gastric Ulcer. F. F. Carman, Newark.—p. 226.
Adequate Treatment of Syphilis. J. J. Seelman, Milwaukee.—p. 230.

New Orleans Medical and Surgical Journal

July, 1919, **72**, No. 1

Small but Valuable Points in Physical Diagnosis. A. C. Eustis, New Orleans.—p. 8.
Easy Approach in Operation of Strangulated Hernias. J. A. Hendrick, Shreveport, La.—p. 15.
Significance of Tonsilitis in Children. C. P. Gray, Monroe, La. —p. 16.
Medical Aspects of Surgical Papers. G. M. G. Stafford, Alexandria, La.—p. 19.
Operation for Unerupted Tooth; Restoration of Parts by Artificial Denture. A. G. Friedrichs, New Orleans.—p. 24.
Charlatanry of a Genius. J. L. Marchand, New Orleans.—p. 27.

New York Medical Journal, New York

July 19, 1919, **40**, No. 3

*Importance of Rest in Treatment of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 89.
Uterine Hemorrhage. A. Sturmdorf, New York.—p. 93.
*Subcutaneous Anesthesia with Ether and Oil for Guinea-Pigs. J. T. Gwathmey and S. W. Bliss, New York.—p. 96.
Influence of Influenza Bacilli in Upper Respiratory Tract. E. H. Schorer, Hoboken, N. J.—p. 97.
Legal Aspects of Narcotic Drug Problem. A. D. Greenfield, New York.—p. 100.
*Cerebrospinal Fluid in So-called Spanish Influenza. H. R. DeLuca, Bridgeport, Conn.—p. 103.
Demonstration of Spirocheta Pallida in Nerve Tissue by Dark Field Illumination. H. B. Shmookler and A. I. Rubenstone, Philadelphia. —p. 107.
Circumcision. J. H. Heacock, New York.—p. 108.

Rest in Tuberculosis.—An abstract of this paper will be published soon in The Journal as a part of the report of the meeting of the American Therapeutic Society.

Subcutaneous Ether-Oil Anesthesia for Guinea-Pigs.—Many animals during the war were required in both medicine and surgery in the effort to conserve the life of the soldier. The blood of guinea-pigs and rabbits was used extensively in the production of reagents for the Wassermann reaction, and the blood of rabbits was used in the production of diagnostic serum. Dogs and cats aid in the decision of many problems concerning the badly wounded soldiers, such as shock, or the choice of one of several operations. It is desirable to anesthetize these animals in the most humane, the simplest, quickest and safest way. These requirements have been met by the subcutaneous injection of ether and oil. After various modifications, the technic, as finally employed, consisted in giving the injection just back of the neck, against the direction of the hairs, which are not removed. The following doses have been determined for guinea-pigs: For each 100 gm. of body weight, 85 per cent. ether with 15 per cent. olive oil was the mixture used in the experiments. Maximum safe dose—anesthesia of one to two hours: 0.74 c.c. of ether, or 0.87 c.c. of 85 per cent. ether and 15 per cent. of oil mixture (or 1.00 c.c. of 75 per cent. ether and 25 per cent. oil mixture). Medium dose—anesthesia for about one hour: 0.55 c.c. of ether, or 0.65 c.c. of 85 per cent. and 15 per cent. oil mixture (or 0.72 c.c. of 75 per cent. ether and 25 per cent. oil mixture). Minimum practical dose—anesthesia of about thirty minutes: 0.46 c.c. of ether, or 0.54 c.c. of 85 per cent. ether and 15 per cent. oil mixture (or 0.60 c.c. of 75 per cent. ether and 25 per cent. oil mixture).

Cerebrospinal Findings in Influenza.—This report is based on twenty-five typical cases of influenza, the patients ranging from 7 to 42 years in age. In all cases an increase in the pressure of the spinal fluid was noted. This varied from a strong full stream to a rapid flow of drops. The first important point of interest noted was the clearness and translucence of the fluid; in no case was the fluid turbid or cloudy. The globulin reaction of Noguchi was strongly positive in all; a flocculent precipitate showing immediately on adding the sodium hydroxid solution. A constant deep canary yellow color was present in performing this reaction, just before the precipitate was formed, and on forming the color would disappear entirely. The reduction of Fehling's solution was present in a marked degree. The cell count was found to be low. In one case it was over forty to the cubic millimeter. Differential count of cells showed a predominance of polymorphonuclear cells over the lymphocytes, although disintegration of these cells was marked. No organisms were found after rapid centrifuging of smears made from the fluid. Of the twenty-two cases studied, eighteen showed a positive culture. All of these cases ended fatally, except one. Spinal fluid cultures revealed the presence of a characteristic organism in a large proportion of the cases. The organism is a bacillus, gram-negative, facultative anaerobe, nonmotile, acid producing, and forms spores. The organism was found in 81.8 per cent. of the cases studied. This organism is different from any heretofore isolated from the spinal fluid.

New York State Journal of Medicine, New York

July, 1919, **19**, No. 7

*Etiology of Pneumonias. R. Cole, New York.—p. 253.
*Influenza. A. Lambert, New York.—p. 260.
Aural Complications of Influenza. E. B. Dench, New York.—p. 265.
Meteorotelluric Physicobiochemics of Coryza, Asthma and Influenza. G. N. Jack, Buffalo.—p. 259.
Acute Thyroiditis. G. E. Beilby, Albany.—p. 274.
Method of Computation for Ocular Injuries Applicable to the New York State Workmen's Compensation Law. A. C. Snell, Rochester. —p. 277.
Standard Syphilis No. 1. J. B. Clark, New York.—p. 282.
Helping the Backward Child. F. W. Barrows, Albany.—p. 284.

Etiology of Pneumonias.—The chief point brought out by Cole is that in considering the etiology of pneumonia one cannot consider only the pathogenic micro-organisms. Many other factors must also be taken into account. In few cases of pneumonia, possibly in none, does the disease occur simply because the pathogenic micro-organisms gain access to the lung. A person suffers from pneumonia as he does from other accidents, through a combination of circumstances. Moreover, epidemics also arise when a proper combination of circumstances occur. By focusing attention on one factor alone, the explanation sought for may be found.

Treatment of Influenza.—Lambert says that in the general treatment of the patient with influenza, there seems to be no question that the salicylates and salicin relieve the distressing ache and pain. Ammonium salicylate and ammonium carbonate, in 5 grain doses, every two hours, seem materially to produce this result and to produce a not excessive sweating with the reduction of the temperature. It is in the pneumonic congestions of influenzal type that ergot seems to be of use in reducing the congestion and bring about a better circulatory equilibrium. If not given hypodermically, a mixture of the extract with the extracts of nux vomica and gentian, one-half grain each, every two hours, often seems to produce a good effect. The persistent spraying of the nose and pharynx with some form of silver salt, or some form of mild disinfectant materially aids in confining the infection, in its early stages to the upper passages, and this procedure gives the impression, when tried in a large number of patients, that it prevents in many cases the spread downward into the bronchi and thus limits pulmonary complications.

Ohio State Medical Journal, Columbus

July 1, 1919, **15**, No. 7

Observations in Recent Epidemic as Studied in Wards of Mt. Sinai Hospital. S. S. Berger, Cleveland.—p. 418.
Nitrous Oxid-Oxygen Anesthesia, Cesarean Section and Obstetric Operations. E. I. McKesson, Toledo.—p. 422.
Congenital Plexiform Neurofibroma and Elephantiasis Neuromatosa of Right Arm. F. P. Anzinger, Springfield.—p. 424.

Public Health Journal, Toronto

July, 1919, **10**, No. 7

Nursing, Medical and Hospital Problem in Rural West. F. C. Middleton, Regina, Sask.—p. 297.
*Results of Preventive Vaccination with Suspensions of Influenza Bacillus. A. B. Wadsworth, Albany.—p. 309.
Physician's Part in Preventing Mental Disorder. W. H. Hattie, Halifax, N. S.—p. 315.

Results of Preventive Vaccination Against Influenza.—Wadsworth reports on the use of influenza vaccine in New York state comprising scattered reports from different physicians and health officers, general reports from all the state institutions, and report of special selected institutions. The vaccine was prepared by suspending in physiologic sodium chlorid solution the growth of fifteen different strains of the influenza bacillus on the surface of a coagulated blood glycerin veal agar. One c.c. contained one billion bacilli. Summing up the results of this study as to the practical value of vaccines in influenza, it is evident that the vaccines that have hitherto been used have failed to give reliable protection against influenza or influenzal pneumonia.

United States Naval Medical Bulletin, Washington

Supplement for the Hospital Corps

July, 1919, **1**, No. 10

Hospital Corpsman and Trained Nurse. J. S. Taylor, U. S. Navy.—p. 7.
Transportation of Patients. E. S. Bogert, U. S. Navy.—p. 25.
Oral Surgery. T. B. Hartsell, Minneapolis.—p. 54.
Work of Navy Transports. J. W. Carrol, U. S. Navy.—p. 71.
The Destroyer. G. F. Cottle, U. S. Navy.—p 96

Urology, Baltimore

April, 1919, **3**, No. 2

*Kidney Function in Disease. H. Elwyn, Camp Greene, N. C.—p. 47.
*Pharmacologic Study of Ovarian and Corpus Luteum Extracts; with Special Reference to Contractions of Genitourinary Organs. S. Matsumoto and D. I. Macht, Baltimore.—p. 63.

Kidney Function in Disease.—This paper attempts an understanding of kidney functions in disease and an explanation of the symptoms involved, basing such attempt on the modern theory of kidney secretion and on the facts of kidney pathology so far known.

Ovary and Corpus Luteum Extracts.—The action of fresh and desiccated ovary and corpus luteum was studied by Matsumoto and Macht on the bladder, uterus and fallopian tubes, vas deferens and seminal vesicles of various animals. Corpus luteum extracts have very little effect on the contractions and tonicity of the excised bladder or ureters. Corpus luteum extracts exert a very stimulating effect on the excised uterus and fallopian tubes, but their action on these organs is not specific as the same effects are produced by administration of extracts of all kinds of glands. Corpus luteum extracts exhibit a markedly stimulating action on the excised vas deferens and the seminal vesicles are stimulated by doses of corpus luteum extracts. In respect to their effect on all the genito-urinary organs studied, ovarian extracts exert a very much weaker action than corpus luteum extracts. The peculiar and sensitive reaction of the vas deferens of the rat to the effects of corpus luteum extracts is, physiologically speaking, proportional in intensity to the doses of the drug used, and runs parallel to the effects of the same extracts on the blood pressure and on the pupil of the frog's eye. It, therefore, offers a convenient method for the assaying of corpus luteum preparations on the one hand, and for the testing of physiologic activity of various chemical derivatives of the corpus luteum on the other.

West Virginia Medical Journal, Huntington

July, 1919, **14**, No. 1

Our Obligations with Respect to Public Health Problems of Reconstruction. R. J. Reed, Wheeling, W. Va.—p. 1.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 28, 1919, No. 3052

Part of Consulting Surgeon in War. G. Makins.—p. 789.
Operative Treatment of Simple Enlargements and Tumors of Thyroid. C. Frankau.—p. 792.
Cases Resembling Lethargic Encephalitis Occurring During Influenza Epidemic. J. B. Alexander.—p. 794.
Case of Hydrophobia Eighteen Months After Infection. P. Freyer. p. 795.
Significance of Cerebral Cortex. G. E. Smith.—p. 795.
Reconstruction in Medical Education. W. M. Eccles.—p. 797.

Indian Medical Gazette, Calcutta

June, 1919, **104**, No. 6

Wassermann Reaction in Syphilis as Guide to Treatment. W. D. Sutherland, Calcutta.—p. 201.
*Case of Viper Poisoning. S. W. Coffin.—p. 207.
*Cholera Prophylactic Vaccination. A. Roy.—p. 209.
Calculus of Urinary Tract as Seen in British General Hospital in India. D. J. Harris.—p. 214.
Fish Poisoning in Persian Gulf. C. C. Kelley.—p. 215.

Viper Poisoning.—The treatment now recommended for snake bite poisoning according to Coffin, consisting of the intravenous injections of Bayliss' fluid (gum arabic, 7 parts; sodium chlorid, 0.9 part; water, 92.1 parts), injection of epinephrin and the intramuscular injection of 1 gm. of calcium chlorid with 20 minims of water, is not intended to supersede the administration of antivenene, which should always be injected in cases of viper poisoning, known to be due to Russell's viper or of dubious origin. The treatment is intended as an adjunct to cases known to be due to Russell's viper, and should prove extremely valuable in cases of echis poisoning, there being no available antivenene for the treatment of these cases.

Vaccines in Cholera Prophylaxis.—Roy says that vaccination against cholera has been proved to be so highly efficacious in the army and labor corps as to warrant its extensive use as a prophylactic measure among the civil population during an epidemic, or when cholera is likely to break out. It has been found efficacious in the Japanese epidemic of 1902, in the Russian epidemic of 1908-1909 and in the tea districts in Assam. In the recent war, the beneficial effect of prophylactic inoculation had been proved by Hoffman in the Germany army and by Kaup in the Austro-Hungarian army. The new cholera vaccine of Kasauli is the result of various experiments done from time to time. It combines the efficiency of Haffkine's vaccine with no local or general reaction at all. It consists of a pure, sterilized culture of cholera spirillum absolutely free from any reaction (local or general), and can safely be injected into people of both sexes, of all ages, including infants, and in all stages of health, including pregnant and recently delivered women.

Journal of Laryngology, Rhinology, and Otology, London

July, 1919, **34**, No. 7

Suggested Alternatives to Operation for Adenoids and Enlarged Tonsils in Young Children. J. Donelan, London.—p. 229.
*Latent Sinusitis in Relation to Systematic Infections, Especially Rheumatoid Arthritis. P. W. Williams.—p. 233.
Aqueduct of Fallopius and Facial Paralysis. D. MacKenzie.—p. 237.

Latent Sinusitis in Relation to Systemic Infections.—Two cases are cited by Watson-Williams, one a case of rheumatoid arthritis with chronic catarrhal deafness, and the other a case of rheumatoid arthritis with appendicitis, etc. He believes that these cases prove that a latent sinus infection may persist for a great many years, that chronic rheumatoid arthritis and other infective rheumatic symptoms may be due to a sinus infection and that appendicitis may be due to infection through the gastro-intestinal tract from a nasal sinusitis. The previous history of nasal sinusitis cases is worthy of careful note. Wilson also suggests that some cases of systemic septic infection attributed to tonsil infection may be due to a nasal sinusitis which has caused the tonsil infection with hypertrophy of the tonsil lymph tissue.

Lancet, London

July 5, 1919, **2**, No. 1

Prognosis of Nerve Injuries. R. Kennedy.—p. 5.
*Eye Color and Abnormal Palate in Neuroses and Psychoses. H. L. Gordon.—p. 9.
Case of Pituitary Tumor Treated by Operation. H. L. Whale.—p. 11.
Spread of Bacterial Infection. W. W. C. Topley.—p. 1. To be Cont'd.
*Uncommon Abdominal Cases Illustrating Some Pitfalls. N. C. Lake and H. K. Kevin.—p. 13.
Case of Multiple Osteoma of Skull Bones. C. N. Stanley.—p. 13.
*Case of Congenital Multiple Sarcomatosis. J. A. Perera.—p. 14.
Case of Cirsoid Aneurysm of Palm of Hand. J. Toedesco.—p. 15.

Eye Color and Abnormal Palate in Neuroses and Psychoses.—Gordon attempts to show that in individuals who are susceptible to the neuroses and psychoses duplex eyes are more than twice as common as simplex eyes. In the same class of individuals the abnormal and arched palate is present in about 52 per cent. of cases. In the same class again, the proportion of duplex to simplex eyes is markedly increased in those cases with narrow and abnormally arched palates, and the increase tends to intensify along with the intensification of the palatal abnormality.

Uncommon Abdominal Cases Illustrating Some Pitfalls.—Kevin reports a case of traumatic diaphragmatic hernia, one of internal hemorrhage from a splenic infarct and a case of acute idiopathic dilatation of the stomach.

Congenital Multiple Sarcomatosis.—In Perera's case multiple rounded and nodulated tumors were scattered throughout the body, e. g., head, thorax, abdomen, upper and lower extremities. These tumors, present from birth, were of varying sizes. There was superficial ulceration in the larger tumors; one or two on the cheeks and legs had started to fungate. The consistence ranged from jelly-like softness in the more superficial ones to more or less bony hardness in the tumors attached to the long bones, ribs and skull.

Medical Journal of Australia, Sydney

June 7, 1919, **1**, No. 23

Psychoneuroses of War. W. R. Regnell, Adelaide.—p. 455.
*Blood Culture in Summer Diarrhea. R. Webster.—p. 460.

Blood Culture in Summer Diarrhea.—Of eleven cases in which blood was noted in the stools, five yielded a positive result in blood culture and six were sterile. Of sixteen other cases, all were sterile or gave a few colonies of *S. albus* only. The several strains isolated from the first three cases conform morphologically, culturally and in their biochemical reactions to *B. faecalis-alkaligenes.* In each instance the organism recovered possessed the following attributes of *B. faecalis:* motility, negative reaction to gram stain, a thick, moist growth on agar-agar, inability to ferment glucose, lactose, saccharose, dulcite, sorbite and mannite, and the property of inducing alkali formation in litmus milk. Its presence in the circulating blood is of particular interest in view of the fact that *B. faecalis-alkaligenes* is not commonly credited with pathogenic power.

Practitioner, London

July, 1919, **103**, No. 1

Vitamins. Sir K. Goadby.—p. 6.
Physiology of Nutrition. W. M. Bayliss.—p. 11.
Dietetics in Childhood and Youth. J. P. Parkinson.—p. 24.
Dietetics in Adolescence. C. Dukes.—p. 30.
Dietetics in Senescence. C. Mercier.—p. 48.
Dietetics in Old Age. T. B. Scott.—p. 55.
General Observations on Diet. H. Campbell.—p. 62.
Dietary of Troops in Home Army During War. S. Wright.—p. 70.

Bulletin de l'Académie de Médecine, Paris

June 10, 1919, **81**, No. 23

*Chlorination of Drinking Water. Dopter and Rieux.—p. 769.
*War Deafness. Marage.—p. 779.
Special Features of Deafness in Musicians. A. Castex.—p. 782.
*Pathogenic Fungus in War Wound. A. Sartory.—p. 783.
Origin and Physiologic Significance of Acetylacetic Acid. L. C. Maillard.—p. 784.
*Glycosuria in Meningitis. E. de Massary and L. Tockmann.—p. 786.
*Treatment of Strabismus. C. Sauvineau.—p. 789.
*Radiosusceptibility of Suprarenals. A. Zimmern.—p. 791.

Chlorination of Water.—The five models of portable apparatus used by the French for sterilizing the drinking water for the troops at the front are described and compared. The working of the apparatus was in charge of the laboratory of the medical department, and all the types used proved satisfactory except for waters containing much clay, as this absorbs the chemicals. These portable apparatus are particularly to be commended for small communities and for colonies.

War Deafness.—See Paris Letter, p. 208.

Pathogenic Fungus in War Wounds.—The fungus isolated by Sartory from the pus in one case was of the Scopulariopsis genus and proved extremely pathogenic for rabbits and guinea-pigs. He describes it as a new species.

Glycosuria in Meningitis.—Glycosuria seems to be rare in meningitis. De Massary and Tockmann discovered it in 3 of 45 cases. Cazamian in 3 of 9, and Loeper in 1 of 7. In the 3 cases reported in detail the meningitis had become partitioned off in the ventricles; the antiserum by lumbar puncture failed to reach this ventricle focus, and the men died. As these seemed to be the only ones with this involvement of the ventricles, and as these were the only ones with glycosuria, the inference seems justified that the glycosuria was a warning signal that the disease had invaded the ventricles. The irritation from this acted like the sugar puncture of the third ventricle. Trephino puncture of the ventricles thus seems the logical indication with glycosuria in meningitis, judging from the necropsy findings in these 3 cases. The glycosuria is not inevitably a sign of malignant course, as Cazamian had only one death in his 9 cases of glycosuric meningitis.

Treatment of Strabismus.—Sauvineau affirms that the deviation of one or both of the eyes is only a secondary symptom of strabismus. The essential disturbance with strabismus is inability to focus the lines of vision on the object, and this, he insists, is the result of an anomaly in the perceiving centers in the brain. Only the visual image from one eye alone is perceived. The cross-eyed are cerebrally blind of one eye. Both eyes may be visually perfect but the brain perception is monolateral; the brain neutralizes or drops out the image furnished by the deviated eye. Treatment should consist in training the brain centers to bilateral vision; the deviation of the eyeball will then usually correct itself spontaneously. He accomplishes this with glasses of complementary colors, green for one eye and red for the deviated eye, through which the subject looks at the flame of a candle through a hole in a screen. At first he sees only the green flame, but by shutting off the eyes alternately he sooner or later finds that he can see a red flame along with the green. This diplopia is converted into normal vision of one flame (theoretically white from the fusion of the two complementary colors), by having the subject relax or contract his convergence, guided by the red and green luminous points. If the strabismus is mild, he soon succeeds in this fusion of the two luminous points into one. Sauvineau has thus conquered strabismus of 30 and 40 degrees in less than three months. With these pronounced cases, it is better to graduate the efforts by the aid of prism glasses. With a prism glass properly placed, the green and red images are brought closer together till they are only a few centimeters apart and the subject easily fuses them. Then weaker prisms are used until binocular vision is reestablished. He declares that a cure can be realized in every case by this simple means (amblyopia is not an obstacle), which can be applied by any practitioner. Of course the procedure succeeds only with true strabismus, not with insufficient convergence from latent diplopia. The tendency to true strabismus seems to be inherited, and the slightest obstacle to binocular vision is enough to bring it on.

Roentgen Treatment of the Suprarenals.—Zimmern has succeeded in making roentgen exposures of the suprarenals and thus inducing histologic modifications in animals and functional changes in man, without any appreciable by-effects in skin or kidneys. In the clinical cases of hyperfunctioning of the suprarenals, with high blood pressure, the pressure dropped in every case in from two to ten days, and the drop ranged from 2 to 8 cm. The blood pressure kept at this lower point for a shorter or longer period, up to several months in some.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 16, 1919, **43**, No. 17

*Outcome of Chronic Nephritis. P. Merklen and L. Desclaux.—p. 434.
*Chemistry of Fasting Stomach. M. Labbé.—p. 437.
Influenza. A. Gouget.—p. 441.
*Symptoms from Compression of Nerve with Large Goiter. P. Jacob and Labeaume.—p. 446.
Facial Paralysis in Tetanus. Trémolières and Caussade.—p. 448.
*Case of Gastric Syphilis. Galliard and E. Mendelssohn.—p. 452.
*Influenza in Infants. C. Achard, A. Leblanc and Lavedan.—p. 455.
*Epidemic of Relapsing Measles. G. Desbouis.—p. 468.
*Tracheobronchial Glandular Disease. H. Méry and others.—p. 471.

Chronic Nephritis.—Merklen and Desclaux recently reexamined twenty-six men who had been temporarily dismissed from the army a year before on account of kidney disease. There could be no question of a cure in 77 per cent. but treatment had seldom been systematic. In only 35 per cent. of the cases of definite nephritis was the course evidently progressive; in the others the condition had improved or was stationary. The most favorable cases were those of acute chloridemic nephritis, which is the most common form of nephritis in soldiers. That a complete cure of chronic nephritis is possible is demonstrated by two cases of chronic recurring nephritis in men of 49 and 32 given thorough treatment and cured since 1909 and 1915, after the nephritis had returned two and three times in the course of five or six years.

Chemistry of the Fasting Stomach.—Labbé relates that the fasting stomach contained fluid in 91 per cent. of 100 cases of dyspepsia but only in 5 per cent. was the fluid left over from the last meal, with food detritus. With hyperchlorhydria there was manifest gastrosuccorrhea in a third of the cases; in the others there was less than 30 c.c. of fluid. With hypochlorhydria or anachlorhydria, fluid was constant, over 100 c.c. in some cases. With normal gastric juice, there was almost always 30 c.c. of fluid or more in the fasting stomach of dyspeptics. The secretion of gastric juice was sometimes retarded. It is possible that certain cases of gastric ulcer classed as hypochlorhydria when examined one hour after the test meal were in reality retarded hyperchlorhydria. This would explain the tardy pains in these cases of assumed hypochlorhydria. The variations in the chlorhydria, he adds, depend essentially on the free hydrochloric acid of the gastric juice. In his study of numerous cases in soldiers in his service, the evolution of the dyspepsia was mirrored in the chemical findings in the fasting stomach. As the condition improved, the chlorhydria veered to normal. The persistence of abnormal findings indicates a grave prognosis.

Claude Bernard Syndrome with Goiter.—In the case described by Jacob the large goiter in a woman of 30 compressed the trachea and the sympathetic nerve, and the oculocardiac reflex was exaggerated.

Gastric Syphilis.—Galliard and Mendelssohn emphasize that the prompt recovery under specific treatment is sometimes the only means of differentiating a syphilitic affection of the stomach. In the case reported, a man of 55, thirty-three years after he had contracted syphilis, developed hyperchlorhydria and painful dyspepsia with profuse diarrhea but no signs of tabes, no melena nor appreciable tumor, and the stomach was free from adhesions, but radioscopy showed a kind of strangulation which suggested cicatricial tissue. This disappeared however in less than a month, along with the gastro-intestinal disturbances, under mercurial treatment.

Influenza in Infants.—Achard and his co-workers review thirty-two cases of influenza in infants with or without complications on the part of the air passages. Eight of the thirty-two infants died; the disease was well under way when the children were brought to the hospital. The influenza was of the same three types as in adults, simple, with bronchitis, or with pneumonia. They describe each case in full as a contribution to the better knowledge of influenza in infants. No difference in its course in breast-fed infants could be detected.

Relapsing Measles.—Desbouis reports an epidemic of 30 cases of measles in which in 7 a typical new eruption developed the sixteenth, thirteenth or twenty-seventh day after the first eruption. The type of the epidemic was severe, 3 of the 30 cases terminating fatally. Oculonasal catarrh accompanied each eruption. This with the other findings he accepts as testimony against the possibility that the second eruptive disease might have been rubeola.

The Radiologic Findings with Disease of Glands at the Hilum.—Méry with his collaborators class these *adénopathies hilaires* by the roentgen findings in three groups, as they show by illustrated summaries of fifteen cases in children. The three types of findings may be observed in turn in the same child, all starting in the hilum, close to the sternum in the first three interspaces, and running a slow course, with persistence of the physical signs and tending usually to recovery. There is evidently an inflammatory process in the ganglia of the hilum inducing reactions in the neighboring tissues. They have encountered cases of this kind more often since the pandemic of influenza. This may have reactivated dormant processes. In the discussion that followed, Rist emphasized that the fact of retrogression of the lesion does not exclude the possibility of the lung having been involved in the process.

Paris Médical

June 7, 1919, **9**, No. 23

*Postfebrile Alopecia. R. Sabouraud.—p. 437.
Postvaccinal Trichophytosis. Gougerot.—p. 442.
*Oil Dermatitis. P. Blum.—p. 445.
*Syphilitic Vitiligo. A. Touraine.—p. 451.
Factitious Phlegmon of the Hand. Burnier and Baudoin.—p. 456.
Fatal Pyosepticemia from Furuncle. Blanc and Colombe.—p. 457.
*Tabes from Inherited Syphilis. A. Galliot.—p. 462.
Duret's Universal Prophylactic Salve. G. Milian.—p. 464.

Postfebrile Alopecia.—Sabouraud remarks that he does not know of any thorough study of this subject that has been published. It has been his experience that a diffuse, general and sudden falling of the hair can be traced to some febrile state from sixty to eighty-five days before in which the temperature passed 39.5 C. (103 F.). The falling of the hair seems to be proportional to the height and duration of the fever. The hairs keep dropping out for from four to six weeks, but they do not all fall, and they grow again in a few weeks. The longer hairs drop out first. These rules apply without exception, he says, to all cases. The physician can confidently reassure the woman that she will not become entirely bald, and that her hair will grow again and this very soon. She can have a switch made of the hairs that have dropped out, but there is no necessity for a wig as the hair will soon grow again. Sabouraud protests against the practice of cutting the hair to aid in its regeneration. There is no logical basis for this as he explains; grass grows better when it is cut, but this cuts the head of the grass while the head of the hair is in its follicle. If frequent cutting made hair grow better, men would have better hair than women. He reiterates that women never grow bald like men, and that the difference between the mentality of men and women as it has developed through the centuries is shown more strikingly than anywhere else in the way they regard the falling of their hair. The hair will grow again as before if the scalp is healthy. Friction massage (preferably with a tooth brush) and tonic lotions with a gentle revulsive action giving ten minutes daily to this for a woman, four minutes for a man, are all that is necessary. If the scalp is not healthy, it should be treated according to indications. Sabouraud remarks parenthetically that seborrhea seems to be connected in some way with the adult development of the sexual organs. Eunuchs never have seborrhea and never become bald. A seborrheic woman loses the seborrhea when she becomes pregnant, and her hairs do not drop out in the same way, but after delivery the seborrhea returns. There is no apparent relation between the excessive or the nonuse of the sexual organs and the seborrhea.

Oil Acne.—Blum gives an illustration of the dermatitis observed in workers in munitions and cloth factories, etc., where lubricating oil is used in abundance. Oil-mixed metal or cotton dust obstructs the follicles and the result is an occupational folliculitis, a crop of "oil pimples."

Syphilitic Vitiligo.—Touraine urges the necessity for seeking syphilis in every case of vitiligo, and he emphasizes the frequency of meningeal reactions with vitiligo. He has compiled 39 cases of nervous affections, from hemiplegia to tabes, in the course of vitiligo, but it is only recently that the spinal fluid has been examined in this affection. In 24 of 37 cases the spinal fluid was abnormal. In 81.1 per cent. of all cases of vitiligo examined, the patient proved to be syphilitic. It seems to be due to a trophic radiculitis.

Tabes from Inherited Syphilis.—In Galliot's two cases the inherited syphilis had been absolutely mute in one; the tabes developed at 29 and 36. The uneven pupils in one case had been noted from childhood but vision was normal; under treatment of the tabes the pupils became symmetrical. In both, the tabes developed under the stress of the campaign.

Presse Médicale, Paris

June 12, 1919, **27**, No. 33

*Outcome of Suppurating Elbow Arthritis. R. Leriche.—p. 317.
*Radiotherapy of Tuberculous Arthritis. A. Briton.—p. 320.
*Adenophlegmons of the Hilum. G. Jean.—p. 320.
*Epitheliomas of the Glans Penis. L. M. Bétancès.—p. 321.
*Hot Saline by the Vein in Shock from Hemorrhage. C. Dunet.—p. 323.
Arsenic Content of Neoarsphenamin. G. Dupont.—p. 324.

Resection of Elbow.—Leriche has recently reexamined twelve men who required subcapsular-periosteal resection of the elbow for suppurating osteo-arthritis after a war wound. He followed Ollier's technic, and reports that the ultimate results over two years afterward are remarkable from every point of view. Some of the cases illustrated show perfect functioning of the elbow. The intrafebrile resection of the infected joint was done from eight to fifteen days after the wound. Patience and perseverance on the part of both surgeon and patient are indispensable, but few operations on an infectious focus give such satisfactory final results to the patient himself and to those who have been tending him. Leriche's roentgenograms show the workings of the new joint. The head of the radius often becomes regenerated with surprising perfection. He begins to mobilize the joint in two weeks, doing it himself and very gently, and teaching the patient to use the joint himself, without abrupt movements. Heliotherapy was applied when possible, and recuperation was almost integral in some of the cases.

Radiotherapy of Tuberculous Arthritis.—Briton gives the details of three cases to confirm the superiority of roentgen treatment in certain cases of tuberculous arthritis. The tuberculous processes were in the ankle and astragalus, the elbow or the lumbar vertebrae, and the patients were two young women and a man of 28. The vertebral process in the man had been curetted two months before and the focus was still suppurating and spreading. The process was given roentgen exposures every two weeks at first and with longer intervals later. Each dose was about 4 H. with 1 mm. aluminum filter at first and later 2 mm. The exposures were given for six months in all, and the cure has been apparently complete since 1912 or 1913 in each case. The process in the elbow of the woman of 27 had been curetted three times in the course of five years but kept recurring until apparently permanently cured by the radiotherapy.

Adenophlegmons of the Hilum.—Jean has encountered this affection only in about 1 per thousand of his cases of influenza. In one case that came to necropsy the adenophlegmon had dominated the clinical picture and had involved the hilum of the lung where it had induced a large abscess that had opened into a bronchus. The symptoms from the presence of the adenophlegmonous tumor are associated with symptoms from the compression of the hilum, but relief follows the irruption of the pus into the air passages. In one case the phlegmon emptied into the interlobe. By radioscopy of every patient with a vomica, it was easy to detect the shadow of the adenophlegmon except when encysted pleurisy of the hilum casts a similar shadow. The pleurisy process soon spreads or subsides, while the adenophlegmon may last for several weeks. In the four cases he has encountered, one of the patients died. He shrank from operating from fear of infecting the mediastinum, and applied only medical treatment as for any cavity in the lung.

Epithelioma of the Glans Penis.—Bétancès reports three cases in which a small red bunch had been noticed in the glans penis for about two years and a half, never causing pain or other disturbance, but it kept very slowly increasing in size. Microscopic examination of a scrap from one showed an apparently benign papilloma, but the tissues of the second proved a little more complex, and in the third the microscope showed malpighian basement-celled epithelioma with a pronounced tendency to invade neighboring tissues. The lesion was resected in this case, and a year later pronounced epitheliomatosis of the glands became manifest. The findings therefore testify to the probably malignant nature of these "warts." The three cases represent the different stages: leukoplasia, papillary epithelioma and cancer. The article is illustrated, and Bétancès emphasizes the red, uniform velvety aspect of the "warts," scarcely protruding above the level of the skin, but they feel thick when taken between the thumb and finger.

Hot Saline by the Vein in Shock from Hemorrhage.—Dunet conceived the idea that the best way to warm up the patient in shock was to warm him from within by injecting physiologic saline heated to 55 C. (131 F.). This is a temperature just below 56 C. which is the limit of tolerance of thermo-unstable substances. He ventured to apply this as a last resort to a man of 54 who had been bleeding for two hours after the upper third of his thigh had been crushed by a street car. Dunet infused in the femoral vein 2 liters of the heated artificial serum in the course of four or five minutes. Before the close of the injection, the natural tint returned to the skin, the face no longer looked pinched and the pulse could be felt again, the beat about 100. At the close of the injection the man spoke, saying he felt warm all over. He was put back to bed and in half an hour said he wanted to smoke.

June 19, 1919, **27**, No. 34

*Gastric Cancer with Anasarca. A. Gouget.—p. 329.
Subumbilical Eventration. H. Chaput.—p. 331.
*Nature of Wassermann Reaction. A. Vernes.—p. 333.

Gastric Cancer with Anasarca.—Gouget has compiled seven cases since Chesnel's five, and reports one personally observed, in which dropsy was an early sign of gastric cancer, the heart and kidneys apparently sound. In some of the cases the anasarca and weakness were extreme but there were no appreciable stomach or kidney symptoms. Necropsy disclosed the cancer in the stomach. In other cases the anasarca seemed to be rather a complication than a clinical form of gastric cancer. In some in this group the whole course was only two and a half months from the first symptoms which were vomiting and abdominal pains. In one case the edema was the first sign of trouble, coming on in the midst of health, with no heart or kidney symptoms. The edema subsided and returned again and again, the man of 59 growing constantly weaker. At the end of three months a tumor was discovered and death occurred two weeks later. The stomach was almost completely filled with vegetations. One woman had no symptoms except the generalized anasarca and weakness till the end came in a few months. In a third group, including his own case, the anasarca kept coming and going for a year or more. The patients came to the hospital again and again during a whole year for treatment of the anasarca, which seemed to be essential dropsy. In one in this group, hematemesis was the first symptom, preceding the anasarca by four days, but there was nothing else for more than six months to attract attention to the stomach. In Gouget's case, the woman of 52 had been healthy until the anasarca and ascites developed. This subsided and recurred repeatedly, one of the free intervals being four months long, under a milk-vegetable diet, digitalis and theobromin. To the very end there were no gastric symptoms nor even pronounced anemia. The emaciation was masked by the edema. The long and multiple remissions of the edema and the retention of relative good health mislead away from the suspicion of cancer, especially as there are no objective manifestations of malignant disease. Nothing is to be learned from examination of the blood and gastric juice; radioscopy might prove more useful. The chief reliance for differential diagnosis of the cancer is the discovery of occult blood in the stools.

Nature of Seroreaction in Syphilis.—Vernes seeks to demonstrate that the flocculent property of the blood serum is a property that can be measured, and that different classes of serums possess this property in different degrees. Estimation of the degree of turbidity of the serum shows to which class the serum belongs. With a stable colloidal suspension, addition of substances which cause flaking show a whole scale of flocculation reactions according to the substance used. Human serums and hog serum cause different degrees of flocculation in this stable colloidal suspension. It can thus be played on for a whole scale of flocculation reactions, and they can be recorded with precision. He uses for this a colorimetric scale with eight notes like the octave on the piano, with the octaves below and above. The degree of opalescence determines the place in the scale of the fluid being examined. The extent of the flaking with a given fluid is proportional to the amount of the fluid used.

Syphilis augments the flaking properties of normal serum, but this property fluctuates within wide limits although always much above normal in the scale with active syphilis, and the variations are always peculiar to syphilis. His charts demonstrate and illustrate his assertions that infection with syphilis increases the flocculent power of the blood serum. Under treatment with arsenic, this property becomes attenuated and the flocculation may drop to correspond with that of normal serum. If the treatment is inadequate or stopped too soon, the flocculation power becomes more pronounced again. When the flocculation property has kept within normal range for eight consecutive months he has never known further manifestations of the syphilis to develop. In addition to the colorimeter scale he uses a transparency scale to detect the slightest variations in the turbidity. He regards these variations as testifying to the intensity of the infection, and asserts that by this means we have a gage for estimating the intensity of the syphilitic infection by the variations in the flaking property. The Wassermann reaction sets in play the flaking action of the human serum on the suspension (false antigen) when the flaking power of the serum is sufficient to overcome the resistance to flocculation imposed by a hematolytic dispersion element, such as pig serum. The alleged "antigen" is in reality merely a suspension of a certain physical composition.

Progrès Médical, Paris

May 3, 1919, **34**, No. 18

Cadavers for Teaching Purposes. L. Lortat-Jacob.—p. 169.
Extraction of Foreign Bodies under Roentgen Rays. Fievez.—p. 170.
Spa Treatment of the Stomach. E. Binet.—p. 173.
Acute Mediastinal Emphysema. M. Barbier.—p. 174.
Adenophlegmons in Right Iliac Fossa. P. Boulogne.—p. 176.

May 24, 1919, **34**. No. 21

*Attitudes of Certain War Wounded. J. Lhermitte.—p. 199.
Phobias and Emotivity in Soldiers. H. Damaye.—p. 200.
Amebic Liver Abscess. L. Ramond.—p. 202.
*Stomach Affections and Mineral Waters. E. Binet.—p. 205.

Pathodixia.—Lhermitte has coined this term to express the ostentatious and permanent exhibition of an affection. He does not refer here to the displaying of lesions by beggars but to the medical domain of the war neuropaths. The initial emotional phase is followed by a phase of hypochondriac uneasiness and this finally settles into an automatic stereotype attitude. It is the exact opposite of the strange psychologic attitude which Babinski has described under the name of anosognosy, the patients apparently unaware of their hemiplegia or other affection, or entirely indifferent to it. Both of these psychopathies call for treatment which can only be psychotherapy.

Gastric Affections and Spa Treatment.—Binet reviews the different indications for different types of mineral springs with stomach affections. He discusses in particular the nervous element in dyspepsia, and the stomach troubles which mask liver disease or gallstone mischief. He asserts that Vichy water, in particular, soothes the spasm of the pylorus and reduces the hypersecretion of gastric juice while regulating liver functioning. With the exception of parasitic dysentery, all intestinal affections seem to improve under a course of treatment with Plombières and Chatel-Guyon waters. Dyspepsia associated with obesity, gout, gravel, oxaluria or diabetes benefits by a course of diuretic waters like those of Evian and Vittel, or a course at Vichy.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 7, 1919, **49**. No. 23

*War Psychology. C. Odier.—p. 841. Concluded in No. 24, p. 882.
*Influenza. J. L. Burckhardt.—p. 853. Conc'n.

War Psychology.—Odier deals here with that branch of war psychology affecting the spine, the imagined inability to stand erect. This has been called camptocormia (from the Greek words "I bend" and "the trunk"). The body is bent over in a physiologic attitude, and the neurosis consists in the fact that the subject does not straighten up. His analysis of the neurosis shows that the main factors are a conscious phobia of everything connected with the fighting, and a subconscious longing for protection. The whole is thus a phenomenon of autoprotection. The camptocormia corrects itself as the man lies flat on his back, and a plaster corset is then applied for two or three weeks, a *période de desincubation forcée*. This method is effectual, but it takes so much time that it has been superseded by what Odier calls *suggestion électro-psychique impérative,* which he describes in minute detail and emphasizes the brilliant successes realized with it in the neuropathic syndromes engendered by the war. The most brilliant successes have been realized with functional paraplegia, but sometimes a sitting of several hours is necessary for this. Camptocormia of three years' standing has often been cured by this means in fifteen minutes. He says that it has been styled "brutal," and the men call it "being torpedoed," but we have to fight the blind forces of the subconscious, and strong measures may be needed.

Etiology of Influenza.—Burckhardt concludes from this study of the pandemic that some filtrable nonbacterial virus is evidently the primary causal agent. According as other germs intervene on the soil thus prepared, we have the various forms of the disease.

June 14, 1919, **49**, No 24

*Foreign Bodies in the Bladder. R. Hottinger.—p. 875.

Foreign Bodies in the Bladder.—Among the numerous cases reported by Hottinger was one in which a youth had molded a bougie from beeswax and introduced it into the urethra to prevent bed-wetting, as he was subject to enuresis. The bougie slipped into the bladder and set up obstinate cystitis. Hottinger injected a fluid into the bladder and then injected 12 c.c. of xylol. This floated on the other fluid and dissolved the wax which was likewise floating on the fluid. He had the patient massage the bladder region from time to time, pounding it a little, to facilitate the dissolving of the wax. At the end of the fourth hour a milky urine was voided and as it cooled the wax separated out. The cystoscope showed the bladder free from wax, and the cystitis rapidly subsided. There was only a moderate burning sensation while the xylol was in the bladder, and there have been no further disturbances since. Xylol seems to dissolve wax and paraffin more readily than benzin, which has been commended for this purpose.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 8, 1919, **40**, No. 37

Diasthemia with Caries of the Teeth. U. Fabris.—p. 354.

May 11, 1919, **40**, No. 38

Typhoid in Malarial Zones. M. Gioseffi.—p. 361.
Lethargic Encephalitis. L. Tacconi.—p. 364.

Policlinico, Rome

June 1, 1919, **26**, No. 22

Asthma. G. Sabatini.—p. 673. Summarized on page 303.
Modification of Bassini Herniotomy. D. Giorgacopulo.—p. 686.
Traction on Soft Parts of Stump. P. Ferraresi.—p. 689.

June, 1919, **26**, Medical Section No. 6

*Malignant Granuloma. P. Sisto.—p. 209.
*Amebic Liver Abscess. Simoncelli.—p. 222; Id. Pontano.—p. 236.
*Malaria in Italian Troops. C. Pezzi.—p. 239. Conc'n.
*Differentiation of Pneumococcus from Streptococcus. V. Cavara.—p. 245.

Malignant Granuloma.—Sisto reports a case of typical malignant granuloma or Sternberg's disease in which nothing could be found which suggested a tuberculous origin during life or postmortem or by inoculation of eight guinea-pigs. He cites further Viola's experience that inoculation of some guinea-pigs with glandular tissue from a case of malignant granuloma in which the histologic findings and acid-resisting bacilli suggested tuberculosis, resulted in the development of typical Sternberg's granulation tissue in the guinea-pigs. The surgeon who excised the gland tissue from the patient scratched his finger at the time and he, too, developed enlargement of the glands in the axilla and epitrochlear region all of the characteristic granulation type. This mishap was equivalent to a scientific experiment. Even if a tuberculous lesion is found in a case of Sternberg's disease, it may be independent of the latter. Or the Sternberg disease may discover and rouse to activity some old slumbering lesion. Nägeli has reported a case in which, by a similar mechanism, in the course of leukemia a tuberculous focus flared up and fatal miliary tuberculosis ensued. Sisto reproduced in his guinea-pigs inoculated with gland tissue the typical lesions of malignant granuloma, but he did not inoculate other guinea-pigs from them. Others have done this and found that tuberculous lesions developed therefrom.

Treatment of Amebic Liver Abscess.—Simoncelli protests against trusting to medical means for treatment of amebic liver abscess, saying that the possible perforation of the abscess is a constant peril and that no time should be wasted on medical measures alone. He operates at once and supplements this with a course of emetin, and had four recover in his seven operative cases.

Pontano declares that there is no need for such haste. The amebic liver abscess is often months in developing, although instances are known in which the course was only three weeks. Manson has reported cases of a year and more. Hence there need be no hesitation in waiting to give emetin a trial. In a recent compilation of 162 fatal cases, rupture occurred in only thirty-seven of the cases. This includes twelve cases of rupture into the peritoneal cavity; eleven into the pleura; pneumonia in two and peritonitis in only three.

Malaria.—Pezzi analyzes the experiences during 1918 at the Mantegna military hospital at Milan where large numbers of malarial troops were being treated. Intravenous injections of quinin sometimes proved effectual as a last resource but he emphasizes that their sterilizing action is no greater than when the quinin is taken by the mouth. The route by the vein should be reserved for the graver cases and for malignant tertian when first diagnosed. It is in these cases that results are obtained more rapidly than can be realized by the mouth. In pernicious cases with pronounced toxic phenomena the quinin cannot work a miracle, and it may even accelerate the fatal termination by its greater depressing action on the heart when given by the vein. He always gives a subcutaneous injection of caffein before the intravenous injection of quinin. In three cases there was grave collapse after the intravenous injection, and one patient with exceptionally malignant tertian died. In conclusion he warns that the return of the soldiers to civilian life will undoubtedly spread malaria, and physicians must be on the alert to detect it, especially the subcontinuous fever from the *Plasmodium praecox*. If this is mistaken for typhoid or tuberculosis, the precious time during which quinin would be really effectual is wasted. He urges to think of malaria first of all and not of typhoid, etc., until malaria can be excluded.

Differentiation of the Pneumococcus.—Cavara utilizes optochin to distinguish between pneumococci and streptococci; this kills the former while it has little action on the latter. He has been experimenting with different strains of both microbes. When there is no growth of the microbe in bouillon or bouillon serum containing 1 : 50,000 optochin (with a control test), in one or two days in the incubator, the microbe present is certainly the pneumococcus, but when cultures develop this does not necessarily exclude the pneumococcus as certain atypical avirulent strains seem to be resistant to the optochin. In case of doubt he inoculates the germ in the vitreous body of a rabbit and examines the exudate twenty-four hours later for lanceolate forms. His tests showed that typical pneumococci, sensitive to optochin, may become resistant to it when cultivated on artificial media. Streptococci require a concentration of 1 : 5,000 or 1 : 3,000 before their growth is checked by it.

Riforma Medica, Naples

May 24, 1919, **35**, No. 21

*Calcareous Infiltration. V. Aloi.—p. 414.
*Radical Treatment of Bone Fistulas. G. Morone.—p. 416.
*Gonococcus Ophthalmia. V. Diamare.—p. 420.

Calcareous Infiltration.—Aloi reports a case of calcareous infiltration of a gouty toe and another of an extensive wound of the thigh from explosion of a gun twenty-four years before. The toe was amputated and a year later the same operation had to be done on the other toe for the same cause. The cicatrix in the other case also had to be resected. In both cases there had been suppuration in the region affected.

Treatment of Fistulas in Bone.—Morone excises the entire tract into sound tissue and opens up the focus with a wide opening, saving as much of the skin as possible. He packs the cavity with gauze and applies a moderately tight bandage. The second or third day he takes out the gauze and inspects to see that not a scrap of diseased tissue is left. Then he draws down and fits the soft parts to the raw surface of the bone and brings the edges of the wound together as much as possible. In tunnel cavities he refrains from draining but keeps the lips of the wound apart with gauze packing renewed every three days. The oozing soon stops and then the lips of the wound are brought together; healing is complete in a month or two except in the largest foci which may take three or four months. He applied this method in fifty cases and had no mishaps.

Gonococcus Ophthalmia.—Diamare calls attention to his experience with 140 cases of gonococcus ophthalmia in which the severest lesions were always those with the gonococcus in pure cultures. When it was associated with the micrococcus, and especially with the Koch-Weeks bacillus, the course was exceptionally mild and the ophthalmia soon healed harmlessly. This suggests the feasibility of using the virus of the Koch-Weeks infection to attenuate the gravity of pure gonococcus ophthalmia. He has had no opportunity since to apply this suggestion in practice as he intended.

Archivos Españoles de Pediatría, Madrid

March, 1919, **3**, No. 3

*Malaria in Children. R. Gómez Ferrer.—p. 129.
Disease of Genital Organs in Little Girls. J. Blanc Fortacín.—p. 146.
Cervical Ribs; Two Cases. C. Pelfort.—p. 154.

Malaria in Children.—Ferrer has found malaria in children of all ages but it is liable to be misinterpreted in infants, especially as it so often is associated with another infection. In the case of one child of 4, for example, pneumonia kept up a long progressive course with exacerbations as more zones of the lung were invaded. But a tendency to collapse returning at certain hours was explained by the malarial parasite in the blood, and under quinin the clinical picture gradually retrogressed. Any febrile process of an intermittent type in children should suggest possible malaria, if it has been in a malarial region or in contact with a person known to have or have had malaria. The mere suspicion does not justify quinin treatment, as various infectious fevers may assume an intermittent type. Inability to discover the plasmodium in the blood does not inevitably exclude malaria while on the other hand, he reiterates, the discovery of the plasmodium in a healthy subject need not convict him of malaria. The malaria plasmodium may induce a continuous or remittent fever. When a child seems to have malaria, alone or with some other infection, the laboratory should be consulted but quinin should be given while waiting for the laboratory report or even if the report is negative unless there are formal contraindications against quinin. Physicians who have practiced in a malarial zone are very apt to see malaria everywhere. The glands in the neck may enlarge, simulating glandular fever, but all subsides under quinin. One of his child patients was unable to bear quinin, urticaria and distress following its administration, so it had to be abandoned and the malarial attacks recurred for more than two years. Sometimes a change in the quinin salt may prove useful. Subcutaneous injections may prove surprisingly successful. He has never given quinin by the vein but would not hesitate to do so if other measures failed, or in pernicious malaria with a rapid course. If all else fails, change of climate may save the child, especially a change to 3,000 feet above the sea or more, but it is wise to keep up the quinin.

Medicina Ibera, Madrid

May 17, 1919, **7**, No. 80

*Traumatic Shock. V. E. Díaz y Gómez.—p. 121.
*Influence of Sexual Functions in Women on the Defense against Tuberculosis. L. Lasbennes.—p. 123.
*Constitutional Tendencies in Relation to Stomach Disease. R. Sáenz de Santa María y Marrón.—p. 126.

Traumatic Shock.—Díaz concludes his long study of modern conceptions of shock by emphasizing the necessity for measures to raise the blood pressure and combat acidosis. For the former, the most practical method seems to be transfusion of citrated blood, with possibly injection of camphorated oil by the vein, as Heitz-Boyer recommends. It seems to be harmless provided the dose is small and injected very slowly. The acidosis is combated best by sodium bicarbonate by the vein or by proctoclysis.

The Sexual Functions in Women in Relation to Defense Against Tuberculosis.—Lasbennes tabulates the statistics of the tuberculosis mortality at Madrid since 1900, classifying it by sex and age. His figures show a striking reduction in the tuberculosis death rate in women during the child-bearing age and later, in comparison to the male death rate. Up to the age of 20 the female death rate keeps about the same as the male or surpasses it. From 10 to 19 the proportional percentage was males, 41.26, 40.91, 38.22, 47.42 and 41.24, while in females the corresponding figures were 58.74, 59.09, 61.78, 52.58 and 58.76. After 20 the female death rate ranged from 29.59 to 49.46 as the extreme figures, while the male death rate ranged from 50.54 to 70.41, and averaged over 60. If experiences elsewhere confirm this relative lesser receptivity of women and the greater receptivity of girls after puberty, the practical deduction would be to prescribe matrimony in certain cases of "pretuberculosis" instead of forbidding marriage in such conditions, as is often done. There is a possibility also that ovarian treatment might prove an effectual adjuvant in treatment of tuberculosis.

The Constitution in Relation to Stomach Disease.—Santa María relates that over 70 per cent. of his patients with chronic stomach affections show signs of deficient suprarenal, thyroid or genital functioning, manifested especially in asthenia. More than 30 per cent. of all these chronic stomach cases show vagotony and this is responsible for the excessive secretion and peristalsis in the stomach. Even large doses of epinephrin fail to induce the usual reaction, while atropin only briefly modifies the bradycardia which is constant with almost all gastropathies. Suprarenal treatment, rather than treatment addressed to the stomach, is called for in these cases with hypersecretion and vagoneurosis, especially when violent contractions follow the evacuation of the stomach and eating food relieves the pain. The kind and intensity of the stomach symptoms do not determine the prognosis so much as these constitutional factors. He urges medical school inspectors to be on the alert to detect these constitutional deficits so that treatment in time may transform these incipient valetudinarians. This group now forms almost the entire body of his patients with chronic stomach and liver disease.

Plus-Ultra, Madrid

February, 1919, **2**, No. 8

*Cerebellopontine False Tumor. W. L. Albo and G. Hormaeche.—p. 61.
*Endocrine Types in Art. F. R. Rodriguez Mata.—p. 73.
*Diathesis and Anaphylaxis. C. S. de los Terreros.—p. 84.
Dilating Muscle of Pupil. T. Barraquer.—p. 85.
Character and Its Classification. M. Ruiz Maya.—p. 86.
Traumatic Degeneration of Human Spinal Cord. F. M. Urra.—p. 94.
*Lethargic Encephalitis? C. Juarros.—p. 98.
*Paget's Disease. P. Hauduroy.—p. 100.
*Vertex Presentation. E. Macias de Torres.—p. 103.
*Sarcomas, Especially in Long Bones. R. Lozano.—p. 109.

Cerebellopontine False Tumor.—In the case reported by Albo and Hormaeche they located the morbid process exactly in the cerebellopontine region, but instead of the anticipated tumor it proved to be a cyst from chronic circumscribed serous arachnoiditis, in the lateral cisterna. There seem to be no means for distinguishing between a cyst and a tumor in this region, and it is a difficult matter to locate the process at an early stage, before important nerves are suffering from the pressure. The necropsy findings in this case suggest that if the extremely tardy and slight participation of the involvement of the right acoustic nerve had been heeded during life, it might have revealed that the process compressing the trigeminal nerve (neuralgia), the facial nerve (paresis), and the vestibular nerve (vertigo and reduced excitability) could not have originated in the acoustic-vestibular trunk nerve. The three cerebellar seizures which the woman had had were at first ascribed to hysteria. These cerebellar seizures or vagal attacks seem to be peculiarly characteristic of tumors in the arachnoid cisternae. Cushing ascribes them to fluctuations in the tension of the fluid in the cisternae. The fact that the first symptoms coincided with some infectious process, puerperal fever in this case, is presumptive evidence in favor of a cystic tumor rather than a solid tumor. The cerebellar hemisyndrome may be lacking entirely in cases of arachnoid cyst of the lateral recessus but, on the other hand, the intracranial tension and the atrophy of the optic nerve may be as extreme as with an intracranial tumor. With suppurating otitis or mastoiditis, pus may accumulate in the cerebellopontine region and induce all the symptoms of an intracranial tumor at this point, as the deafness from the primary process aids in misleading the diagnostician. There may even be homolateral cerebellar symptoms. Hormaeche diagnosed and successfully removed an accumulation of pus in a case of this kind.

Endocrine Types in Art.—Rodríguez Mata gives nine reproductions of famous paintings depicting dwarfs, cretins, the obese, and instances of excessive or deficient thyroid functioning. In addition to these, three full-page colored reproductions are given of Gisbert's Paolo and Francesca, da Vinci's La Gioconda, and Velazquez' Don Antonio. As the page of the *Plus-Ultra* measures 11 by 14½ inches, this issue is an imposing art number. Mata remarks that medical journals might well study the works of the masters as although they may misinterpret some of the special scientific features of the case, yet they record psychic elements which may give the clue to the whole. He regards La Gioconda as an example of slight hypothyroidism, from the eyebrows and the doughy aspect of the face. The reproduction is from the earlier painting at Madrid, not the Louvre copy. Mata does not know of any painting depicting subjects with exophthalmic goiter, but in some which he reproduces, extreme terror or rage is represented by protrusion of the eyeballs, as in Rubens' Battle between the Centaurs and the Lapithae.

Diathesis and Anaphylaxis.—De los Terreros has long been preaching that the diathesis and its manifestations are nothing more than variants of anaphylaxis. The diatheses are more pronounced in children as their biology is unmixed with the panvaccination to which it is subjected later, while their intestinal walls are more permeable to heterologous albumins and their digestive juices are less potent than in adults. In treatment of the diatheses, we should be guided by what has been learned from anaphylaxis in animals.

Lethargic Encephalitis.—Juarros reports the first two cases of lethargic encephalitis to be published in Spain. One was of such a fulminating type that it proved fatal in less than twenty-four hours from the first signs of delirium, followed by bilateral ptosis and coma, but there had been slight fever and symptoms of catarrhal gastro-intestinal disturbance for four days. The other patient was a young woman; the disease began with a slight chill and mild fever, improving in three days, but the fourth day somnolency developed, with slow pulse, dilatation of the pupil, no pupil reaction to light or accommodation, and abolition of other reflexes, fibrillary tremor of lips and tongue but no Kernig sign. By the seventh day the temperature was high, with trismus and absolute coma. The ninth day the temperature had reached 42.5 C. (108.5 F.) just before death. There were no convulsions at any time, no anuria, the blood pressure was not high and there was no history of kidney disease. Juarros describes these cases as probably lethargic encephalitis.

Paget's Osteitis Deformans.—Hauduroy gives the roentgen findings in a severe case of deforming osteitis of the legs, but adds that the cause of this disease is as much of a mystery now as when Paget described the first case, in 1876. His patient is a man of 64 with nothing to suggest acquired syphilis, but certain features of the case history point to inherited syphilis.

Mechanism of Vertex Presentation.—De Torres describes with five diagrams what he calls his new ideas in regard to the mechanism of flexion and engagement of the head with vertex presentation.

Sarcomas.—Lozano refers in particular to sarcomas in the long bones, citing experiences which seem to demonstrate that myelogenous sarcomas are less malignant than those that start in the periosteum. There is less danger of metastasis, and the malignant disease remains long confined to the bone, without contact with soft parts. Hence, after its excision, the question of a bone implant may be considered. This is scarcely worth while with the sarcomas that have invaded the soft parts as, although the patient may stand the operation, yet he has to pass the perils of metastasis.

Prensa Médica Argentina, Buenos Aires

April 30, 1919, **5**, No. 33

*The Stages of Tuberculosis in Children. J. P. Garrahan.—p. 321.
*Tardy Inherited Syphilis. R. E. Parody.—p. 325.
Papulous Eruption of Probably Tuberculous Origin. P. M. Barlaro.—p. 326.

The Phases of Tuberculosis in Children.—Garrahan discusses the anatomy of the primary focus in the lung with tuberculosis in a child, tabulating and illustrating the principal features in six infants less than a year old and in four children from 2½ to 9 years old. In most of the children there had been nothing to suggest a pulmonary lesion, one child dying of tuberculous meningitis, and three of intercurrent disease, but in all the pulmonary lesion was pronounced, and with it the satellite tracheobronchial adenopathy. His experience confirms the great prevalence of the primary focus in the lung. Acuña found only 3 among 96 tuberculous infant cadavers in which the mesenteric glands were the only ones affected. Ulcerative lesions in the intestines were invariably secondary. The inoculation chancre in the lung and its satellite adenopathy form the initial phase of tuberculosis but it may escape detection. The adenopathy may become more evident while the pulmonary focus remains stationary; this seems to be a special feature of tuberculosis in very young children. Reinfection does not induce these pronounced glandular processes.

The second phase of tuberculosis comprises the diffusion of the process. This may occur by aspiration, by the lymphatics, or by the blood. One infant only a month and a half old had the small cheesy nodule in the lung with its satellite adenopathy and miliary generalization, just like experimental tuberculosis in a guinea-pig. With the same findings in a child of 2 there was, in addition, the meningeal lesion which dominated the clinical picture. The older the infant and child when the primary focus develops, the greater the chances for its conquering the infection, that is, not letting it get beyond the first phase. This latent process then is revealed only by tuberculin tests or necropsy. The third phase is the tardy form, reinfections or exacerbations, in older children and adults. We have then the common chronic pulmonary tuberculosis, generally apical, or tuberculous lesions in bones, liver, pericardium, larynx or pleura, or lupus or certain cases of iritis.

Tardy Inherited Syphilis.—Parody reports the case of a boy of 9 who has had severe attacks of spasm of the glottis since he was 2 years old and lately has been having a dry spasmodic cough, asthma, manifestations of hemophilia and intense anaphylaxis after injection of horse serum to combat the hemophilia. Finally symptoms of meningitis developed. Mercurial treatment was then begun on account of the stigmata of inherited syphilis, and at once the meningeal symptoms, asthma, etc., subsided and the child was in excellent health for several months when he grew nervous again and the spasmodic cough returned. Mercurial treatment was resumed anew and clinically normal conditions were promptly restored and have persisted during the months since to date. The discovery that the inherited syphilis was probably responsible for the whole train of symptoms presented by this child suggested mercurical treatment at once when another child in the same family began to develop asthma and asthmatic bronchitis in the same way. No benefit was derived from ordinary treatment but under mercury the improvement was as surprising as in his brother's case.

Revista Médica de Chile, Santiago

January, 1919, **47**, No. 1

Laws of Inheritance of Syphilis. P. Badilla.—p. 5.
Bullet Wound of Brain. V. Gianelli.—p. 14.
*Active Principle of Latua. J. B. Miranda.—p. 19. Conc'n.

The Latua Venenosa.—Miranda has been studying the *Latua venenosa* and now announces that the active principle is the same atropin that is found in the plants of the genus atropa, hyoscyamus, datura and the solanaceae. It grows in Chile where it is called *palo de bruja.*

Revista de Medicina y Cirugía, Havana

May 25, 1919, **24**, No. 10

*Placenta Praevia. L. Huguet.—p. 263.
Complications and Sequelae of Influenza. P. Pons y Zamora.—p. 268.

Placenta Praevia.—In the case described by Huguet there had been profuse hemorrhages, almost fatal, at term but there were no labor contractions. The placenta was central, at the internal os, but he succeeded in dilating the cervix by the Bonnaire method and introduced his hand, rupturing the membranes and feeling for the feet. The woman was being given saline and camphor at the time. He drew down the feet and extracted the trunk and delivered the child successfully by the Mauriceau method, the placenta following it at once. Mother and child were dismissed in good condition the eighth day.

Revista de Medicina y Cirugía Prácticas, Madrid

May 14, 1919, **123**, No. 1554

Relations between Skin and Internal Disease. Eusebio de Oyarzabal. p. 181.

May 21, 1919, **123**, No. 1555

Constitutional Predispositions. C. Calleja.—p. 221.

May 28, 1919, **123**, No. 1556

Prophylaxis of Blindness. F. V. Solares.—p. 261.
*Adherent Placenta. P. G. Gracian.—p. 265.

Adherent Placenta.—In Gracian's four cases of adherent placenta a history of endometritis suggested a possible explanation for the absence of spontaneous separation of the placenta from the uterus wall. The manual separation was a tedious procedure, hampered in two of the cases by repeated violent spasmodic contractions of the uterus, which kept up for some time after the placenta had been removed. Hemorrhages in these cases compelled intervention. The women all recovered promptly.

Semana Médica, Buenos Aires

April 17, 1919, **26**, No. 16

Vaccine Treatment of Eczema. N. S. Lóizaga.—p. 383.
*Postoperative Fever in Infants. P. de Elizalde.—p. 404.
*Influenzal Nephritis in Children. G. Giacobini.—p. 406.
Hygiene for the Working Classes. V. Delfino.—p. 407.

Postoperative Fever in Children.—De Elizalde refers to the occasional abrupt rise in temperature noticed in infants after an operation. There may be diarrhea or convulsions, and the temperature may run up very high. In one child less than 3 weeks old it reached 40.8 C. after an operation for strangulated hernia. One important factor in the production of the fever, he emphasizes, is the lack of water, the children having lost so much fluid in vomiting, diarrhea or hemorrhage, or all combined. This assumption is confirmed by the drop in the temperature when water is supplied freely. Another factor is the difficulty in radiating heat, as the child is bandaged and covered up. Even a healthy child's temperature would be liable to run up under circumstances such as are usual after an operation. The body needs water to eliminate the heat in perspiration. The practical conclusions are to avoid operating in hot, damp weather, avoid overheating the child, avoid vomiting by not giving water by the mouth, and supply the needed fluid by rectal infusion of saline. Saline injected subcutaneously sends up the temperature. Ice to the head, baths, and other means to reduce the treatment may prove useful.

Nephritis After Influenza in Children.—Giacobini states that he has observed numerous cases of nephritis in children following an attack of influenza. The nephritis sometimes entailed anuria, general anasarca, ascites, uremic brain disturbances, or uremia with gallop rhythm and the whole symptomatic picture of serious renal intoxications. The lesions were mainly epithelial from leukocyte infiltration and acute degeneration of the epithelium. In two cases described, in children of 2 and 4, the nephritis had entailed general dropsy or convulsions, but both recovered apparently completely under treatment by Teissier's method, that is, with serum taken from the renal vein of goats (described in The Journal, Nov. 14, 1908, p. 1738.

Siglo Médico, Madrid

April 19, 1919, **66**, No. 3410

The Public Health Service in Spain. J. F. Rodriguez.—p. 312.
*History of the Medical Press in Spain. A. C. Collantes.—p. 313.
Introduction to Operative Surgery. J. G. Capdevila.—p. 321. Cont'n.

The Medical Press in Spain.—Collantes relates that the pioneer medical journal of Spain appeared in 1734, and the *Siglo Médico* was founded in 1853 by the merging of the two leading journals of that day. In the ten preceding years fifty new medical journals had been founded.

April 26, 1919, **66**, No. 3411

*Inaugural Address at National Medical Congress. J. G. Ocaña.—p. 333.
Causal Indications with Morbid Constitutions. C. Calleja.—p. 336.

Inaugural Address at First National Medical Congress.—Ocaña dealt principally with the advantages for the individual physician of organization of the profession as a whole.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 19, 1919, **1**, No. 16

The Language of Medical Writings. V. A. Kluyver.—p. 1385.
*Medical Education in Austria. G. van Rijnberk.—p. 1389. Cont'n.
*Typhus at Amsterdam. D. Herderschêe.—p. 1397.
Biologic Research. I. Vriesendorp.—p. 1403.
Brain Tumor Simulating Meningitis. G. C. Bolten.—p. 1407.

Reform in Medical Education.—Van Rijnberk has been writing a series of articles on the new trend to more practical methods in medical education. Some of the series have been abstracted in these columns. He here describes "Voices from Austria" saying that everywhere in the academic world there are ferments at work. A more practical tendency is everywhere crowding out traditional methods. The complaints from all quarters seem to be about the same, and a general revision seems impending to rejuvenate the medical course.

Typhus at Amsterdam.—Herderschêe reviews a small epidemic of typhus at Amsterdam, nineteen cases, commenting on the difficulty of the differential diagnosis in some of the cases in which only the epidemiologic and the serologic elements of the case distinguished it from typhoid. No agglutination test is absolutely decisive, but the cord method, the *signe du lacet*, is important. This is a means to render the hemorrhagic tendency in the skin apparent by tying a cord around the arm. The characteristic changes in the walls of the vessels allow hemorrhages from them with this *signe du lacet*. It was positive in all the typhus cases but one, and negative in all the control cases of typhoid, except one.

Hospitalstidende, Copenhagen

May 14, 1919, **62**, No. 20

Traumatic Retroperitoneal Lymphorrhea; Two Cases. C. D. Bartels.—p. 609.
Nails and Tacks Swallowed in Attempt to Commit Suicide; Recovery. C. D. Bartels.—p. 617.

May 28, 1919, **62**, No. 22

*Diagnosis of Sclerosis in the Kidneys. V. Rubow.—p. 673.
*Cervical Ribs. T. Rovsing.—p. 679.
Modern Methods for Transfusion of Blood. O. C. Aagaard.—p. 688. Cont'n.

Diagnosis of Sclerosis in the Kidney.—Rubow comments on the fact that study of the blood may reveal retentions showing disease of the kidneys when the urine may be practically normal. As examination of the blood is a somewhat delicate procedure, he discusses the possibility of diagnosing contracted kidney even when there is no albuminuria. In his extensive experience when there had been a permanently high blood pressure, necropsy never showed any other organic affection as cause for the high blood pressure than glomerular nephritis. Even extensive arteriosclerosis does not entail a high blood pressure if the glomerular apparatus is not involved. To decide how early with glomerular nephritis the blood pressure begins to rise, he examined 39 patients in his service with permanently high pressure. Albuminuria was pronounced in 26, and the question was whether the other 13 had sound kidneys or not. None in this group had edema or manifestations of uremia. The initial symptoms in 10 had been dyspnea; in 2, pain in the heart region, and in one woman restlessness and insomnia.

The maximal pressure ranged from 190 to 235 mm. mercury during the three to five weeks they were under observation. The percentage of residual nitrogen in the blood ranged from 90 to 155 mg. with one exception, and as none of the 13 had any signs of liver disease, the conclusion is obvious that disease of the glomeruli was responsible for this abnormally high residual nitrogen figure. The one man whose blood showed only the normal content of residual nitrogen had a blood pressure of 196, and it was learned that five years before he had had an acute glomerular nephritis and he had been left with subjective heart symptoms. His high blood pressure was evidently due to the second phase of glomerular nephritis, which may stretch over many years and manifest itself only in hypertony and hypertrophy of the heart. Rubow reiterates in conclusion that there is evidently a very close connection between high blood pressure and glomerular disease. The residual nitrogen may be within normal range in the early phase. It is possible that this may continue as long as the heart does not show signs of insufficiency.

Cervical Ribs.—Rovsing gives the details of four cases in which he removed cervical ribs causing various disturbances, besides the common neuralgias, from scoliosis of the cervical spine, atrophy of muscles, and vasomotor disturbance, to aneurysm in the subclavian artery. There had been no disturbance from the anomaly until taking up wage-earning work, and cessation of work brought transient relief. In three of the cases he removed the supernumerary ribs through a posterior longitudinal incision, parallel to the spinous process, and 2 cm. from it. The rhomboid and the trapezius muscles were cut through and the splenius pushed to one side. The cervical rib can then be felt and it is easily detached and removed. A "rib-guillotine," on the principle of Mackenzie's tonsillotome, is useful. There is no hemorrhage to speak of with this technic, but its main advantage is that it avoids all danger of coming in contact with vessels or nerves. He regards this method as so harmless that practitioners and internists can confidently advise this simple and easy radical cure for disturbances from cervical ribs.

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DÉBRIDEMENT [*]

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Débridement, as employed surgically, has been defined as an incision of a wound made with the view of facilitating the discharge of pus. It might be more properly defined as the excision of the devitalized tissues or débris resulting from the action of any traumatizing force, with the view of preventing the development of infection.

Excision of devitalized tissue has always been practiced to some extent in traumatic surgery. It was, however, not practiced to any great extent at the beginning of the war because of the teachings of military surgeons which were based on the experiences gained in previous wars. As the result of observations made in these wars, gunshot wounds when first received were treated conservatively and active surgical interference was postponed until infection had developed.

Two factors in the recent war made necessary the return to débridement which was advised and rather extensively employed by Larrey in the Napoleonic wars. These factors were, first, the high explosives, which, when they strike, tear and devitalize large pieces of muscle and shatter bone, and second, highly virulent bacteria which were present in the soil of the country over which the contending armies fought. This soil had been intensively fertilized for years.

The tissues devitalized by the high explosives formed a culture medium for the bacteria introduced with the shell fragment or pieces of clothing. In order to prevent gas gangrene, which might necessitate amputation or cause death, or suppuration, thus prolonging disability and preventing the return of men to the firing line, it became necessary to remove this dead tissue which formed the medium of growth for these organisms and to make a new wound the borders of which were formed by healthy tissues capable of inhibiting the growth of bacteria or preventing their extension when once developed.

PRIMARY INFECTION OF WOUNDS

The amount of infection carried into a wound usually depends on the shape and character of the missile, whether it is smooth or irregular, with sharp, jagged edges. A machine-gun or rifle bullet may perforate the soft parts, causing a long wound track but carrying in no infection at all or so little that the tissues which are usually only slightly damaged by a missile of this character can take care of the bacteria which are introduced. A smooth shrapnel ball, of which relatively few were seen during the latter months of the war, may be cleaned in its passage through the superficial tissues, so that infection, if it develops, may remain superficial, while the deeper parts of the wound may remain sterile and manifest no inflammatory reaction.

The irregular pieces of high explosive, on the other hand, carry infection deep into a wound, and frequently, when they pass through clothing, carry a small piece of cloth containing virulent bacteria ahead of them. Fragments of high explosive have also a more destructive action on tissues than do either undistorted machine-gun or rifle bullets, and destroy large pieces of muscle which form a medium in which the bacteria carried in by the shell fragment or clothing rapidly develop.

PERFORATING WOUNDS OF SOFT PARTS

Perforating wounds of soft parts caused by undistorted machine-gun and rifle bullets or shrapnel should be treated conservatively. It is not necessary, in most of these cases, to even debride the skin surrounding the wound of entrance and exit. Some superficial, gutter wounds, caused by the missiles just mentioned, may be painted with iodin and dressed with dry gauze. In the majority of cases, however, gutter wounds should be excised, for excision is easily performed without any disabling consequences, and healing takes place much more rapidly.

Shell fragments, irregular, distorted, machine-gun or rifle bullets and shrapnel balls, if superficial, should be removed as early as possible. Some question often arises as to the advisability of removing bullets which are not misshapen, shrapnel balls and minute shell fragments. It should always be considered whether the damages done the tissues in the attempted removal do not outweigh the advantages of removal. A foreign body in the belly of an important muscle will usually have to be removed. A foreign body resting close to the wall of a large vessel should be removed for it may later cause pressure on the vessel wall, resulting in hemorrhage and subsequent aneurysm formation. The more irregular a foreign body, the sooner it will cause trouble and the greater it will be.

FUNCTION OF THE TRIAGE OFFICER

The triage officer has an important function to perform. He can sort those cases on which iodin and a dry dressing can be applied from those which require operation consisting of removal of the foreign body. The gravity of the lesion is not indicated by the size of the wound. A bullet may cause a perforating or a penetrating wound, the wounds being relatively large, but they will often heal without complications, whereas a small fragment of high explosive may make a small wound in the skin while the underlying tissues may be badly damaged or devitalized.

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[*] Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[*] Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

As a rule, I believe it may be said that all wounds caused by high explosive, except some gutter wounds in which the foreign body has very evidently not entered the deeper tissues, should have a roentgen-ray examination and be seen by a surgeon.

The greater number of the wounded which pass from the receiving tent to the dressing tent will be made up of those who have sustained bullet wounds involving the soft parts or superficial wounds caused by other forms of missiles which have not entered muscle tissue.

GUTTER WOUNDS

Gutter wounds caused by bullets or fragments of high explosive should be excised whenever muscle has been exposed and injured. These wounds are sometimes neglected because superficial. Gas gangrene may, however, develop in such wounds, and when this type of wound is not inspected or is neglected because apparently so insignificant, the gas gangrene may extend considerably before being discovered. Such wounds may be easily excised, and the results following excision are usually not disabling because the wound is superficial.

LOCAL ANESTHESIA IN WAR WOUNDS

It has been advised that local anesthesia be used in the excision of the smaller wounds of this type. I do not believe that local anesthesia should be used in the excision of war wounds. The excision is frequently not well done under local anesthesia, for a wide enough dissection is not made. Infiltration anesthesia may also force bacteria into deeper tissues. If a deep anesthesia is not desired in the excision of such wounds, the operation may be performed in the early stages of general anesthesia.

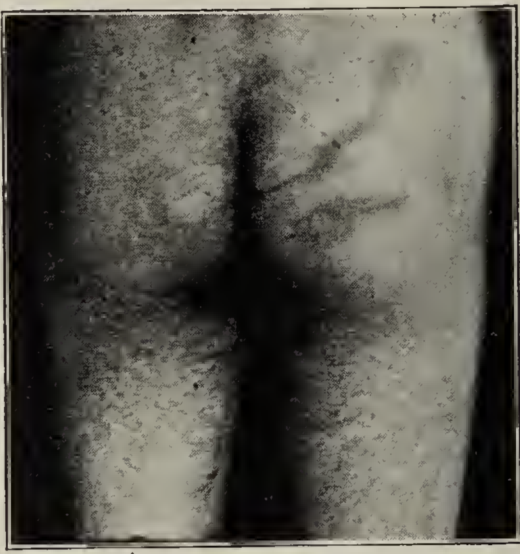
Fig. 1.—Result following débridement of high-explosive wounds of the buttocks. Removal of fragments of high explosive, also of the devitalized portion of the gluteus maximus muscle, was performed.

These gutter wounds are excised by elliptical excisions which should be made at least one quarter of an inch from the margins of the wound. The distance at which the incision should be made from the margins will naturally depend on the pathologic changes in the muscle. Muscle which is infiltrated with blood should be excised, as also should the hyaline noncontractile muscle, which is found when gas gangrene has developed. In the débridement of muscle, the excision of tissue should be carried back to muscle which contracts readily and bleeds. After one edge of the gutter wound has been freed, the incision may be made on the other side.

Care should be taken that the tissues incised are not infected from the surface of the wound, and that during excision the incision is not carried into infected tissues. In other words the excision should be en bloc. If the wounded can be kept for any length of time so that they may be observed for a few days, primary suture of wounds of this type may be attempted. In evacuation hospitals, during active work, primary suture of wounds of this character should not be attempted because of the rapid evacuation of wounded which does not permit of observation.

As previously stated, perforating bullet wounds should be treated conservatively unless there are distinct indications for surgical intervention. When there is an explosive wound of exit the tissues about it should be excised. Excision is easily performed in cases of this type for the badly injured tissues are superficial or have been exteriorized. The deep parts of such a wound may be regarded as sterile and excision should be confined to those tissues which have suffered from the explosive action of the missile.

PENETRATING BULLETS

Penetrating bullets should be removed. Bullets are usually easily removed after definite roentgen-ray localization. If removed, they will cause no trouble later. When removed after roentgen-ray localization, the incision, usually a short one, is made over the bullet and no attention is paid to the track of the missile. In some cases, however, a bullet may cause considerable damage. This happens frequently when the muscles are on a stretch when struck.

Vascular injuries, accompanied by hemorrhage and nerve injuries, may complicate either penetrating or perforating bullet wounds. One of the most typical examples of vascular injury with hemorrhage is seen in the transverse perforating wounds of the calf, in which the posterior tibial artery is injured. The leg has a tense feeling and is swollen. In cases of hemorrhage occurring in wounds of this type, the injured vessels must be ligated after the clots are removed, but as a rule no tissue will have to be excised. When there are evidences of nerve injury, the nerve in the track of the bullet should be explored. If the nerve has been divided, a nerve suture should be performed. The injured tissue of the nerve should be excised until neurofibrillae herniate from the cut end of the nerve. If suture is attempted without resection of the softened, fused nerve ends infiltrated with blood, the results will be bad because of the scar tissue which forms at the line of suture.

TREATMENT OF WOUNDS CAUSED BY SHELL FRAGMENTS

Wounds caused by fragments of high explosive, as previously stated, demand much more careful consideration than do those caused by bullets. No wound caused by high explosive should pass through the hospital without a roentgen-ray examination and careful examination by a surgeon, unless the amount of work is so great that the wounded will receive attention earlier at some hospital in the rear. It becomes necessary at times to send the wounded back to centers further removed from the front than the evacuation hospital, but when such trains are sent back there should be some assurance that the wounded will receive treatment sooner than they would at the evacuation hospital to which they are first sent, which may for a time be unable to handle the work on account of the number of wounded that have been brought back.

PERFORATING SHELL WOUNDS

Perforating wounds may be superficial or deep. The superficial wounds often form a short tunnel, while, in other cases, the explosive force of the missile lays open the skin or lacerates the underlying muscle which is infiltrated with blood and devitalized for some distance. There is likely to be more laceration of tissue and destruction of muscle in wounds of this character than in the gutter wounds that have been described. In these perforating wounds, removal of the foreign body does not have to be considered.

In the superficial perforating wounds, the track may be excised en bloc without contamination of the surrounding tissues by passing a piece of gauze which is used as a guide through the wound. The excision is made far enough away from the tissues that have been devitalized, the gauze being used as a guide, to avoid the soiling of surrounding tissues.

The passing of gauze through a perforating wound of any kind and then making sawing motions with the gauze so inserted is bad surgical practice and should never be employed. Gauze used in this way may remove gross dirt and blood clots from a wound track, but the muscle coming in contact with the gauze is contused and any bacteria on the surface are rubbed into the deeper tissues.

It has been suggested in perforating wounds of relatively deep levels, when it is thought that the circulation of the tissues about the track is good, that the tunnel may be cleaned by passing forceps along it, and then drawing through it a suitably thick strip of gauze, which will remove the larger foreign particles and blood clot. Successive strips of gauze should then be drawn through, the sawing motion always being avoided. Finally, a strip of gauze considerably narrower than the diameter of the tunnel, and impregnated with antiseptic paraffin or petrolatum, should be pulled through and left in situ. This method of treatment of some tunnel wounds has been suggested by one of the chief advocates of the excision of war wounds. I believe it to be a dangerous procedure. Perforating wounds of the type just described, whether superficial or deep, should always be thoroughly excised or debrided. The tissue should be excised en bloc when possible. The excision will often, of necessity, be done piecemeal but should be carried into healthy tissues. Disastrous results may follow even the method of treatment just mentioned. The safest procedure should, however, be followed, although it must be confessed that gas gangrene has occasionally followed débridement. When it has followed, it has been owing to error in judgment as to the pathologic condition of the remaining muscle and not to the employment of a faulty surgical procedure or at least one of doubtful value.

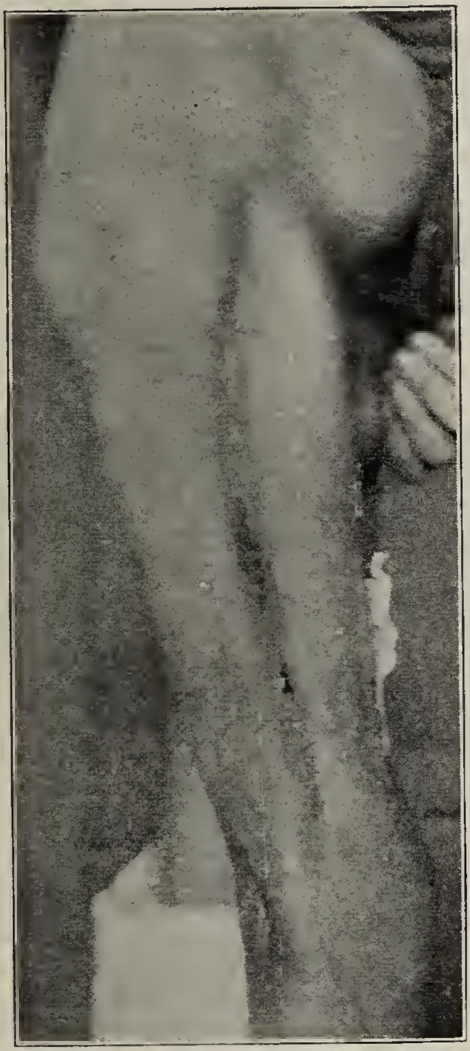

Fig. 2.—Scar following extensive débridement of muscles on outer surface of thigh.

PENETRATING SHELL WOUNDS

In this type of wounds, the foreign body must be removed. As there is no wound of exit, it may be more difficult to follow the track of the wound. Accurate roentgen-ray localization of the foreign body is necessary in all these cases for it may not be possible to follow along the track and reach the foreign body, and a counter-opening may have to be made over it in order to remove it. The distal end of the wound track may be found after the foreign body has been located, and the entire wound track may then be excised or debrided.

It is often difficult to follow the deeper parts of a wound track after the superficial portion has been excised. If the injured extremity is moved slowly, so that the deeper planes of muscles are made to assume different relative positions, the deeper parts of the track may be seen. In the relatively superficial wounds, it may be possible to insert the finger into the wound track and feel the foreign body. A probe or grooved dissector may be passed along the finger until it meets the shell fragment and may then be left in position to serve as a guide.

Special attention should be paid to the bed of the foreign body, which not infrequently carries in pieces of clothing. Cases were repeatedly seen in base hospitals in which the wound of the soft tissues which had been excised had almost entirely healed, only a small sinus remaining. Pieces of clothing were not uncommonly found in such cases. The foreign body had been removed, rather blindly perhaps, but the pieces of clothing had been allowed to remain.

In cases in which multiple shell fragments have lodged close together, the muscle will be badly damaged. I have seen cases in which several small fragments of a shell have lodged close together in the gluteal and in the hamstring muscles. Multiple small fragments when lodged close together destroy the muscle. They frequently have what may be described as a grinding or churning effect. Such wounds are very susceptible to gas gangrene.

These foreign bodies cannot be removed singly, and it would be poor surgery to attempt removal in this way if possible. The devitalized muscle in such instances should be excised en masse, the foreign bodies being removed with the muscle. In wounds of the character just described, all the hamstring muscles from their points of origin to their points of insertion may have to be removed. In injuries of the gluteal region it may be necessary to remove the greater part of the gluteal muscles. This surgery, seemingly very radical, is, however, conservative, for wounds such as those just described are especially susceptible to infections by gas producing organisms.

METHOD OF PERFORMING DÉBRIDEMENT

It is difficult to give any definite instruction regarding débridement for the reason that types of wounds vary so much. There is as decided individuality exhibited in this kind of surgery as in that of civil practice. There are, however, certain general principles which should be followed.

Skin and subcutaneous tissues should, as a rule, not be widely debrided, for they are not usually involved in the types of infection which occur in war wounds. The resulting wounds when they can be well covered by skin are much less disabling when healing occurs. The skin in face wounds should be debrided little, for facial wounds heal rapidly. The badly soiled tissue should be removed, but no wide débridement should be attempted. All tissue, especially skin and subcutaneous tissues, should be saved in war wounds of the face when possible.

In performing débridement, an anatomic dissection should be made. The skin and subcutaneous tissues should be incised over the wound track and the tissues exposed by sharp dissection, down to tissue which is evidently devitalized. Devitalization is indicated by hemorrhagic infiltration of the muscle, and by failure to contract and bleed when pinched with tissue forceps or cut. Muscle, the seat of gas gangrene, has a peculiar waxy appearance and is rigid. It looks somewhat like muscle which has been boiled a short while. Muscle which is the seat of such changes should be entirely removed.

Considerable criticism has been raised against the transverse division of muscles during débridement. Undoubtedly, muscles have been divided transversely, but the foreign body has in many instances already caused the division. It is better to divide a muscle transversely, provided this does not interfere with its blood supply, than to leave a poorly debrided wound.

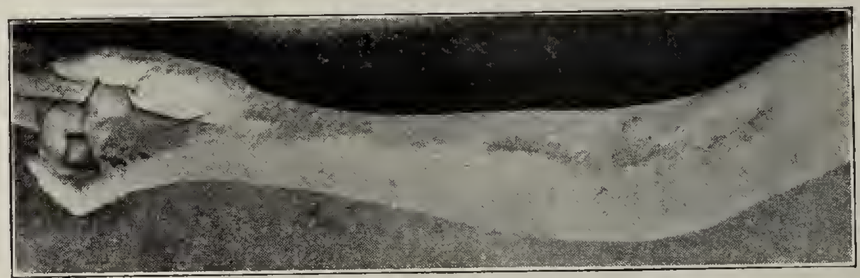

Fig. 3.—Débridement of wound on inner surface of arm and forearm. The paralysis of the ulnar nerve should be noted. Primary nerve suture was not attempted.

SMALL FOREIGN BODIES

Small foreign bodies are sometimes found with difficulty. The question arises in these cases as to how earnest an attempt should be made to remove the foreign body. An extended search should not be made for small foreign bodies because of the added injury to the muscles about the wound track which increases the dangers of infection. The track leading down to such a foreign body should be incised and provision made for drainage. Any foreign body which is left without provision for drainage is, however, a source of danger. I have seen a late infection that clinically resembled malignant edema develop about a small foreign body which had lodged in the muscle of the thigh, and had been overlooked in the roentgen-ray examination. This late infection developed four weeks after the wound was received.

Small foreign bodies in the hands and face should be left unless superficial and easily removed. They pass through no clothing when entering these parts. The danger of infection therefore is not so great, and attempts at removal would leave disabling or disfiguring scars.

Wounds of the muscles at the base of the neck, of the circumscapular group, of the buttocks, of the thigh and calf should always receive special attention. These are large muscle groups which are often ground or churned by fragments of high explosive. In cases in which there are multiple wounds, and the condition of the patient is such that all cannot be debrided thoroughly, the groups just mentioned should be operated on and the work done thoroughly because they are so prone to gas gangrene.

The operation of débridement has gained a bad repute because of some of the extensive operations that have been performed, but in some of these injuries it is necessary to remove the greater part of the gluteal muscles or all of the hamstring muscles because they are destroyed. Radical débridement in such cases hastens convalescence, for these muscles would slough away if allowed to remain, as infection would certainly occur. A radical operation is the surest preventive of gas gangrene.

The blood supply of muscles should be carefully studied. A portion of a muscle deprived of its blood supply should not be left. The most typical examples are the rectus femoris and the superficial muscles of the calf. If the rectus femoris has been divided transversely, the distal part, deprived of its blood supply, should be removed.

In transverse perforating wounds of the calf associated with division of the posterior tibial artery, I believe that it is good practice to remove all of the superficial group of muscles, because the blood supply to these muscles is either destroyed by the foreign body or interfered with when a conical débridement is done. Removal of the entire group reduces the muscle mass which requires a collateral circulation, and prevents the development of gas gangrene in the part of the muscle distal to its blood supply.

After débridement, a dressing should be applied over the surface of the wound. Gauze should never be packed into a wound but merely laid on the surface. Dry gauze or moist gauze, which soon becomes dry, is removed with difficulty from these wounds. Removal usually causes severe pain and injures the granulating surface. Petrolatum gauze or gauze impregnated with antiseptic paraffin is the best for this purpose.

When débridement of soft tissues is attempted, it should be radical, but performed with a thorough knowledge of anatomy. A clean dissection with a sharp knife should be made, the tissues should be handled gently, and the tissues adjacent to the wound should be protected from infection. The principles of surgery observed in civil life should be conscientiously followed in débridement.

REMOVAL OF BONE FRAGMENTS

Opinions differ as to the extent to which bone fragments should be removed in cases of compound, comminuted fractures caused by missiles. The line of treatment to be pursued depends again on the character of the missile. Many fractures of the long bones caused by bullets will heal if iodin is painted over the wounds of exit and entrance, and a dry dressing is applied. This statement applies to perforating wounds in which the wounds of exit and entrance are small.

In cases in which fragments of bone have been driven through the skin and a large wound of exit has been produced by a distorted missile or bone fragment, the soft tissues must be excised and the detached particles of bone removed. From experience gained after the observation of fractures in evacuation, base and general hospitals, it seems to me that fragments of high explosive have a much more destructive action on bone than bullets. The action of the traumatizing force probably does not differ, however, but a high explosive wound is more frequently infected. The more extensive and more common necrosis of bone fragments after high explosive wounds is probably due to the infection which practically always follows rather than to any differences in the traumatizing force. Bullets should be removed if they lodge in the part involved after fracture of the bone. Bullets which lodge in the tissues and do not perforate are usually traveling at a low velocity and are much more apt to carry in infection than perforating bullets traveling at high velocity.

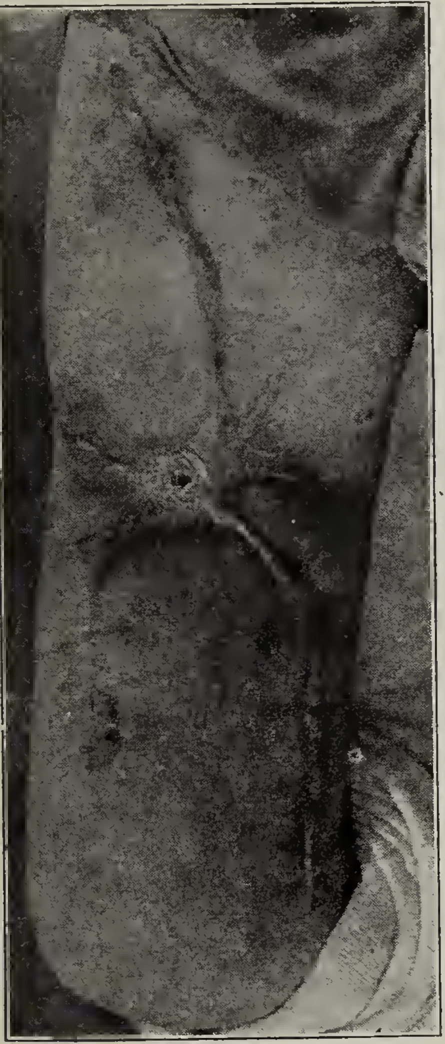

Fig. 4.—Result after débridement of extensive wound of right thigh. There is paresis of extensor muscles due to injury of anterior crural nerve.

The question as to whether amputation should be performed or not is easily determined in most cases. Injury of the principal artery of the extremity or nerve injuries with loss of great lengths of the main nerve or even localized gangrene in the distal part of the extremity, after ligature of either the main artery or vein, are indications for amputation.

As to the extent to which bone fragments should be removed, opinions differ considerably. Colonel Burghard states in his preface to the English translation of the "Traitement des Fractures" by Prof. R. Leriche:

> Put concisely, the position is, that one school regards as its bugbear possible want of union as the result of removal of fragments from an infected fracture, while the other attaches prime importance to the persistent suppuration and loss of function to which the retention of septic fragments is likely to lead.

From the cases of osteomyelitis that I have observed in U. S. General Hospital No. 28, of which we have over 400, I am convinced that an insufficient débridement results in long convalescence and considerable disability due to sclerosis of the muscles adjacent to the suppurative osteomyelitis. It is difficult in compound fractures of this type to determine how much to excise.

There should be no hesitation about removing fragments that are driven into the medullary cavity, for these must be removed in order to secure drainage of the marrow cavity, nor those which have been driven into the soft tissues, for these will no longer take any part in the regeneration of bone. In some cases which I have seen there have been a large number of sequestrums. Phemister recently removed twenty-three small sequestrums from an infected high-explosive fracture of the left humerus. There is no chemical method of sterilizing these fragments, and osteomyelitis, accompanied by infiltration of surrounding muscles and the danger of repeated pathologic fracture, cannot be obviated unless these fragments are removed.

It seems to me, in the light of experiences that I have recently had, that fractures were not sufficiently débrided. In many cases it would have been better to have performed some modified type of subperiosteal resection at the site of the fracture, removing in this way all completely detached fragments, and even in some cases those fragments concerning which there was some uncertainty as to whether they were attached or not. This statement applies especially to fractures of the femur, for the femur has apparently greater callus-producing power than either the tibia or humerus.

Hurley and Weedon state that nonunion in cases of compound fracture of the femur in men of military age is extremely rare, being not more than 1 per cent., and that even when the fractured ends of the femur have been separated as much as 3 inches, firm union has resulted.

Removal of the foreign body may be difficult in many of these cases because in palpating the tissues it may be practically impossible to differentiate the foreign body from the bone fragments. In fractures of the thigh, it is often advisable to incise longitudinally the fascia lata in order to relieve tension. This practice may be employed to advantage in other parts where there is a strong surrounding fascia.

TROUBLESOME INFECTED FRACTURES

A type of infected fracture which has caused trouble is the one with tunnels and large cavities. Many of these are caused by perforating foreign bodies, while in others the mechanism of production is difficult to determine. This type of fracture, when infected, continues to discharge until one of the walls has been removed, and the soft tissues are allowed to come in contact with the tunnel or cavity.

In debriding fractures, it would in most instances be impossible to determine whether or not a tunnel or cavity would form. If there were apparently the chance of such a formation, it would be advisable to remove the wall which was most detached or apparently most devitalized. This procedure would shorten convalescence and lessen the disability associated with this type of infected compound fracture, which is often long.

In fractures involving joints, considerable judgment must be exercised in determining the type of operation to be performed. Gunshot fractures of the upper end of the humerus and about the elbow often demand excision. In fractures of this type involving the head of the humerus typical excision of the head of the humerus should be performed. In fractures involving the elbow joint, atypical excision should be performed. Soiled muscle and synovial membrane and detached bone should be removed.

In T fractures of the lower end of the femur, it may be difficult to decide on the type of operation. T fractures in which metallic fragments have been scattered along the vertical part of the T may require amputation. In cases in which a condyle is detached, it is a question whether resection followed by a stiff knee would not be preferable to a knee in which a part or all of one condyle had been removed resulting in a more or less flail joint.

Badly comminuted fractures of the patella are not uncommon in war surgery. Entire removal of a badly comminuted patella becomes a necessity. This subject must be considered in its relation to wounds of the knee-joint. Excision of such a patella should be carefully performed, and great pains should be taken to avoid injury of the knee-joint. In some cases, where there is difficulty in repairing the defect after removal of the patella, the ligamentum patellae may be split longitudinally and each half sutured to the corresponding expansion of the quadriceps femoris tendon in which the patella was embedded. When the patella is removed, there is usually a small area directly in front of the knee-joint that cannot be covered by the capsule of the joint. An attempt should always be made to cover this defect with surrounding tissue, and usually it can be done. Mobilizing the suprapatellar bursa and displacing it downward is a good method of accomplishing this.

WOUNDS OF JOINTS

The results following wounds of joints were bad during the earlier periods of the war. It has been stated that at a joint meeting of French and British surgeons, held near the end of the first six months of the war, it was painful to hear from representatives of both nationalities the reiteration of the deplorable results in these cases: amputation—death. Over the record of a healed stiff joint one felt almost inclined to cheer, while a story of movement following operation sounded like a fairy tale.

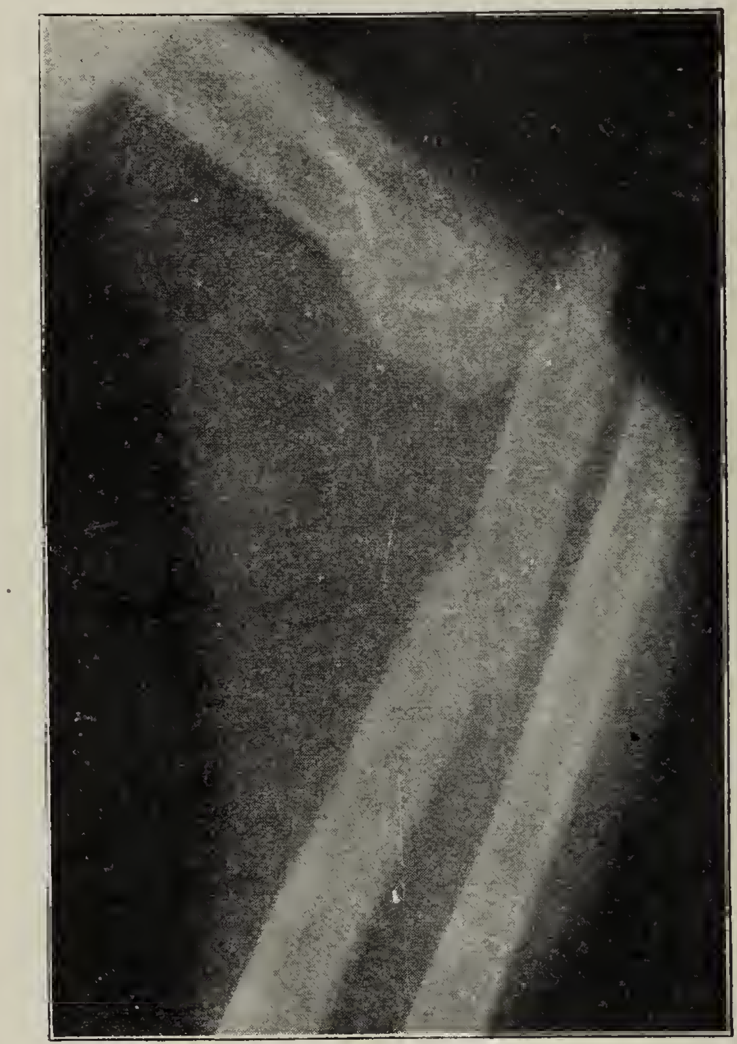

Fig. 13.—Gunshot wound of the elbow, necessitating resection of the upper end of the radius and the ulna. The motions of the joint are good. The function of the joint is so good that the patient is able to do considerable work.

The results were particularly bad after penetrating wounds of the knee-joint. Later it was demonstrated that the principle of débridement could be applied successfully to joints. In attempting to attain the ideal—removal of the foreign body and excision of the wound track, followed by closure of the joint cavity with preservation of joint function, imperfect results may often follow. If infection occurs after such an operation nothing has been lost.

Wounds of the knee-joint are more common than those of any other joints, and the results are, as a rule, more disastrous when infection occurs.

The principles to be outlined in the treatment of wounds of the knee-joint may be applied to wounds of any other joint and therefore only wounds of the knee-joint will be considered. The principles to be followed depend on whether the wound has been caused by a bullet or by a fragment of high explosive, and on whether the foreign body passed through the joint or lodged within it. The procedure to be followed will depend also on the amount of damage to the bones entering into the formation of the joint.

A bullet may pass superficial to the synovial membrane but may contuse it enough to cause hemorrhage into the joint. Perforating wounds which pass through the synovial membrane may produce a similar picture. In wounds of this type, as well as in wounds caused by bullets which perforate the bone, conservative treatment should be followed. Iodin should be applied to the wounds of entrance and exit and a dry dressing applied. The joint should be aspirated, for the removal of blood is indicated to lessen pain. The reduction of tension will also lessen the chances of infection. When the bullet lodges between the articular surface or penetrates the bone after passing through the joint cavity, it should be removed.

Wounds caused by high explosive must be treated early and the treatment should be radical. Accurate roentgen-ray localization is absolutely essential to success. Three, four or more pieces of high explosive may enter the joint. Pieces of clothing are usually carried in by the fragments. Not infrequently these pieces enter the joint cavity without injuring the articular cartilage or bone. Just as careful technic should be employed in these cases as in operations performed on the knee-joint in civil life. The tissues should be carefully protected and the wound track removed en masse. If the foreign body is in the tissues it should be removed with the tissues. Gutter wounds of the condyles of the femur should be chiseled away, so that, when the operation is completed, no wound track which has been infected by foreign bodies remains. A bloodless field, obtained by constriction, facilitates this operation, as Speed has shown, and may render differentiation of the wound tract clearer. Instruments coming in contact with soiled tissue should be put aside. Gloves and linen about the field of operation should be changed when necessary.

After the operation has been completed, ether may be poured into the joint before closure. I am not convinced, however, that ether has any influence in the prevention of infection in these cases. Closure of synovial membrane and superficial tissues is the next step in the operation. Such wounds, unless there is very evident infection, without much possibility of control, should always be closed. The capsule should be closed and the skin wound left open in those cases in which the tissues have been much soiled. If the débridement has been thoroughly done and the subcutaneous tissues are not much soiled, the skin, also, may be closed. Interrupted sutures placed at wide enough intervals to permit of the escape of wound secretion should be employed in cases of this kind.

After débridement of a joint, evacuation of the patient should be postponed until one is reasonably certain of the outcome. If infection develops, in transit, the patient cannot receive the care which an infection of a joint demands and by the time the base hospital is reached, where such care can be given, irreparable damage to the joint may occur. A certain number of beds should be reserved in an evacuation hospital for patients with joint wounds, pending decision as to the result of the operation.

During transport, fixation of the joint is a sine qua non of success even in the simplest cases. This fixation is easily secured by a Thomas splint. No extension is necessary and the adhesive tape is applied merely with the intention of fixing the splint in position.

Experience with a few cases of primary suture indicates the advisability of attempting to suture nerves at the evacuation hospital. We have at the present time nine cases of primary nerve suture at U. S. General Hospital No. 28 at Fort Sheridan. Seven of these patients are well on the way to recovery or have completely recovered motion. Reconstructive surgery, especially of the peripheral nerves, should begin earlier and in more advanced units than has been the case.

While discussing débridement, I would like to emphasize the necessity of removing the nerve tissue which is softened and infiltrated with blood after a nerve is severed by a missile. The several nerves that I operated on in evacuation hospitals appeared as if fused, and in order to secure healthy neurofibrillae, which should always be exposed when a nerve suture is done, it was necessary to resect the softened, devitalized tissue on each side of the point of division.

Primary suture will not always be successful, but there will be enough successes, as shown by the number of recoveries that have already occurred, to justify it. If there is no return of function, nothing has been lost, for the secondary operation can always be done.

In the cases in which I have performed primary nerve suture, it was necessary to resect so much of the nerve ends that it was impossible to make an end-to-end suture, unless the parts were placed in proper position. In cases of suture of the sciatic nerve it has been necessary to flex the knee to 65 or 70 degrees. When the parts have been placed in such a position to permit of end-to-end union, the fixation dressing should not be removed before four weeks and then the normal position should be assumed gradually.

One would suppose that the final results of débridement would be very disabling. I have been surprised to see how little disability results, even after extensive débridement of rather large muscle groups. The most marked disability has resulted from the division of tendons, a practice which should be discouraged, for it is unnecessary. Synergistic groups of muscles are, to a greater or less extent, able to take over the action of muscles which have been partially or almost totally removed, and to perform the function so well that little disability results.

Débridement, employed so extensively in war surgery, is a procedure which could be used to advantage more commonly and more extensively in the traumatic surgery of civil life.

WAR WOUNDS

PRIMARY AND SECONDARY SUTURE *

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There are two conditions under which war surgery is performed at the front: first, relatively quiet periods; and second, times when military activities are acute. In quiet times, a thin but fairly continuous stream of wounded are passed back to the forward hospitals; but only occasionally, as after a raid, does congestion occur. The wounded usually can be operated on almost as soon as they are received; there need be no hurry, and the patients can be carefully watched after operation. The aggregate of such cases along a wide sector in quiet periods reaches formidable figures.

The ultimate aim of treatment is to restore the soldier to full activity, with complete restoration of function, in as short a time as possible. Obviously, one of the conditions of such restoration is the repair of the wound. During quiet times, early closure of the wound may be undertaken successfully in a large proportion of cases. Great benefit thereby accrues both to the patient and to the service. But the long, relatively tranquil periods also are of use in affording an opportunity for study and demonstration as to what may be done and what should be done under the varying conditions of war surgery. As a result of such study of technical methods and tissue repair, rules may be formulated and safely enforced for the treatment of the wounded during periods of greater activity.

It must be recognized, therefore, that local conditions, such as the degree of battle activity, alter materially the indications for suture, particularly for primary suture, in the advanced area.

With these preliminary remarks I will outline the general principles and technic of the three varieties of suture of war wounds, namely, primary suture, delayed primary suture and secondary suture.

We will consider first, wounds of the soft parts. The immediate aim of treatment is the prevention or limitation of infection. This is accomplished primarily by débridement of the tissues, that is, excision of the tract, removing devitalized and contaminated skin, subcutaneous tissue, aponeurosis and muscle, together with shell fragment (or other projectile), clothing and micro-organisms contained within the tract. However skeptical one may be as to the complete removal of devitalized tissues and pathogenic micro-organisms by this procedure, many of the wounds, after such an operation, undergo repair as if aseptic, and cultures and smears are often sterile.

PRIMARY SUTURE

The débridement[1] having been completed, the choice of treatment lies between primary suture and leaving the wound open. If ideal conditions, that is, early and thorough débridement, have been approximated and the case can be watched for some days, primary suture may be made. Otherwise, the wound is left open and sutured subsequently. Obviously, the deci-

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* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Débridement is here used to include incision, excision of devitalized tissues, and removal of foreign body.

sion in a given case, as to whether primary suture may be made, must be attended with much uncertainty; a mistake may be costly to the patient. In active periods, as in an offensive, when there is a large number of wounded, the exigencies of a service demand haste in the primary operation, and the patient must be evacuated, passing from the operator's control soon after the operation. Under these conditions, primary suture should not be considered. It may be employed, therefore, only in quiet periods and in hospitals where patients may be retained for observation.

The advantages of primary suture are obvious; the disadvantages consist chiefly in the danger of closing within a wound, especially within a wound imperfectly debrided, noxious micro-organisms,* particularly anaerobes of the types which produce gas gangrene. A resulting gas bacillus infection or a pyogenic infection in a few cases will counterbalance many successful closures. The only means of rendering primary suture safe is by extreme operative care and thoroughness, thoughtfulness and judgment in the selection of cases and, finally, scrupulous watchfulness for some days after the operation.

When the general conditions are such as to warrant primary suture, many considerations must be weighed in each case in deciding whether suture is indicated. These considerations are:

1. The interval between the receipt of wound and the operation, the type of tissue and situation of the wound. Thus, wounds involving the muscles of the calf, thigh or gluteal regions should not be closed as a rule after a longer interval than eight hours. In these muscular parts, gas bacillus infection is prone to occur and to result disastrously. In other muscular parts the time often may be extended to about twelve hours. In wounds not involving muscles the time may be further extended. It must be understood, however, that such rules based on the time between the injury and the operation are not absolute and have been advanced only as a suggestive working basis. Wounds of the face and scalp are regularly sutured. Wounds of the hands should, as a rule, be sutured. Extensive wounds of the feet should, as a rule, be left open, treated by the Carrel method, and closed subsequently.

2. Extensive laceration of the soft parts or the presence of a large shell fragment or considerable clothing in the tissues shortens the time within which primary suture may safely be made.

3. Conditions which demand haste in the operation, and therefore militate against thorough and painstaking débridement, preclude primary suture; for instance, multiple wounds, condition of shock or period of a rush.

4. Diminution of the vitality of the parts, especially as a result of vascular lesions, precludes closure; for instance, wounds of the calf with the posterior tibial artery sectioned, or marked infiltration of the tissues with blood.

5. As has been emphasized, primary suture must not be made unless the patient can be watched carefully for days thereafter. Accordingly, it was a general rule in the American Expeditionary Forces that during active periods no primary suture of wounds of the soft parts should be made except in wounds of the scalp, face, hands, as enumerated above.

Technic of Primary Suture.—Thorough débridement is essential, and aseptic technic must be observed throughout the operation. Hemostasis must be complete. The wounds should be washed sufficiently to remove blood clots and loose fragments of tissue. Many operators, after drying the wound, apply ether to the wound surfaces; this, however, is empiric. Lemaitre applies tincture of iodin to fix residual micro-organisms. It is questionable, however, whether the ether or the iodin are factors of importance. The muscles and aponeurosis are approximated with interrupted catgut. As little and as fine catgut should be introduced as will approximate the tissues and obliterate dead spaces. The skin and subcutaneous tissues are closed with interrupted silkworm gut. A drain is rarely needed, but should be employed if there is likelihood of oozing. It should be removed as soon as possible; in general, within twenty-four hours. Silkworm strands, rubber tissue or split tube should be employed according to the indications. In some cases, especially in deep wounds of muscular parts, a few strands of silkworm are advantageous as a means of obtaining subsequently a culture from the interior of the wound. At the first dressing the silkworm should be removed and cultures taken; and if hemolytic cocci are found the wound should be reopened (Gross). After the dressing has been applied, the part should be immobilized.

Partial primary suture of wounds of the soft parts has nothing to recommend it; it is often harmful; it should, therefore, rarely be employed.

A wound which has been closed by primary suture should be examined within twenty-four hours; moreover, the general condition of the patient should be carefully watched. These precautions cannot be too strongly urged. If they are observed, there is not much danger of fatal infection; if they are neglected, avoidable fatalities will occur. It is, in general, the failure to recognize the development of gas bacillus infection or pyogenic infection as early as one should, and the unwillingness to admit failure of the primary suture with complete reopening of the wound and free excision of gangrenous muscle, that cause the fatalities.

When gas bacillus infection develops after primary suture, its onset is usually suggested by local tenderness or spontaneous pain in the wound after twelve hours, or by changes in the general condition of the patient which should be watched for and immediately recognized. These changes can be noted, as a rule, in about eighteen to twenty-four hours after the operation. They are rapid pulse, peculiar gray appearance of the face, and moderate rise of temperature, for instance, to 101. The condition, if left, rapidly becomes worse, and six hours later the systemic symptoms are often greatly accentuated. The patient becomes profoundly toxic, with high temperature, delirium and dyspnea. Locally, in typical cases, the part is swollen, tender, tense, and often bronzed in patches; the surface, however, may look and feel normal. A tympanitic note on finger percussion, as emphasized by Lemaitre, can often be demonstrated. Crepitation is frequently present. On opening the wound, or perhaps not until the aponeurosis has been opened, bubbles of gas and thin, brownish fluid exude; the typical rotten meat smell is noted, and the involved muscle shows the characteristic appearance and lack of vitality, notably, an unhealthy salmon color, friability and failure to contract on pinching. Cultures in these cases show various anaerobes, especially *B. welchii* (*perfringens*), often associated with pyogenic organisms. Tissier believes that the association of anaerobes and streptococci is necessary for the development of gas bacillus infection. Other bacteriologists, however, question this.

Lemaitre presents the following results of primary suture:

1. Wounds of the soft parts of medium importance, seventy-one, with three total failures and eight partial failures.
2. Wounds of the soft parts of greater importance, 106, with twelve complete failures and nineteen partial failures.
3. Wounds of the soft parts with injury to a large nerve trunk, thirty-four, with no complete failures and four partial failures. By complete failure he means necessity for removing all stitches; by partial failure, superficial infection necessitating removal of a few stitches.

In ninety-nine cases of primary sutures of wounds of the soft parts made by my team at Evacuation Hospital No. 1, there were ninety-three successes and six failures. This was approximately the percentage obtained by the other teams.

DELAYED PRIMARY AND SECONDARY SUTURE

Let us now consider those wounds which are not closed by primary suture.

Dressing for Wounds Left Open After Primary Operation.—After débridement the wound is dressed. The following routine has proved satisfactory:

1. In cases in which the patient is to be evacuated, petrolatum gauze or other brand nonadhering gauze is placed along the edges of the wound so as to cover the skin edges and subcutaneous tissues. This keeps the dressing from adhering and lessens hemorrhage and pain on its removal. Gauze soaked in surgical solution of chlorinated soda (Dakin's solution) is placed very loosely in the wound. It should be so adjusted as not to cork the wound so that excretions are retained.
2. Cases which are to be retained may be dressed as described above, or the Carrel-Dakin treatment may be begun at once in selected cases.

Indications for the Use of the Carrel-Dakin Treatment.—1. If a wound is likely to be susceptible of delayed primary suture, it does not need chemical disinfection, and the Carrel-Dakin treatment is not used.

2. If a wound is not likely to be susceptible of delayed primary suture, in other words, if it must be left open for a considerable time, for instance, a week or more, infection will probably result. The use of Carrel-Dakin treatment will prevent or limit infection. Its employment in such cases is advisable.

3. When infection has occurred, the Carrel-Dakin treatment will do much to control and terminate it. The treatment under these conditions is essential.

Delayed Primary Suture.—The distinction between delayed primary suture and secondary suture is one of tissue repair rather than of time. Delayed primary suture is one in which the edges can be approximated and will unite without excision of tissue. Secondary suture is one in which the epidermis has grown inward and must be excised for proper union. This is, in general, about one week. In late secondary sutures, dense granulation tissue must also be excised. The determination as to when a wound may be sutured depends on bacteriologic findings and clinical observation. It must be emphasized that the cooperation of a bacteriologist is indispensable in making a decision as to the indications for delayed primary and secondary sutures. The practical function and indisputable importance of the bacteriologist in war surgery lies in this. In the consideration as to whether a wound is suturable or not, reliance must be placed chiefly on cultures, the important feature being the determination of the presence or absence of hemolytic cocci. For this, a routine blood-agar examination is essential.

Bacterial counts are far from exact, yet they give an indication as to the degree of bacterial contamination of a wound, especially the progress from day to day, and are of value especially for one untrained in estimating clinically the indications and contraindications for suture.

From eighteen to twenty-four hours after the original operation of débridement or excision of tissues, the wound is dressed and a culture and a smear are made. A report is returned as soon as possible. If no organisms are found, suture is indicated. If hemolytic cocci are present, suture is not considered. In the absence of hemolytic cocci, if the wound is clinically suturable, the presence of a few anaerobes or other organisms (approximately one in two fields) does not contraindicate suture. A considerable number of organisms of any kind indicates the necessity for caution. Suture, in that event, should be delayed and a culture and a smear repeated at the following dressing.

Delayed primary suture is usually made within six days after the primary operation. The advantages are the practical elimination of the danger of gas bacillus infection and the marked lessening of the danger of pyogenic infection. The disadvantages are the possibility of postoperative contamination of the open wound and the subjection of the patient to a second operation, with the attending discomfort and danger of postoperative complications, such as pneumonia. These disadvantages, however, do not equalize the risk incurred by primary suture in doubtful cases.

Technic of Delayed Primary Suture: All dressings of wounds after the primary operation should be made according to the Carrel-Dakin technic. The anteoperative preparation of the wound for delayed primary suture consists in painting the skin with tincture of iodin, after thorough cleansing as in the routine dressing. Some operators also paint the wound surfaces.

The details of suture are the same as for primary suture.

Secondary Suture.—The following is the routine generally followed: After forty-eight hours, at the daily dressing, a culture and a smear are made. The first report, therefore, contains the approximate number of organisms per field and the varieties of organisms. Thereafter, a smear is made every two days. It is also advisable to make a culture occasionally. Care must be taken not to touch the skin surface in making the smear, since skin contamination vitiates the value of the report. From the smear a bacterial curve is plotted according to Carrel's plan. When the organisms in two successive counts are few, that is, approximately one per two fields, and a culture shows an absence of hemolytic cocci, the wound is considered susceptible of secondary suture, except when the wound has contained hemolytic cocci at any time. In that case careful cultures are made from granulation tissue and from the discharge from all parts of the wound; and absence of hemolytic cocci should be established by two successive negative cultures before suture is made. It has been observed that streptococci are prone to lie dormant in small numbers, but to flare up and cause virulent infection after closure of the wound.

Technic: The preparation is the same as for delayed primary suture. Lemaitre distinguishes two varieties of secondary suture:

1. Secondary suture of the skin. The incision surrounds the new epidermis along the wound edges. A healthy normal skin edge must be present for successful suture. The skin is freed by undermining in all directions, as far as necessary, in order to approximate the edges with the minimum tension. This separation is made in the plane immediately superficial to the deep fascia. Only dense scar tissue or projections of granulation tissue are removed from the wound. The deep fascia is then approximated with interrupted catgut when possible; usually this may be done in the thigh and shoulder, but rarely in the leg, arm and forearm. The skin and subcutaneous tissues are closed with silkworm gut. Considerable tension may be allowed, far more than we are in the habit of permitting in civil practice. If little skin was removed at the original operation, the skin stretches in a short time, tension is relieved, and good union results. The result of suture is directly proportionate to the degree of tension. If there is extreme tension, infection may be expected. It is surprising, however, how well most of these wounds do, even after some infection. After the suture is completed, a dry dressing is applied with considerable pressure and left undisturbed, if conditions warrant, for about eight days, after which sutures are removed.

2. Secondary suture reconstruction. The granulation tissue and scar tissue are removed from the entire wound, and all layers are reconstructed by suture.

When two longitudinal wounds are on the same transverse plane, with considerable loss of tissue in each, one wound can usually be closed completely and the other closed in part. A dry dressing is applied, and the wounds are left for about eight days, after which the sutures are removed. The unclosed portion then presents a flat, clean granulating surface.

WOUNDS OF THE FACE

Wounds of the face must be considered independently. However severe, extensive and dirty the wound, virulent pyogenic infection or gas bacillus infection are not prone to develop. This feature makes it possible, by timely operative intervention, to avoid in most cases the gruesome mutilations which were so often allowed to occur in the early days of the war. The rule which may be followed safely is to repair wounds of the face as soon as possible after the receipt of the injury without general excision of the tissues. The wound is cleaned thoroughly, and only such tissue is removed as is definitely devitalized.

WOUNDS OTHER THAN THOSE OF THE SOFT PARTS

In regard to suture in wounds other than those of the soft parts, we must touch on suture in compound fractures and in wounds of joints. Wounds of the abdomen, thorax and skull cannot be dealt with adequately in a general review of the subject of suture, since each demands specialized consideration.

Compound Fractures Caused by Projectiles.—In compound fractures caused by projectiles, the same indications for operation must be followed as in wounds of the soft parts alone. Operation, therefore, is performed in all cases except through and through wounds by bullets, with punctate wounds of entrance and exit and little or no ecchymosis, swelling and tension of the parts. Such fractures are not markedly comminuted, and it has been found that this type usually does best without operation.

In the operation, the wounds of the soft parts must be subjected to the same primary treatment, that is, débridement, as wounds uncomplicated by fracture. The bone complication simply accentuates the importance of expedition, thoroughness and early closure. The last is especially important because it means the conversion of an open into a closed fracture.

The fracture should ordinarily be freely exposed. Small fragments which are encountered in the débridement of the soft parts, and large fragments which are completely detached, should be removed; but the temptation to remove fragments freely should be resisted. It is important that attached fragments be conserved. The bone is cleansed as well as possible, but débridement of the tract through the bone cannot be as thorough as that of the soft parts.

The subsequent treatment of the wound, after the primary operation of débridement, comes under the same general rules as apply to wounds of the soft parts alone. Primary, delayed primary or secondary suture may be made, and the Carrel-Dakin solution may be employed as in wounds without fracture. In the consideration of the closure of such wounds, it must be recognized that the laceration of soft parts is extensive in most comminuted fractures of the extremities, not only on account of the injury by the projectile, but also as the result of bone fragments scattered through the adjacent muscles. The chief danger of primary suture is the development of gas bacillus infection due to anaerobes and favored by incomplete débridement, muscles devitalized by vascular injury or the presence of foreign bodies. In the event of infection, moreover, the fracture exposes to the danger of osteomyelitis with the consequent increased danger of life, limb and function.

The development of osteomyelitis, particularly osteomyelitis of a serious grade, is favored by a closed infected wound, especially if the case is not carefully watched and the wound not immediately reopened should infection develop. Therefore, the advantages of delayed primary suture over immediate suture, and the disadvantages of primary closure when the operation must be done hurriedly or the patient must be transferred soon into other hands, are even more striking in the case of compound fractures than in wounds of the soft parts without fracture. In addition to the treatment of the wound, provision must also be made, in all these cases for reduction and immobilization of the fracture by external splinting.

Primary suture may be safely performed in some cases of compound fractures caused by projectiles, as we noted at La Panne and in our own service. The practice is dangerous, however, except rarely in early cases with little involvement of soft parts and bone. I am convinced that delayed primary suture should be aimed at in most compound fractures of the long bones under conditions in which the patient can be properly operated on and watched thereafter. It has been demonstrated repeatedly that bad fractures of all the long bones except the femur may be closed in from three to six days after débridement, thus converting them into simple fractures. Moreover, this can be done with few failures and little risk. If delayed primary suture is not possible, secondary suture often may be made successfully.

The details of the dressings are the same as already described for wounds of the soft parts. If, at the primary operation, early suture seems probable, Carrel-Dakin treatment is not used, because experience has shown it to be unnecessary and probably, at times, harmful by reason of the fact that the wet dressings must be changed, which often necessitates moving the fragments which should be studiously immobilized from the outset.

It must be emphasized that early suture can be undertaken only in relatively quiet periods and in hospitals in which the patients can be kept and carefully observed.

Wounds of Joints.—The principles of treatment, in wounds of joints, are complete débridement of the tract of the projectile through the soft parts and bone; removal of foreign bodies; irrigation of the joint, first with saline solution, then by distention of the joint with ether; absolute closure of the joint by suture, with or without closure of the superficial parts according to the rules laid down for primary suture of the soft parts alone, and finally, early active motion.

An effort should be made to save the joint, provided the conservable articular surfaces and soft parts are sufficient to warrant a reasonable hope of securing a useful joint.

If an attempt is to be made to save the joint in a case in which there is such destruction of soft parts that the capsule cannot be completely closed, the defect in the capsule should be closed with muscle or fascia.

After-Treatment: If the joint becomes distended, and infection is suspected, the effusion should be aspirated immediately and a culture made. If the patient's condition, the local examination, or the character or culture of the aspirated fluid indicate pyogenic infection, lateral incisions should be made at once; or if the original incision is so placed as to allow satisfactory drainage, it should be reopened and the treatment for suppurative arthritis begun.

APPLICATION IN CIVIL SURGERY

Primary and secondary sutures have a real application in civil surgery; for instance, primary suture in compound fractures and wounds of joints, and secondary suture in various conditions, but especially for the closure of suppurating wounds which have been disinfected by the Carrel-Dakin method.

107 East Sixtieth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LEWIS AND POOL

Dr. Frederick W. Bailey, St. Louis: The question of débridement so ably covered by Dr. Lewis leaves little to be said. The chief essentials are to remove all the devitalized tissues—scientifically, not roughly. Rough dissection is perfectly proper where the anatomic structures will permit it, but in areas around the larger vessels and nerves débridement should be done just as carefully as any other surgical operation in civil life. In the general hospitals at home we are at present engaged principally in undoing a great many of the mistakes which were made on the other side. I do not doubt but that a fair number of nerve sutures, a fair percentage of them, are probably due to careless surgery during the original débridement in the field or evacuation hospital. I think all of us could point to instances where carelessness in débridement caused the loss of a limb through the destruction of the arterial supply. The place where we should begin our reconstruction work is at the front. It would make it easier for the general hospitals and base hospitals after the work has been finished.

Débridement of the bone has been sadly neglected. Many of the cases which are now causing a great deal of trouble and which will be on our hands for an indefinite time could have been prevented had the bone been debrided at the original operation. They have set up an osteomyelitis which extended and made subsequent operation more difficult than if it had been attended to properly at the time of the first treatment. As regards primary suture, I cannot give you any information in that line. The work at the advanced station, in my opinion, does not justify primary suture by the surgeons who are available in these places. Very seldom, especially in times of stress during great activity, were we able to see our patient more than once in three days. Often the patient was whisked away in a few hours. Primary suture should not be attempted unless the surgeon who attempts it can watch the patient for an indefinite number of days. As to the exposure of these cases in regard to débridement: In cancer an exposure is necessary, especially when the tumor is situated in the deeper tissues and nerves. We hope we shall never again have to do this type of work, but if we do, we should have capable surgeons at the front, men who will eliminate much of the suffering and loss of life at the front and shorten the reconstruction work in which we are now engaged.

Dr. Fenton B. Turck, New York: As Dr. Murphy's assistant I carried out some investigations on the cause of death without infection. I found that injecting peptones caused death of the animal in three minutes. I published this work in 1897 and called it "The Toxines of Shock." In 1903 we obtained the same material from the abdominal cavity and walls of the intestines and it produced immediate death from shock. In 1912 I introduced muscle tissue from autolysed tissue. We found germs growing in the wounds that produced the reactions in the lung and in the upper alimentary tract. We made antigen, injected it into animals and prevented the death of the animals which is due not to wounds but to autolyzation. I want the surgeons to understand that autolysis is the real cause of death and not the toxines or germs. Dog's tissue will not kill cats, but dog's tissue will kill dogs and cat's tissue will kill cats. It is a species of reaction.

Dr. Donald Macrae, Jr., Council Bluffs, Iowa: I sometimes fear that men may get an impression that débridement means cutting out the entire wound, similar to removal of a carcinoma, and I have seen this done on numerous occasions. This is not the idea of débridement. The idea is not to take out tissue en masse, unless the tissue is dead. It is not necessary to gouge out the muscle and hunt for vitalized tissue, which may be very close to the surface.

It was my privilege to be on the Château Thierry front when we did not have teams, with 1,200 and 1,300 wounded lying on the ground and no one to take care of them. The average men coming up, good and bad surgeons of the United States, knew very little about débridement and yet it was known by the British and French. Why didn't we know it? So it seems to me in talking of preparedness and getting ahead of the game in our profession, and of gas gangrene, that we would have gotten ahead of the game if we could have known about débridement before and been able to do débridement immediately on our arrival on the field.

Dr. W. M. Thompson, Chicago: I would like to add my testimony to the remarks of the previous speaker. After a continued sojourn in France, working with three armies, I think I have had almost as much experience as any American in débridement. We have had some splendid papers on the subject, but even after reading these papers and reading all the literature on this subject no man is competent to do débridement correctly. It must be seen; you must live it; you must live in the atmosphere of it. Our surgeons made mistakes in France not because they were incompetent, but because they were not given the opportunity to see these things and learn about them first hand.

Dr. Kellogg Speed, Chicago: This is the time to get primary impressions. I do not like what Dr. Macrae said about Château Thierry and the surgeons—good, bad and indifferent—that were there. The articles I have written on war surgery were put out with considerable effort, with a great deal of pleasure, with hopes that men would use them and profit by them. I had had experience before we entered the war, and I was with one of the first units that touched France in 1917. I arrived in connection with the MacRae outfit, June 5, 1918. I knew about débridement. I had done hundreds of such operations. There were a few other men there who knew about débridement. There was in these organizations—not citing Colonel MacRae's as one—a lack of seasoned men such as there were to be had in France. There were scattered through the English forces and through the French, men who did know these things and who wanted an opportunity to go ahead and practice what they knew, but a large percentage of them never had a chance to do it and when they were sent over, as I was, they were put in entirely subsidiary places that did not count.

Dr. Dean D. Lewis, Chicago: The strange thing about this subject is that patients with the devitalized muscles have the least shock. The shock cases are those of gunshot wound through the knees, the cases in which the legs are practically shot off. With all this theory of peptones in the production of shock, and I do not care how long this has been in circulation, certain clinical factors demonstrate that you can have all the contused muscle you want until gas gangrene develops and the patient does not suffer from shock. Another thing about débridement's not being known by American surgeons: They understood the principles of it. The only way you can learn to do it is to do it. If we ever have another war I hope the evacuation hospital is made the center for instruction for surgeons who are going to practice surgery. They should be there as observers and train younger men. You could not learn débridement in Fort Riley or Camp Greenleaf, but you can learn the principles, that is, a thorough knowledge of anatomy. If a man has a thorough knowledge of anatomy, with good sense and judgment, he will learn how to do débridement. The thing that impressed me in our American Expeditionary Force was that we have been developing physiologic surgeons. The war demanded that we have anatomic surgeons, but they were few.

New York Indians a Health Problem.—The April number of the *Monthly Bulletin* of the New York State Department of Health is entitled the "Indian Conference Number." It describes the health problems in connection with the Indian population of this state. The state health department has also issued a special bulletin on this subject. New York state has an Indian population of more than 5,000; these Indians come in close contact with a million or more white citizens in the neighborhood of the reservations. A bill has recently been signed by the governor providing for a state commission to confer with the Indian committees of the two houses of Congress in an effort to better the situation. The Indian has adopted the white man's way of living in houses, but does not pay the same attention to light, ventilation and other sanitary factors. Consequently he falls an easy victim to tuberculosis and is prone to acquire other communicable diseases and to spread them among his white neighbors. The department has recently made a sanitary survey of the Onondaga Reservation. The results show the need of teaching the Indian sanitation and personal hygiene. The survey will be extended to other reservations in the state as a preliminary step to the development of a comprehensive system of instruction in sanitation. At present the Indians are under the charge of the national government.

TRENDELENBURG ANESTHESIA IN SURGERY OF THE PELVIS *

DONALD GUTHRIE, M.D.
SAYRE, PA.

I am convinced that the Trendelenburg[1] method of anesthetizing plays an important rôle in the prevention of postoperative ileus and shock, and therefore believe it worthy of consideration by this section.

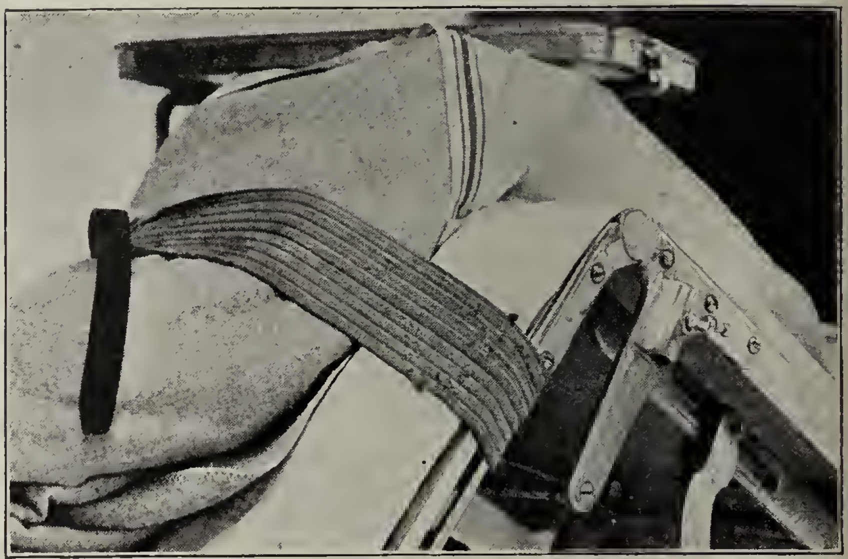

Fig. 1.—Patient's legs strapped to foot of table by a broad surcingle.

It is a well known fact that trauma to the small intestine is one of the direct causes of postoperative shock and ileus. An experienced surgeon can often predict just which patient is going to have a stormy convalescence by the amount of trauma the small intestine has, of necessity, been subjected to during the operation; for trauma to the small intestine differs very much in its harmful effects from trauma to the other intra-abdominal organs. Indeed, some of the most comfortable patients we see after operation are those who have had resections of the large intestine, or extensive operations on the stomach, and some of the sickest are those with the quiet distended abdomens, regurgitation, restlessness and fast pulse-symptoms hard to differentiate from a beginning peritonitis

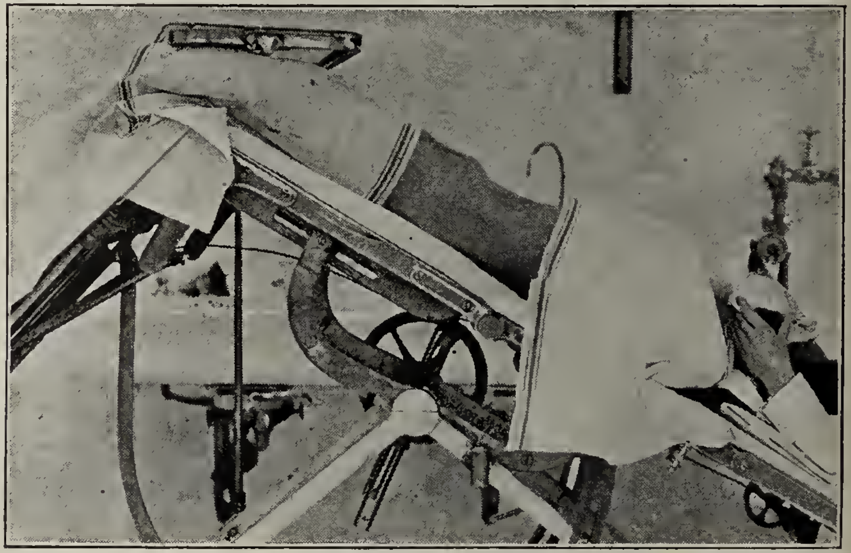

Fig. 2.—Anesthesia begun with patient in high Trendelenburg position.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

[1] Guthrie, Donald: Factors of Safety in Abdominal Hysterectomy, Am. J. Surg. **33**: 49 (April) 1919.

or a mechanical obstruction of the bowels, and which are the result of extensive trauma to the small intestine by the use of packs, made necessary to get exposure of the operative field.

Briefly, the object of the method is to rid the pelvis of as much of the small intestine as possible before the abdomen is opened for an operation in the pelvis. It is best employed for ether anesthesia, although I have used it with a fair degree of success during gas-oxygen anesthesia. The anesthesia is started with the patient in the high Trendelenburg position (Figs. 1 and 2) on the operating table. It is not necessary to have patients who object come into the operating room to be anesthetized, although with the proper kind of anesthetizers very few patients will object. If the anesthetic is given in an anesthetizing room, the patient is put on the table which is to be used during the operation, and the anesthesia is started with the patient in the high Trendelenburg position. The method cannot be employed successfully except by a skilled anesthetist, one who is well trained in suggestion and who can quiet the most apprehensive patient and quickly allay her fears, for the objections to the method are that it may frighten the patient and that the position may be uncomfortable.

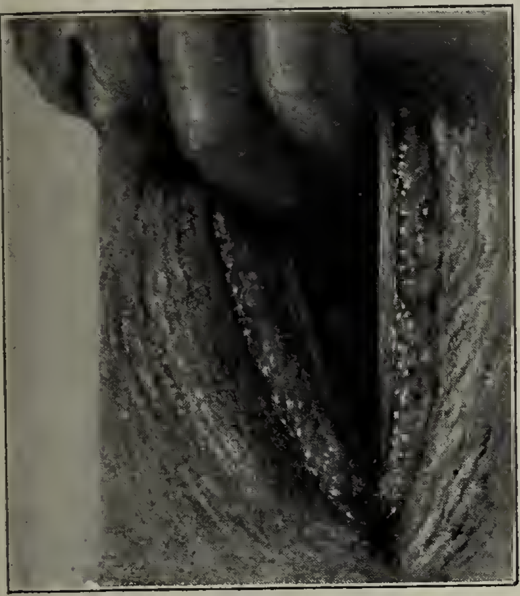

Fig. 3.—Lifting abdominal wall to free pelvis of any coil of small intestine.

It has been asked why it is not possible to begin the anesthesia in the dorsal position and change to the Trendelenburg position as the patient is getting under the anesthetic, or to wait until the patient is fully anesthetized and then change to the Trendelenburg position before making the incision. I have tried both these methods, and in my hands they do not work with the same success as the method I am advocating. To change the patient's position as she is getting under the influence of the anesthetic frightens her, I have found, and starts straining or coughing, either of which is fatal to the success of the method. To wait until the patient is fully anesthetized and then change her position does not give the diaphragm time enough to pull the intestine out of the pelvis.

The anesthetist, who has previously met the patient, accompanies her to the operating room, feeding her mind with well chosen suggestion. The patient steps on a stool and sits on the table, the foot part of which has been lowered. The legs are fastened to the foot of the table by a broad surcingle which is fitted snugly, but not made uncomfortably tight (Fig. 1). The patient then lies down on the table with her hands clasped and her arms folded across her chest. The arms are fastened by a gauze bandage, which is attached to the head of the table. The table is now lowered in the high Trendelenburg position and the anesthesia begun (Fig. 2). Absolute quiet is maintained in the operating room while the anesthetic is given. The patient's attention is left entirely with the anesthetist.

If the anesthetic has been given successfully and the patient has not strained or coughed while going to sleep, it is usual to find only a coil or two of small intestine in the pelvis, provided, of course, the intestine is not adherent to the pelvic structures. Through a small opening in the peritoneum, two fingers of the right hand are inserted into the cavity, and the abdominal walls are well lifted up (Fig. 3). The inrushing air will cause any coils of intestine which have not gravitated out of the pelvis to slide upward, so that it is usually necessary to employ only one small gauze square to get excellent exposure (Fig. 4).

In comparing this method with the one usually employed, that of anesthetizing the patient in the dorsal position, making the incision and then calling for the Trendelenburg position (Fig. 5), it is amazing to see the difference in the amount of gauze packing necessary to use to obtain exposure (Fig. 6).

ABSTRACT OF DISCUSSION

Dr. John Osborn Polak, New York: It is a privilege to endorse what Dr. Guthrie said of the advantages of etherization in the extreme Trendelenburg posture as suggested by him. Those of us who have seen the foreign operators have been impressed with the facility with which they operate on the pelvic organs. The two points which make operation on the pelvic organs easy are, first, proper exposure of the pelvis by posture and, second, sufficient exposure of the field by a large incision. Whether these pads be the gauze roll, or whether they be individual pads, or whether they be protected with guttapercha tissue as suggested by some, they all produce trauma. If any of you have taken the trouble to investigate the experimental use of gauze on the peritoneum of animals you will know this to be true. What Dr. Guthrie said is absolutely true, that the postoperative convalescence is dependent on the amount of trauma done to the small intestine. The usual transfer of the patient from the anesthetizing carriage to the operating table is not only an unnecessary waste of ether, for it disturbs the patient who is awakened

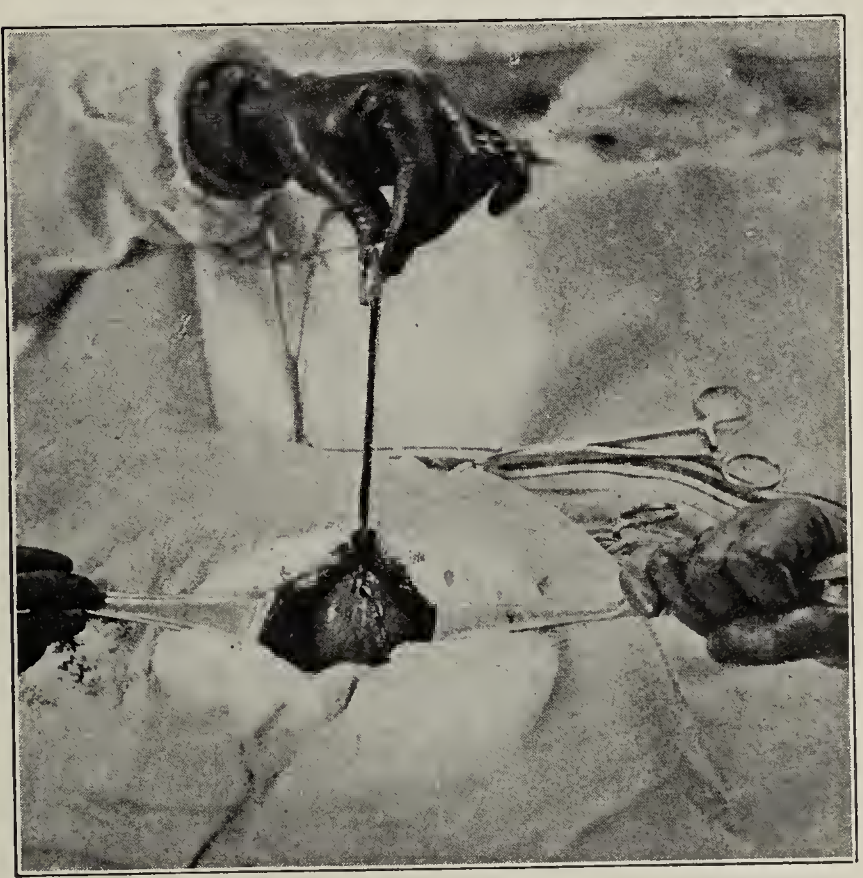

Fig. 4.—Exposure of pelvis, only one small square of gauze being necessary.

from her light anesthesia and we have greater difficulty in securing sufficient relaxation. Consequently the operating table should be mounted with large wheels so that the patient may be anesthetized in this position on the table for pelvic operations. There is one criticism that I would make; I do not know that I have any ground for it. Instead of flexing the legs on the thigh and maintaining the patient in position by fastening the legs to the table which we feel causes tension of the rectus muscles and require deeper anesthesia, we have been having the legs extended and the weight of the body supported by the shoulders which are held in place by well padded shoulder pieces. When the patient is in this Trendelenburg posture I do not believe this posture can be used from the beginning as satisfactorily with the combination gas oxygen as with ether. The nitrous oxid-oxygen men tell us that they have educated the surgeon to operate with tense muscles. We feel that in operating we can get the needed amount of relaxation with minimum anesthesia if the patient is not disturbed during the induction of the anesthesia and this posture is used from the beginning of the anesthesia.

Dr. Albert J. Ochsner, Chicago: As to the time at which the foot of the bed is to be elevated, I would say that it does not matter so much so long as the table is elevated several minutes before the operation is begun. Bell of Montreal directed attention to the fact that when he anesthetized patients in the moderate Trendelenburg posture they did not inspire any mucus, and consequently at that time when most surgeons had many cases of ether pneumonia he had none. Of course, the inspiration of mucus does not begin until the patient is fairly well anesthetized because the patient protects herself before that time by swallowing the mucus, so that this feature will be equally well taken care of if the patient is completely anesthetized in the horizontal position, and then before the ultimate preparations are made for the operation the foot of the bed is elevated, but you can tell the difference every time in the position of the intestines in patients remaining in the horizontal position until the abdomen is opened. For twenty years I have invariably directed that the foot of the bed be elevated when the operating table is wheeled into the operating room. We have an anesthetizing room and then wheel the patient into the operating room and then the foot of the bed is immediately elevated. I am absolutely sure that Dr. Guthrie's plan is of tremendous value.

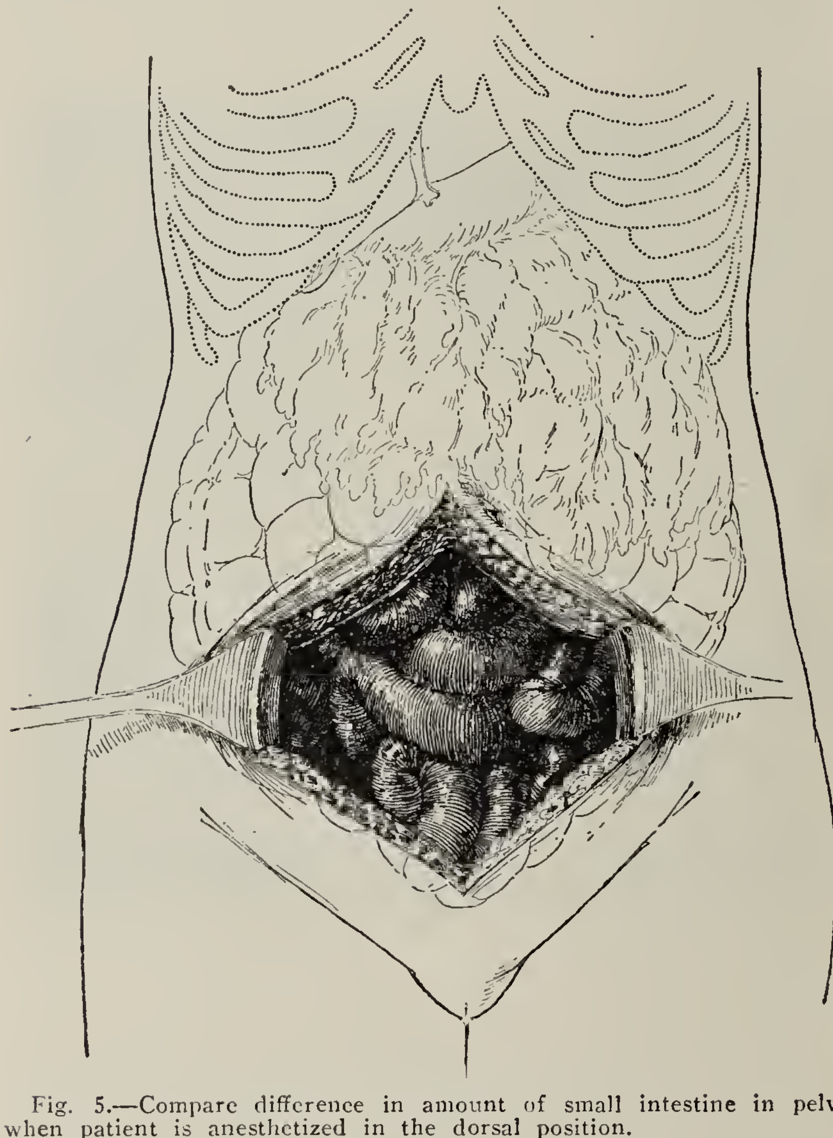

Fig. 5.—Compare difference in amount of small intestine in pelvis when patient is anesthetized in the dorsal position.

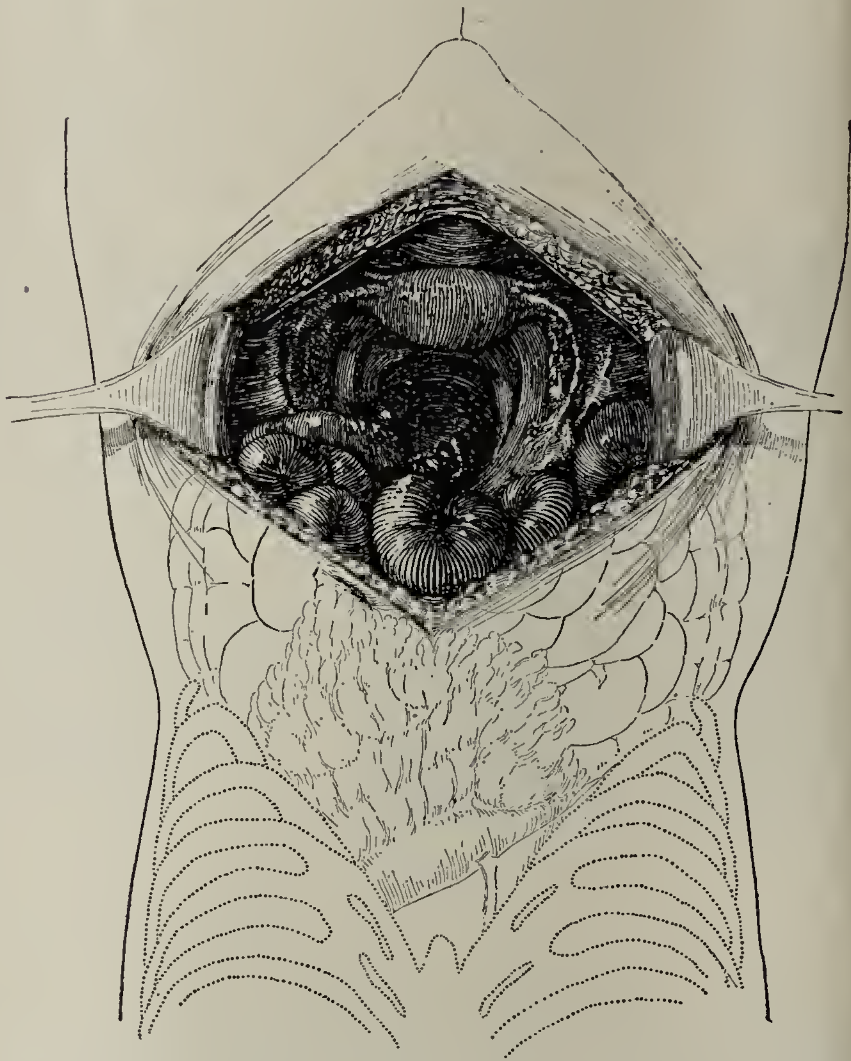

Fig. 6.—Trendelenburg anesthesia: coils of small intestine gravitated out of pelvis when patient is anesthetized in this position.

Dr. Donald C. Balfour, Rochester, Minn.: Dr. Guthrie had brought out a point in operative procedure that can well be kept in mind at all times. We follow out practically the same practice. We make the time a little later in which the patient is put in the Trendelenberg position, that is, as soon as the patient is unconscious of what is going on. In the majority of cases there is then sufficient time for the pelvis to be practically clear of small intestine. In my own observation much trauma is occasionally caused because of the impatience of the surgeon. Instead of being willing to wait until the patient is well relaxed and the intestines can easily be blocked off from the pelvis by gauze, their impatience is so great that while the patient is straining they try to force the intestines into the abdominal cavity rather than waiting for good relaxation.

Dr. Donald Guthrie, Sayre, Pa.: I would like to emphasize two points. First, the method of lifting the abdominal walls up after the peritoneum is opened. Any coils of intestine that have not gravitated out of the pelvis during the anesthesia can, as a rule, be made to slide upward. Second, I believe that we can get better results in fully anesthetizing patients in the Trendelenburg posture rather than to anesthetize them in the dorsal position and then change to the Trendelenburg position before the abdomen is opened, as mentioned by Dr. Balfour. This method cannot be employed successfully except by a skilled anesthetist, who is well trained in suggestion.

Entymology and Disease.—An outstanding feature of the louse and bedbug studies is the fact that these insects do not spread disease by biting but by being scratched into the flesh or having their feces scratched into the flesh. The importance of these studies must not be minimized for quite possibly we have here a probable explanation of the means of ingress for a number of other diseases which have baffled investigators.—W. D. Pierce, *J. Econ. Ent.* **12:**43, 1919.

ABDOMINAL SURGERY UNDER LOCAL ANESTHESIA *

ROBERT EMMETT FARR, M.D.
MINNEAPOLIS

The literature on local anesthesia deals so uniformly with arguments regarding the merits of local as compared with general anesthesia that one hesitates to bring up for discussion that phase of the subject. The personal equation, however, enters so largely into the question that the advantage of one over the other, aside from the element of safety, will depend to a great extent on the experience of the operator. Those who are for any reason unable successfully to perform a large variety of operations under local anesthesia are at once a unit in deciding that general anesthesia has more advantages. On the other hand, those who can with satisfaction perform a large variety of operations by the local method will be found to hold the opposite view. It must be admitted that at the present time a vast majority of surgeons believe that general anesthesia is the method of choice, and that local anesthesia should be reserved for minor and for extreme cases. That sentiment is undergoing a rapid change in favor of local anesthesia must be admitted also. It is my belief that the opinion of a surgeon regarding the relative merits of the two methods will vary in accordance with his experience, and that the more experience one has with local anesthesia, the more successful he will be with it and the more enthusiastic he will become regarding its use. I believe that local anesthesia represents one of the greatest advances of the time, and that, provided no other method is discovered to supplant general anesthesia, the latter will to a large degree be replaced by the local method.

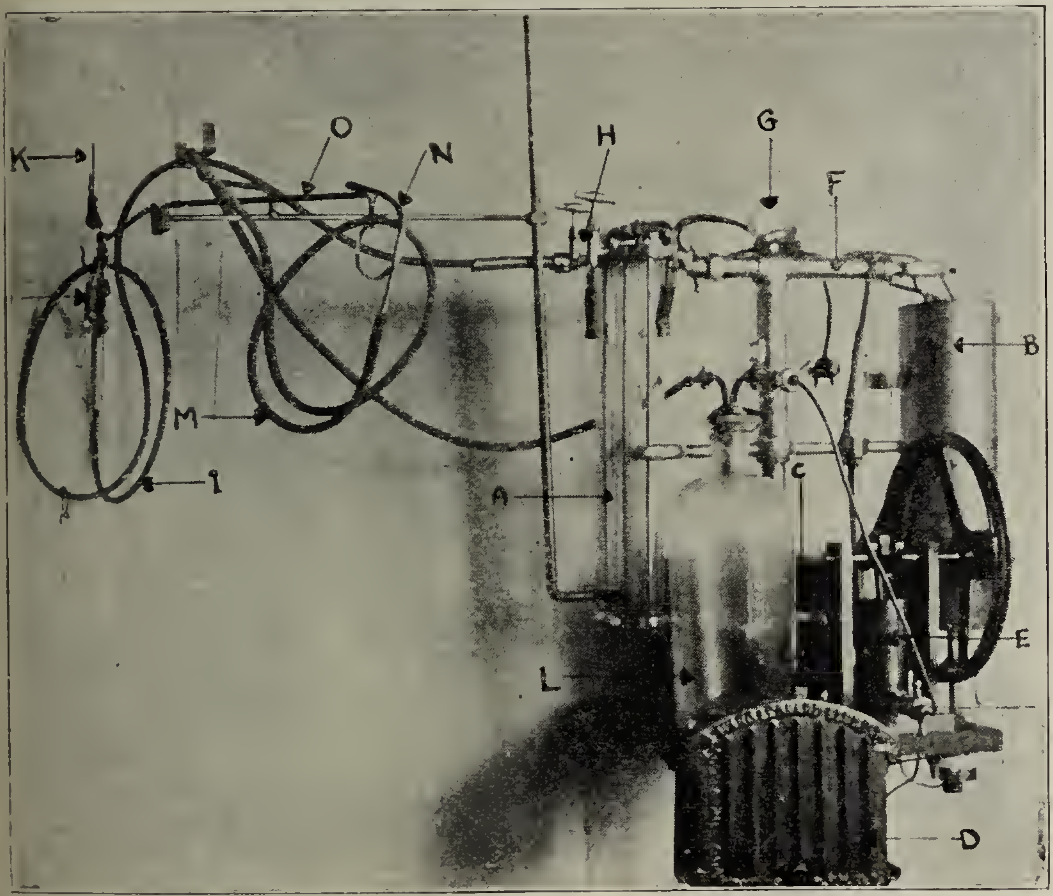

Fig. 1.—Pneumatic injector: *A*, glass cylinders for procain; *B*, pressure tank for compressed air; *C*, motor; *D*, rheostat; *E*, compression pump; *F*, cotton filter; *G*, air gage; *H*, valves; *I*, flexible metal tubing; *J*, cutoff; *K*, needle; *L*, suction bottle; *M*, rubber tubing for suction; *N*, suction tip; *O*, towel rack.

ADVANTAGES OF LOCAL ANESTHESIA

I shall enumerate some of the advantages of local over general anesthesia, and reserve the balance of the time allotted me for a consideration of the methods which, in our hands, have given satisfaction.

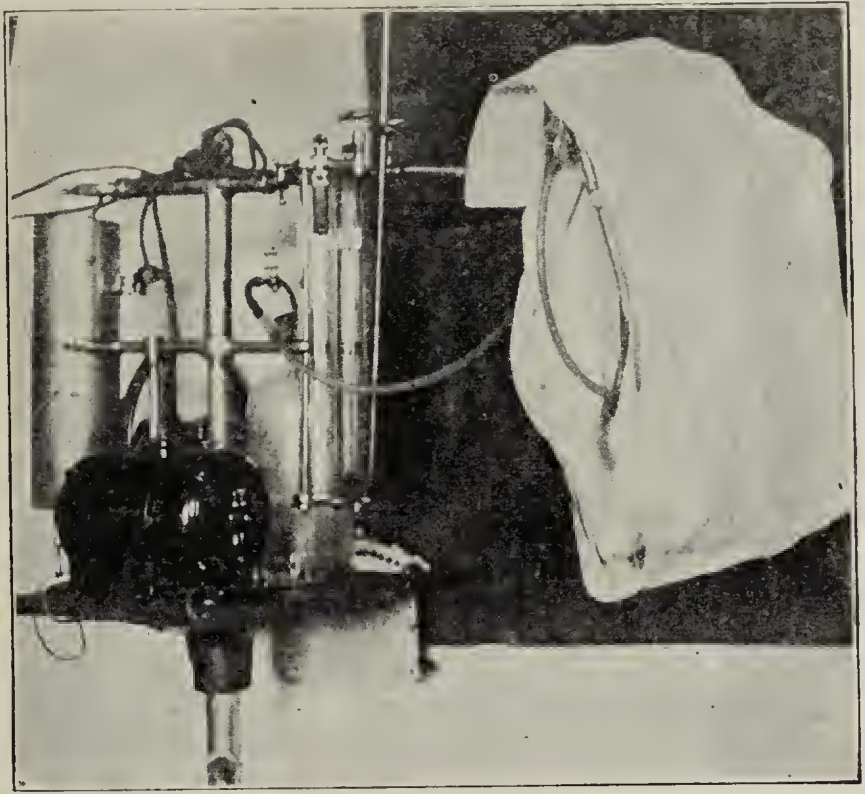

Fig. 2.—Pneumatic injector, "set up," filled and ready for use. Note sterile towel, protecting tubing. By turning down the upper end of this towel we develop the diaphragm shown in Figures 5 and 7.

First of all, the one great advantage of local over general anesthesia is that of safety. That procain is safer than any of the general anesthetics is, I believe, admitted by all. The other main points to be considered relate to the comfort of the patient and the efficiency of the anesthesia. There is some question as to which of these two points should be considered the more important. While the comfort of the patient is an extremely important matter, I consider the manner of performing the operation of even greater consequence. I wish, therefore, to call attention to some significant factors relating to the efficiency of an operation performed under local as compared with one performed under general anesthesia.

In all operations one is confronted with the consideration of such factors as hemorrhage, sepsis, trauma, exposure, time and shock. These factors are not necessarily mentioned in the order of their importance; as a matter of fact, their relative importance varies in different operations. I wish briefly to consider each one of these factors in relation to these two methods of anesthesia.

Hemorrhage.—It is pretty definitely established that shock bears a direct relation to the amount of blood lost during an operation. In local anesthesia, the use of epinephrin and the possibility of doing more deliberate work give one a control over the blood supply that is superior to that offered under general anesthesia. Another factor which is not fully appreciated by those who do not do a fairly large amount of local work is the turgescence of the vessels, especially in the venous system, when general anesthesia is used. This is especially noticeable in work about the neck and head, and is also markedly apparent in abdominal work. The distended and engorged vessels so frequently seen during general anesthesia are uniformly collapsed during local anesthesia.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

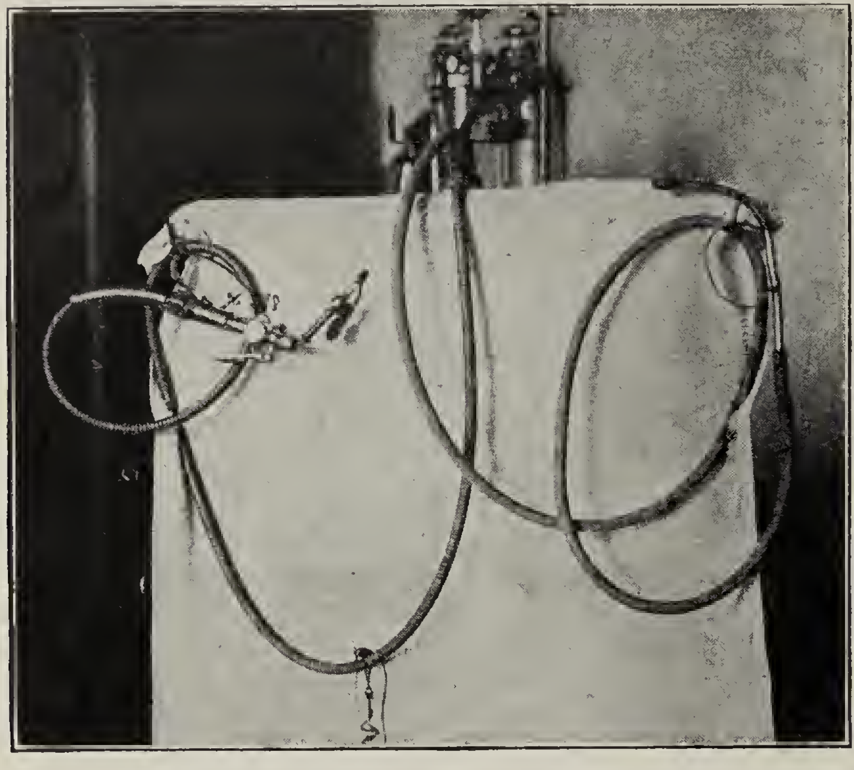

Fig. 3.—Pneumatic injector, cutoff and suction tubing within easy reach of surgeon's hand, and separated from the injector and anesthetist by sterile towel.

Sepsis.—The dangers from sepsis probably differ very lightly in the two forms of anesthesia. To my mind, however, what advantage exists is in favor of local anesthesia, for the reason that operations performed under local anesthesia may be done more deliberately and with more attention to detail than is possible when general anesthesia is used. In abdominal work, especially, the excursion of the abdominal viscera with respiration, during general anesthesia, is oftentimes marked, and may cause considerable embarrassment. The placid condition of the viscera under local anesthesia possibly gives one technical advantages. In the case of localized abdominal infections, for instance, it is not uncommon to see a spread of the infection result from the struggles of the patient while going under or emerging from general anesthesia; and I myself have witnessed a number of cases in which localized abscesses had ruptured internally during anesthetization or at operation. On the other hand, with a perfect local anesthesia and careful handling of a patient I have never seen this accident occur. During operation, abdominal packs may be introduced without danger of rupturing an abscess, and after operation the perfect physical rest attained aids in preventing the spread of a septic process. Postoperative vomiting and restlessness undoubtedly interfere with nature's process of localizing abdominal infections.

Trauma.—One of the greatest advances in surgical technic of the last two decades has resulted from the realization that the tissues should be traumatized as little as possible during surgical operations. To local anesthesia, and to those who have employed it, must largely go the credit for this advance. Sepsis and morbidity following operations are closely related to the degree of trauma inflicted during operation. I am sorry to say that one still sees, all too frequently, a violation of the principle that the tissues should be traumatized as slightly as possible, and in this regard those using local anesthesia are not the offenders, but are, as a class, leaders in teaching the necessity of delicate handling of the tissues.

Exposure.—When one observes the exposure that may be obtained in abdominal work under a good infiltration anesthesia, resulting in a negative intra-abdominal pressure, with the viscera retracting from the laparotomy wound instead of extruding through it; when one sees organs lying in their natural position, devoid of engorgement and motion, he must at once realize that nothing but the most profound general or spinal anesthesia will give as good an opportunity for inspection and operative work in this region. True, the viscera may not be delivered or displaced and handled as readily; distant digital explorations are not so easily made, and adherent masses are not so easily dealt with. If we confine the use of local anesthesia, however, to the class of cases in which it is indicated, and if we agree that, to a large extent, visual rather than digital exploration should be made within the abdominal cavity, local anesthesia compares favorably in offering adequate exposure.

Time.—The element of time quite naturally presents itself along with the other factors. The argument so frequently presented that the excess of time required for local over general anesthesia cannot be spared by the surgeon should, it seems to me, be unworthy of consideration. I wish to consider the element of time only in relation to the patient's welfare. Other things being equal, it will, I think, be admitted that an operation which is done deliberately will receive more attention to detail and be performed with more finesse than when the surgeon is making every effort to finish the operation as quickly as possible. A consideration of this feature must surely result in findings in favor of local over general anesthesia.

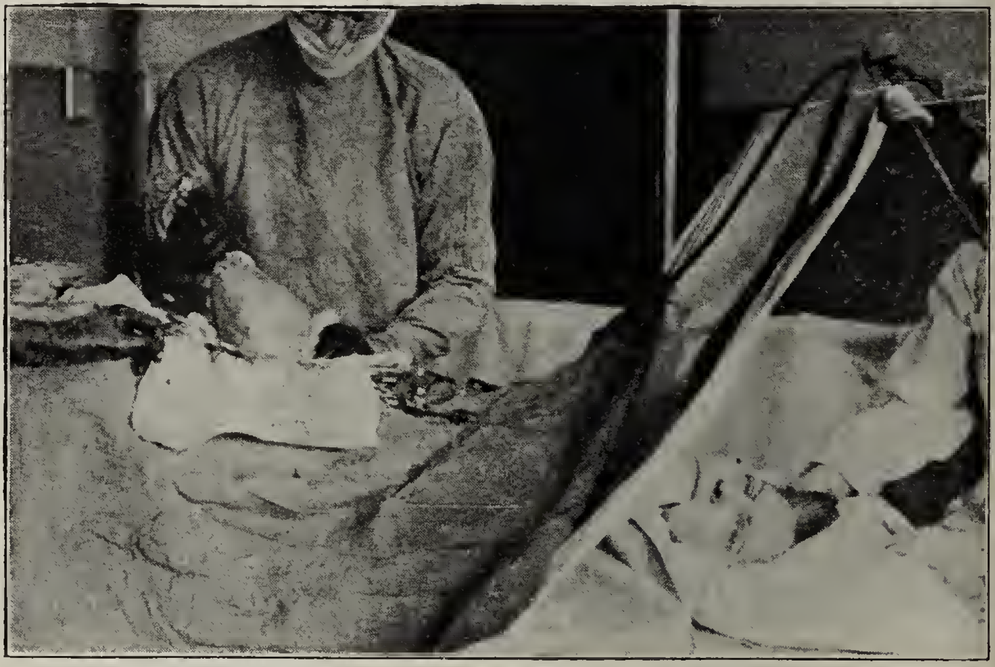

Fig. 4.—Apparatus in use: Abdominal tumor delivered. Relative positions of anesthetist, patient, surgeon, pressure and suction tubing, with sterile towel as diaphragm definitely isolating the operative field. Injector is to the right, outside the field of the illustration.

Shock.—Assuming that the amount of hemorrhage and trauma are reduced by the use of local anesthesia, the natural inference would be that there would be less shock following operations performed under local anesthesia. This is undoubtedly true and this fact is, I think, recognized by all. It will take but a small series of major abdominal operations performed under local anesthesia to convince anyone that the condition of the patients following these operations is not to be compared with the condition we are accustomed to see after serious abdominal sections performed under general anesthesia, even though fairly careful technic has been followed in the latter. Three or four of these patients operated on during a morning can be cared for by a student nurse during the rest of the day, while she attends to her other duties, whereas few surgeons would be careless enough to leave any patient who has had general anesthesia without constant attendance on the part of a nurse for a few or perhaps several hours following the operation. The absence of thirst, nausea and vomiting, with their resultant dangers and disagreeableness, the low percentage of gas pains, which occur almost directly in proportion to the amount of trauma inflicted by abdominal packs and handling, are in marked contrast to that which takes place in patients who have been operated on under general anesthesia. I believe that surgeons have become so accustomed to feeling that the patient who must undergo a surgical operation is entitled to twelve, twenty-four or thirty-six hours of "hell" following it, that we do not appreciate the seriousness of the condition. Would it not be a good plan for every surgeon to spend occasionally the following twelve to twenty-four hours in the ward with several of the patients on whom he had operated under general anesthesia during the forenoon? The education obtained would almost equal that acquired by having the method applied to oneself.

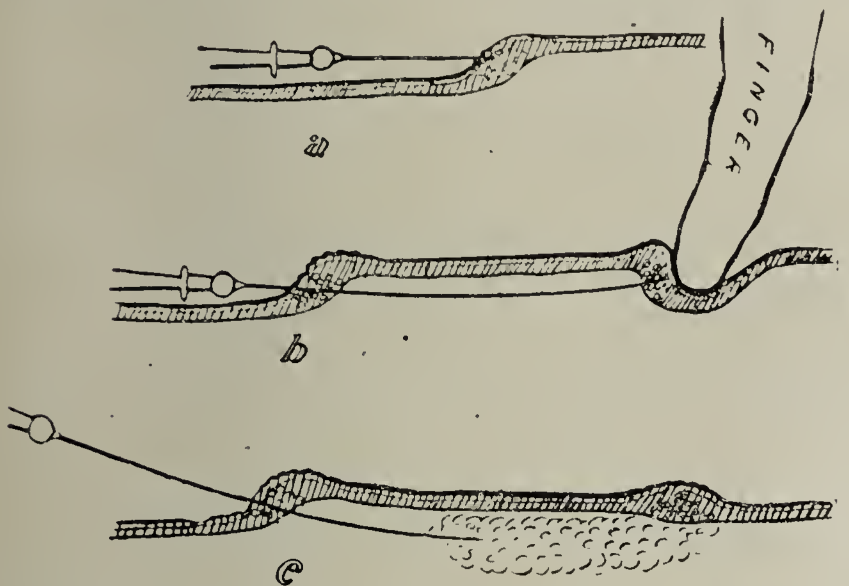

Fig. 5.—Sectional views of the skin: *a*, method of making first dermal wheal; *b*, painless subcutaneous method of making secondary wheals; *c*, method of making subdermal infiltration.

The percentage of abdominal operations that may be performed with satisfaction under local anesthesia will, as I have already stated, depend largely on the experience of the operator. I have found that conditions which a few years ago I thought were amenable only to surgery under general anesthesia I now handle with the greatest ease and satisfaction under local anesthesia. The realization of the fact that operations begun under local may be finished under general anesthesia, in case it becomes necessary, has greatly increased the scope of the method. At present we begin all of our abdominal operations, regardless of the age of the patient, under procain anesthesia, and change to general without hesitancy when it is advisable.

A discourse on this subject would be incomplete without a reference to the question of local anesthesia in children. In our experience, abdominal operations may be performed on children with as great facility as on adults, or even greater. We have repeatedly made laparotomies on very young children without signs of distress from the time the abdomen was opened until the closure was made. In two recent cases of hypertrophic pyloric stenosis, in babies under 6 weeks of age, the entire operation was completed without an outcry or expulsive effort on the part of the babies. This operation, which is considered a serious one, is by this method converted into what might be called a minor procedure, which may be carried out with almost ridiculous ease.

TECHNIC

The local anesthetic of choice is procain, 0.5 per cent. in Ringer's solution, combined with epinephrin, 5 drops to the ounce.

In all except hernia cases we depend on a direct infiltration of the abdominal wall rather than on a conduction anesthesia. All layers of the abdominal wall are infiltrated before the incision is made. We consider the necessity of supplementary injection of procain as an indication that our technic has been faulty.

In making the infiltration, minute attention is given to details. The ideal aimed at is to deposit the fluid equably throughout the desired area without any sensation of pain on the part of the patient after the first needle prick, which is made for the production of the initial intradermal wheal. All subsequent wheals are made from beneath (Fig. 5), and the intradermal wheal is repeated only for the purpose of secondary introductions of the infiltrating needle as the field is traversed. Aside from the wheal points, the skin is anesthetized by a subdermal infiltration. A 4-inch record needle, No. 23, is used. Through this a wall of infiltration is built beneath the proposed line of incision, with a base of from 2 to 3 inches in width, the apex being the line of incision through the skin (Fig. 6).

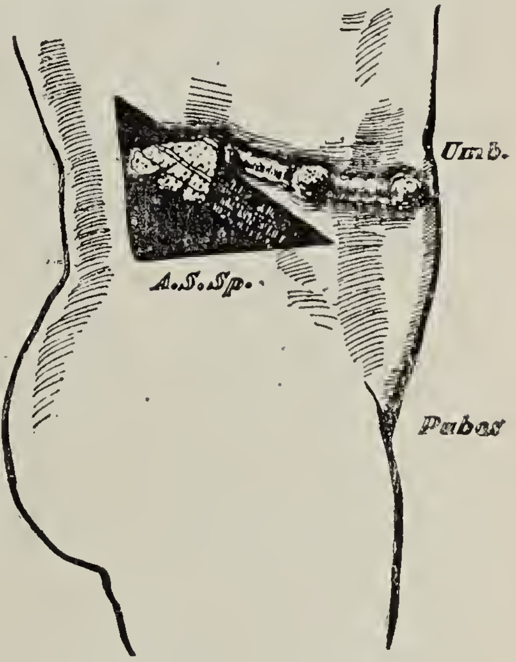

Fig. 6.—Section of abdominal wall, showing area infiltrated.

Equipment. — Ten years ago we discarded the syringe and substituted the pneumatic injector (Figs. 1, 2 and 3) for this work. This apparatus gives us a constant flow of the solution with a steady pressure controlled by a cutoff, which is ideal from the standpoint of ease of manipulation. With this instrument the ordinary abdominal wall can be anesthetized in from two to three minutes, and, as the incision may be made immediately, much time is saved. The average time, from the beginning of the administration of the anesthetic until the abdomen is opened, is from five to seven minutes. Throughout this procedure every effort is made to eliminate the slightest sensation of pain on the part of the patient. If this is accomplished and the abdominal walls gently retracted vertically, the abdominal viscera will not protrude through the opening but will fall away from the field of operation, and, by making use of the force of gravity, all the viscera in the region of the incision may be examined visually without handling. Per contra, should the injection be carelessly or too rapidly made, or certain sensitive areas be missed in making the infiltration, and the incision thereby cause pain, there will be established a combative action on the part of the patient, and an expulsive effort which will cause an extrusion of some of the viscera. In the absence of acute infections and marked distention of the intestine, the viscera should not protrude through the abdominal wound in the presence of a perfect local anesthesia, unless, perhaps, the patient should inadvertently cough, sneeze or laugh.

Retraction of the Abdominal Wall.—Careless or vigorous retraction of the abdominal wall will also produce the expulsive effort which we wish to avoid. With the flaccid abdominal walls usually found under local anesthesia, only the mildest kind of retraction is necessary. I find that the most satisfactory retractor is the wire automatic, which gently and symmetrically spreads the incision (Fig. 7).

Sensitive Areas. — There has been considerable investigation concerning the sensations within the peritoneal cavity. Observations vary in this regard, and different patients seem to vary to some extent. The areas are more or less constant, however, in response to pain sense. We have found pressure and traction on the round ligaments of the uterus to be painful; and that the ovarian pedicles, the meso-appendix and the region of the cystic duct, are also sensitive. Traction on the mesentery is much more apt to cause nausea than acute pain, and one must be especially careful about making traction on the cecum and duodenum.

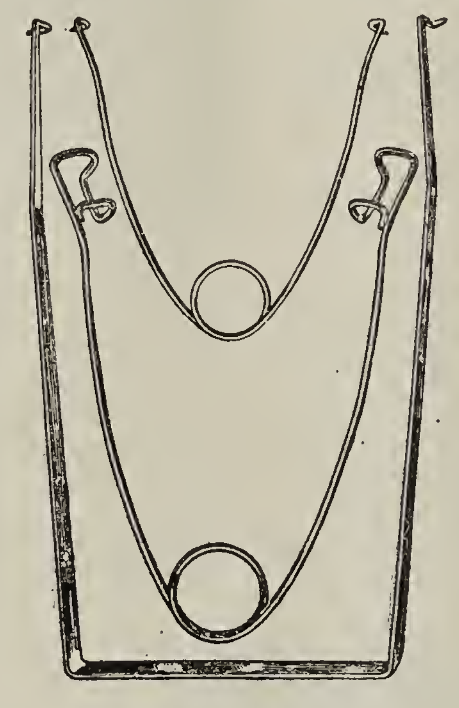

Fig. 7.—Automatic wire retractors.

SCOPE OF LOCAL ANESTHESIA

Lower Abdomen.—All pelvic conditions of a simple nature may be handled under local anesthesia with great satisfaction. As a certain percentage of pelvic work, however, either is complicated by the sequelae of infectious processes or must be done to eradicate malignant disease, one encounters a fairly large percentage of cases that are difficult to handle under straight infiltration anesthesia.

Caudal Anesthesia.—For a number of years we have been testing a combined caudal anesthesia with an infiltration of the abdominal wall in conditions in which difficult pelvic work is anticipated. The anesthesia acquired in this way is usually ideal, and the complete Wertheim may be performed, or, in fact, any pelvic operation may be readily performed under the combined method.

The administration of procain by the caudal method is simple and is quickly given. In my experience, patients are more apt to show toxic symptoms when this form of anesthesia is employed than if infiltration only is used. A number of patients have shown pallor, increased respiration and pulse rate, faintness and occasional nausea. While we have seen nothing to be alarmed about, I believe that the utmost care should be used in making the injection. It should be made through a flexible needle, which is not liable to break off in the canal, and the injection should be made slowly. A rapid injection will cause pain and is said to be more apt to cause toxic symptoms. Furthermore, one should avoid making the injection directly into the blood stream.

In the surgery of the bladder, prostate and pelvic organs this anesthesia is ideal, provided it is proved safe.

Above the pelvis we have had little difficulty in making intestinal resections, even with glandular involvement. We have performed several colectomies and colostomies, enterectomies and enterostomies. In the upper abdomen, the stomach, duodenum and gallbladder have most often been dealt with. With an adequate and properly placed incision, visual examination of this important region may be made with entire satisfaction. We have made gastric resections for carcinoma and perforated ulcer, pylorectomies, gastrostomies and gastro-enterostomies under local anesthesia without the patients complaining of pain. Cholecystostomy is an exceedingly simple procedure, in most instances, under local anesthesia. When it comes to the removal of a gallbladder, we have been unable to develop a painless operation. We have, however, accomplished the removal in over 90 per cent. of our cases without resorting to general anesthesia, always allowing the patient the privilege of taking a general anesthetic if the distress becomes too marked. Traction on and clamping of the cystic duct is invariably painful, although in recent cases an infiltration between the gallbladder and the liver and about the cystic duct has rendered the operation almost painless. Work on the common duct will depend entirely on its accessibility. We have removed stones from the common duct and explored this organ numerous times without the least difficulty. Of course, the presence of marked adhesions, with the retraction of the organ up behind the liver, will necessitate general anesthesia.

In gallbladder and duct work it is inadvisable to dislocate the liver, as is recommended for cases under general anesthesia. Instead of "up-ending" the liver outside of the abdominal cavity, we produce much the same effect by using blunt retractors on the liver edge and "up-ending" it beneath the ribs, thus bringing the gallbladder and ducts into view. During this procedure one pad of gauze holds the stomach and pylorus downward and to the right, while another pad is placed between the gallbladder and the duodenum. With perfect anesthesia, only slight retraction is necessary. If the anesthesia is incomplete, however, and the patient strains, nothing can be accomplished by the method.

One of the most satisfactory conditions to handle under local anesthesia has been extensive adhesions between the viscera or omentum and the abdominal wall. Ample incision and vertical retraction will allow the adherent viscera to hang from the abdominal wall in such a position that the adhesions may be divided on the white or bloodless line, and the most extensive work may be done with slight or no discomfort to the patient.

All plastic surgery on the abdominal wall, with or without adhesions, falls readily into the ideal class for local anesthesia.

One of the disconcerting factors in abdominal work under local anesthesia is the occasional vomiting of the patient. While this accident is generally due to some overt manipulation, it has to be reckoned with, and we have not been able entirely to eliminate it. This emergency has not arisen in more than 5 per cent. of our cases.

OBJECTIONS TO LOCAL ANESTHESIA

The objections to the local method are both real and imaginary. There is undoubtedly a class of cases in which general anesthesia should always be used. There is, I believe, also a class in which local anesthesia should always be used. That the latter class could be greatly increased with an improvement over the results obtained at present in the large clinics I also firmly believe. The objection that wide explorations cannot be made under local anesthesia is to some extent true, and yet it is to a large degree offset by the fact that wide explorations not made under the direction of the eye seldom give authentic information. How absurd it is, for instance, to see a surgeon extend his gloved hand to the region of the kidney and state that that kidney is normal, and perhaps at the next operation deliver a kidney and spend a considerable time endeavoring to decide whether or not it is normal! Yet we see this absurd procedure carried out daily at many of our best clinics. Of course, a very advanced pathologic condition may be recognized by the introduction of the hand to some distant part of the abdomen; but there are few instances of this kind which cannot be diagnosed before the exploration is made, and, in cases in which the pathologic condition is not advanced, this method of examination is usually unsatisfactory. Furthermore, the introduction of the hand, under local anesthesia, is not an exceedingly painful procedure. With the abdominal wall elevated there is usually room to insert the hand and part of the arm with almost no contact with the surrounding tissues. It is my custom to examine the pelvic organs in gallbladder cases, and vice versa, although, for the reasons already mentioned, I feel that such examinations are possibly overrated with regard to their value.

Working under local anesthesia requires more time, but experience and proper equipment bring this much discussed factor into comparative insignificance. The strain on the surgeon is undoubtedly greater when working under local anesthesia; but if we accept the dictum that the all important factor is the patient's welfare, this objection must be eliminated; and the experience of the surgeon will here, again, make a decided difference. During recent years I find much more comfort in operating on patients under local than under general anesthesia.

CONCLUSION

The use of local anesthesia should no longer be confined to minor surgery and to cases in which the patient apparently cannot undergo the ordeal of taking a general anesthetic.

With proper equipment and technic, a large proportion of major surgery may be done under local anesthesia with greater safety, less trauma, more completeness and less postoperative discomfort than when general anesthesia is employed.

Children lend themselves readily to the method.

The abdominal field presents a most excellent territory for the use of local anesthesia.

ABSTRACT OF DISCUSSION

Dr. P. G. Skillern, Jr., Philadelphia: The pneumatic injector devised by Dr. Farr greatly facilitates and accelerates the establishing of local anesthesia, since it does away with the necessity of picking up and putting down one syringe after another. I have used his apparatus with great satisfaction, and should call this method "operating de luxe." As emphasized and practiced by Dr. Crile, operating under local anesthesia develops a gentleness of touch and technic that is of benefit to the patient. I do not think that local anesthesia has made the progress in surgery it should. Every one ought to be using it today. It is wonderful to be able to operate on these patients, painlessly, without loss of conscience, and have them go back to their room and greet their friends immediately afterward. Surely this is better than the distressing picture we see so often after ether anesthesia, the patient unconscious, tossing about and vomiting in the presence of his anxious relatives and still facing the dangerous after-effects of ether, such as pneumonia, etc. Some claim pneumonia follows the use of local anesthesia, but I have never seen it and cannot figure how it could occur, provided the chest is protected from exposure. The point I wish to bring out very strongly is my belief that local anesthesia should be used—and that nothing else should be used—in a patient suffering from great toxic shock. The illustration, *par excellence,* is acute intestinal obstruction. The high mortality in acute intestinal obstruction is due to the patient already severely shocked from toxins having superimposed on that another toxin in the form of ether. The present high mortality of the acute intestinal obstruction operation will be lowered decidedly if we employ local anesthesia and not ether.

Dr. C. N. Cowden, Nashville. Tenn.: The pendulum is swinging the other way, and the surgeon who is not giving much study to local anesthesia at this time is missing a great opportunity of keeping himself abreast of the times. The postoperative effects of ether are to be remembered forever. It is practically accepted by every one that procain in large dosage is virtually free of toxic effect. One great difficulty is our lack of confidence in our ability to do these operations under local anesthesia. It is difficult to infiltrate a nerve, but we get practically the same effect by infiltration of the area through which the nerves pass. Gentleness in handling tissues, the sharp knife or scissors, lack of blunt dissection are factors which make for the success of operation under local anesthesia. Quinin and urea hydrochlorid has been responsible for some of the unpopularity of the local anesthesia operation, but the disastrous effect of that has now been banished. Operation under local anesthesia is one of the greatest advances made in the last year or two. The automatic injector adds greatly to the success of the method.

Dr. J. A. Rubin, Pittsburgh: Local anesthesia is the coming thing. I have been operating rather extensively under local anesthesia for about six years. Possibly the reason surgeons have failed to develop their local anesthesia technic is the fact that in a great many cases there is sloughing of the wound. Quinin and urea hydrochlorid is very bad for that. Procain alone will not give the desired anesthesia; it must be combined with epinephrin. In operating the field is dry; there is very little bleeding, and the operation is almost like a dissection on a fresh cadaver. By keeping the anesthetized area an inch or more away from the incision we can, in large measure, prevent sloughing or necrosis of tissue.

Dr. A. C. Scott, Temple, Texas: When one undertakes to explore the abdomen under local anesthesia he can get just so far. The peritoneum cannot be anesthetized throughout. Although you may anesthetize the abdominal wall completely you will not be able to anesthetize the whole abdominal cavity. According to Dr. Farr you should depend more on visual than on digital exploration. This is very good so far as it goes, but it seems to be a confession that the exploration cannot be made completely. I would not feel satisfied to close the abdomen without feeling the gallbladder, kidneys, pancreas and other viscera. You cannot make a satisfactory exploration of the abdomen without using the sense of touch. In anesthetizing the peritoneum near the abdominal incision, one of the best bits of technic is, as soon as a small opening is made through the peritoneum, to slip one finger on the inside of the peritoneum about 2 inches back from the margin of the wound and by placing the hypodermic needle directly through the rectus muscles the point of the needle touches the finger; the opening in the needle is exactly in the right position to infiltrate the subperitoneal tissue at the site of the most sensitive nerves. By doing that up and down both sides of the incision you secure the best sort of anesthesia of the abdominal peritoneum in the neighborhood of the wound. One part of abdominal work which cannot be done with local anesthesia without pain is in conditions in which you have to make traction on the mesentery. As soon as you pull on the meso-appendix in appendix operations, pain is produced. In ovarian cyst found during pregnancy, when you fear to give a general anesthetic we get magnificent results from local anesthesia. I have used it in diffuse peritonitis where the patient had double pneumonia and yet I did not dare let the peritonitis go without drainage and had equally good results. I have also used it in gastrectomy and conditions of that kind.

Dr. Robert E. Farr, Minneapolis: I am not much of a golf player and do not believe in making all shots with one stick. However, when I do shoot I generally use my best stick. To my mind, the best stick in anesthesia up to date is local anesthesia, providing it can be used successfully. We see the same difficulty today with local anesthesia that we usually see when a man reads a paper on this subject. He is like the Christian scientists: he will not argue. These papers are discussed by local anesthesia enthusiasts who spend their time picking out a few of the known shortcomings of the method. Dr. Scott says: "You can not explore the abdomen." I say I can. If he cannot, I can not help that. Dr. Ruben says: "We have necrosis of the skin." I say we do not. We never have necrosis of the skin. If we keep the epinephrin below five drops to the ounce and put procain up in Ringer's solution, and make subdermal instead of intradermal infiltration, we do not have necrosis. Local anesthesia should not be blamed for the shortcomings of those who use it. I have been trying to make the use of local anesthesia simple. This can be done by the method I described and by the use of the apparatus shown. If by this method we can get anesthesia in approximately 100 per cent. of cases, why should we introduce double the amount of anesthetic surrounding the field of incision instead of infiltrating directly into it? Nerve blocking has its place and is an excellent method, but it requires an expert to spear for nerves, and this method will never become common. The method should be simple and easy for all to learn. I am not in sympathy with the idea of reserving local anesthesia for extreme cases. If this is a good thing for bad cases it should be a good thing for good cases. I believe that it is a good thing for all cases in which it can be used.

Virginia Antituberculosis Work.—The work is done county by county. One of the workers gets permission to appear before the council or board of supervisors, outlines the nature of the work and asks to be allowed to make certain investigations, saying that no obligation is attached to this, but that when the work is completed, certain reports and resolutions will be made which can be acted on at the discretion of the governing bodies. A few interested people are interviewed, the field nurse is introduced, and she does the rest, such as get in touch with families and with the doctors of the community, and offers her services for instructive care and beside nursing when necessary. She will send patients to sanatoriums, arrange for free clinics, and health talks in the churches and at public meetings.—*Journal of Outdoor Life.*

STUDIES IN INFLUENZA AND PNEUMONIA

IV. FURTHER RESULTS OF PROPHYLACTIC INOCULATIONS [*]

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To determine the value of vaccination against disease, it is essential that the disease shall be one which a relatively large number of persons will develop unless protected, and that it be accompanied by serious consequences. These conditions were amply fulfilled during the pandemic of influenza. Moreover, the vaccine should contain the killed bacteria that produce symptoms and which are at least contributory to the cause of death. We have attempted, so far as possible, to fulfil this requirement by making a careful bacteriologic study of the disease, and by incorporating into the vaccine the important bacteria isolated. The epidemic was severe, and the need and the demand for vaccination were great; a large number of cases were available for bacteriologic study and to supply the proper strains for the vaccine. Vaccinations in large numbers during the past ten years with bacteria belonging to the group found in influenza have at least proved harmless, and in the case of pneumonia, prophylactic vaccinations have been successfully carried out by Wright,[1] Lister,[2] and Cecil and Austin.[3] A splendid opportunity to study the effect of prophylactic inoculation was at hand. Owing to the foresight of the founders of the Mayo Foundation, necessary funds to meet the emergency were available. A large amount of the vaccine has been prepared and sent gratis on request to numerous physicians on condition that reports of the results be returned.

In a previous report,[4] the reasons for the use of a mixed vaccine containing, as far as possible, freshly isolated strains were discussed. It was pointed out that the streptococci, especially green-producing streptococci from influenza, have certain peculiar properties. The preliminary results, as reported from the use of this vaccine, indicate that considerable protection is afforded against influenza and especially against the accompanying pneumonia. Vaccinations were begun soon after the onset of the epidemic. The period of observation was six weeks. It is our purpose in this paper to emphasize essential points in the preparation of the vaccine, to present further results from its use, and to record certain immunologic experiments.

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[*] From the Division of Experimental Bacteriology, Mayo Foundation.

[*] This paper and that of Dr. G. W. McCoy which follows are part of a symposium on "Influenza." The remaining papers and the discussion will appear next week.

[*] Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Wright, A. E.; Morgan, W. P., et al.: Observations on Prophylactic Inoculation Against Pneumococcus Infections and on the Results Which Have Been Achieved by It, Lancet **1**: 1-10 (Jan. 3) 1914.
2. Lister, F. S.: Prophylactic Inoculation of Man Against Pneumococcal Infections and More Particularly Against Lobar Pneumonia; Including a Report on the Results of the Experimental Inoculation, with a Specific Group Vaccine, of the Native Mine Laborers Employed on the Premier (Diamond) Mine and the Crown (Gold) Mines in the Transvaal and the de Beers (Diamond) Mines at Kimberley—Covering the Period from Nov. 1, 1916, to Oct. 31, 1917, Publications of the South African Institute for Medical Research, Johannesburg, South Africa, W. E. Hortor and Company, Ltd., 1917, pp. 1-30.
3. Cecil, R. L., and Austin, J. H.: Prophylactic Inoculation Against Pneumococcus, J. Exper. M. **28**: 19-41 (July 18) 1918.
4. Rosenow, E. C.: Prophylactic Inoculation Against Respiratory Infections: Preliminary Report, J. A. M. A. **72**: 31-34 (Jan. 4) 1919.

COMPOSITION AND PREPARATION OF THE VACCINE

Influenza bacilli were isolated in large numbers at the outset of the epidemic, but they were rarely found later in the epidemic. The small fraction of influenza bacilli included in the first few batches of vaccine were therefore omitted, and the vaccine was made to contain a proportionately higher percentage of the green-producing streptococci. In other respects, the original formula has been adhered to. The formula as used in almost all cases covered by the present report is given in Table 1.

TABLE 1.—FORMULA OF VACCINE

Pneumococci, Types I (10 per cent.), II (14 per cent.), and III (6 per cent.)	30 per cent.
Pneumococci Group IV and the allied green-producing diplostreptococci described	40 per cent.
Hemolytic streptococci	20 per cent.
Staphylococcus aureus	10 per cent.

The preparation of the medium, the method of cultivating and collecting the bacteria, and the procedure of standardizing the dose and killing the bacteria are described in the preliminary report.[4] The vaccine, it will be remembered, was made to contain approximately 5 billion bacteria for 1 c.c. Later, the concentration was made twice as great, and the quantity of liquid was reduced to one-half. The injections were given subcutaneously one week apart. The first dose of the concentrated vaccine (0.25 c.c.) contained 2.5 billion, the second (0.5 c.c.) 5 billion, and the third (0.75 c.c.) 7.5 billion bacteria. Considering the large size of these doses and the reactions obtained, the injections should not be given oftener than once a week in order not to overstimulate the mechanism of immunity.

The tendency of streptococci to undergo changes and to lose specific properties has been repeatedly emphasized by one of us. It was thought important that freshly isolated strains should be included in the vaccine. In Table 2 are given the culture generations of all the strains that have been used throughout the epidemic. The fermentation power was tested of fifty-seven strains of the green-producing streptococci included in the vaccine; only twenty-seven fermented inulin, and only eight were bile soluble.

The advantages which should come from the use of a lipovaccine, particularly when a series of strains needs to be included, have already been pointed out, and a simple method for the preparation in oil of a vaccine of the formula given in Table 1 has been developed and submitted for publication. A further study of the sputum and other material shows that of all the bacteria isolated, the somewhat peculiar green-producing streptococcus or diplostreptococcus is the most important. This organism is present in large numbers at the very outset of symptoms of influenza and of the accompanying pneumonia; it is commonly present after death. If the sputum or mass cultures are injected intraperitoneally into animals, they die, usually from invasion of the green-producing streptococci or pneumococci. If injected intratracheally in guinea-pigs the picture of influenzal pneumonia is closely simulated. Immunologic experiments with the serum from a horse injected with one strain indicate that most of the strains are immunologically alike. The serum of cases of influenza develops agglutinating power over these strains.

AGGLUTINATING POWER

In Table 3 it is shown that the vaccine used possessed well marked antigenic powers. The strains S 1, S 3, $2598^2.2$, 2604.2, 3048.3, and $2874^2.3$ were green-producing streptococci or pneumococci; 2575.2, a hemolytic streptococcus, and $2608^3.2$, a staphylococcus from cases of influenza. It will be noted that agglutinins appear in the serum on the tenth day and persist for six weeks. Table 3 shows, moreover, that the bacteria in the vaccine (492) used as the antigen in the first column were susceptible to agglutination. This vaccine was prepared three months previously and was kept in the ice chest. Most of the strains used as antigen in the experiment recorded in this table were not included in the vaccine used to immunize the persons whose serums were tested. All the green-producing streptococci were agglutinated, however, by the monovalent horse serum.

TABLE 2.—CULTURE GENERATION OF BACTERIA FROM INFLUENZA AS USED IN THE VACCINE

Cultures	Green-Producing Streptococcus	Hemolytic Streptococcus	Staphylococcus
Third generation or below	58	18	18
Fourth to tenth generation	95	20	8
Eleventh to twentieth generation	21	0	0
Total	174	38	26

TABLE 3.—AGGLUTINATING POWER OF THE SERUM OF PERSONS INOCULATED WITH SALINE VACCINE

	Strains								
Serums (Dilutions 1:20)	492	S 1	S 3	$2,598^2.2$	2,604.2	3,048.3	$2,874^2.3$	2,575.2	$2,608^3.2$
2,542 24 hours before third dose saline vaccine	0	0	0	0	0	+	+	0	0
2,542 24 hours after third dose saline vaccine	0	0	0	0	0	+	+	0	0
2,542 48 hours after third dose saline vaccine	0	0	0	0	++	++	++	0	0
2,542 10 days after third dose saline vaccine	+	++	+	0	++	++	+++	++	0
2,542 6 weeks after third dose saline vaccine	+	++	..	..	++	..	..	..	0
2,543 24 hours before third dose saline vaccine	0	0	0	0	+	0	0	0	0
2,543 24 hours after third dose saline vaccine	0	0	0	0	+	0	0	0	0
2,543 48 hours after third dose saline vaccine	+	0	0	0	++	0	++	0	0
2,543 10 days after third dose saline vaccine	++	+	0	0	++	++	+++	+	+
2,543 6 weeks after third dose saline vaccine	++	+	0	0	+++	++	++	+	0
2,545 24 hours before third dose saline vaccine	0	0	0	0	0	0	0	0	0
2,545 24 hours after third dose saline vaccine	0	0	0	0	0	0	0	0	0
2,545 48 hours after third dose saline vaccine	0	0	0	0	+	0	0	0	0
2,545 10 days after third dose saline vaccine	++	0	0	0	++	++	++	++	++
2,545 6 weeks after third dose saline vaccine	++	0	0	+	++	++	++	++	++
2,547 24 hours before third dose saline vaccine	0	0	0	0	0	0	0	0	0
2,547 24 hours after third dose saline vaccine	0	0	0	0	0	0	0	0	0
2,547 48 hours after third dose saline vaccine	+	0	0	0	+	+	+++	0	0
2,547 10 days after third dose saline vaccine	++	0	+	+	++	++	++	0	0
2,547 6 weeks after third dose saline vaccine	++	0	+	+	++	++	++	0	++
3,075 normal	0	0	0	0	0	0	0	0	0
3,076 normal	0	0	0	0	0	0	0	0	0
NaCl	0	0	0	0	0	0	0	0	0

In Table 4 are given the results following the injection of a single dose of the lipovaccine (from 25 to 75 billions) in three persons. It may be noted that the amount of agglutination is greater than that following the injection of the saline vaccine, but here, as in the case following the injection of the saline vaccine, not all strains are equally susceptible to agglutination, and some are not agglutinated at all.

TABLE 4.—AGGLUTINATING POWER OF THE SERUM OF PERSONS INOCULATED WITH LIPOVACCINE

Serums (Dilutions 1:20)	Strains						
	3,271^2.3	3,296^2.2	3,331	3,332.2	3,334.2	3,334.2	3,342
3,074 normal	0	++	+	+	0	++	0
3,074 4 days after lipovaccine	+	+++	++	++	+	++	0
3,074 10 days after lipovaccine	+++	++++	+++	++	++	+++	0
3,074 6 weeks after lipovaccine	++	+++	++	+	+	++	0
3,075 normal	0	++	0	0	+	0	0
3,075 4 days after lipovaccine	++	+	0	0	+	++	0
3,075 10 days after lipovaccine	+	++++	+	+	++	++	0
3,076 normal	0	++	+	0	0	0	0
3,076 4 days after lipovaccine	+	+++	+	0	+	0	0
3,076 10 days after lipovaccine	++	+++	++	0	+	0	0
3,076 6 weeks after lipovaccine	+++	++++	+	0	++	0	0
NaCl	0	0	0	0	0	0	0

Table 5 shows the agglutinating power of various immune horse serums over strains of green-producing streptococci from influenza, strains included in the vaccine. The serum from Horse 15, immunized with one strain from the blood of a patient who died, has marked agglutinating power over most of the strains. Of the thirty-three strains tested in this manner, twenty-five were agglutinated specifically by this serum. The results indicate clearly that among the green-producing streptococci, including Group IV pneumococci in influenza, there are strains which have a specific relationship, and that we were fortunate in successfully separating them from the ordinary *Streptococcus viridans* and including them in the vaccine long before the results of immunologic experiments were available.

TABLE 5.—AGGLUTINATING POWER OF VARIOUS IMMUNE HORSE SERUMS OVER STREPTOCOCCI INCLUDED IN THE VACCINE

Serums (Dilutions 1:20)	Strains														
	2,347.19	2,349.13	2,350.16	2,531.14	2,532.4	2,534.11	2,557.2	2,604.2	2,618^2.2	2,684.16	2,698^2.3	2,719^2	2,769	2,800^2.2	2,825
Pneumococcus Type I	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0
Pneumococcus Type II	++	0	0	+	0	+	0	0	0	++	0	0	0	0	0
Pneumococcus Type III	0	0	0	+	0	+	0	0	0	0	0	0	0	0	0
Horse 9	++	++	0	+	0	++	0	0	0	0	0	+++	0	0	++
Horse 15	++++	+++	++++	++++	+++	++++	0	+++	++++	++	++++	++	0	++	+++
Normal horse	0	0	0	+	0	+	0	0	0	0	0	0	0	0	0
NaCl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 6.—RESULTS AS REPORTED IN QUESTIONNAIRES FROM ALL SOURCES

		Incidence for 1,000 Persons									
		Disease				Deaths					
Groups	Total Number	Influenza	Acute Edema of Lungs	Pneumonia	Empyema	Acute Edema of Lungs	Pneumonia	Empyema	Meningitis	Encephalitis	Total Deaths
Vaccinated once	26,936	118.2	3.1	8.7	0.29	0.14	2.6	0.07	0.18	....	3.0
Vaccinated twice	23,348	97.0	0.77	3.04	0.17	0.47	1.9	0.04	0.21	....	2.62
Vaccinated 3 times	93,476	87.9	0.8	4.4	0.18	0.18	1.2	0	0.05	....	1.43
Not vaccinated	345,133	281.8	4.4	21.0	0.83	1.7	2.37	0.07	0.15	0.03	8.55

The apparent protection against attacks of influenza noted in the preliminary report, difficult to understand at that time, now becomes rational.

METHOD OF SECURING DATA

In most instances the reactions were mild, about one person in each 100 reacted more severely. Some reacted severely to all three inoculations, others only to one or two. Persons coming down with a cold or with symptoms of influenza are often hypersensitive. Marked diffuse redness resembling erysipelas about the site of inoculation, with swelling and, later, marked induration, has occurred occasionally. In no instance were the symptoms alarming. The number of severe reactions is sufficiently large, however, to prevent general vaccination except at the time of an acute emergency. This is in accord with the experience of Cecil and Austin,[3] noted during prophylactic inoculations with pneumococci. An outline for records of persons vaccinated was sent with each batch of vaccine and later a questionnaire. The questionnaire asked for the date of the onset of the epidemic, the date when the vaccine was first used, the week of the height of the epidemic, the week in which the greatest number of vaccinations were given, and the duration of the epidemic. The number of cases of influenza from the time the vaccinations were begun until the end of the epidemic, or up to May 1, and the number of deaths which occurred among the vaccinated and unvaccinated in the same period, in the practices of the physicians supplied with the vaccine, were asked. The reports of the use of the vaccine after the epidemic had disappeared were excluded. The period of observation in most instances was from four to five months.

In determining a safe criterion as to the value of the vaccine, we have purposely been unfair to the vaccinated group. The protection afforded among the vaccinated patients was measured from the day of the first vaccination, whereas, judging by the agglutination experiments, it should be calculated from about one week after the third injection.

There is another reason why we have arbitrarily decided to make our calculations from the day of the first vaccination. A procedure, calculated to protect against an epidemic disease, such as influenza, should have sufficient protective value when given after the onset of the epidemic to be measurable, for it is practically impossible to anticipate these epidemics and, moreover, persons will not present themselves for vaccination until the epidemic is at hand.

The questionnaire was arranged so as to yield information regarding the incidence of influenza, acute edema of the lungs, pneumonia and empyema, and the deaths from acute edema of the lungs, pneumonia, empyema, meningitis, and encephalitis among the vaccinated and the unvaccinated. Separate reports including the foregoing points were asked for from institutions and in the cases of pregnant women. The impressions gained from the use of the vaccine regarding the severity of the disease if contracted following vaccination, and the effect, if any, which the vaccine had on certain chronic infections, such as bronchitis, sinusitis, myositis, and arthritis were asked for.

Many physicians were so overwhelmed during the height of the epidemic that accurate records could not be kept, and accordingly the reports containing accurate data are proportionately few. The reports of 530 physicians were fairly complete, however, and these are summarized in Table 6. It is realized that there must necessarily be errors in the morbidity figures as reported to us, just as in the case of reports to boards of health. It is generally agreed that as influenza became more prevalent and less severe, a proportionately smaller number of cases were reported, and that all morbidity figures reported are well below the actual figures. The error, however, among the vaccinated and unvaccinated groups in the reports to us, should be approximately the same, and hence the figures should be comparable. Mortality figures, on the other hand, may be considered as fairly accurate.

RESULTS OF INOCULATION

The total number of unvaccinated persons recorded in Table 6 represents the sum of the estimated clienteles of the various physicians reporting the cases, and averages about 1,200 for each. It will be noted that the incidence of influenza, of acute edema of the lungs, of pneumonia following influenza, and the number of deaths from all causes among the vaccinated are consistently lower than that among the unvaccinated. Moreover, the incidence of disease and deaths is lowest in the group of 93,476 persons who were vaccinated three times. The reports included in this table were from many states, but the largest number came from Iowa, Minnesota, and Wisconsin. Thirteen thousand, six hundred and fifty persons inoculated and 2,083 who died were grouped according to age by decades. The curves indicating the percentage in each run roughly parallel.

The largest number of inoculations were given and the largest number of deaths occurred between the ages of 11 and 40 years. The percentages of the former in these three decades were 23, 19, and 21, of the latter 13, 29, and 23, respectively. Through the cooperation of the Board of Health of Minnesota we were able to check the results as reported to us with the morbidity and mortality figures as reported to them. Reports on a considerable number of vaccinations were received from Brown, Chippewa, Clay, Dodge, Fillmore, Goodhue, Houston, Itasca, Lesueur, Lyon, Mower, Olmsted, Rice, Stearne, Steele, Wabasha, Waseca, Watonwan, and Winona counties. The total estimated population of these counties is 472,584. The total number of cases of influenza in these counties reported to the board of health from the beginning of the epidemic until May 1 is 30,763, or sixty-five for each thousand. This is admittedly a low figure. The total mortality rate as reported to the board of health during this time is 4.2. The mortality rate, excluding the deaths which occurred in the respective counties prior to the date of the first vaccinations, is 3.2 (Table 7). The figures in the table indicating the cases and the deaths as reported to us are believed to be more accurate. The mortality rate, exclusive of that of the Mayo Clinic, in the 17,532 persons vaccinated three times is only one fourth of that reported to the board of health. Moreover, the total number of deaths among the vaccinated, including the persons inoculated only once and twice, is 1.6 for 1,000, or half the mortality rate as reported to the board of health during the same period of time. When we consider the fact that the deaths in each group were counted from the time the first vaccinations were given, which is really unfair to the vaccine, and the fact that our figures include all pneumonias, while those of the board of health include only the influenzal pneumonias, there seems little doubt that the difference must be due to the protection afforded by the vaccine. The figures given in Table 8 for Olmsted County, where about one third of the population was vaccinated, exclusive of the Mayo Clinic and the state hospital, are similar to those obtained elsewhere. The incidence of disease and the death rate among those vaccinated three times are well below that of those not vaccinated.

TABLE 7.—RESULTS AS REPORTED IN QUESTIONNAIRES FROM NINETEEN COUNTIES IN MINNESOTA EXCLUSIVE OF THE MAYO CLINIC

		Incidence for 1,000 Persons									
		Disease				Deaths					
Groups	Total Number	Influenza	Acute Edema of Lungs	Pneumonia	Empyema	Acute Edema of Lungs	Pneumonia	Empyema	Meningitis	Encephalitis	Total Deaths
Vaccinated once...	4,828	115.1	0.4	8.28	0	0	0.2	0	0	0	0.2
Vaccinated twice..	4,029	88.3	0.74	3.7	0.47	0.47	1.9	0	0.47	....	3.2
Vaccinated 3 times	17,532	102.8	0.17	4.2	0.22	...	0.62	....	....	....	0.8
Not vaccinated....	36,100	373.5	1.35	20.4	0.6	1.4	4.0	0.13	0.16	0.02	6.35
As reported to State Board of Health.......... (Estimated population)	472,584	65.3	....	....	....	....	....	....	....	....	3.2*

* Exclusive of deaths which occurred prior to the use of the vaccine and exclusive of the Mayo Clinic cases.

TABLE 8.—RESULTS IN OLMSTED COUNTY EXCLUSIVE OF MAYO CLINIC AND STATE HOSPITAL FOR INSANE

		Incidence for 1,000 Persons									
		Disease				Deaths					
Groups	Total Number	Influenza	Acute Edema of Lungs	Pneumonia	Empyema	Acute Edema of Lungs	Pneumonia	Empyema	Meningitis	Encephalitis	Total Deaths
Vaccinated once...	2,424	100.2	0	6.1	0	0.41	2.8	0	0	0	3.2
Vaccinated twice..	1,021	291.8	2.9	0	1.9	0	4.8	0	1.9	....	6.7
Vaccinated 3 times	9,300	41.0	0.18	3.9	0.43	....	0.43	0.21	....	....	0.64
Not vaccinated....	8,700	248.0	3.2	13.1	0.45	0.9	2.6	0.45	0.12	....	4.0

The results obtained in institutions in which the conditions among the vaccinated and the unvaccinated were comparable are summarized and given in Table 9 in order still further to check the figures. The number of persons in most of the institutions included (fifty-three in all) was small. The opportunity for accurate observation was, therefore, favorable. The institutions included factories, personnel of hospitals, schools, and offices. The proportion of the vaccinated and unvaccinated varied between wide limits. The period of observation in the two groups was the same. The incidence of disease and the number of deaths in almost all instances were lower in the vaccinated than in the unvaccinated group. The total average, as given in Table 9, compares favorably with that of the others. The death rate among the vaccinated is decidedly lower than among the unvaccinated.

TABLE 9.—RESULTS OF PROPHYLACTIC INOCULATION IN INSTITUTIONS WHERE THE CONDITIONS AMONG THE VACCINATED AND UNVACCINATED WERE COMPARABLE

		Incidence for 1,000 Persons					
		Disease				Deaths	
Groups	Total Number	Influenza	Acute Edema of Lungs	Pneumonia	Empyema	Acute Edema of Lungs	Pneumonia
Vaccinated 3 times	8,306	31	0.1	1.0	0.2	0	0.5
Not vaccinated....	9,388	200	0.5	12.0	0.6	0.4	5.5

The results given in the tables are in agreement with the numerous reports received by which it appeared that the vaccine had afforded striking instances of protection. In a few cases no protection seemed to be afforded, but in most of these the vaccinated persons contracted the disease a long time after the inoculations. It is fully realized how difficult it is to judge just how much protection was conferred in many of these instances, and how much of the apparent protection was merely coincidental. But a careful study of the reports from 303 physicians, some of which were the result of careful observation, forces the conviction that real protection, especially against pneumonia, was afforded. In some of these instances most of the observations were made within six weeks to two months after the vaccine was given.

TABLE 10.—RESULTS OF PROPHYLACTIC INOCULATION IN PREGNACNY

		Incidence for 1,000 Persons										
		Disease					Deaths					
Groups	Total Number	Influenza	Acute Edema of Lungs	Pneumonia	Empyema	Miscarriage	Acute Edema of Lungs	Pneumonia	Empyema	Meningitis	Total Deaths	Mortality of Those Who Developed Influenza
Vaccinated 3 times	997	109.3	17.0	27.0	....	14.0	2.0	12.0	....	....	14.0	12 per cent.
Not vaccinated....	3,656	294.6	17.7	80.4	0.82	46.2	12.3	46.2	0.54	0.82	59.9	20 per cent.

It was thought that the injection of large doses of a mixed vaccine might have some effect on certain chronic infections, especially of the respiratory tract. A summary of the reports shows that 961 persons with chronic bronchitis were benefited and that thirty-eight were made worse. The reports show that 127 persons with chronic sinusitis were benefited and four made worse. Improvement was noted in 121 persons having myositis and in 129 with arthritis, while in one of the former and in twenty-two of the latter the symptoms were aggravated. These figures are not considered to be especially significant but worthy of record. They are in accord with our own observations.

RESULTS OF PROPHYLACTIC INOCULATION IN PREGNANCY

The results of vaccinations in pregnant women as reported in the questionnaires are summarized in Table 10. The incidence of disease and that of miscarriages and the mortality rate are consistently lower among those vaccinated than among those not vaccinated. The mortality (20 per cent.) of the unvaccinated pregnant women who developed influenza is somewhat lower than that reported from similar statistical studies by Bland[5] and by Harris.[6] They report a mortality of 37.7 per cent. and 27 per cent., respectively. The mortality of 12 per cent. in the 997 pregnant women inoculated in our series is in sharp contrast and calls for a further trial of this measure.

Almost from the beginning of the epidemic of influenza, patients who registered at the Mayo Clinic were advised to be vaccinated. From October 1 to May 1, 55,189 patients registered. Of these, 2,542 were vaccinated once, 1,030 twice, and 1,850 three times, a total of 5,422. A reliable morbidity and mortality rate for each thousand of the vaccinated and unvaccinated could not be determined because such a large percentage of patients remained in Rochester for too short a time.

It was thought that a study of the cases of influenza admitted to the hospitals might, however, be worth while. Of these, 749 were undoubted cases of influenza, and were analyzed from various standpoints. Fifty-nine of the patients were vaccinated once; twenty-four, twice, and fifty-seven, three times, while 609 were not vaccinated. The incidence of pneumonia and the deaths from pneumonia in these groups are recorded in Table 11. The average interval between the vaccinations and the onset of influenza was nine days in those vaccinated only once, twenty-six days in those vaccinated twice, and forty-five days in those vaccinated three times. The average temperature was more than one degree higher in the unvaccinated than in the vaccinated, and the average duration of fever nearly two days longer. The percentage incidence of pneumonia in those vaccinated three times was 21; in those not vaccinated, 57, while the percentage of deaths from pneumonia was 5 in the former group and 22 in the latter. The mortality from pneumonia of those vaccinated only once and those vaccinated twice is also well below that of the unvaccinated. The mortality figure in the unvaccinated is abnormally high because only the patients with relatively severe attacks were admitted to the hospitals.

TABLE 11.—RESULTS IN CASES OF INFLUENZA ADMITTED TO HOSPITALS IN ROCHESTER

Groups	Cases of Influenza	Incidence of Pneumonia	Deaths from Pneumonia, per Cent.
Vaccinated once..........................	59	39	10
Vaccinated twice..........................	24	95	12
Vaccinated three times..............	57	21	5
Not vaccinated..........................	609	57	22

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[5] Bland, P. B.: Influenza in Its Relation to Pregnancy and Labor, Am. J. Obst. **79**: 184-197 (Feb. 19) 1919.

[6] Harris, J. W.: Influenza Occurring in Pregnant Women, J. A. M. A. **72**: 978-980 (April 5) 1919.

he greater tendency to the development of pneunia in influenza among the unvaccinated group as erved in this series is in keeping with the lower inciice of this complication (4.7 per cent.) in 11,325 es of influenza in which the vaccine was given after onset of the symptoms, as compared with the inciice (8.7 per cent.) in 41,788 cases in which the vace was not used. The average mortality in the cases which the vaccine was used in treatment was 1.4 per t.; in those not treated it was 2.1 per cent.

rom these results considerable weight may be iched to the opinion of nearly all the 430 physicians o have used the vaccine and who have reported on s point, an opinion in agreement with our own ervations, that is, that the attacks of influenza if itracted following vaccination are milder and of rter duration.

SUMMARY

The immunologic and animal experiments reported[7] ewhere indicate that the mixed vaccine used by us itained the important bacteria as they occur in influza and the accompanying pneumonia, and that a relaely large number of strains of the green-producing eptococci which appear to have a specific relationship the initial attack were included. The reports luded results obtained under the most varied condins, from many communities covering a wide range territory. In some communities the mortality rate s excessively high, in others comparatively low. The mber of persons inoculated is sufficiently large to ke the statistical figures fairly accurate. The period observation was from three to seven months. The idence of influenza and pneumonia as reported to is probably far from exact, but the percentage of or should be about the same in the vaccinated and vaccinated groups. Indeed, if a difference exists, number of cases reported among the vaccinated ght be expected to be proportionately higher because, en though no protection was promised, the fact that luenza occurred after the vaccinations were taken uld naturally lead to a higher percentage of reports the physician who gave the inoculations. The avere incidence of influenza and pneumonia in the group oculated three times is about one-third that of the inoculated group.

The average mortality rate in the uninoculated, as ported to us, approximates the mortality rate (5.4 r cent.) of sixteen large cities of the United States given in *Public Health Reports* for February 7. e average mortality rate in the group inoculated ree times is about one-fifth that of the uninoculated. definite although a smaller degree of protection peared to be afforded to those who took only one or o inoculations. From a study of a series of hospital ses of influenza it is found that the tendency to the velopment of pneumonia in the vaccinated is about e third as great as among the unvaccinated, and that e mortality in the former is about one fifth as great in the latter. The number of completed vaccinations pregnant women is not large enough to give exact ures, but the results indicate clearly that a definite gree of protection was afforded in this group of indiduals.

It appears from all the facts at hand that by the use of a properly prepared vaccine it is possible to rob influenza of some of its terrors.

The preliminary results from the use of more than 500 doses of this vaccine suspended in oil, the immunologic studies and the results from the use of pneumococcus lipovaccine reported by Fennel[8] and by Cecil and Vaughan[9] suggest strongly that both the degree of protection and the duration of the immunity may be materially increased by the use of lipovaccine over that reported in this paper from the use of the saline vaccine.

STATUS OF PROPHYLACTIC VACCINATION AGAINST INFLUENZA *

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When we consider the tragic experience through which the country and, indeed, the world, has passed during the last year, we realize that a great advance in preventive medicine would be made by the discovery of a prophylactic agent which would enable health authorities to control effectively epidemic influenza or the pneumonia that so often occurs as a complication. Perhaps at the outset it may be profitable to take stock of what we know about the etiology of influenza and the etiology and pathology of influenzal pneumonias.

OPINIONS AS TO ETIOLOGY OF INFLUENZA AND INFLUENZAL PNEUMONIA

Though the organism described by Pfeiffer in 1891 has long been known as the influenza bacillus, there really never has been convincing evidence of its relation to influenza, and the data that accumulated during the epidemic or epidemics here and abroad this past year have not contributed any confirmation to the view that this germ is the cause of the disease.

In this connection it should be borne in mind that it is quite possible that there are a number of organisms, varying greatly in pathogenicity, which are grouped under the name of Pfeiffer's bacillus. We have only to recall the great differences that exist in other groups, in which organisms having common cultural and morphological characteristics vary greatly in disease-producing properties, to realize that the rather vague limitations of what is called the influenza bacillus may cover a number of more or less closely related organisms.

French and English workers have claimed to have produced influenza by means of a filterable virus; this would, indeed, definitely eliminate Pfeiffer's bacillus; but we must bear in mind that attempts to produce the disease in man artificially in this country, by means of both filtered and unfiltered secretions, have in practically every instance been negative. Similar attempts by means of cultures of the so-called influenza bacillus have been negative.

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[7] Rosenow, E. C.: The Experimental Production of Symptoms and sions Simulating Those of Influenza with Streptococci Isolated ring the Present Epidemic, Study II, J. A. M. A. **72**: 1604-1608 ay 31) 1919. The Occurrence of a Pandemic Strain of Streptococcus ring the Pandemic of Influenza, Study III, ibid. pp. 1608-1609.

[8] Fennel, E. A.: Prophylactic Inoculation Against Pneumonia, J. A. M. A. **71**: 2115-2120 (Dec. 28) 1918.

[9] Cecil, R. L., and Vaughan, H.: Results of Prophylactic Vaccination Against Pneumonia at Camp Wheeler, J. Exper. M. **29**: 457-483 (June) 1919.

* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

When we turn to the views on the etiology and pathology of influenzal pneumonia, we find a rather general opinion that the pneumonia is due to Pfeiffer's bacillus or to the secondary invasion by organisms of acknowledged pathogenicity, particularly the various types of pneumococci, the streptococci, especially those known as hemolytic, and, less commonly, Friedländer's pneumobacillus or the staphylococcus.

A few observers are inclined to the opinion that the original cause of the influenza, be it the influenza bacillus or another organism, is also an essential factor in the production of the pneumonia. This view would appear to be entitled to much respect, on account of the rather general opinion among pathologists that the pneumonia following influenza is generally of a type distinct from the pneumonias ordinarily encountered.

A number of interesting papers have appeared on the pathology of influenzal pneumonia, and a complete review of them would be valuable; but, for the present purpose, we may say that, in general, the pneumonias do not conform to those due to the organisms which are usually associated with pneumonia. Lack of definite areas of consolidation, the absence of the usual fibrinous pleural exudate, the extreme wetness of the lungs, and the blood-stained pleural fluid usually found bilaterally, in most cases serve to differentiate influenzal pneumonias from those ordinarily due to pneumococci, as lobar pneumonia. Emphasis is laid on this point because some workers have hoped that immunization against lobar pneumonia, which appears to be practicable, might prove of great value against influenzal pneumonia; but if the lung lesions of the two diseases are so different, one suspects there may be a material difference in etiology, and that this difference may be of such a nature as to make what appears to be a valuable prophylactic agent in one case of no use in the other.

Rosenow[1] calls especial attention to the fact that "the findings in the lungs, for example, in the so-called acute bronchopneumonia following influenza, are quite unique and are strikingly similar, irrespective of the species of microorganism present." This is quoted to emphasize the point that it is entirely possible that all of these lesions may be due to the primary cause of influenza, and that the various organisms which have been recognized in various cases and various places may really not reach even the dignity of secondary invaders, but may be looked on as leading a relatively saprophytic existence in the tissue damaged by the primary cause of influenza, whatever that may be. With this brief preliminary consideration of these important matters, let us consider the experience with prophylactic vaccination.

VACCINE FROM INFLUENZA BACILLUS AS A PROPHYLACTIC

In discussing this subject, we will give attention, first, to the results obtained from the use of a vaccine made from the influenza bacillus alone, or from other suspected etiologic agent, which aims, to be sure, to prevent the primary disease, and later to a review of the evidence with respect to vaccines which have been devised with the special object of preventing the development of pneumonia or of mitigating its severity.

A vaccine made from the influenza bacillus alone seems not to have appealed sufficiently to European workers to induce them to try it when the epidemi prevailed abroad. In this country, its use has bee confined largely to New England. The early report on this vaccine were very encouraging; figures wer presented which, if taken at their face value, woul convince any one of the efficiency of the agent; bu when these figures were submitted to careful analysis much doubt remained as to whether the vaccine was o any service whatsoever. The chief source of erro lay in the fact that the inoculations had been don during the progress of the epidemic, and that the cas incidence among the vaccinated was compared wit the case incidence in the general population or in th control groups from the beginning of the epidemi Now, it is plain that if, after the epidemic is well unde way, we vaccinate a portion of the persons in a population, the percentage of persons attacked will b smaller among the vaccinated than among the nonvaccinated, because a percentage of the total numbe of cases will have occurred before the vaccine is given Not only does this introduce an error by counting i the control, or nonvaccinated group, cases that hav occurred early, but also it leaves a select group to b vaccinated, wholly or in part, in which the percentag of susceptibles is smaller than in the original group o which they formed a part.

To make this clear, let us suppose that ten day after an epidemic started in a population of 1,00 persons, an admittedly worthless vaccine was administered to one half of those who at that time remaine unattacked by the disease. Let us further assume tha on the date of vaccination 20 per cent. of the population had sickened, leaving 800 well persons, of whom 400 were vaccinated. Since the hypothetical vaccin is worthless, the morbidity will be as great i the vaccinated as in the nonvaccinated group. Le us assume this to be an additional 20 per cent. The the total morbidity in the vaccinated group will be 2 per cent. of 400, or eighty cases. The total morbidit in the unvaccinated, however, if we consider the entir period of the epidemic will be 20 per cent. of 1,000, o 200, plus 20 per cent. of 400, or eighty, which woul make 280 cases.

Although the error is now sufficiently clear, we hav seen reports which, on the basis of the above figure if applied to this hypothetical worthless vaccine, mak it appear to be a valuable prophylactic. The statemen of these reports would be, in effect, that one half of th population was vaccinated, that among the vaccinate only eighty cases developed, while among the unvaccinated 280 cases appeared. Hence the obvious valu of the vaccine.

We must also remember that a vaccine can scarcel be expected to exert any appreciable prophylactic effe before from seven to ten days after the vaccine given, since a week or more is required for immunit to develop. A comparison is fair which consider among both vaccinated and nonvaccinated, only cas that have occurred, say, ten days or more after th vaccinations are made.

When the influenza bacillus vaccine was submitted such critical tests as the inoculation of approximate half of the individuals in institutions, or in other larg groups, its failure became apparent. A few exampl of this are worth citing. Hinton and Kane[2] were ab to vaccinate about half of the patients at an epilept ny long enough before the disease became preva- in the institution to justify the drawing of con- ions from their data. The vaccine used contained 000,000 organisms per mil, and a total of 0,000,000 were administered to each person. The lts were as shown in Table 1.

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[1] Rosenow, E. C.: Prophylactic Inoculation Against Respiratory Infections, J. A. M. A. **72**: 31 (Jan. 4) 1919.

[2] The Commonwealth, Bimonthly Bulletin, Massachusetts St Department of Health **6**:-28, Nos. 1 and 2, 1919.

LE 1.—EFFECT OF INFLUENZA BACILLUS VACCINE AS A PROPHYLACTIC

	Vaccinated		Not Vaccinated (Controls)	
	No.	Per Cent.	No.	Per Cent.
er of persons	461	....	518	....
of influenza	163	35.4	178	34.3
is	28	17.0	24	13.5

n the basis of this experiment the authors reach obvious conclusion that the vaccine was without ie.

similar test was made on the naval personnel at ıam Bay Training Station; here a part of the indi- ıals of a group were vaccinated, the remainder ıg held as controls. According to the latest availa- report,[3] 9 per cent. of the 554 inoculated persons eloped the disease, and 5 per cent. of the 800 who not been inoculated developed it.

imilar failure attended the attempts at immuniza- of men at the naval base at Paris Island, S. C. was definitely shown that neither incidence nor erity was influenced by the vaccination. These ervations were all on groups large enough to make deductions of value.

number of controlled vaccinations, in which influ- a bacillus vaccine was used, carried out in institu- ıs by the Public Health Service, gave the rather adoxical result of showing an increased percentage attacks among the vaccinated, but more deaths ong the nonvaccinated. This result was obtained h a vaccine directed against the primary disease, against the complicating pneumonia. The results shown in Table 2. These figures illustrate the acy of giving much weight to the results of a small of observations in work of this sort.

LE 2.—RESULTS OBTAINED BY INFLUENZA BACILLUS VACCINE IN INSTITUTIONS

	Vaccinated		Not Vaccinated (Controls)	
	No.	Per Cent.	No.	Per Cent.
ıber of persons	484	....	842	....
s of influenza	153	31.6	223	26.4
hs	0	....	4	1.8

VACCINES FROM STREPTOCOCCUS AND OTHER ORGANISMS

Another series of vaccinations aimed directly against supposed causative agent was that reported by Ely, yd, Hitchcock and Nickson.[4] These workers ieved that the epidemic was due primarily to a molytic streptococcus which could be detected in blood and in the lungs. From the fact that the ganisms with which these observers worked soon t their chain-forming properties and, in some tances, the power to hemolyze promptly, they press some doubt as to whether they should be ssed as streptococci, and they further assume that ere are material differences between different strains. e results of the use of a vaccine prepared from ganisms isolated from the cases were apparently most encouraging, though none of the experiments was controlled in a manner that would definitely establish the value of the preparation. The work of these observers needs to be repeated before the results can be accepted for general application.

When we come to consider the evidence with respect to the vaccines especially designed to prevent the pneumonic complications of influenza, we find again such conflicting reports that one is somewhat bewildered.

The only papers from a foreign source that have come to my notice are those by Eyre and Lowe,[5] who used a mixed vaccine which contained the pneumococcus, the streptococcus, the influenza bacillus, *Staphylococcus aureus, Micrococcus catarrhalis, B. pneumoniae* and *B. septus.*

These authors believe, and indeed present rather convincing figures in their first paper[5] to prove their point, that the use of this vaccine produces lowered resistance, which may last for "from a few hours to two or three weeks," during which period the incidence of respiratory infections would be increased among inoculated groups.

The early experience of the English authors does not refer directly to the prophylaxis of influenza, but it is cited here to show that there may be an element of danger in the indiscriminate use of vaccines in the presence of a rapidly spreading epidemic like influenza in which naturally many persons in the "negative phase" would be attacked.

In a later paper,[6] the same writers report on the experience with vaccine in the epidemic in England in the autumn of 1918. Stress is laid on the necessity of preparing a vaccine from cultures but recently isolated.

The figures given and the facts presented by these writers are difficult of interpretation and permit of almost any conclusion that one wishes to draw from them, from the optimistic one that fatalities after influenza occur only among the nonvaccinated, to the pessimistic one that fatalities occur only among the vaccinated, though the authors believe the results were good. They frankly reiterate the opinion that for a short time following vaccination there is an increased incidence among the vaccinated, owing to temporarily increased susceptibility, but the writers consider that this risk is justified by the benefit that they believe may accrue later. As inoculations were performed largely during the prevalence of the epidemic, and as the controls appear to include persons who developed the disease prior to the vaccination, the alleged good results may be misleading.

THE POLYVALENT VACCINE OF ROSENOW

Rosenow[1] prepared a mixed, and, at least in part, polyvalent, vaccine from the various fixed types of pneumococci, pneumococci of Group IV, hemolytic streptococci, *Staphylococcus aureus* and the influenza bacillus, all of which had been recently isolated. This vaccine was adjusted to meet the bacterial flora encountered during the epidemic; thus, in a manner it may be said that it was designed to approach an autogenous vaccine, but was intended primarily for prophylactic purposes. Dr. Rosenow felt that this vaccine should be prepared for use in any community from the strains of organisms there prevailing, and that a vaccine adjusted to meet the needs of one locality might not meet those of another. The figures given for protection are encouraging, but do not lend themselves to critical analysis.

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[3] Notes on Preventive Medicine for Medical Officers, U. S. Navy letins, Nos. 50 and 51.

[4] Ely, C. F.; Lloyd, B. J.; Hitchcock, C. D., and Nickson, D. H.: luenza as Seen at the Puget Sound Navy Yard, J. A. M. A. : 24 (Jan. 4) 1919.

[5] Eyre and Lowe: Lancet **195**: 484-487.

[6] Eyre and Lowe: Lancet **196**: 553-560.

Dr. Rosenow considers the immunity produced by his vaccine to be of relatively slight duration, as some persons were apparently protected during the first wave of the epidemic, but not during the second.

A vaccine, prepared essentially in accordance with Dr. Rosenow's formula, was used extensively in the Middle West with alleged good results, but it was not used until the epidemic was at, or beyond, the crest, and the records are not convincing. Vaccine prepared in the manner suggested by Dr. Rosenow should theoretically have a better chance for success than those we shall next consider, but the practical difficulties of preparing it from locally prevailing strains and adjusting it to meet the changing flora of the respiratory tract in a disease that spreads as rapidly as influenza are obvious.

A specimen of the vaccine which was being used in Illinois was tried in California, under rigidly controlled conditions, without success. The disease did not appear in the institution where the test was made until eleven days after the last injection, but, after the epidemic had swept through it, the results revealed that 37 per cent. of the vaccinated were attacked, against 28 per cent. of the controls, while 4.5 per cent. of the vaccinated population died, against 3.6 per cent. of the nonvaccinated. These are differences too small to be significant. Tests made in other institutions gave similar results, though we need not take the time to consider the details here.

There are several other reports of the use of vaccines prepared somewhat along the lines of Dr. Rosenow's, but the data are not presented in a manner to permit of analysis.

The only report we have on a vaccine directed against the influenzal pneumonias associated with the fixed types of the pneumococcus is that of Cecil and Vaughan,[7] whose work was conducted at Camp Wheeler and was directed primarily against the usual pneumonias of the camp. Apparently the antipneumococcus vaccine reduced somewhat the incidence of influenzal pneumonia among the vaccinated, though, to use the author's words, "influenza causes a marked reduction in resistance to pneumonia even among vaccinated men." These authors show clearly that the case mortality of secondary pneumonias was not reduced by the vaccination, contrary to the claim so often made, that the vaccine, when it fails to protect perfectly, at least leads to a milder type of the disease. Cecil and Vaughan believe that the results of their experiment with respect to pneumococcus pneumonia were obscured by the influenza epidemic; evidence that the prophylactic action of the vaccine employed against influenza was not striking, since the epidemic should have served to emphasize rather than obscure the results of the beneficial action of a really valuable prophylactic agent.

We must next consider, briefly, the stock commercial vaccines made from about the same organisms that went into the vaccine prepared by Dr. Rosenow. Concerning these there are no accurate figures. So far as I have been able to determine, the preparations have not been used anywhere under properly controlled conditions. What we have to consider are, chiefly, the enthusiastic reports of observers whose faith was better developed than their judgment. A strenuo effort was made to secure the endorsement of t federal government for this form of prophyla against influenza. Under the direction of the Surgeo General of the Public Health Service, careful inves gators were sent to several communities from whi glowing reports were received regarding the gr value of stock vaccines, but in no case could the clai be verified. In this connection, we may trace t waning enthusiasm of one man who early in the e demic reported that "immunization, using mixed va cines, has proved beyond any question of doubt to be great prophylactic value . . . why not extend t to all the people?" Ten days later, this man advised that "we felt there was a strong possibility of it [t vaccine] preventing many cases. . . . At the pr ent time we are not in a position to make any abso and definite statement." So far as we know, the fir reports from this source never have been publish though ample time has elapsed.

People wondered that those in positions of respon bility did not accept the first enthusiastic repor adopt an attitude of optimism, and recommend the u versal use of vaccination against influenza; but, in t light of present knowledge, there seems to have be some justification for an attitude of conservatism.

It must be clearly understood that what has be said above does not apply to vaccination against lob pneumonia, using pneumococcus vaccine. The e dence on this is favorable, though perhaps the fin word has not yet been said. It may be noted here th the very optimistic reports by Lister, who introduc vaccination against lobar pneumonia, are being call into question.[8] The rather startling suggestion is ma by Fennel[9] that this antipneumococcus vaccine may useful in combating epidemic influenza, but he adm the "information at hand is fragmentary and not to seriously considered though possibly significant."

Though the evidence in respect to any vaccine th has been tried offers little to warrant hope that effective agent has been found, we must not feel und pessimistic. The problem of vaccination in influen is an extraordinarily difficult one. The etiology uncertain, the influenza bacillus and the streptoco are poor antigens, and the epidemics are so far apa and so rapid in passage that the time to work out prophylactic agent is very limited.

CONCLUSION

The general impression gained from uncontroll use of vaccines is that they are of value in the pr vention of influenza; but, in every case in which va cines have been tried under perfectly controlled con tions, they have failed to influence in a definite mann either the morbidity or the mortality.

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[7] Cecil and Vaughan: J. Exper. M. **29**: No. 5, pp. 457-483.

[8] Johnson: Am. Med. **25**: 149.

[9] Fennel, E. A.: Prophylactic Inoculation Against Pneumon J. A. M. A. **71**: 2115 (Dec. 28) 1918.

Making a Skilled Physician.—Hippocrates named six c ditions necessary to become a skilled physician: Natu talent, instruction by a competent master, a place favora to study, education begun in youth, love of work and lo application. The first of these conditions is the most imp tant, for where there is not a natural disposition it is usel to attempt to force Nature. Theory should be combin with practice. Want of experience begets either timidity rashness. Timidity discloses impotence and rashness ign ance.—Tweedy, *Brit. M. J.* **2**:598 (May 17), 1919.

GASTRIC CELL PRIMARY ATROPHY *

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Achylic conditions of the stomach may be divided :o: (1) those in which it seems to be normal in the dividual, has always been and will be present roughout the life of the person, and in whom it has ot and most probably will not affect the general state health or ever cause local symptoms; (2) the ychologic cases, such as fear of the passage of a omach tube, or the effect of depressing emotions vorry, grief, anxiety, suspense); (3) reduced state general body from fevers and senile conditions;) endocrinitic or hormone disturbances, of which e know little, and (5) pathologic conditions of the omach glandularis in which the secreting ability is stroyed by disease of the essential elements, namely, e acid and central cells.

To the latter, the term atrophic gastritis should be ven, a far better term for it than to designate it as hylia gastrica, because it expresses pathology instead only a symptom. In no entity of medicine are more istakes made than in instances of atrophic gastritis, hen they are called achylia gastrica. The latter term ould be confined to the normal nonacid stomachs, hich, for some reason, have acquired symptoms, to e psychologic endocrine, the general vitality reducon and the senile cases. In my opinion, almost every stance of so-called gastrogenic diarrhea with perstent achylia, whether increased amounts of mucus e present in the stomach or not, should be viewed ost probably as an atrophic gastritis. Expressions terms of symptoms may be satisfactory to some, but ey do not meet one of the cardinal commandments f scientific medicine as do expressions in terms of thology.

Pathologic studies of the stomach glandularis on e cadaver and such specimens as were obtainable at peration were made to study gastric cells. The bservations were that in the atrophic and hyperophic types of chronic gastritis there is generally resented in the glandulature the characteristic picture f a cell atrophy, but this comes very probably in a econdary way from interference with the nutrion of the cell, due to contraction of fibrous tissue, w intratubular and subtubular in location. In priary cell change the atrophy seems to begin as a rocess in the cell protoplasm, and is apparently not econdary to change in the basement membrane, nor is ere accompanying it any significant round cell infilation or organization of fibrous tissue. The fibrous ssue formation may be and often is met with; but en it is present as an entity making up a chronic astritis. The commonest and the most perfect stances of cell atrophy come and develop without ny evidence of chronic inflammation, and are repreented in a granular degeneration of the cell body nd desquamation which goes on until the cells disppear. Whatever the degree met with, the process general throughout the entire organ, although in he pyloric region the so-called pyloric glands usually escape. Thus it is apparent that the old designations of atrophic gastritis should be retained; but as a designation it should be confined to the late stage of chronic gastritis in which round cell and fibrous tissue infiltration and others are primary factors, and then there is reason to consider it as a form of stomach disorder, a granular protoplasmic degeneration, which really is not a true gastritis at all.

Work was done if possible to elucidate a factor or factors in the production of this condition. For the purpose, fourteen cadavers in which this stomach condition was found to be present were carefully studied. These were all instances of death from chronic infections: Eight were instances of tuberculosis in which mixed infection existed. Two were instances of chronic septic conditions of the gallbladder resulting in rupture and general peritonitis. One was a gram-positive diplococcus systemic infection following four years after a pneumonia in which a large abdominal abscess occurred. Another was meningitis following long standing ethmoidal disease. Still another was systemic infection following a pyelonephritis of three years' standing, and the last, a suppurative endocarditis of low degree.

In addition to these, there were nine instances of operations on chronic septic conditions in which pieces of stomach glandularis were obtained for section. They comprised four instances of subacute suppurative cholecystitis, three instances of long standing appendicular disease with mass adhesions, a suppurative Meckel's diverticulum, and a perforated gastric ulcer with local abscess formation and a chronic sinus between the abscess sac and stomach cavity.

LOCATION OF CHRONIC INFECTIONS PRESENT

Found		36
Head	10	
Chest	9	
Abdomen	15	
Pelvis	2	
Not found		4

As a result of these studies it was suggested that in infections of long enough standing in the body, a degeneration of gastric secreting cells could occur either from toxic effects from the bacteria affecting the cell protoplasm from the systemic side, the stomach acting as an emunctory organ to those toxins, or that because infective organisms were found in the stomach tissues in all cases but one, free in very increasing numbers in the stomach cavity and outside the stomach, this stomach condition was directly bacterial in origin.

From this point, the studies were changed to routine clinical cases. In all the anachlorhydric cases seen, care was exercised to eliminate the congenital, psychologic, the conditions in persons who had recently recovered from marked acute infections, and the senile. Also thrown out were instances of chronic alcoholism, cases in which we could feel that the anachlorhydric condition might have been due to dietetic errors, and those in which the condition could be ascribed to local causes in which a chronic gastritis was probably present. There were many instances by the most careful analyses of which we could not be definite as to classification that were not included. Each case was examined by Ewald test meal and the fractional method alternately four times before being judged as anachlorhydric, and classified according to the stomach condition most probably present. In the final analysis there were forty in which true cellular atrophy

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was believed to exist, instances of people who at some time before were reported to have normal acid present in the stomach which was now definitely absent. Regarding these the focal infections shown in the accompanying table were present.

Of the head cases only pyogenic sinus conditions, badly diseased tonsils and distinct pyorrhea were considered significant. Chronic middle ear conditions and tooth apex infections were not included unless one or more of the former mentioned conditions also existed. The chest series were all tuberculosis with mixed infections in moderately advanced cases; and of the abdomen, the gallbladder, appendix, colon, renal, female pelvic organs and prostate disease made up the group. Other than the chest cases, infections were proved by operation in only two instances, and in these, infection was believed to be present. In the four nonseptic cases all means of examination could not prove the presence of focal infection. These cases of primary gastric cell atrophy with chronic focal infections were striking. In them it was noted that this stomach condition was more liable to occur because of the infection than could be proved in any other stomach entity. It, therefore, was believed that cause and effect were practical enough to be significant for presentation at this time and worthy of further study.

The stomach retains few bacteria that must enter it. It is supposed that persistence of acidity is inimical to their development. My observations suggest that the acidity is not so significant a factor in this as is the status of motility. Moreover, the acid factor is only significant with the simple fermentation organisms, for with the pathogenic types, such as the bacilli of the coli group, staphylococci and the various forms of streptococci, it is not. Perfect examples for the observation of this are found in hypersecretion continua (the so-called Reichmann's disease) and gastritis acida. In these the acid secretion is high enough to inhibit an increased bacterial flora; still, in the majority of instances it does not do it. In perfect examples of these, both the bacteria and the leukocytes are increased, proving that there is pathology in the stomach mucosa, and that the normal acid does not inhibit the bacteria when local pathology is present. An argument may be made that in stagnant and achylic stomachs, like those seen in late cancer, the bacterial content in the stomach is high, but the bacteria met with here are only the fermentative and not the pathogenic forms. These organisms, then, are accidental, or better, secondary. A further argument might be made that stomachs which empty practically, even though a little slower, do not contain nutritive substance containing nitrogen and carbon for bacterial growth. Our observations have been that the stomach is rarely empty of every vestige of food. Even in normal stomachs a few meat shreds, starch granules, and mucus may be met with as late as seven or eight hours after meals. From these, but more especially in the stomach tissue, the bacteria derive sustenance for growth, and the more pathologic their nature, the surer is it that organic tissue gives to them the essentials for their livelihood.

Work was done on those patients that had been operated on to delineate an identical infection. This failed because of the multiplicity of bacteria met with in the focal infections and the stomach contents. In practically all of the cases it was not possible to decide which biologic type or strain was associated in causative ways, but the organisms of the streptococcic and bacillic classes occurred conspicuously in the focal infection and in gastric contents. Bacterial studies of test meals were made in the other anachlorhydric cases, and in those of normal and increased acidities. Standards of numbers of organisms per cubic centimeter of unfiltered test meals and gram-differential kinds were established, and it was found that in acid stomachs the bacteriology was nearly identical, depending somewhat on the status of motility. In the simple anachlorhydric cases more bacteria of the fermentative kinds were encountered, and in the noninfective and nonatrophic cases they were not pathogenic in kinds. In atrophic gastritis and the senile cases, the content was higher and tended to gram-negative pictures; but in the true or primary atrophies the content had distinct pictures in which large amounts of organisms, mostly the staphylococci, streptococci and streptobacilli, often actively motile, occurred as distinctive findings. So suggestive was this that diagnosis of this type of cellular atrophy in the stomach was being made by bacteria count and the study of stained specimens of test meals alone. Grown from different specimens of these test meals were *B. coli*, *B. proteus*, bacillus of malignant edema, staphylococci and various streptococci, pneumococci and the Connellan-King diplococcus. A gram-negative organism, streptobacillus in type, and grown best in 2 per cent. glucose bouillon, in some instances seems to have special significance.

In the cases of twenty-nine of the patients that were operated on, examinations of test meals were made one month and longer after operation, but no beneficial change in the bacterial pictures or acid content was noted. These and the four in which a focal infection could not be established were treated by vaccines according to the bacteria as they occurred conspicuously in the stomach contents of the individual case. In these twenty-three cases, fourth day injections, beginning with twenty-five million and rapidly increasing according to local and general reactions, were tried for twenty doses, the last being well into the billions, sometimes as high as 6. No benefit locally from the vaccines could be demonstrated. The patients that were operated on were benefited, but this was probably not local in the stomach, and no doubt was only such as came from the operations benefiting the general body. These patients were then tried on lactofarinaceous diet, with large doses of alkalis and pancreas preparations, and daily lavage. On this plan of treatment improvement was noted, not only in the subjective stomach symptoms but generally as well, and represents, in my opinion, the best means of treatment.

SUGGESTIONS

Some one, a wise and observing biologist, I assume he has remarked that when any one talks of causation he hangs out a signal to the discerning that he has made an incomplete analysis. This philosophical criticism finds no field richer in examples than that of medicine. Alhough I have been at this work for three years, I really have no definite conclusions; instead I offer only suggestions in the hope of stimulating interest and further sudy, and these may be thus expressed:

1. Pathologic studies suggest that essential cell atrophy in the stomach is quite a common condition.

2. Cellular atrophy can be a true primary atrophy; d these instances should be distinguished from the ms secondary to chronic gastritis.

3. In primary cell atrophy the destruction is, in all bability, due to toxic effects from focal infections ning lodgment in the spongy glandularis, or from cteria culturizing in the stomach glandularis or mach contents.

4. The bacterial studies of test meals are important this connection, the organisms, particularly when ively motile in the test meals, being significant.

5. Distinction should be made between the patho-nic and fermentative organisms in test meals, not ly because of an explanation of the achylia, but cause of the suggestion that focal infection probably ists somewhere in the body.

6. Vaccines made from test meals are of no benefit the cases, either subjectively or objectively, the noval of the focal infection being more important r benefit to the subjective stomach symptoms as well to the body in general.

7. With the subjective stomach symptoms alone, the d method of treatment with gastric lavage as an addin to the lactofarinaceous diet and alkalis and pan-eas preparations proved to be the best treatment, hough in no case was there any return of normal id or proenzymes.

8. When primary cell atrophy has taken place, the ss of gastric juice secretion is as permanent as when e atrophy is secondary to a chronic gastritis.

GASTRO-INTESTINAL DISTURBANCES IN PERNICIOUS ANEMIA*

FURTHER OBSERVATIONS

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The relation existing between anemia and various stric affections has been a matter of great interest r many years. As early as 1860, Austin Flint[1] called tention to the possible dependence of certain cases pernicious anemia on certain degenerative changes the gastric mucosa. In 1865, Samuel Fenwick[2] pubshed a memoir on "Morbid Changes in the Stomach nd Intestinal Villi Present in Persons Who Have ied of Cancer" in which he observed the disappearnce of the cells in the gastric tubules, granular and tty degeneration and atrophy, and an increased forration of connective tissue with a marked thinning of e mucous membrane, and with loss of flesh. Especially did this condition occur in persons dying with ancer of the breast. He explained the anemia accompanying this disease as possibly due to the changes in e gastric tubules of the stomach.

In 1875, Schumann[3] described a case of progressive ernicious anemia in which the gastric mucous mem-rane was almost completely denuded of its epithelium nd the gastric glands were poorly developed and insignificant in number; mucous hemorrhages, increase of connective tissue and fatty degeneration of the muscularis and of the blood vessels were observed.

In 1877, Fenwick[4] reported four cases of pernicious anemia in which atrophy of the gastric tubules was observed. Later, Nolen[5] reported two cases of a similar condition; Quincke,[6] one case; Nothnagel,[7] one case; Brabazon,[8] one case; Henry and Osler,[9] one case, and Kinnicutt,[10] two cases.

The opinion was held by these observers "that a primary atrophy of the gastric mucous membrane occurs and that in this lesion is to be found an explanation of certain cases of pernicious anemia." The reason for this conclusion is evident. The entire degeneration of the glandular elements of the stomach, together with the loss of secretion, appeared sufficient to explain the condition of the blood. It was noted, however, that an entire absence of gastric secretion could exist for a long period of time without impairing the general health of the patient. It is, therefore, impossible to conclude that gastric atrophy causes pernicious anemia; and the two conditions must be classified as a result of a common cause. Grawitz[11] has advocated the gastro-intestinal theory as the cause of pernicious anemia, believing this condition to be due to an intoxication. He is inclined to lay great stress on the achylia gastrica which is so commonly present in this affection. The objection to this theory is founded on the fact that achylia may be present for years without producing anemia; it is frequently present in other conditions, for instance, in malignant affections, or as a result of intestinal parasitic infections. Oestreich and Strauss[12] call attention to the histologic change observed in the mucous membrane of the stomach and intestine, occurring with much constancy in pernicious anemia, to which they attach much importance. The changes consist mainly of an atrophy of the glandular structures, and an accumulation of leukocytes in the submucosa. Notwithstanding the fact that the histologic changes show an apparent relation existing between the gastro-intestinal tract and the blood disease, they could not demonstrate a destruction of the blood by a poison generated by ordinary putrefaction in the intestine.

Following these observations, Martius[13] and others studied the alterations in the intestinal mucosa in pernicious anemia. A marked thinning in the muscularis and submucosa was observed, and this condition was found in all sections from the duodenum to the colon. The microscopic examination showed an overgrowth of the interglandular tissue in the mucous membrane of the intestine, there being a richness in round cells in the early stages and poorness in cells, with fibrous formation in the later stages. The further the advance of the disease, the greater the compression in the glandular part. Bloch[14] has published some experiments bearing on the etiology of pernicious anemia. Extracts prepared from the intestinal contents of patients in different stages of the disease were injected into animals without, however, producing any characteristic symptoms from which definite conclusions as to the etiology of this affection could be reached.

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[1] Flint, A.: Med. Times, Sept. 15, 1860.

[2] Fenwick, Samuel: Med. Chir. Tr. **48.**

[3] Schumann: Inaug. Diss., Freiburg, 1875.

[4] Fenwick: Lancet **2,** 1877.

[5] Nolen: Centralbl. f. d. med. Wissensch. **20.**

[6] Quincke: Samml. klin. Vortr. No. 100.

[7] Nothnagel: Deutsch. Arch. f. klin. Med. **24.**

[8] Brabazon: Brit. M. J., July 27, 1898.

[9] Henry and Osler: Am. J. M. Sc. April, 1886.

[10] Kinnicutt: Am. J. M. Sc., October, 1887.

[11] Grawitz: Berl. klin. Wchnschr., June 7, 1901.

[12] Oestreich, R., and Strauss, H.: Berl. klin. Wchnschr. **44:** 1300-1302 (Oct. 14) 1907.

[13] Martius and Lubarsch: Achylia Gastrica, 1897.

[14] Bloch: Deutsch. Arch. f. klin. Med. **57.**

Strauss[15] also concluded that since neither ordinary nor artificial constipation is capable of producing the symptoms of pernicious anemia, the hemolytic agent, therefore, which produces the destruction of the blood cells in anemia must depend on some special change not present in ordinary putrefaction. Tixier[16] describes the relation existing between gastro-intestinal disturbances and anemia and points to the slight alteration found in the gastro-intestinal canal in patients dying from anemia associated with intestinal conditions. He maintains that the blood changes in these cases must be explained by the formation in the intestine of a poison having both the power of destroying the red corpuscles and that of stimulating the blood forming organs. The latter power is at times exhausted while the hemolytic power is still active. Moffitt[17] has suggested a protozoan infection as the cause of pernicious anemia.

It would carry us too far to draw attention to all of the various gastro-intestinal findings which have been observed in pernicious anemia by various observers. We need only call attention to the increase in eosinophil cells found by Lubarsch[13] in the interstitial tissue of the gastric mucosa in all cases. On the other hand, Jurgens[18] called attention to a degeneration of the motor nerve elements of the intestine, which Blaschko[19] described as an extreme degeneration of both Auerbach's and Meissner's plexus. From these findings it was concluded that in certain cases of pernicious anemia the primary cause is to be found in the destruction of the nerve elements of the intestine leading to functional disturbances and finally anemia. The evidence for this conclusion is, however, extremely insufficient.

The gastric secretion has been studied in pernicious anemia by a number of observers: H. H. Strauss[20] found free hydrochloric acid present but twice in a study of eight cases; and in twenty cases of Rosenquist, four cases of Moracewski, and in eight cases of Strauss free hydrochloric acid could be detected in but 16 per cent. of the cases. Bloch observed that in the stage of improvement in pernicious anemia there is an increase of free hydrochloric acid; while Schumann[21] found an absence of this acid even when patients had apparently recovered from the disease for over two years.

In a study of twenty-four cases of pernicious anemia, Stockton[22] observed that eighteen patients were affected with gastric disturbances; while six were free of such disturbances, ten were constipated, eight had diarrhea, and in six there was an irregularity of the bowels. In eleven instances the liver was enlarged; in thirteen it was not; nine cases showed a dilatation of the stomach. In thirteen instances there was an absence of gastric digestion, in eight the gastric digestion was diminished, and in three it was fairly good. Five cases showed evidence of gastric catarrh. In six instances there was an absence of acid in the gastric contents, while the average of the total acidity varied around 1 : 10. In three cases free hydrochloric acid wa present in traces; in all others it was absent.

Austin[23] found an absence of free hydrochloric aci and of the ferments in his cases, while the gastri motility was diminished in most instances. He als noted an increase of urobilin in the urine and o stercobilin in the feces; occult blood was also observe in the feces. Of the seventy-nine cases observed b Cabot,[24] only one presented hydrochloric acid in th stomach contents in any considerable quantity.

GASTRO-INTESTINAL SYMPTOMS OF THE SEVENTY-SIX CASES OF PERNICIOUS ANEMIA *

Number	Name	Age	Sex	Anorexia	Nausea	Vomiting	Indigestion	Bowels	Total Acidity	Free Hydrochloric Acid
1	T. F.	51	♂	+	+	+	—	Diarrhea	12	0
2	E. R.	47	♂	—	—	—	+	Constipated	10	0
3	K. K.	38	♂	+	+	—	+	Diarrhea	11	0
4	P. G.	60	♂	+	—	—	—	Constipated		
5	T. N.	45	♂	+	+	+	+	Irregular	8	0
6	F. C.	42	♂	—	—	—	+	Diarrhea	9	0
7	B. J.	62	♂	+	+	+	+	Irregular	33	5
8	T. M.	57	♂	—	—	—	+	Constipated	14	0
9	S. K.	42	♂	+	+	—	+	Irregular	13	0
10	D. V.	59	♂	—	—	—	—	Constipated	56	39
11	L. J.	60	♂	+	+	+	+	Irregular	9	0
12	B. W.	58	♂	—	—	—	—	Diarrhea	8	0
13	P. S.	46	♂	—	—	—	+	Constipated	22	5
14	G. M.	39	♀	—	—	—	—	Constipated		
15	H. B.	47	♂	+	+	+	—	Constipated	32	12
16	S. S.	56	♂	+	—	—	—	Constipated	12	0
17	T. J.	59	♂	—	—	—	+	Constipated	14	0
18	M. L.	43	♂	+	+	+	+	Constipated	8	0
19	S. A.	59	♂	—	—	—	+	Constipated	9	0
20	J. P.	33	♀	+	+	+	+	Constipated	26	8
21	P. S.	49	♂	—	—	—	+	Diarrhea	9	0
22	C. M.	51	♂	+	+	—	+	Diarrhea	34	12
23	L. K.	50	♂	+	—	—	—	Constipated		
24	F. E.	58	♂	—	—	—	+	Diarrhea	10	0
25	H. B.	42	♂	+	+	+	+	Irregular	8	0
26	F. C.	37	♂	—	—	—	—	Constipated		
27	E. M.	44	♂	+	+	+	+	Irregular	35	8
28	T. B.	36	♀	—	—	—	+	Constipated		
29	F. N.	52	♂	+	+	—	+	Diarrhea		
30	K. F.	40	♀	+	+	+	—	Irregular	41	6
31	T. M.	59	♂	—	—	—	+	Constipated		
32	A. F.	56	♂	+	+	+	—	Constipated	14	0
33	E. C.	31	♀	+	—	—	+	Constipated	11	0
34	F. K.	37	♂	—	—	+	—	Diarrhea	12	0
35	C. L.	45	♂	+	+	+	—	Irregular	65	44
36	K. P.	40	♂	+	—	—	+	Constipated	9	0
37	P. C.	36	♀	+	+	+	—	Diarrhea	8	0
38	H. T.	51	♂	+	—	—	—	Constipated	8	0
39	F. D.	34	♀	+	+	—	—	Irregular	8	0
40	P. K.	49	♂	+	—	—	—	Constipated		
41	G. B.	53	♂	+	+	+	—	Irregular	11	0
42	A. M.	47	♂	+	—	—	+	Diarrhea	9	0
43	C. E.	59	♂	—	—	—	+	Constipated	13	0
44	E. P.	40	♂	+	+	+	+	Diarrhea		
45	N. R.	38	♀	+	—	—	+	Diarrhea	46	36
46	K. O.	51	♂	—	—	—	+	Constipated		
47	W. S.	59	♂	+	+	—	+	Diarrhea	44	32
48	P. L.	47	♂	+	+	+	—	Constipated	11	0
49	L. T.	53	♂	+	+	—	—	Diarrhea		
50	R. F.	57	♂	+	+	+	—	Constipated	9	0
51	H. S.	36	♂	—	—	—	+	Diarrhea		
52	S. F.	42	♂	+	—	—	+	Irregular		
53	T. B.	30	♀	+	+	+	—	Diarrhea	10	0
54	P. E.	55	♂	—	—	—	+	Constipated	38	10
55	T. L.	42	♂	+	+	—	—	Diarrhea		
56	K. A.	61	♂	+	—	—	+	Diarrhea	24	5
57	N. S.	60	♂	—	—	—	—	Diarrhea		
58	O. J.	57	♂	+	+	+	—	Constipated	14	0
59	M. R.	58	♂	+	—	—	+	Irregular	5	0
60	P. M.	36	♂	—	—	—	—	Irregular	10	0
61	O. L.	42	♂	—	+	+	+	Diarrhea		
62	E. P.	51	♂	+	+	—	+	Constipated	25	10
63	P. R.	47	♂	+	+	+	—	Diarrhea	9	0
64	D. L.	39	♂	+	+	—	—	Constipated	18	0
65	C. H.	50	♂	+	+	+	+	Diarrhea	10	0
66	T. S.	35	♀	+	—	—	+	Constipated		
67	N. O.	46	♂	—	—	—	+	Diarrhea	14	0
68	F. K.	49	♂	+	+	+	+	Diarrhea		
69	I. R.	37	♂	—	—	—	+	Constipated	5	0
70	M. A.	62	♂	—	+	+	—	Constipated	12	0
71	B. B.	44	♂	+	—	—	—	Irregular		
72	L. R.	47	♀	+	+	—	+	Constipated	9	0
73	M. L.	65	♂	—	—	—	—	Diarrhea	16	0
74	J. C.	54	♂	+	+	—	+	Diarrhea	16	0
75	A. W.	50	♀	—	+	+	+	Constipated	8	0
76	C. N.	48	♂	+	—	—	+	Constipated	12	0

* In the fourth column ♂ means male and ♀ female; in the fift sixth, seventh and eighth columns, + means present, and — absent.

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[15] Strauss, H.: Berl. klin. Wchnschr., 1902.
[16] Tixier: Semaine méd., June 19, 1907.
[17] Moffitt: Tr. Am. Phys., 1911, p. 288.
[18] Jurgens: Verhandl. Berl. med. Gesellschaft, 1880-1881.
[19] Blaschko: Virchows Arch. f. path. Anat. Bd. 94, 1882.
[20] Strauss, H. H.: von Noorden Handbuch der Path. **15**: 926.
[21] Schumann: Zur Kenntniss der Anaemia, 1894.
[22] Stockton, C. G.: Pernicious Anemia and Its Relation to Gastric Digestion, Based on Twenty-Five Cases, J. A. M. A. **43**: 165 (July 16) 1904.
[23] Austin, A. E.: Boston M. & S. J. **165**: 128-132 (July 27) 191
[24] Cabot: Osler and McCrae's Modern Medicine **4**: 627.

In 1912, one of us[25] presented a series of fifty-eight cases of pernicious anemia in all of which gastrointestinal symptoms were noted. Since then we have collected eighteen additional instances, making seventy-six in all. Of the seventy-six cases there were sixty-four males and twelve females, the ages ranging between 30 and 65 years.

The symptoms manifested were loss of appetite, nausea, vomiting, indigestion (fulness, pressure, distention, pain), diarrhea and constipation.

Loss of appetite was observed in forty-seven cases, nausea in thirty-seven, vomiting in twenty-six, indigestion in forty-six, diarrhea in twenty-eight, constipation in thirty-five, and irregularity of the bowels in thirteen. The liver was enlarged in twenty-four instances, while in fifty-two it was not. Enteroptosis was present in twenty-eight instances and atony of the stomach in thirty-four. Gastric catarrh was present in eleven cases. The gastric contents were examined in fifty-seven of the seventy-six cases. In forty-two of these there was an absence of gastric secretion (achylia gastrica). In eleven the gastric secretion was diminished and in four it was normal. In the forty-two cases with an absence of gastric secretion, the total acidity ranged between 5 and 16. In the eleven with diminished gastric secretion, the total acidity ranged between 18 and 41, free hydrochloric acid between 5 and 12. In the four with normal digestion the total acidity ranged between 44 and 65, free hydrochloric acid between 32 and 44. The gastric secretion was examined in eleven patients presenting an absence of free hydrochloric acid during the period of improvement in the state of the blood as well as of the general health; in none did the secretion return during the stage of apparent recovery.

We have also examined six cases of pernicious anemia according to the Rehfuss method of fractional analysis. There was in all a low total acidity ranging between 10 and 15 with an entire absence of free hydrochloric acid in every stage of the digestion. The Wolff-Junghans test always presented low protein values, thus differentiating this condition from gastric cancer.

From a study of the seventy-six cases of pernicious anemia, it is evident that a large proportion of these cases are attended with gastro-intestinal disturbances as well as with an absence of gastric secretion; there is present an achylia gastrica in about 74 per cent. of the cases, and even in the stage of apparent recovery the gastric secretion does not return. In a smaller proportion of cases, 19 per cent., there is a marked diminution of the secretion, and in a few instances, about 7 per cent., it remains normal.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. BASSLER AND DRS. FRIEDENWALD AND MORRISON

Dr. Max Einhorn, New York: Everybody knows that atrophy of the glands of the stomach exists, but it is very difficult in treating a patient to make a pathologic diagnosis. We also know that when extreme atrophy exists the prognosis is bad; while if there are only minute changes in the glands, usually a good prognosis may be made. When these studies of pernicious anemia were started by Fenwick, he had to deal with atrophy of the mucous glands of the stomach, and he said all those people had to die; and then people who studied the gastric secretion and found that there was no gastric secretion, said: "Now, here there must be an atrophy of the glands, and all those must die." When I started studying medicine and found a young man who had no gastric secretion, I could not convince myself that he had atrophy of the stomach. That is the reason I protested against this promiscuous diagnosis. I termed that condition "achylia gastrica." That young man is alive yet, after more than thirty years. I have seen a great many of those cases since. So, while it is very wise and good to try and make a pathologic diagnosis, if you can do it, do it, but do not make a pathologic diagnosis when you are not sure, and make a bad prognosis when the prognosis may be good. With regard to this treatment of anemia, which Dr. Friedenwald brought out. It was agreed that in all of these cases there was no gastric secretion. Later on, when I studied that subject I found exceptions to the rule. I found some cases of pernicious anemia and most of them had real achylia, but there was a fraction that had genuine gastric secretion, indicating again that lack of gastric secretion is not the cause of pernicious anemia, perhaps quite the reverse.

Dr. Arthur F. Chace, New York: These two papers might have been labeled focal infection of the streptococcic type, as it involves the stomach and interferes with the digestive system, thus producing anemia. If we looked at the primary condition as one of infection that involved two different parts of the body, the alimentary tract and the hemopoietic system, it will clear up the atmosphere a great deal Our attack in treating these conditions is along those lines. First, we eradicate the focus of infection; second, we improve the nutrition by treating the gastro-enteric tract. In anemia the improvements have been due to systematic treatment with hydrochloric acid, forcing alimentation, transfusion and by breaking up the patient's vicious cycle in the intestinal tract.

Dr. Martin Rehfuss, Philadelphia: I believe that we not only have focal infections as the causes of gastric disturbances, but that we can have a focal infection of the stomach itself. It is astonishing to note that the stomach is not frequently infected, because, first, the material is usually in movement; second, because there is acid enough from the gastric mucous membrane; third, because the gastric mucous membrane is vascular; and, fourth, probably because there is always free draining from the mucous membrane. A very interesting thing I investigated some time ago was the number of bacteria in the gastric contents. I found the easiest way to determine that was by microscopic inspection of the "Howard" test meals, following the ingestion of starch, etc. In the ordinary test meal with forty-five or fifty total acidity, there is an occasional organism of this type. A lower type of acidity in which there is a distinct decrease in the organism is also found. In a third group in which there is considerable progress in starchy digestion, and with it a large number of organisms of the same type, mucus, pus cells and bacteria are in the stomach contents. The interesting this is this: At the height of the curve very little was found; at the bottom of the curve considerable material was found. There is a difference also in the character of that material. If you remove the material from the stomach in the morning you will find that in a true case of chronic gastritis in which the trouble is localized, there are bacteria, leukocytes and pus. You will find from mouth infection, throat infection and pulmonary infection distinct particles of pus like threads which float through the mucus. I have succeeded in three instances in isolating the organism from the stomach, preparing a toxin or vaccine, disinfecting the stomach and seeing the case clear up absolutely simply from purely specific treatment. I believe there is a focal infection of the stomach that exists as a specific cause of disease; second, this focal infection can be diagnosed; and, third, in some instances, at least, it is controllable. In these cases that are attended with considerable mucus, and sometimes with mucopus, and even in gastric cancer when the stomach becomes secondarily infected, I put the tube in and attach to it a rectal drip and allow that to drop disinfecting material over the stomach for a time. It certainly improves these cancer cases by keeping the stomach right. We have as much reason to keep an internal carcinoma clean as to keep an external carcinoma clean.

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[25] Friedenwald, Julius: Boston M. & S. J. **167**: 160-162 (Aug. 1) 1912.

Dr. Louis Lefrak, New York: The chief clinical interest in atrophy of the gastric cells is the differentiation of the achylia which is usually present, from other conditions in which gastric secretions are also deficient or lacking. Cancer, neurasthenia and pure achylia, if there is such a thing, are to be differentiated. An absence of all the gastric ferments, including proenzymes, certainly points toward destruction of gastric cells. While from the standpoint of pathology atrophy of the gastric cells should be viewed with concern, still, I am sure, many of you have, like myself, seen cases in which gastric analysis showed a very low total acidity, absence of HCl, free or combined, with very poor result of rennin test and an almost negative Hammerschlag test for pepsin, and, despite all of which, the ungrateful patient refuses to be real sick. The possible compensating factors are increased motor activity and vicarious pancreatic and intestinal function.

Dr. John A. Lichty, Pittsburgh: In the clinic with which I am connected, we have refused to make a diagnosis of pernicious anemia where we have no achylia. We feel from year to year as we hold to this rule that we are making fewer mistakes in the diagnoses. In other words, in those patients in which we even find satisfactory roentgen-ray examination and find free HCl still present, or even the combined HCl we usually find the patient takes a different course from the ordinary cases of pernicious anemia. I feel that Dr. Friedenwald has given us a very valuable paper in that it shows that a case of pernicious anemia or so-called pernicious anemia with a certain amount of free HCl or combined HCl is a questionable case; and if the case is followed to the necropsy table it will usually be found that some definite pathology is present.

Dr. G. A. Friedman, New York: I believe that achylia gastrica at the very beginning must be a functional disturbance, similar to diabetes which is at first a functional disorder of the Langerhans islets of the pancreas. The next step may be actual pathology; atrophy of the glands of the gastric mucosa in achylia; atrophy of the Langerhans islets of the pancreas in diabetes. When achylia gastrica has firmly established itself, all kinds of infection may set in into the stomach. It is known that the possibility of becoming infected with Asiatic cholera is slight as long as the gastric secretion is normal; and it happens very frequently that individuals will contract cholera while attending cholera patients when on a fasting stomach. What I wish to point out is that achylia predisposes to invasion of the stomach by bacteria, but is not caused primarily by infection. In regard to the connection of pernicious anemia to achylia, I agree with Dr. Einhorn that pernicious anemia possibly causes the achylia. Of a similar origin the achylia in carcinoma of the stomach is probable, because we believe now that pernicious anemia is a malignant blood condition. Thus the essential achylia gastrica is primarily due to a functional disturbance, while the achylia in pernicious anemia and in carcinoma must be due to other causes.

Dr. Jacob Gutman, Brooklyn, N. Y.: I am particularly interested in that class of cases which Dr. Bassler has thought best to classify as achylia gastrica endocrinica. Indeed, this condition has always been a question mark to me. Until recently, we were compelled to satisfy ourselves with its denomination achylia gastrica "nervosa," i. e., etiologically of nervous origin, knowing no other basis. Lately, however, since we have become more familiar with the functions of the various endocrine glands, achylia gastrica has been given study as Dr. Bassler has shown, from a new viewpoint, the endocrine. During the past several years, I have been interested in studying individuals with achylia nervosa from their constitutional habitus and in determining a possible connection between this disturbance and the tropism or constitutionality of the individual. I found that such individuals exhibit typical features which compel their classification into the adrenotrope class. You know that a study of somatic and functional features of individuals enables us to classify them into the adrenotrope, pituitotrope, thyrotrope or mixed habitus. From physiology, you also know the effects on the secretion of gastric juice and its suppression of such emotions (particularly if sudden) as fright, excitement, aggravation, worry, etc., and that it is effected through the sympathetic, which is not only under complete domination but part and parcel of the suprarenals. The intimate relationship, embryologic and physiologic, of suprarenals and cerebral cortex explains the mechanism by which the emotional stimuli (shock, fear, anger) from the cortex are reflected through the suprarenals and their agent, the sympathetic, on gastric secretion. If you will observe your cases of achylia carefully, you will find no difficulty in coming to the same conclusions, as I did, that they are of the adrenotrope type. Female patients are of masculine build, males of the kind formerly styled status apoplecticus. You will find they are dark haired, dark eyed, ruddy complexioned, hairy skinned with nevi, pigmentations, very firm and stained teeth and numerous other characteristics, of adrenotrope origin. They are all more or less mentally easily susceptible to external influences and present types ranging from complete apathy to extreme nervous irritability. None, however, are of normal mentality, hence the term "nervosa" is not entirely a misnomer. I fully concur, therefore, with Dr. Bassler in his opinion when he speaks of the type of achylia gastrica designated as nervosa as endocrinic in origin for in my experience these cases always exhibit some dyshormonism of suprarenal nature.

Dr. Anthony Bassler, New York: I am strongly inclined to agree with Dr. Einhorn, that in cases of pernicious anemia the achylia is simply functional, or, as he expressed it, a resulting condition. Perhaps my two cases in which focal infection could not be demonstrated belonged to the group which Dr. Rehfuss described. Whether a stomach can become primarily infected from pathogenic organisms we have not been able to prove. I believe that that is going to be difficult. I believe, with Dr. Gutman, that there are endocrinitic cases of functional achylia that belong to the suprarenal group. I believe that the stomach condition in pernicious anemia is secondary, and in the two cases that we necropsied there was a definite primary cell atrophy of the type I described. We have had three very striking results with the use of hypotonic cells, cases of definite pernicious anemia, as definite as it was possible under the great variety of blood conditions to say that pernicious anemia was present. In those three cases there was a distinct *Bacillus putrifaciens* infection of the bowel, although the bacilli were not present in any numbers in the canal. But here we had definite, marked infection, and we have believed that the benefit obtained has come from the use of lavage in that connection. In the study of the etiology of primary gastric cell atrophy in connection with focal infection cases, there are other conditions that can bring on primary gastric cell atrophy. I did not go into that. I would suggest that a differentiation in bacteriology be made, as far as it is possible, to decide whether the organisms are incidental, or belonging to the simple fermentation group, or whether they are primary and pathogenic.

Smallpox in China.—Chinese smallpox is usually classified among the diseases of children. It is described in excessive detail by native doctors. Fung's "Precious Bag" gives fifty-five varieties of the disease, eighteen rules of contraindications for treatment, several chapters of signs for predicting the result, and a host of preparations for its cure. Great stress is laid on the form, size, character, color, quantity, position, and time of appearance of the eruption. The complications enumerated cover all the sicknesses to which human flesh is heir. As to treatment, acupuncture, moxa, dieting, baths, charms, incantation, and various superstitious practices are employed in addition to drugs. But inoculation is chiefly relied on as the method of prevention. Human inoculation of variolous virus was first practiced in the Sung Dynasty (1022). The prime minister, Wang Tan, after having had several of his sons suffer severely from smallpox, was informed of the successful preventive inoculation practiced by a Szechwanese living at Ngo Wei Mountain. Wang Tan had a son inoculated and the inoculation proved very successful. This method was rapidly taken up and became very popular with the people.—*China M. J.* 33:54 (Jan.) 1919.

EDUCATIONAL POSSIBILITIES OF THE NATIONAL MEDICAL MUSEUM

IN THE STANDARDIZATION OF MEDICAL TRAINING *

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The crisis through which the world has just passed was reached at a mighty cost of money, suffering, sorrow and life. It has freed the people of many nations, it is to be hoped that it has amalgamated the many peoples of our own; and if the world has been made safe, the tremendous effort will not have been made in vain. There will always be wars, but the waging of them will not be undertaken by the more highly civilized nations without just deliberation. The war has produced a mental quickening which has advanced our knowledge of the mechanical and the scientific far beyond that of a like period of peace. Our country is no longer isolated from other countries. Through science the world has become so contracted, as regards transportation, that whereas Columbus spent many weeks sailing from the old world to the new, it now takes but twenty-four hours to travel by air from the old world to the new, and but four and one half days by water.

The medical professsion may be justly proud of the record made by organized medicine during the war. The carrying on of this war, above all others, was dependent to an extraordinary degree on the physician. This statement applies to the medical profession as a whole, which is alike the world over, there being little difference in the capabilities of the leading men. In the wars of the past, generals have deplored the losses due to disease, which were always greater than from injury in action and were looked on as a necessary and inevitable accompaniment of war. In this war there were more than two deaths from injury and its results to one of disease, and yet the world lauded the strategy developed by commanding officers. There have been but few instances of military strategy and almost no casualties among the higher officers in command. The real strategy of this war has been the control of disease by the men in the medical corps who reduced the loss of man power by preventive medicine, and by treatment controlled diseases that in the past were determining factors in the defeat of armies. The failure of the British in the Mesopotamia campaign was a medical failure due in part to lack of rank and attendant authority vested in the medical officers, and in part to army ethics, which made conferences difficult between officers of dissimilar rank. We need only to recall the yearly loss of 250 to each thousand men in the Crimean War, or the record of typhoid in the Boer and Spanish-American wars to realize the benefits of medical control of typhoid and of typhus fever when they started in Siberia. We must also recall the improved morale incident to the modern treatment and quick healing of wounds, whereby men were repeatedly returned to the ranks, instead of remaining permanently disabled and becoming a charge of their country, as in former warfare. Japan, one of the last countries to accept modern civilization, was the first to realize the importance of caring for the health of her troops; her medical officers were held responsible, and in consequence Japan was able to defeat an apparently stronger nation. The exceedingly low disease record of the Japanese army was reduced more than one half in our training camps through the efficiency of that master of preventive medicine, Surgeon-General Gorgas, under whose direction the most efficient army medical organization was perfected that has ever been developed. The mortality rate of our troops in France was lower than that at home among civilians.

Long before our country became engaged in the struggle, hundreds of our profession, feeling the call of humanity, volunteered their services to France and England and served there faithfully and well, suffering many casualties. Our Reserve Medical Corps in France sustained 442 casualties; thus the percentage of losses of noncombatants equaled that of the infantry and artillery. Forty-six officers were killed in action, 22 died of wounds, 12 of accidents, 101 of disease, 4 were lost at sea, 7 were missing in action, 212 were wounded, and 38 were taken prisoners. For months before our country declared war, the first and best organization in preparation was the medical organization under the Medical Board of the Council of National Defense. These preparations were carried out for the purpose of aiding the Medical Department should war be declared. Practically one third of the active members of our profession, whose age, training and capabilities met the requirements of the Surgeon-General, were commissioned for service. Seventy thousand of the medical men not enrolled in the Medical Corps in active service were members of the Volunteer Medical Service Corps. In this group were included the members of the 5,000 local examining draft boards.

It is deplorable, and a blot in the history of this war, that the work of the American medical profession was not recognized by the general staff and that rank, according to responsibility, was withheld in most instances until the war was nearly or quite over. A comparatively long period of service in Washington enables me positively to state that the same unfairness toward the medical army officer still exists. Our government has maintained, at great expense, special places for the training of its army officers, even for their preliminary education, such as West Point for the Army, and Annapolis for the Navy. Students are given opportunity for service after graduation by continued training, maintaining the highest efficiency possible. The government in the past, however, has been at no expense in the training of the medical officers, but it has a postgraduate school for the purpose of training in the theory and practice of military medicine. No account has been taken of the fact that the men in the Medical Reserve Corps had had an average training of at least twenty years, and that their university course and medical course had cost not less than $5,000 for each person. In spite of the injustice of rank and the inaccuracies of assignments, the members of the Reserve Medical Corps sacrificed freely and willingly that our troops might receive the best that medical education afforded. The work in hospitals, including general and special practices, should at least qualify the physician to be placed on a par with the line officer of the army who has had a similar number of years of inactive duty in times of peace. The soldier is rewarded or promoted for risk of life and personal valor; an officer who is given authority to command the destruction of life may have spent but a few

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months in a training camp, while the medical officer who is responsible for the preservation of life devotes many years to preparation. I believe that the necessity of higher rank is essential only as it represents authority and responsibility, and it is required by the civilian medical officer during his period of service. I feel sure that should military service again be required, those in authority will be compelled to give adequate recognition to the medical officers as a vital point of justice.

One last point and I am through with suggestions for the reorganization of army rules which have been well arranged to give a multitude of official positions in time of peace but are most cumbersome and fruitful of delay in time of war. If there must be a general staff, instead of assistant secretaries over divisions, it is highly important that the Surgeon-General's Office should have a representative in each division as a liaison officer.

Surgeon-General Ireland is a most worthy and capable commanding officer for the medical department; he had under his charge a volunteer service of enlisted men, nurses, sanitary corps, dentists and medical officers numbering 300,000; with the transference of the wounded and diseased, he had from 500,000 to 800,000. It is well to call attention to the small number of superior officers assisting the Surgeon-General as compared with the number maintained for corresponding thousands of able bodied men in the regular army.

The general training, discipline and broad education of the youth who participated in the war should insure a just and sane political management of our country for two generations. It is apparent from the rules of the organization of the veterans of this war that they have banded together for the purpose of giving to our country rather than taking from it. The protection against disease and the care of health during the training for war and during war will be recognized and demanded by them as their right, and the right of posterity in time of peace in order that in the future 36 per cent. of youth in the third decade of life will not be found incapacitated by disease and its results, should they be called to defend their country. The records of our draft boards, now made public, show a startling lack of interest on the part of our national, state and local authorities in their responsibility fully, and often even partially, to protect the people against preventable diseases and the accidents of industry. It is a poor government that does not realize that the prolonged life, health and happiness of its people are its greatest asset. The sum of money appropriated by the nation to expend for the prevention of diseases in man is, indeed, meager compared with the appropriations for the prevention of diseases in animals, and for the development of agriculture. Congress dare not investigate labor conditions for the purpose of maintaining a rational control of labor hours, and to control the value of labor in proportion to the investment. It is conceded, of course, that the manufacturers must be encouraged, and that small business operations only must be controlled by congressional act.

Because of the high cost and rapid turnover of labor, manufacturers, however, are recognizing as a necessity the protection of the industrial workers. The newer methods of treating injury, as developed by the war, will prove of the utmost advantage in caring for the accidents of industry. But many hundred cases of trachoma, and thousands of cases of hookworm, in fact, all forms of disease that can be prevented, controlled or cured, still exist. The serums which have been used in the prevention of certain diseases, such as typhoid, typhus and tetanus, have now become commercialized, and their widespread use certainly places them beyond the criticism of the ignorant. Colonel Russell of the Regular Medical Corps deserves great credit for being the first to free the army of any nation from typhoid.

The laws of civilization signify progress and efficiency along scientific lines. Such progress and efficiency is due to the initiative of comparatively few persons who serve as a stimulus both to the professional and to the lay public. Public demand is the only true stimulus for tradesmen and professional men alike. This can be advanced only when the nation adopts the slogan "Educate the public."

The standards of the medical profession have been raised from time to time, and great strides are being made to further the progress, wholly through the efforts of its members. Hospitals are being standardized, surgery is being standardized, and everywhere the subject of sanitation and hygiene, dentistry, school inspection and child welfare work is receiving more attention than ever before. From the lessons learned through the war we may now hope to have government standards of all scientific progress. There is no national control of education to develop Americanism. It has been shown that eight and one half millions of our people of more than 10 years of age are uneducated, and 70,000 of our young soldiers could not read nor write. This is not startling, as we are habituated to ignorance; but to have this secret become known to the world is humiliating to those devoted to foreign missions, and will surely be the basis for the appointment of a cabinet officer of education, who will undoubtedly deal with the medical aspect of health problems of education by instituting another medical board in Washington to overlap the functions of a dozen similar powerless boards. Human life and health have been so cheap that it did not seem necessary to safeguard them until we learned how many of our youth in the third decade were physically incapacitated for army service. Through the psychology of war and by coordination of effort may it not be possible to better many conditions with regard to health problems? We must secure a certain degree of health; state or socialized medicine by which to control its development is inevitable.

The government has dabbled in medical affairs at enormous expense for what has been accomplished. Every cabinet position, and many smaller boards, bureaus and advisory committees in Washington, probably as many as eighteen, deal with certain phases of medicine. Thus under the Treasury Department is the Public Health Service; under the Agricultural Department, pure food and drugs; under the Department of Commerce, health statistics; under the Department of the Interior, the insane not otherwise cared for, amounting to a large number; under the Department of the Bureau of Labor, the accidents of industry, housing, sanitation and child welfare, all under their various divisions, subboards, and committees, none of which will coordinate or give way. Their duties overlap and the expense is great. England is now establishing a ministry of health with supervision of all the educational problems relating to health, sanitation and eventive medicine. Medicine has been tried and oved to a degree that will enable it to stand comrison with any other effectual work of our governent. Why not, therefore, establish a cabinet officer f health, and unite, or at least coordinate with efficency of management, all of the diverse medical tivities?

Undoubtedly great good will come through educaonal publicity by the development of the National ledical Museum in Washington, an institution which, ntil recently, has been conducted with an appropriaon of but $5,000 a year. It is true that the officers charge have accomplished much with this meager ım. They have maintained a record of the progress f medicine of past ages and have accumulated many aluable historical specimens. The accumulations of ie present war will make the collection modern, and ne of the best in the world. I believe that these medal records of the war will be of the greatest value, ot only to the glory of medical accomplishment, but lso as a means of interesting and educating the public scientific matters pertaining to health and disease. he museum now houses the splendid medical library f the Surgeon-General's Office. We can visualize a eries of like departments, one to be devoted to the issiles of the present war and the character of ounds produced by them, fully illustrated by plaster asts, wax models and drawings; another department show all the diseases and injuries of bone, with ethods of repair and treatment; another department represent the diseases and injuries of the respiratory ystem; another, the nervous system, etc.; each one mplified by animated drawings and moving pictures hich will mark an epoch in the teaching of preventive edicine, and especially of surgery. There will be a epartment to demonstrate all the diseases common to ian and animal, also those in which insects are the arriers or the immediate hosts for the diseases of both ian and animal. In this department will be taught he prevalence, dangers and prevention of tuberculosis, landers, actinomycosis, etc., as familiar types of a rge variety of diseases, and showing the disappearnce through control of yellow fever and malaria. The entists will have a department in which to demontrate the dangers of focal infections as the cause of hronic and recurring diseases, and to show the results f the neglect of teeth, dangerous types of dentistry, nd the best recognized methods of treatment. The epartment for the curious anomalies and freaks of ature, now the sensational feature of the institution, vill be shut off from public view and used only for eaching purposes.

It is probable that the recent graduate in medicine s but 30 per cent. efficient. Realizing this fact, some f our advanced universities do not give a degree until ifter the completion of one year's hospital service.

To raise our standard of medical instruction and rganize a trained Medical Reserve Corps, 10 per cent. approximately 200) of our medical graduates each ear should enter the Army Medical Corps for practical instruction for a three year period with lieutennt's pay the same as at West Point. Nine months hould be given to military instruction and field serice; nine months to public health service, sanitation nd hygiene; nine months to graduate work, and a like eriod to hospital intern service. If this plan could be leveloped, a wonderful regular Medical and Reserve Corps would be the result.

The Walter Reed Hospital, built and named in honor of that great martyr to medical progress, should be made the most efficient hospital in the country, and one in which standards of medicine should be established. This hospital, for the most part temporarily constructed, has a capacity of 3,000 beds; it should be replaced largely by permanent construction. Millions of dollars have been spent in Washington by Congress and by the district boards for hospital treatment and maintenance; hundreds of thousands of dollars are spent each year. Surgeon-General Ireland is endeavoring to coordinate the hospital work, the medical instruction, and the laboratories of the museum. It is highly important that he should have the support of the medical profession. While it will cost several millions of dollars to develop such an institution, it will repay many times by the direct return in increased efficiency in the care and protection of our American army, and, through education, in the care and protection of the health of the American people.

NEUROLOGIC SEQUELAE FOLLOWING ACUTE RESPIRATORY INFECTIONS *

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The etiologic factor in the cases cited in this report was difficult to determine and has caused some doubt as to the most appropriate title for the paper. The first case occurred during a period when a small number of cases developed in the camp characterized by a general bronchitis and malaise. The illness was mild, and many cases were so slight that the patients were cared for by the regimental surgeons and were not sent to the base hospital. The initial illness in the first case of the report was apparently mild, and the patient was not admitted until four weeks later, when the neurologic symptoms appeared. The second case appeared during an epidemic which lasted for about six weeks, and existed in several army camps in this country and Europe. For lack of a better name, and because of our ignorance of the etiology, it was called "three day fever." Eight hundred and fifty patients were admitted, and of these 500 entered the hospital between April 12 and April 20. One hundred cases were studied intensively, clinically and bacteriologically.

The characteristic symptoms were: onset with chill or chilly sensations, 72 per cent.; headache, 93 per cent.; general malaise, 92 per cent.; pain in joints and chest, 90 per cent.; cough, 62 per cent.; backache, 51 per cent.; sore throat, 21 per cent., and pain in eyes, 12 per cent. The physical findings were: redness of throat, 51 per cent.; râles scattered through the chest, 50 per cent.; redness of eyes, 11 per cent., and herpes facialis, 5 per cent.

On admission the patients felt very ill, but within twenty-four hours the majority were anxious to return to duty. The complications were slight in the hundred

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* From the Medical Service of Camp McClellan, Anniston, Ala.

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† Captain Caro died of pneumonia in January, 1919, at Base Hospital No. 107.

cases studied: bronchitis, 25 per cent.; pneumonia, 1 per cent., and otitis media, 3 per cent. (The clinical data were collected by L. E. Luenrs, First Lieutenant, M. C.)

In the bacteriologic study many organisms were found to be present, but the predominating ones were a nonhemolytic streptococcus in the throat and the nasopharyngeal cultures, while *Micrococcus catarrhalis* was second in frequency. (The bacteriologic studies were made by G. A. Wislocki, First Lieutenant, M. C.)

Involvement of the nervous system as a sequela following acute infections of the upper respiratory tract is by no means uncommon. Mild neuritides and neuralgias following such infections are frequent, and generally present a good prognosis. Neural complications with fatal termination are comparatively rare.

REPORT OF CASES

CASE 1.—*History.*—R. F., a white man, aged 22, was admitted to the base hospital, Dec. 19, 1917, with a diagnosis of "paraplegia, incomplete, and urinary distention."

The family history was negative except that the mother had died of cardiac disease when the patient was quite young. He was of subnormal mentality (moron). He had had measles, diphtheria and scarlet fever in childhood. In 1916, he had an attack of pleurisy involving the left chest. He denied any venereal disease or alcoholic indulgence.

Four weeks prior to admission, he was taken ill with rhinitis, tonsillitis, malaise and cough. At the end of a week he was able to return to his work as a cook, apparently fully recovered. About two and one-half weeks later, or four days prior to admission, he noticed that his left lower extremity was weak and "dragged." Two days later the right was similarly involved, and he had great difficulty in walking. On the succeeding day (prior to admission), he had acute urinary retention and incontinence of feces.

Condition on Admission.—The chief complaint was of pain above the symphysis pubis and inability to walk. Physical examination revealed chronic pharyngitis, hypertrophied and injected tonsils, a small-sized left cervical gland, and scattered, medium moist râles throughout both lungs. Neurologic examination revealed markedly exaggerated knee and ankle jerks, with sustained bilateral ankle clonus, and the Babinski response on the left only. On attempting the plantar reflex, there was a tendency to flex the lower leg ("guard phenomenon"). Pain sensation was diminished from the waist downward, and there were also vague paresthesias. The pupils were equal, regular, and reacted normally. There was no nystagmus nor diplopia.

Course of Illness.—December 21, a complete paraplegia was present. Knee and ankle jerks were absent. From a line midway between the ensiform cartilage and the umbilicus to the toes, pain and thermal sensations were absent, but tactile and muscle sense were preserved. The tendon reflexes of the upper extremities were present and equal. Bladder retention and rectal incontinence continued.

December 25, muscle and tactile sensations were found to be absent in the area described, and there was now complete anesthesia from the ensiform downward.

December 26, complete anesthesia had advanced to the fifth intercostal space, and the patient began to complain of severe epigastric pain. Since his admission to the hospital, his temperature had ranged from 100 to 102 F., always rising at night. The condition of the pharynx and tonsils continued as at entrance. Expectoration became more profuse, but there was no change in the physical signs. There was a flaccid paralysis of the lower extremities, and sphincter disturbance remained unchanged.

December 29, since the foregoing note the patient had become steadily worse. Complete loss of sensation now extended to the clavicles. There was motor paralysis also of both arms. Respiration became Cheyne-Stokes in character. The patient became markedly nauseated, lapsed into coma and died.

Laboratory Findings.—The spinal fluid was under slight pressure and showed 100 cells per cubic millimeter, with as many red corpuscles and a trace of globulin. The Wassermann reaction was negative. The blood count was 10,000 white cells, of which 70 per cent. were polymorphonuclear leukocytes and 30 per cent. mononuclears. The urine was straw colored and cloudy, with a specific gravity of 1.017, a heavy trace of albumin, no sugar, and a large number of white cells (which may have been due to repeated catheterizations).

Necropsy Protocol.—The heart and lungs appeared normal. The vessels along the entire course of the spinal canal were found to be congested, and markedly so over the thoracic region. At the level of the third, fourth and fifth thoracic vertebrae, the cord was very soft and swollen, especially at the level of the fourth, or in the region of the sixth and seventh thoracic nerve segments. Cultures from this region were sterile.

Histologic Examination of the Cord (by Dr. F. B. Mallory).—Blocks of the formaldehyd-fixed cord were zenkerized, and paraffin sections from six different levels were stained by the eosin-methylene blue method. All except the uppermost level showed varying degrees of the same pathologic lesion, namely, large and small areas of degeneration and destruction of the nerve fibers and of their myelin sheaths. In the degenerated areas, the nerve fibers had often entirely disappeared, but in places they were present and much swollen. Where the lesions were at all marked, the remaining tissue (chiefly stroma) was infiltrated with large numbers of endothelial leukocytes, containing vacuoles evidently because of their having been filled with fat and myelin. The endothelial leukocytes occurred diffusely in the tissue and also packed in the walls of the blood vessels. In a few places lymphocytes were present in small numbers, and, in the part of the cord where softening was obvious macroscopically, a few small clumps of polymorphonuclear leukocytes were present, chiefly in the neighborhood of the small blood vessels.

In a section through the lumbar region, the lesion involved the white matter extensively on both sides of the median fissures, and occurred also in foci in some of the lateral tracts on one side. In a section through the dorsal cord, about two thirds of the white matter was degenerated or entirely destroyed. In the softened area, practically the whole cord was involved. Some of the ganglion cells in the gray matter showed more or less extensive retrograde changes, but no necrosis.

Diagnosis.—Transverse myelitis.

CASE 2.—*History.*—J. B. M., a white man, aged 26, was admitted to the base hospital, April 7, 1918, with the diagnosis of "acute influenza." The family history was negative except that his mother had died of pulmonary tuberculosis. The patient had had typhoid fever in childhood. In 1912, appendectomy was performed, apparently without drainage. In 1914, the patient spent several months in a sanatorium for pulmonary tuberculosis, but asserted that he was told that he did not have any active lesions. During the months of February and March, 1918, he had two attacks of severe, crampy pains in the muscles of his arms and legs, lasting but a few minutes each time. He denied syphilitic infection. From the age of 20 to 24 he had been very intemperate, he said, but for the preceding two years he had been a total abstainer.

Four days prior to admission (April 3), the patient became ill with photophobia, headache, nausea, vomiting and general malaise. He continued at his duties until the day prior to his admission, when he felt much worse and had a very irritating cough. (His symptoms were similar to those of an epidemic of acute respiratory infection, called influenza, then rife in the camp.)

Condition on Admission.—He complained chiefly of the symptoms mentioned above. Physical examination disclosed a few scattered râles throughout both lungs, but especially a the right base posteriorly. His temperature was 101.4 F Neurologic examination was essentially negative.

Course of Illness.—April 10, the patient complained for the first time of weakness, numbness and inability to extend his gs. There was a slight tenderness on pressure over the erve trunks. The knee jerks were absent, but the ankle erks were present and equal. The normal plantar reflex vas present. There were no Chaddock nor Oppenheim signs, nd no sensory disturbances. The temperature was normal, nd continued so throughout the course of the disease.

April 19, the condition had slowly grown worse. The atient had considerable nausea and hiccup, which were slow n clearing up under dietary measures. Neurologic examnation revealed ankle and knee jerks absent, normal plantars resent, no ankle clonus, abdominal reflex absent, and the endon and bone reflexes of the upper extremity present and ctive. No changes in sensation were noted except that deep ensibility was increased, and that Laseque's sign was presnt. Vague annoying paresthesias in the form of intermittent rampy muscle pains caused considerable discomfort. They vere confined to the peroneal and anterior tibial muscle roups. The patient could adduct and abduct the thigh, but lexion of the thighs or extension of the legs was impossible. There was no toe drop. To faradism, the quadriceps extensors gave no response, while the calf and hamstring groups eacted slowly. The muscles of the upper extremities reacted vell to the current, but the hand grips were weak.

April 26, the patient continued to grow worse. Anorexia vas now practically absent. The inability to extend the forerms and the weakness of grasp steadily increased. The atient complained of blurring of the vision as regards distant bjects, but ophthalmologic examination failed to reveal ny process involving the retina, media or eye muscle balnce. There was no facial paralysis. There was a slight uskiness of the voice, and examination of the larynx dislosed a weakness but not a true palsy of the vocal cords. The accessory muscles of respiration were not affected. The triceps reflex was absent on both sides; the other upper arm reflexes were diminished in intensity. To faradism, the triceps muscles of neither arm reacted at all. The abdominal reflex was absent, but the cremasteric was present. There was no change in the condition of the lower extremities or in the sensory reactions. There was no bladder nor rectal symptoms. A slight tenderness was present on pressure over the sciatic, the anterior crural, the internal cutaneous (of the thigh) and the musculospiral nerves at their points of emergence on both sides. At this time these nerves appeared to be chiefly involved with the sciatic to only a slight degree.

April 30, the condition of the extremities remained as described in the previous note. There were no sensory disturbances except the crampy pains mentioned. The accessory muscles of respiration showed no involvement, but the breathing had become slightly irregular and labored. The patient complained of pain in the chest and of sensations of constriction. Examination of the heart and lungs detected nothing abnormal. The pulse, however, had increased from 96 to 120.

May 3, respiratory difficulty gradually increased, and evidence that the diaphragm was involved was quite evident. On the day preceding, the temperature rose to 101 F., and there was evidence of a beginning terminal pneumonia. The patient died from respiratory paralysis plus the toxemia of the pneumonic process, the sensorium being clear to the end.

Laboratory Findings.—The urine was clear and had a specific gravity of 1.027. It contained no albumin nor sugar; the sediment was negative. The spinal fluid was under normal pressure, 1 cell per cubic millimeter, with a very faint trace of globulin. The Wassermann reaction was negative. Blood examination revealed that white cells, April 8, were 11,300 per cubic millimeter, with 73 per cent. polymorphonuclears, 4 per cent. transitionals, and 23 per cent. mononuclears; April 12, 7,800, with 63 per cent. polymorphonuclears, 7 per cent. transitionals, and 30 per cent. mononuclears; April 24, 9,200 with 70 per cent. polymorphonuclears, 6 per cent. transitionals, and 24 per cent. mononuclears. Red cells were 5,600,000 per cubic millimeter.

Necropsy.—A detailed report cannot be given, but no gross lesions of the brain or cord were found. Dr. Mallory examined the cord histologically but was unable to make a diagnosis.

CONCLUSION

The first was a clean-cut case of acute ascending myelitis, in which the only etiologic factor appeared to be an acute respiratory infection antedating the neurologic symptoms by nearly three weeks, but which had never entirely cleared up, as evidenced by the chronic pharyngitis and the infected tonsils still present. The second case was more difficult to diagnose, although the etiologic factor was undoubtedly a respiratory infection of unknown origin. We have already shown how varied were the bacteriologic findings in the group of cases to which the second patient belonged.

Of interest is the very selective action of the toxin—the nerves supplying the extensor muscles of the body being more especially involved, while, peculiarly, the wrist-drop and the toe-drop were absent. The picture from day to day was suggestive of an acute Landry's and, later, perhaps of some form of the muscular dystrophies; but, the symptoms taken en masse, the diagnosis of acute polyneuritis seems unquestionable. The fact that such complications may follow comparatively mild infections of the upper respiratory tract is a matter that always warrants grave consideration and, as is well known, a very guarded prognosis.

ABSTRACT OF DISCUSSION

Dr. Charles A. Rosewater, Newark, N. J.: I would like to ask if Dr. Robey has heard of cases of sudden death following influenza or three days fever. In some of these cases the illness was so mild that the patient was not even confined to bed, and yet these individuals died suddenly. A man about 50 years of age awoke at midnight and complained of pain in the heart; he died before he even had a chance to take a drink of water. Inquiry revealed the fact that he had been slightly indisposed for one day a week or so previously, although he did not stop work. Two weeks after the death of this man his 22 year old daughter dropped dead after eating Christmas dinner. No history of previous illness could be obtained. I have heard of other cases of sudden death following the influenza epidemic. An ophthalmologist informed me that he had seen several cases of strabismus following influenza. This may be a condition similar to post diphtheritic paralysis, and it is not unlikely that there are more of these cases than have been reported.

Dr. W. H. Mayer, Pittsburgh: There is no question as to the secondary manifestations of these respiratory affections. There is also no question that the epidemic of influenza was one which may or may not have been due to the influenza bacillus. But many other organisms were present and the lesions of the nervous system which followed were colored by the predominance of this or that type of toxin. I am prone to regard the cases of sudden death, to which Dr. Rosewater referred, as being due to cardiac collapse. It has long been recognized that no matter how mild the primary infection is, the myocardium always suffers, and in my experience those persons who were profoundly ill and who had a long convalescence, especially after influenza, suffered less than those whose illness was of a shorter duration and who had insufficient rest in bed. All manner of mild nervous states with fatigability, in some cases approaching what has been called the neurocirculatory asthenia syndrome, were present. I believe that in these cases the disturbance is primarily cardiac. I realize that I am treading on dangerous ground when I attribute the past epidemic to the influenza bacillus although the work of Klotz and others seems to have satisfactorily established this point despite the presence of the nonhemolytic streptococcus which they have shown to be a secondary invader. By its close association with the influenza epidemic, I regard the epidemic encephalitis as in all probability due to the causational factor of the primary infection. That these cases all present the pathology as so clearly outlined yesterday by Dr. Bassoe

I cannot believe since many of the cases of rather complete involvement have cleared up too suddenly. I especially remember one case in which there was a bilateral third nerve palsy and a bilateral seventh nerve involvement. Curiously, there were exaggerated reflexes and a paralysis of a spastic type in the right arm, with absence of reflexes in the right leg, and in the left leg an exaggeration of the reflexes, with normal reactions in the left arm. This condition persisted for several weeks and then recovered quite rapidly. There are many phases of nervous involvement which accompanied the epidemic of last year, whether called influenza or not, which were not peculiar or different from what has been observed in former epidemics except as regards the encephalitis. There is still, perhaps, some question to discuss concerning the reason for the severity of brain stem symptoms which involve lethargy and stupor which occurred in this last epidemic and are different from the involvement of the nervous system as witnessed in former epidemics.

Dr. Max H. Weinburg, Pittsburgh: Like Dr. Mayer I am inclined to connect these two cases with encephalitis lethargica, particularly the first case, in which there was an increased cell count in the spinal fluid. It would seem that these two cases belong to the polyneuritis group of encephalitis which was reported in the Local Government Bulletin of London, No. 121. Unlike the investigators of Europe who state that there were no changes in the spinal fluid in the cases in New York, we found that a great majority showed an increase of cells, mainly lymphocytes. We have found as high as 400 to 600 cells per cubic centimeter. It would be interesting to know whether the other cases in this series have shown other symptoms, such as ocular or facial palsies.

Dr. Alfred Gordon, Philadelphia: Apart from cardiac organic disease, sudden death speaks very strongly of a sudden lesion in the mesencephalon. In the recent influenza epidemic I had an opportunity to observe a very large number of cases with a great variety of neurologic symptoms. I grouped under the name encephalitis lethargica all cases presenting besides the somnolence peripheral nerve involvement in which all the cranial nerves were more or less affected. It would seem that the cases reported by Dr. Rosewater and others belong to one category, namely, disease of the mesencephalon. As to the anatomic basis for it we must refer to Marie's work in which he speaks with great emphasis of the involvement of the gray matter around the third and fourth ventricle, also of the degenerative changes of the locus niger. As to the somnolence reported in encephalitis lethargica, there is nothing especially new about it as this affection has been known many years. In Raymond's clinics reference is made to a large number of cases following infectious diseases, such as paratyphoid fever and pneumonia. Gayet long ago referred to somnolence as being associated with a lesion in the mesencephalon, and he wanted at the time to describe a special somnolence center. By analogy we must draw the inference that all these cases, whether reported as encephalitis lethargica or following influenza and other infectious processes, belong to one category with variations.

Dr. William H. Robey, Jr., Boston: As to the cases of sudden death, referred to by Dr. Rosewater, we did not have any. I do not know how the epidemic of influenza was regarded in this country. In France there seemed little evidence that it was caused by the influenza bacillus. In most cases it was a profound toxic disturbance due to the hemolytic streptococcus. In the experiments of transmitting the influenza bacillus, the conclusions were very unsatisfactory. I believe these were probably due to some toxin. Regarding Dr. Weinburg's question as to the other cases, the only other complication we had was otitis media in a case with pneumonia. Only two patients presented neurologic signs and both died.

Habit as a Disease.—One of the most serious problems which confronts the physician is the treatment of habit when this must be characterized as morbid, and when it has attained to such a degree that it can no longer be ignored.—Harrington Sainsbury.

PROGRESS OF VENEREAL DISEASE CONTROL *

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To indicate briefly a few of the actual achievements of the division of the Public Health Service entrusted with the direction of the campaign against venereal diseases in cooperation with the state agencies of the country; and to indicate briefly, also, what the year's experience has taught concerning the future development and advance, is my purpose in this paper.

It will be recalled that on the declaration of war the U. S. Public Health Service was given the responsibility, by Congress and presidential order, of supervising sanitary conditions in the zones created around military establishments. The comprehensive program promptly outlined, whereby this task might be fulfilled and the health of the fighting forces protected at the avenues of civilian communication, included, among other measures, the proper supervision over water, food and milk supplies; the proper disposal of human excreta; the elimination of breeding places of flies and mosquitoes, and the efficient control of communicable diseases, including gonorrhea and syphilis.

FORMULATION OF A PLAN OF CONTROL

For the control of venereal diseases in these zones, special measures were necessary. These measures were based on the findings of other countries during the war, as they attempted control of venereal diseases, and on special investigations showing an inevitable relationship between liquor and prostitution, and prostitution and venereal disease. The measures had the authoritative support of Sections 12 and 13 (afterward Chapter 14) of the Selective Service Act, Section 12 prohibiting the sale and distribution of liquor to the troops, and Section 13 (afterward Chapter 14) controlling the activities of prostitutes in and near the zones. But it was not sufficient to protect the soldiers, sailors and skilled laborers within the boundary lines of cantonments or industrial plants.

Previous war history had indicated definitely that epidemic disease is contracted not so much in reservations under military control, as in municipal areas with unsatisfactory sanitary control. It will be recalled that five-sixths of the venereal infections among men who entered military service had been incurred in civil communities before they reached camp. Hence the program for combating syphilis and gonorrhea was formulated on a nation wide basis and was put into effect with the increasing cooperation of state boards of health.

Jan. 2, 1918, the following telegram was sent to all state health officers by the Surgeon-General of the United States Public Health Service:

> Control venereal infections in connection prosecution of the war constitutes most important sanitary problem now confronting public health authorities of United States. Plan of control mailed you today. Request your cooperation forceful enforcement same. Venereal infections should be made reportable, and quarantinable. Means of diagnosis and cure should be provided. Campaign wisely conducted publicity should be launched. Please inform me your action in premises.

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* Read before the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

This was followed at once by a letter confirming the telegram and further stating that:

> It is evident that the prevention of venereal infections in the military population is largely dependent on the degree with which these infections are prevented in the civil community. This imposes on the civil health authorities the duty of forcefully attacking the venereal problem on the basis of the control of communicable disease . . .

With this letter was forwarded an outline, a working plan, tentative, since no plan could be at once devised which in all phases met the necessities of every state. The outline of that plan is as follows:

1. Epidemiology of venereal disease.
   - (*a*) Peculiar to the human species.
   - (*b*) Chronic diseases.
   - (*c*) Spread by contact—not necessarily sex contact—chronic carriers.
   - (*d*) Very prevalent in all classes of society.
   - (*e*) Most prevalent in classes of low inhibition.
2. Control of venereal disease.
   - (*a*) Depends on the control of infected persons.
   - (*b*) Control of infected persons depends on knowledge of their whereabouts. This may be determined by:
     - (1) Morbidity reports by serial number (in the case of private practitioners), name to be disclosed when infectious persons cease treatment. Case then followed up by health department, which enforces quarantine act.
     - (2) Morbidity reports from venereal clinic and hospital.
     - (3) Legal enactment necessary to secure morbidity reports.
     - (4) Enacting and enforcing ordinance requiring pharmacists to keep record (open at all times to health department) of sales of drugs for the prevention and treatment of gonorrhea and syphilis.
   - (*c*) Object of this control is to prevent contact between infected and noninfected persons.
   - (*d*) May be obtained by:
     - (1) Quarantine of infected persons.
     - (2) Cure of infected persons.
     - (3) Education of general public to avoid direct and indirect contact with persons infected or presumably infected.
3. Quarantine of venerally infected persons.
   - (*a*) Those who desire and can afford treatment.
     - (1) These are instructed by their physicians and theoretically are thus quarantined.
   - (*b*) Those who desire cure and cannot afford treatment.
     - (1) Means should be provided for free treatment.
       - (*a*) Accurate diagnosis.
       - (*b*) Dispensary relief.
       - (*c*) Hospital relief.
   - (*c*) Those who are careless or wilful in the distribution of these infections through promiscuity.
     - (1) These, for the most part, are the ignorant or the criminal classes. A careful physical examination of all persons entering jails or other public institutions should be made, those found infected to be isolated, either in a special hospital or under a probation officer who enforces dispensary relief.
4. Cure of venereally infected persons.
   - (*a*) Establishment of venereal clinics by health authorities.
     - (1) Federal, in zones in close contiguity to cantonments.
     - (2) State, in situations in which local authorities refuse or fail to establish a clinic.
     - (3) City, particularly by those cities in which commercialized or clandestine prostitution flourishes for the patronage of soldiers but is beyond the authority of the secretary of war.
     - (4) Country, in thickly settled rural communities.
   - (*b*) By the creation of new, or the utilization of existing, hospital facilities.
     - (1) For the treatment of those who volunteer for treatment.
     - (2) For the obligatory treatment of persons under control of the courts.
   - (*c*) By legal enactment.
     - (1) Declaring the venereal infections to be quarantinable.
     - (2) Substituting confinement to hospital for confinement in jail in the case of those convicted by courts and having venereal infections.
     - (3) Substituting remanding to a probation officer for the imposition of fines.
     - (4) To carry out 2 and 3, it is necessary that all persons arrested be examined by the city physician or other authorized person.
     - (5) By arrest of acknowledged and clandestine prostitutes by policewomen.
5. Public education regarding venereal diseases.
   - (*a*) Relieve the problem of all moral and social issues and place the campaign solely on the basis of control of communicable disease.
   - (*b*) Propaganda of wisely conducted publicity.
     - (1) Through public meetings addressed by forceful speakers.
     - (2) Through public prints.
     - (3) By placarding public toilets, placards to emphasize dangers of venereal diseases and to recommend prompt treatment, either by a competent physician or at the free venereal clinic.
     - (4) By follow-up work by social workers.
     - (5) By the education of infected persons.
       - (*a*) By physicians in private practice.
       - (*b*) By the venereal and clinic hospital.

CLINICS AND LEGISLATION

The first step in this plan was the opening of clinics. The necessity for prompt protection of the health of military forces had placed on the resources of local communities a greater demand than they could fulfil. The first United States government clinic for the treatment of venereal diseases was opened in November, 1917, at Newport News, Va., one of the principal ports of embarkation. This clinic was operated under the joint auspices of the U. S. Public Health Service and the American Red Cross. A chain of twenty-six such clinics was rapidly established in the extracantonment zones, and their work was emphasized by the program put into effect in adjacent cities. Later, as state boards of health accepted their allotment of federal funds (presently to be mentioned) for control of venereal diseases, other clinics were established until, at the present time, fully 250 clinics where venereally infected persons may receive treatment without charge are listed throughout the country.

Another part of the program promptly put into operation was that of legislation. In March, 1918, *Public Health Reports* contained regulations whereby the state departments of health might control venereal diseases, regulations which were approved by the Surgeon-Generals of the Army, Navy and Public Health Service, and in less than a month thirty-two states had put the suggestions into active operation, either by adopting new regulations necessary to meet the situation, or by taking laws already on their statute books, out from the "dead letter" classification.

NATIONAL APPROPRIATION

The activity and cooperation achieved during the first months of the war were greatly stimulated by act of Congress, July 9, 1918. At that time the Army appropriations bill was passed, Chapter 15 of which created an interdepartmental social hygiene board and a division of venereal diseases in the U. S. Public Health Service, and carried an appropriation of $4,000,000 for the essential activities and extension of this work during the two-year period ending June 30, 1920. The special section making this appropriation is familiarly known as the Chamberlain-Kahn act. From this time the activities of venereal disease control centered in the new division of the service created under the terms of this section.

The responsibilities assigned to this division were threefold: first, to study and investigate the cause, treatment and method of prevention of venereal diseases; second, to cooperate with state boards of health in carrying through a program of control and prevention; and third, to promulgate and enforce interstate quarantine regulations covering the travel of venereally infected persons. The $1,000,000 appropriated under Section 6 of the Chamberlain-Kahn act, for allotment on the per capita basis to the various state boards of health, was promptly allotted to those state boards of health which fulfilled the regulations issued by the Secretary of the Treasury, containing requirements and standards. These regulations included the following points:

1. Syphilis and gonorrhea must be reported either under a state law or a state board of health regulation having the effect of law.
2. An officer of the Public Health Service shall be assigned to each state receiving the allotment, to cooperate with the state health officer in supervising venereal disease work in the state.
3. The allotment itself shall be expended on standard lines, 10 per cent. being assigned to administration, 50 per cent. to treatment, and 20 per cent. each to repressive and educational measures (the reprint containing the regulations in full is included in the exhibit of the service).

No financial condition was attached to the allotment for the first year. To receive an appropriation for the coming year 1919-1920, each state will appropriate a sum equal to that received from the federal government. It is of interest to know that up to the first of June thirty-two states had already appropriated the quota entitling them to receive an allotment for the second year of this fund.

In addition to this congressional appropriation, a further stimulus was given to the work of the service by the presidential order of July 1, 1918, placing all civilian public health activities conducted by federal agencies under the Public Health Service. An exception was made of the Bureau of Labor Statistics, which was investigating vocational diseases, shop sanitation and hygiene.

ONE YEAR'S WORK

The first year's work of the division has emphasized the cooperation with state boards of health, in a nationwide effort to eradicate venereal diseases. In this effort, forty-four states are at this time actively cooperating. Of the four remaining states, two have not yet passed the necessary state laws or regulations which would bring them under the provisions governing the allotment, but may do so before the close of the present legislative session.

Regulations controlling the interstate travel of venereally infected persons were promulgated, Nov. 22, 1918. This, it will be recalled, was another duty of the division defined in the Chamberlain-Kahn act creating it. The third obligation, to study the causes and the treatment of venereal disease, will be met as accumulated records and case histories supply the authentic social data for tracing deep seated causes and providing treatment of the needed scope and duration. Meantime, more is known of the causative organisms and the mode of transmission than is being put into actual practice for prevention. The immediate necessity was for action. Research in sociological as well as medical fields is also especially provided for in the terms of the Chamberlain-Kahn act.

MEDICAL ACTIVITY

The four lines of the division's activity may be generally described as medical, educational, legislative and social.

Conspicuous in the medical work has been the establishment of the clinics for the diagnosis and treatment of venereal disease. The rapid increase in number of these clinics has already been mentioned; but the need for establishing yet other such centers of advice and treatment cannot be overemphasized. It is futile to educate people on the subject of venereal infections if no place is provided to which they may go in their aroused interest or anxiety.

The relation of the venereal clinic to other clinics of the department of health or health centers, their location in parts of the city accessible to various social groups, their provision for service in evening as well as daytime hours, and their equipment and personnel are matters of greatest importance in the control of syphilis and gonorrhea.

No less important, also, is a further deepening of the interest of general hospitals in this work, in order that beds may be available for patients who must remain under detention for treatment, since they cannot or will not take care of themselves; and also for venereal patients needing special medical or surgical care during their period of infectivity. A striking development of the work in certain hospitals in which wards are provided for patients of the "carrier" type is the introduction of vocational work, as well as recreation of suitable kind, in order that the patient who for the first time, perhaps, has learned the significance of this disease, may not simply be cured physically and then set free to resume a life of prostitution (if that be the source of infection), or allowed to return to society not better safeguarded than before against the physical temptations of the old existence. Even the preliminary reports of such attempts available thus far are encouraging. A certain business firm sends experts to one such hospital ward to train the patients in their particular industry, carries them by number on the payroll, and accepts them as regular employees when they are discharged from the hospital.

This is no utopian state dreamed of and vaguely hoped for. It is a practical application of vocational therapy to this new group of patients, whose potentiality to society for good or ill is most significant.

In hospital and in clinic alike the opportunity for thorough mental examination is evident. During the period of observation and treatment of venereally infected patients, subnormal types should be separated from the normal, and provision made either for the permanent care of those whose mentality is too low for them to face the social and economic demands of life, or for the training of those who may attain a degree of economic independence under adequate supervision. At this point it is not necessary to do more than mention the relation of this program to efforts for better state reformatories and for the industrial farms where, in addition to vocational training, the benefits of continual outdoor life may combine for the rehabilitation of the patient.

Before passing from this mention of medical measures in the venereal program, a word must be added concerning the urgent request sent to physicians by the service that they cooperate in reporting gonorrhea and syphilis under their state laws and regulations, as other communicable diseases are reported. The decision is with the individual state or city whether these reports shall be made by serial number or by name, and the procedure varies in various localities. That the serial number is perhaps in many circumstances the more satisfactory method is explained by the fact that the responsibility for the patient represented by the serial number is left precisely where it belongs, namely, on the individual physician who is treating the case. This is of advantage to the physician in that it allows him to study the case from beginning to end. It is of advantage to the patient who has given his confidence to the physician.

A special opportunity for highly trained work is increasingly evident as the clinics multiply and develop. This is for follow-up work, which the service believes can best be done by graduate nurses with additional training to meet the social aspects of the problem.

There is evidence, too, that as in the case of other well established clinics, the venereal clinic is becoming a place of special consultation and of experience and training for physicians and older medical students, and that it will play a conspicuous part in the teaching of syphilology.

EDUCATIONAL OPPORTUNITY

When the service speaks of educational measures the term implies explanation and, when necessary, warning to the public with all truth and frankness concerning these diseases so long held to be "unmentionable." It is maintained that the information given to the public should be frank without being unnecessarily frightful; that it should emphasize the means of preventing infection, recognizing, however, among these means, not simply treatment itself, but the no less truly therapeutic measures of improved moral, educational and social conditions.

In special relation to the teaching of children on matters of sex and reproduction, the educational material published by the service emphasizes the importance of home teaching. The consensus of opinion (as evidenced in many conferences) of teachers from schools, colleges and universities of many sections of this country is that courses of sex hygiene in schools should be not distinct in themselves, but that the information should be given simply and unobtrusively in connection with courses in botany, biology, civics, history, etc. The value of poster exhibits and motion pictures is proved practically beyond question —when the subject-matter is of the highest standard.

It may be of interest to note at this point that one of the subjects for research for which Chamberlain-Kahn funds have been allotted is to the department of psychology of a leading university to provide for the thorough investigation of the effect on various audiences which view them of moving pictures on subjects of social hygiene.

LEGISLATIVE ENACTMENTS

Legislative measures sincerely and unflinchingly enforced are at this time necessary in order to control the wilful and ignorant persons of the community who, themselves infected, will not take precautions to protect their neighbors. The right of the community to protect its health has long been recognized; and citations from various legal writers of unquestioned authority were made early in this campaign for the control of venereal diseases by the attorney general of the United States. Enforcement of sanitary measures should not create an issue with educational and moral appeal. The moral value of whatever will best safeguard the community at present, and therefore make for the best in posterity, cannot be questioned.

It is evident that no arbitrary grouping of these measures is attempted or possible. Medical effort is in the best sense educational. Education in this field includes medical and legislative information, and both are vitally social, in addition to the activities of a distinctively sociological nature, on which the permanent control of syphilis and gonorrhea, as of other communicable diseases, depends.

COMMUNITY AND COOPERATIVE EFFORT

The undertaking is a community undertaking. The individual physician cannot from his office follow all his cases of gonorrhea and syphilis to the successful termination which means control and prevention of disease. Nor can the health officer alone, even with his special administrative machinery, entirely meet the situation. There is needed opportunity to draw on the resources of the community and to take advantage of aroused public sentiment and civic loyalty in prosecution of this campaign, and the social agencies of the community have never been so alert to help intelligently or criticize acutely as they are found to be today.

That this is not theory, but an actual, practical possibility, finely demonstrated in the past two years, may be indicated even by mention of some of the various civilian groups in active cooperation with the service and the state boards of health. Employers of labor have responded to the program for introducing into their plants educational literature, and have established clinics—sometimes several firms in a small town uniting to meet the expense of the clinic.

Groups of working men and women have not only welcomed the literature and lectures in the industrial plants, but have also expressed through their official organizations appreciation and desire to cooperate. Chambers of commerce, rotary clubs, churches and church organizations, women's clubs, parent-teacher associations—these and many other groups in the community stand ready to serve by influence and active work or financial support.

When the work was first organized, an association of retail druggists, representing about 8,000 of the 47,000 retail druggists of the United States, offered its cooperation in this important work. A card was prepared, approved by the druggists' organization and mailed to pharmacists all over the United States by the Public Health Service. This card contained an appeal to the druggists to support venereal disease control work by pledging themselves to discontinue the sale of venereal disease nostrums, and also by refusing to prescribe remedies for the self-treatment of venereal diseases. The response was gratifying. The druggists not only agreed to cooperate as they were asked to do, but also agreed to hand each customer who applied for a remedy ordinarily used in the self-treatment of venereal diseases, a circular advising the sufferer to seek competent professional service, either from a practicing physician or at a venereal clinic. In this plan approximately 32,000 druggists are now actively cooperating.

Perhaps this rapid résumé of the work of eleven months will at least suggest the year's progress, in its total accomplishment and in its direction.

THE PHYSICIAN'S PART

In closing this paper I desire to emphasize the peculiar relation to the future of the program which is borne inevitably by the physician himself. Into the hands of many of you has already come that recently published little volume, prepared for use in this campaign by Dr. J. H. Stokes of Rochester, entitled "Today's World Problem in Disease Prevention." In his preface Dr. Stokes says:

> It is no longer possible for the individual physician to maintain the isolation and the arbitrary powers and reponsibilities which were his in primitive times. . . . A partnership between intelligent and well informed public opinion and the physician as leader is the logical ultimate expression of the trend of the times. . . . The physician as a leader, acting alone, is helpless. . . . To make every intelligent man, woman and child a legionary in the organization of the public health, some of the knowledge so long sedulously kept as the property of the profession of medicine must be imparted to the rank and file.

The opportunity of the physician, the challenge to the physician, of this determined undertaking to control syphilis and gonorrhea is unmistakably evident. Consider, for instance, the following truths: It is the physician who must teach the future physician. The demand for a higher grade of teaching in syphilology has been heard, not in this country alone; it has come from the medical profession of every country which, in the past four years, has borne the burdens of war.

It is the physician who must finally teach the people, whether in his own office or in the clinic consulting room, what they must know and do to control and prevent venereal disease. To no other person but a physician comes such an opportunity as that of the patient's first visit for offering enlightenment, for teaching a truth which shall endure and for impressing on him his responsibility toward his family and neighbors. In this task, personality, sincerity, skill and humanity are taxed for the remaking of the individual. Contact not only with the patient but with the patient's family, the social group and community means multiplying the physician's power to control disease. Physicians make, as it were, a system of social engineering, whereby breeding places of syphilis and gonorrhea may be drained, more easily than was supposed possible. The examination of the family of an infected person is not often refused when frankly and tactfully suggested by the physician. Very often it is even asked for by the patient.

This procedure leads yet farther. It means often the discovery of carriers, of sources of infection in the community, sources which the physician himself may not be able to control, but which becomes the concern of the health officer duly acquainted with them by the reports of the physician.

Again, it is the physician who after all reduces the number of "lost cases," always a clinic or dispensary problem. The patient who is treated simply as clinical material will naturally not desire to return for a second experience of the kind. But he will quickly discern the humanity of the man who treats him, the human spirit of the institution to which he goes. Skill, prime essential though it be, is not alone enough to insure the full realization of a clinic's possibilities. Tribute to the men who have proved this true!

And it is again the physician who will maintain high professional standards of clinic and hospital. It was long ago whimsically remarked that the physician who helps develop the clinic is cutting his own financial throat; but this, of course, is untrue, and that a new view of clinic service prevails today is evident. The physician is asked to give much. There is also much for him to gain. Besides the rich opportunity for studying varied types in a clinic which receives, for instance, 1,000 venereal cases a month, there is to be gained also a knowledge of the peculiar social backgrounds of syphilis and gonorrhea. These must be known and reckoned with. On the control of social causes depends all permanent control of the diseases.

Finally, the physician may be assured that his participation in various phases of this limitless effort, scientific and social, will insure for him public support of an intelligent and appreciative type that is a thing unique today. Other national campaigns against tuberculosis, trachoma or hookworm disease, all have had social and economic complications of their own. But in the case of syphilis and gonorrhea there is added to these social and economic aspects of the problem the handicap of age-long false tradition. We face a very slowly yielding prejudice against even discussion of these matters. We face the difficulty of directing human wills and instincts. Such a demand on the physician, and on every intelligent member of society, would seem appalling were the possibilities not testified to by a remarkable demonstration of what has already been done.

Preventive medicine is one of the contributions to the world of the medical profession. To the medical profession the world, in this after-war day, turns in confidence for the solution of its deepest problem.

ABSTRACT OF DISCUSSION

Dr. Wilfred H. Kellogg, San Francisco: California was the first state in the field in this work. Owing to the fortunate existence of an emergency fund the governor was enabled to make an appropriation of $60,000. A bureau was organized and in operation as early as August, 1917. Its program was based on the usual classification or division of work into three principal parts, education, law enforcement and treatment. We might more accurately arrange these activities in a more extended manner, such as elimination of foci of infection, education, law enforcement, rehabilitation, prophylaxis and care of the feebleminded. Under the first heading will come the treatment of infected cases, quarantine, establishment of clinics and reporting of cases. Perhaps, under this heading should also come the division of rehabilitation, although this problem must be handled in an entirely separate and distinct manner. I refer to the rehabilitation measures capable of application to prostitutes, which it is possible by law enforcement measures to bring under the jurisdiction of the health department. The enforcement of law against prostitution is of extreme importance in controlling the spread of venereal diseases, and yet I feel that our best position is to take advantage, wherever possible, of activities of this sort in local communities by seeing to it that women taken up by the police are properly detained and treated, but not to be too closely related with the pushing of activities in this direction.

I think we should greatly favor law enforcement, but it would be a mistake to be associated too intimately with organizations which are related exclusively to the moral side of the problem.

Prevention of infection by prophylactic treatments in civilian communities is very difficult to carry out, and it is this reason rather than the moral objections that are brought against it that should weigh in the decision as to whether or not it is to be added to our list of activities.

Dr. A. E. Chase, Texarkana, Ark.: I find that the railway employee is, perhaps, unusually exposed to venereal infection, because of his mode of life and because of his being away from home a great deal. When I took charge of the health and welfare of many thousands of these men, I felt it a duty to open a venereal campaign, on two lines. The U. S. Public Health Service helped us out wonderfully. On the educational line, I ran up against a stumbling block. A committee was appointed by the Railroad Administration and informed me that this educational campaign should not be carried on, because they had been ordered by their superior officers not to carry on the campaign among railway employees because the unions would be peeved by such a procedure and labor troubles would result. I am sure that those who originated that order did not understand the railway employee, because I have met many thousands of them in talking over this program, and as a result I have not only got them to endorse this campaign, but they have asked that additional means be taken to carry on the campaign, and that amounts be withheld from their monthly salary to carry on the work. It shows that the railroad employee is a man, and that he understands his own faults and that he is willing to do all he can to promote health conditions himself. He is not a man who is unusually touched by that class of educational propaganda. On the medical side there is a very difficult question. This class of cases is very hard to handle. The prophylaxis side of the question is the most important, and I hope that the U. S. P. H. Service will help us arrange stations not only for railroad men, but for all others who need this service.

Dr. Franklin L. Gram, Buffalo: I would like to ask Dr. Pierce whether he would advise us to keep records and reports of these cases by serial numbers. We have been carrying out a venereal program for the past eight years in Buffalo; we have a clinic and a hospital for the treatment of the disease; we give arsphenamin free; we give examinations free, and we help in every way along the prophylactic and curative line. After an actual experience of eight years, I can say that we would be swamped if we were to conduct our work by serial numbers. We record the real names and real addresses, but the records are confidential, the same as we carry our tuberculosis records. We had the same trouble originally with tuberculosis records, but by keeping them confidential and letting the public know that they were confidental, we succeeded in getting all the facts. We also work together with the police and courts.

There is another matter of very great importance, namely, maliciousness. I had a report recently, made by telephone, of a young lady who was accused of spreading venereal infection. Investigation and examinations showed that she was innocent and the accusation malicious. I fail to see how we are going to control venereal disease or make any progress in that direction, with all due respect to the federal and state government, by reporting and recording cases by serial numbers.

Dr. I. D. Rawlings, Chicago: In Chicago we receive the report without the name or address of the patient and we find that it works out very well. We have in our ordinance a provision that the physician must report in this manner, and if the patient discontinues treatment, then it is the duty of the physician to furnish the office with the name and address of the patient. We then look up that patient and require him to get under treatment with some physician, or if he is not able to pay, he must go to the clinic and take treatment. I do not see but what this method works out as well as any other would. In the report of the case, we also get the data as to where he contracted the infection, so that point is covered by our method equally as well as if we had the name and address of the patient. Under all plans of reports the patient is apt to give a false name or a wrong address or both. One thing that I hope I will get out of this discussion that will help us in our work is how to induce the patient to give the physician his true name and his correct address, so that if the patient discontinues treatment and the name and address of the patient as given to the doctor is sent by the physician to the health department, we can locate him without difficulty. The patient can give a false address under any system, and you do not discover it until you try to locate him. These people cannot always be located. That is the chief trouble we are having in Chicago, and I do not see how we can remedy this difficulty by either system. Venereal disease patients will give a wrong address to their physician, and the result is that the health authorities are unable to act as they should.

Dr. C. C. Pierce, Washington, D. C.: Dr. Kellogg mentioned the place of prophylaxis in part of his program for venereal disease control. The Public Health Service believes that in the clinics prophylactic or early treatment should be given to those who apply. We do not, however, believe in the establishment of prophylactic stations as such, similar to those organized and maintained during the progress of the war, for several reasons. One is that you cannot conduct such a station properly without causing a great deal of antagonism on the part of certain groups of society, and another is that you have no control over persons who take the prophylaxis, as was the case in the army. In regard to Dr. Chase's statement that some railroad officials had told him not to carry on an educational campaign among unions—that is a very remarkable statement, because the Railroad Administration is very much in favor of his program. Practically all of the labor unions have welcomed most heartily the introduction of educational methods and are helping to carry on themselves. With regard to patients not staying under treatment: That is one of the results to be accomplished by the reporting of venereal diseases.

In regard to reporting by serial number or by name: That is left entirely to the local health authorities to choose the method they think gives the best results, and that is the only way it can be done. All data giving the sort of information which is of use to the health officer can be secured by either system of reporting. Health officers and government officials and others must not feel that they must conduct this campaign in all its details by themselves, but that they should utilize the present great desire on the part of all persons in the United States to do something to increase the efficiency of our country. The central controlling agency in the venereal disease program is the state board of health, but we can utilize existing agencies in all parts of the country, and they will be of great material assistance to the state board of health or the city board of health in carrying out a comprehensive program for the prevention of venereal disease. A very important phase is controlling the carrier and treating those who are already infected because in no other way can venereal diseases be prevented.

Dr. José Rizal, the Hero of the Philippines.—One of the greatest personages in the history of the Malayan race was Dr. José Rizal who was born near Manila in 1861. He was educated in the Philippines and in Spain where he obtained the degrees of doctor of medicine and philosophy and continued his studies at London, Paris, Brussels and in Germany. His writings were mainly devoted to arousing the people of the Philippines to throw off the yoke of Spain, especially his two satirical novels exposing the malgovernment and despotism of Spanish rule. They were published in Spanish in Germany and are said to have had a great influence on the thought of his country, and caused him to be branded by Spain as a traitor. On his return to the Philippines he was seized and executed, Dec. 30, 1896. His birthday, June 19, has since been celebrated there with increasing enthusiasm as he is considered the greatest national hero of the Philippines. His career was described in the *British Medical Journal*, **1**:829, 1907, and the latest *Literary Digest*, July 26, gives a short poem he wrote in English the night before his execution. He could write in six languages, and had a reading knowledge of Latin, Russian and Dutch.

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LAËNNEC AND THE STETHOSCOPE

One hundred years ago—in 1819—Laënnec[1] published his epoch-making work on auscultation. He was then 38 years old, and seven years later he died from pulmonary tuberculosis. It has been said that he cared more for his proficiency in horseback riding than for his fame, and that he "was but a breath of air, and he thought himself a Hercules. He transposed the facts, and the vigor of his mind he placed in his muscles. Innocent failings, imperceptible blots, especially on the brilliancy of those great and exemplary lives so full of glory because they are useful."

Whatever his thoughts, if any, in regard to his fame may have been, he had no doubt in his mind as to the value of auscultation, and when he had recovered somewhat from his first breakdown, he did not hesitate, in 1822, to return to Paris from his home in Brittany, and to plunge again into the hardest kind of work, because he felt it a duty to extend further the knowledge of his new method, as it might be of use to mankind. For Laënnec is vastly more than merely the fortunate discoverer of the stethoscope: he himself demonstrated so completely its usefulness in diagnosis and treatment by clinical and anatomic observations of unrivaled accuracy and completeness as to leave comparatively little for others to add. This is illustrated in a striking manner by the many terms first used by him in this book and now familiar to every physician: stethoscope (στῆθος, chest; σκυπεῖν, to examine); auscultation; râles—mucous, liquid, crepitant, sonorous; fremitus; pectoriloquy; metallic tinkle; egophony; bronchophony; puerile breathing. He devised a new method of observation and then wellnigh exhausted the field of investigation by that method, with results of the greatest practical value. Nor were Laënnec's observations on the symptoms and lesions of disease primarily dependent on or initially incited by his happy discovery of mediate auscultation; for they had been carried on since his early student days, when he drew up the minute histories of 400 cases of disease, in large measure the basis of much of his future work, until he became chief physician in the Hospital Necker in 1816, and it was in the course of these clinico-anatomic studies that the idea of the stethoscope came to him. It is unnecessary to add that there probably was no one else then living who could have made so good and immediate use of this idea as Laënnec by reason of his training in power, his accuracy as observer, his faithfulness as recorder, and his conception of the relation of symptoms of disease to the changes in the organs. This was the manner in which he made his observations:

> When a patient enters the hospital it is the duty of a pupil to collect from him those anamnestic facts which he can give concerning his disease, and to follow their course. On examining the patient myself, I dictate the principal symptoms which I observe—those especially which may serve to establish the diagnosis or indications for treatment. And I confirm my conclusion, unless I may have to change it, by subsequent observations. This dictation, which is made in Latin for reasons easily appreciated [Laënnec was an accomplished scholar in the learned languages], is taken down by the pupil in charge of the patient, and at the same time on a separate sheet, which I call the "diagnostic leaf," to keep which, in order that it may be shown to me and read whenever required at each visit, is the special duty of another pupil. If a new sign appear, such as might modify the first diagnosis, I have that also added. If a patient die, the account of the autopsy is collected by the pupil in charge of the case. I read this account before all those who have been present at the autopsy, and if any correction is to be made, I make it on the spot, after having consulted with them.

Children playing about a long beam are said to have awakened in Laënnec the first germ of the thought of the stethoscope. One child would listen at one end of the beam while another tapped lightly the other end, the sound being transmitted through the solid beam. Again his own words tell the story best:

> In 1816 I was consulted by a young woman laboring under the general symptoms of diseased heart, and in whose case percussion and application of the hand were of little avail on account of the great degree of fatness. The other method just mentioned being rendered inadmissible by the age and sex of the patient, I happened to recollect a simple and well-known fact in acoustics, and fancied it might be turned to some use on the present occasion. The fact I allude to is the great distinctness with which we hear the scratch of a pin at one end of a piece of wood, on applying our ear to the other. Immediately, on this suggestion, I rolled a quire of paper into a kind of cylinder and applied one end of it to the region of the heart and the other to my ear, and was not a little surprised and pleased to find that I could thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of the ear. From this moment I imagined that the circumstance might furnish means for enabling us to ascertain the character, not only of the action of the heart, but of every species of sound produced by the motion of all the thoracic viscera, and, consequently, for the exploration of the respiration, the voice, the rhonchus, and perhaps even the fluctuation of fluid extravasated in the pleura or the pericardium. With this conviction, I forthwith commenced at the Hospital Necker a series of observations from which I have been able to deduce a set of new signs of diseases of the chest, for the most part certain, simple and prominent, and calculated, perhaps, to render the diagnosis of the diseases of the lungs

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[1] Laënnec, Réné-Théophile-Hyacinthe: De l'auscultation médiate; ou traité du diagnostic des maladies des poumons et du cœur, fondé principalement sur ce nouveau moyen d'exploration, 1819.

heart and pleura as decided and circumstantial as the indications furnished to the surgeon by the introduction of the finger or sound, in the complaints wherein these are used.[2]

It is interesting to note that Laënnec speaks of Auenbrugger's long neglected discovery of percussion as one of the most valuable in medicine, and emphasizes the value of the combination of percussion and auscultation.

To the medical student and young physician there should be a powerful inspiration and stimulus in the brief life of Laënnec. He was assiduous and systematic as a student, and began to make independent observations when barely 20, thus attaining a favorable distinction early. He lectured on pathologic anatomy, wrote critiques and reviews and took an active part in medical society work, presenting specimens and communications before he obtained his degree. Having graduated, he devoted himself to his practice and to his medical studies, in the course of which it became clear to him that to know disease we must know the underlying changes, and that this knowledge can be gained only by thorough, systematic, combined clinical and anatomic observations. And so he made his immortal discovery and continued his observations "with a degree of success, and a fertility of results, much more remarkable than the discovery itself."

ZINC AS A NORMAL CONSTITUENT OF FOODS

Less than a quarter of a century ago, iodin assumed a new physiologic significance through the discovery of its constant presence in the body as a constituent of the thyroid gland. Compared with such elements as calcium or chlorin or iron, the quantity of iodin occurring in the organism is exceedingly minute. In contrast with the hundreds of grams of lime, for example, a few milligrams of iodin represent the entire complement of the latter constituent; nevertheless it has already established a claim for indispensability in the normal functioning of the body. Indeed, there are few more striking illustrations of the profound potency of minute portions of any element than are afforded by the iodin-containing thyroxin which Kendall has succeeded in isolating from the thyroid gland.

This experience with iodin has paved the way for a more respectful attitude toward suggestions of the possible physiologic rôle of other elements which have heretofore not been counted among the essential or even the potent constituents of the body cells and fluids. The occasional statements that certain metals like copper and arsenic are to be found regularly in the tissues were usually regarded as due to experimental errors of analysis or to accidental contamination. The tendency of the body at times to store metals, such as those mentioned, in the liver has become familiar from medicolegal observations of toxicologists.

The report by Mendel and Bradley[1] of Yale University that certain marine mollusks found in Long Island Sound regularly contained zinc directed attention to new possibilities with respect to that element. Copper had long been known as a constituent of some of these lower forms, being a part of the protein compound responsible for the "blue blood" which many of them may exhibit. Ocean water is known to contain small traces of the less common elements, such as arsenic, copper, lead and zinc. The most conclusive indication that zinc is a normal constituent of some of the marine forms rather than a chance contamination due to the presence of foreign elements in their environment has been furnished by Phillips.[2] He found zinc in specimens collected at the Tortugas Islands far removed from any possible contamination of the sea water.

The experts of the Bureau of Chemistry in the U. S. Department of Agriculture[3] now report that zinc is present universally in oysters—at least in those grown in Atlantic waters. It is probably always associated with copper. The amounts of metals present appear to have no direct relation to the body weight of the oyster or to the quantity of ash-forming solids it contains. The presence of very large amounts of copper is usually revealed by a blue or bluish green coloration. Such oysters invariably contain large amounts of zinc, though not in uniform proportion to the copper. The blue coloration serves, therefore, as a reliable indicator of the presence of large amounts of such metals. Hiltner and Wichmann remind us that the oysters from certain localities have gained unfavorable notoriety because of the amounts of copper they contain, frequently excessive enough to impart to them a strong turquoise-blue color and a metallic flavor, and to yield a decided copper coating to bright iron when boiled with it in dilute acid. They add that since the amounts of copper and zinc found in apparently normal oysters from different localities vary so widely, and since there seems to be no uniformity in the ratio between their copper and their zinc content, it would seem that oysters are capable of taking up amounts of these metals beyond their immediate physiologic needs.

It seems justifiable, in the light of the latest analyses by Birckner[4] at the Bureau of Chemistry, to regard zinc as a normal, or at any rate common, constituent of many foods. Unexpected though the information may be, ordinary market milk averages about 4.2 mg. of metallic zinc per kilogram. The zinc content of milk from individual cows varies somewhat in different animals. It is highest during the early part of the lactation period. Birckner reports that a given volume of human milk evidently contains considerably more zinc than an equal volume of cow's milk; and it would appear that the zinc content of human colostrum is lower than that of later milk. These findings are of special interest in view of the fact that the total mineral matter of human milk is only about one-third as high as the mineral matter of cow's milk. Hens' eggs contain an average of 1 mg. of zinc per egg, the metal being contained in the yolk alone. Cereals may also contain zinc.

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[2] Laënnec: Treatise on Diseases of Chest and on Mediate Auscultation, translated from latest French edition by John Forbes, Ed. 4, London, 1834, p. 5.

[1] Mendel, L. B., and Bradley, H. C.: Experimental Studies on the Physiology of the Mollusks, II, Am. J. Physiol. **14**: 313, 1905.

[2] Phillips, A. H.: Papers from the Department of Marine Biology of the Carnegie Institution of Washington, Pub. 251, **11**, 1917.

[3] Hiltner, R. S., and Wichmann, H. J.: Zinc in Oysters, J. Biol. Chem. **38**: 205 (June) 1919.

[4] Birckner, Victor: The Zinc Content of Some Food Products, J. Biol. Chem. **38**: 191 (June) 1919.

One quite naturally inquires what may be the physiologic significance of such by no means negligible quantities of an element regularly present in important foods like milk and eggs. Are we to conclude that zinc is not merely an accidental constituent but a regular and perhaps essential ingredient of protoplasm? And what is to be said of manganese, which is reported present, though in smaller quantities? These are new questions abounding in a special interest because some of the elements here concerned, as well as arsenic lately reported present in most oysters,[3] are known to have a potency that has long since placed them in the category of useful drugs.

THE COMPLEMENT DEVIATION REACTION IN TUBERCULOSIS

For a number of years, continental and American laboratory workers have endeavored to elaborate a reliable technic, based on the deviation of complement, for the diagnosis of tuberculosis. The clinician would welcome such a test to the degree that it would shift the burden of diagnosis to his laboratory co-worker. But the test, to be useful from this point of view, would have to be accurate almost to the point of infallibility; doubtful, borderline reactions would defeat its very object. Perhaps it is our good fortune that the realization of such an ideal is not in prospect—fortunate so far that its inherent tendency would be to make our diagnosis and clinical judgment in tuberculosis less exact and reliable rather than more so. Tuberculosis is the disease of all others that requires sagacious clinical judgment, along with discreet management: judgment based on all available facts—on a sane evaluation of the physical examination and the history of the patient, of the roentgen finding, of the sputum examination, of the reactivity to tuberculin, of the clinical course—certainly never on a single laboratory finding such as the complement deviation test.

The Wassermann reaction has had the benefit of two quite fortuitous conditions that have not been operative in the test as applied to tuberculosis. When the Wassermann reaction was negative in cases that seemed clinically syphilitic, we were able to use the simple therapeutic test without great delay in the diagnosis. In the second place, despite the fact that the immunologic premises underlying the conception proved untenable, the technic remained practically fixed and soon demonstrated its usefulness and applicability.

In the tuberculosis fixation test there has been so far no agreement as to the proper method of carrying out the reaction. The greatest divergence has been observed in the preparation of the antigen. Whole and macerated bacteria, autolysates, extracts and filtrates, tuberculins and chemical fractions of tubercle bacilli have been used, and all with a not inconsiderable divergence of end-results at the hands of different workers, even when using identical antigen preparations. In sputum-positive cases the reaction has been positive in from 70 to 95 per cent., leaving a number of clinically active cases with a negative reaction. On the other hand, there are found positive reactions among apparently normal persons (young adults without clinical evidence of tuberculosis in any form and with no suggestive history).

Brown and Petroff[1] in a study correlating clinical and laboratory experience find the test of greater value to them as a control of the therapeutic regimen than as a diagnostic measure. It parallels the subcutaneous tuberculin reaction in that a negative reaction in the tuberculous individual is of more value than a positive one in determining which patients need treatment. They have found the reaction of value, too, in predetermining which patient will be benefited and which harmed by exercise and activity.

Lewis[2] has critically studied the reaction and has come to the conclusion that certain inherent defects will limit its usefulness. He suggests some modifications of the technic, however, such as increasing the time of fixation and increasing the quantities of complement and antigen in the effort to overcome the merely transient binding of complement that has possibly been interpreted by some workers heretofore as true deviation. It is his impression that it is unsafe to apply the reaction to the diagnosis of tuberculosis unless as a matter of confirmation of a clinical decision.

While Lewis notes that the common constituent of all the extractive antigens is alcohol soluble and more or less thermostable, some investigators (Wilson, von Wedel, Stoll and Neuman) use a lipoid-free bacillary antigen, bringing into the foreground the problem of the relative importance of the lipoids and the proteins as specific antigens. While the research of Warden[3] would place the greatest emphasis on the fats and lipoids, Small's[4] work with lipoid-free antigens would have to be interpreted in a way directly opposite.

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[1] Brown, Lawrason, and Petroff, S. A.: Clinical Value of Complement Fixation, Am. Rev. Tuberc. **2**: 525 (Nov. 18) 1918.

[2] Lewis, P. A.: The Complement Fixation Reaction as Applied to Tuberculosis, Am. Rev. Tuberc. **3**: 129 (May) 1919.

[3] Warden, C. C.: Function of Fats in Immune Processes; Pneumococcus and Streptococcus Immunity, J. Infect. Dis. **24**: 285 (March) 1919.

Dyche and Much, it will be recalled, based their theory of "partial antigens" in tuberculosis on the supposition that the antibodies were of two varieties, both demonstrable by complement deviation. The one type was formed against the lipoids of the tubercle bacillus; the other against the proteins. They proceeded to immunize their patients with the object of increasing whichever type of antibody was found to be deficient.

It is evident that the reaction in its present stage cannot serve the physician as a foundation for his diagnosis. As confirmatory evidence it has some value. In a case with doubtful signs and symptoms and a continued negative reaction, the probabilities for the nontuberculous nature of the ailment are increased, while a persistently positive reaction would, in such a case, strengthen the presumption that we are dealing with an active lesion. With these limitations recognized, the test is useful.

DIET IN RELATION TO THE TEETH

The importance which the so-called focal infections have lately assumed as sources of disease has brought new prominence to the relation of the teeth to such infections. Indeed, pyorrhea alveolaris has tended to overshadow the far more widespread defects of carious teeth in which the conspicuous damage penetrates rather than surrounds these structures. If further evidence of the almost universal incidence of dental caries were needed, the records of the systematic examination of pupils in the public schools would testify to the degree of prevalence of teeth defects. The underlying causes are still unknown. They have usually been sought in local bacteriologic conditions within the mouth, if one may conclude from the emphasis that dentists place on oral hygiene. They seem not to realize that the presence of bacteria in itself never causes disease: we have millions of bacteria in our intestine and still thrive. What harm do the micro-organisms do in the mouth?

Evidently much depends on our powers of resistance. Disease of many sorts is the outcome of the presence of micro-organisms along with the lack of resistance or immunity factors. Facts in harmony with such a hypothesis seem to have been brought to light through the recent researches on scurvy. Zilva and Wells,[5] who have had unusual opportunities for studying scorbutic animals at the Lister Institute in London, have convinced themselves that the mildest degree of scurvy which could just be discovered at the postmortem examination produced well defined changes in the structure of the teeth; and in their numerous examinations they have not observed a single exception to this statement. In advanced cases of scurvy, in guinea-pigs and monkeys, the teeth were apparently sound, but useless, since they had been loosened by the gradual absorption of the cement membrane of the alveolar sockets, which had left exposed that portion below the neck. As a result, Zilva and Wells state, there must have occurred that periostitic pain or something analogous which follows in the case of human patients who are suffering from shrunken alveoli. These teeth also presented, in addition, all the appearances of the changes of senility.

The British observers regard the most striking changes in the teeth brought about by a scorbutic diet as a sort of fibroid degeneration which they designate as "fibrosis." It is believed that the characteristic structural metamorphoses in the dental pulp are not dependent on an inflammatory condition, but are referable directly to an altered metabolism or to constitutional changes due to diet. In the complete "pulpar fibrosis" of Zilva and Wells, "no trace of cellular organization, no trace of cell nuclei, no trace of interstitial cement substances can be found anywhere. Nerves, cells, blood vessels and odontoblasts have all shared the process of fibrification and are no longer recognizable. The fine cellular connective tissue, which is but a loose mass of network in the normal state, has either become grossly hypertrophied or quite obliterated, and its place taken by a new firm, fibrous structure, devoid of cells, nuclei, or any regular arrangement of constituted parts." In a scurvy tooth, the condition persists right up to the apex of the root; the change appears to start first in the odontoblastic cells at the top of the pulp, working down toward the apex, followed by distended blood vessels and hemorrhage; then complete fibroid degeneration follows.

If we may believe the new evidence, which deserves a respectful hearing, the teeth are among the parts of the organism first affected by scorbutic causes. Damage may be detected in the teeth before any other symptoms are discovered. For this reason it is not at all unlikely that tooth defects arise owing to faulty diets that are not clearly recognized beforehand. Zilva and Wells remind us of the contention of Hess[6] of New York that children not infrequently suffer from a "latent scurvy" which is a state of malnutrition that can be diagnosed only by the improvement in the state after the administration of an antiscorbutic. If such unrecognized conditions are widely prevalent, they may help to elucidate the hitherto unexplained prevalence of tooth decay, and they furnish an added argument for renewed efforts to make human dietaries as wholesome as our scientific knowledge, supplemented by food instincts, will permit.

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[4] Small, J. C.: Preparing Bacterial Antigens, J. Immunol. **3**: 413 (Sept.) 1918.

[5] Zilva, S. S., and Wells, F. M.: Changes in the Teeth of the Guinea-Pig, Produced by a Scorbutic Diet, Proc. Roy. Soc., B **90**: 505, 1919.

[6] Hess, A. F.: Subacute and Latent Infantile Scurvy, J. A. M. A. **68**: 235 (Jan. 27) 1917.

Current Comment

THE ETHICS OF MEDICAL ADVERTISING

What is there about medical advertising, or advertising having a medical or quasimedical slant, that so often causes the advertisement copy-writer to abandon those principles of honesty and common sense which govern the advertising of most meritorious products? Products which are sufficiently good to stand on their own merits and which, when advertised in a nonmedical way, are described truthfully and with not more than the permissible amount of exaggerated puffery that goes with all advertising, are, when they enter the medical or quasimedical field, presented to the public in such a way as to cast discredit on the whole field of advertising. These thoughts are provoked by an advertisement that has recently appeared in certain medical journals on "Adams Chewing Gum." The product itself is one that certainly needs no misstatements or quibbling to stimulate its sale. The advertisement in question is entitled, "The Care of the Mouth," and is made up largely of what purports to be a quotation from an article by a pediatrician. There are two things wrong with the advertisement. First, the reader is given the impression that the quoted article has appeared comparatively recently; it appeared about eight years ago. Second, the quotation has been garbled and the writer is made to say things that he never said. The parallel indicates the liberties that have been taken:

ORIGINAL ARTICLE	AS QUOTED IN ADVERTISEMENT
"THE child naturally rebels against THE CLEANSING PROCESS while it is VERY ill and therefore if some more attractive and efficient way can be found to accomplish the same result, we ought to take advantage of it. THE USE OF CHEWING GUM seems to offer the best relief. It is attractive to the child . . . ," etc.	"A child naturally rebels against MOUTH cleansing while it is ill or peevish, and therefore if some more attractive and efficient way can be found to accomplish the same result, we ought to take advantage of it. "ADAMS PEPSIN CHEWING GUM seems to offer the best relief. It is attractive to the child . . . ," etc.

The portions that fail to coincide have been put in small capitals. Aside, altogether, from the medical aspects of the case; aside from the morality or ethics of the matter, The Journal maintains that the liberties which the Adams Chewing Gum concern had taken with the article have weakened rather than strengthened the "copy." These advertisements were for medical journals. The average physician, in reading the advertisement as it appeared, would immediately have his suspicion aroused. This in itself is bad advertising. The reader, knowing that the average physician does not, in scientific articles appearing in medical journals, generally recommend proprietary products, would jump to the conclusion that, if such an article was written, it probably had a venal origin, or else it was probably written by a man of little repute. The chewing gum concern would have made a stronger appeal had they quoted from the article verbatim, and then added their own comment to the effect that if the profession wanted a chewing gum here was one the manufacturers could recommend. In 1919, as never before, honesty in advertising is the best policy.

RELATION OF OPEN PNEUMOTHORAX TO THE TREATMENT OF EMPYEMA

The report of the empyema commission at Camp Lee,[1] and the experiences of various camps, emphasize the advantages of the delayed operation in empyema due to hemolytic streptococci. It will be recalled that the empyema following streptococcus pneumonia differs from the empyema after lobar pneumonia. In the former the fluid forms coincidently with the pneumonia, the pneumonic process and the toxemia being the most important features, and the pleuritis seemingly of secondary importance. The patients are intensely cyanotic and toxic, often presenting the picture of impending asphyxia. The advantage that has been claimed for the early operation was drainage, which accomplished the removal of both toxic material and living organisms, and in addition relief of the mechanical embarrassment to respiration caused by the presence of a large amount of fluid. Graham and Bell[2] have made important and interesting experiments on animals and on the human cadaver, the results of which seem to prove, however, that the mechanical embarrassment to respiration is almost sure to be aggravated, instead of improved, by the creation of an open pneumothorax. These investigators call attention to important relationships between the amount of air entering the thoracic opening and the amount of air entering the lungs. If an opening is made into the chest cavity, part of the total amount of air which enters the chest will enter by the opening in the chest wall; but of course only the air which enters through the trachea is effective in carrying on respiration. Thus it comes about that to prevent asphyxia, respiration must be increased in rate or depth; and the greater the opening in the chest cavity, the greater will be the demand for compensation in respiratory rate or depth. It must be remembered that in pneumonia the amount of air taken into the lungs is limited already by consolidation or plugging of the air channels and alveoli; hence the demand for air is increased still more as the opening in the chest further diminishes the amount of air going into the lungs, and the degree of asphyxia already present is increased. Graham and Bell state that "a normal human adult should be capable of withstanding for a short time an opening of 51.5 sq.cm. (5 by 10 cm., or 2 by 4$\frac{1}{10}$ inches); but whenever the amount of air taken in the lungs is limited by the presence of an active pneumonia, the size of the pleural opening compatible with life becomes smaller." They believe also that the present conceptions of pneumothorax are erroneous in that they are based on the assumption that when an opening is made in the chest one lung is collapsed, an assumption which implies that the mediastinum constitutes a rigid partition between the two pleural cavities. On the contrary, they find in their experiments that the mediastinum is so mobile that any increase of pressure in one pleural cavity pushes it over to the opposite side, so that the two lungs are compressed equally. No such condition is possible, therefore, as collapse of one lung and maintenance of respiration with the other lung in a chest with a normal mediastinum. If, on the other hand, the mediastinum has been made rigid by induration as a result of long standing inflammation, or if it has become fixed by adhesions, then a pleural opening will not produce the same pressure changes on the two sides. The advantages of the delayed operation in empyema are made more evident in the light of these observations on the physiologic mechanics of the thorax. Graham and Bell thus summarize these advantages: 1. There is less danger of creating an open pneumothorax in the delayed operation because there is likely to be a circumscribed abscess shut off by adhesions from any communication with the free pleural cavity. 2. Even if an open pneumothorax is created, the patient is in much better condition to withstand its harmful effect because (*a*) the subsidence of the active pneumonia has the effect of making the area of air inlet to the lungs larger than when the lung parenchyma is involved in the pneumonia process, so that the pleural opening is incapable of producing the same amount of harm; (*b*) the presence of adhesions and induration of the mediastinum tend to make it less mobile; (*c*) the patient's need of oxygen is less, and (*d*) the respiratory compensation is more efficient, owing to a diminished toxemia. 3. The patient is in a better condition to withstand the shock of the operation. 4. There is less danger of creating a septicemia from the absorption of organisms from the fresh wound. Finally, the fluid can be withdrawn early by aspiration as often as it accumulates in any considerable amount, thus removing the toxic material and organisms without endangering the patient.

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[1] The Empyema Commission: Cases of Empyema at Camp Lee, Va.: Preliminary Report, J. A. M. A. **71**: 366 (Aug. 3); 443 (Aug. 10) 1918.

[2] Graham, E. A., and Bell, R. D.: Open Pneumothorax: Its Relation to the Treatment of Empyema, Am. J. M. Sc. **156**: 839 (Dec.) 1918.

"CINCHOPHEN": FORMERLY "ATOPHAN"

It will be remembered that the Federal Trade Commission adopted the names arsphenamin and neoarsphenamin for the drugs first introduced as "salvarsan" and "neosalvarsan," respectively; the terms barbital and barbital sodium for the substances first introduced as "veronal" and "veronal sodium," and the word procain as the name for the compound first marketed as "novocain." In issuing licenses for the use of the patents on these drugs, the commission stipulated that the drugs should be sold under the new American title unless the firm desired to use a new trade designation, in which case the titles chosen by the commission should be given equal prominence. The Council on Pharmacy and Chemistry has cooperated with the Federal Trade Commission and has adopted the new names as the descriptive names which appear in New and Nonofficial Remedies. The Chemical Foundation, Inc., which has purchased some 4,500 German-owned patents, many of them for synthetic drugs, proposes to continue the wise policy of the Federal Trade Commission by requiring that those who receive licenses for the use of patents for synthetic drugs must use a common designation for each drug selected by the foundation. "Cinchophen" has been selected as the designation for the substance introduced as "atophan" (also described in the U. S. Pharmacopeia under "phenylcinchoninic acid"). In consideration of this action on the part of the Chemical Foundation, and also because physicians found it difficult to use the pharmacopeial name "phenylcinchoninic acid," the Council on Pharmacy and Chemistry has recognized the contracted term "cinchophen" as a name for the drug introduced as "atophan." It is hoped that physicians will support this simplified and nonproprietary nomenclature in the same spirit with which they adopted the terms "arsphenamin," "barbital" and "procain."

OILY OPPORTUNITIES

The following note was received from a physician in New York City:

> I received the enclosed letter yesterday and think it deserves publicity. It seems to me, that physicians should be warned against buying Oil Stock at this time, from people whom they know nothing about. Particularly from one whose business should be to take care of the sick and not trying to make easy money out of other physicians. I know enough about Oil Stock products to know that 99 per cent. of them are fakes.

The enclosure referred to was a printed letter in imitation typewriting, signed by, and on the stationery of a physician in southern Texas. The physician in question described himself as "just a plain old doctor" (our records show that he was born in 1881) who had been "wrestling with disease for the past twelve years" (our records show that he was graduated and licensed in 1910). He was, so the letter stated, "personally interested in doctors and their success" and, while he had "made some money" in a "big practice," he had made much more money during the past six months by "investment" than he had ever made out of the practice of medicine. When the oil field business of Texas began to boom, it occurred to this physician, so he says, that "we Texas people had just as well . . . get our share of all that money as leave it all for the northern and eastern capitalists." This hardly explains why the doctor is offering a fellow practitioner two thousand miles away in the northeast part of the country a chance to get in on the ground floor. There is, of course, only "a small amount of our stock for sale," and the physician would "personally like to see some of my doctor friends come in on this." A postscript to the letter adds that the territory which the Texas doctor is developing is just between a well that is "making 300 barrels at top of sand," and the place "where the big wells flow." The doctor hopes, "fraternally," that the physician to whom he is addressing this printed letter, will "decide to come in." He is certain that "there is something doing in the oil business"—and we are inclined to agree with him. The Journal does not undertake to say that the possibilities offered are good, bad or indifferent. Certain it is, however, that however good a gamble the matter may be, it is a mighty poor investment. When strangers are offered an entrance on the ground floor, it is always wise for them to watch their step—the cellar door may be yawning.

RECOGNITION BY LABOR OF VALUE OF SCIENTIFIC RESEARCH

During these days of unrest the casual observer, as well as the trained student of sociology, may feel that the demands for higher standards of living by industrial workers have wholly overshadowed all attempts at progress in scientific or other endeavor. The passing of a resolution by the American Federation of Labor at its Atlantic City convention, recognizing the ultimate dependence of labor on scientific research, as noted in our News Department several weeks ago, is a hopeful sign. It furnishes evidence that the American Federation of Labor realizes that progress made in raising the standard of living by methods of readjustment is, of necessity, limited, and that in order to pass this naturally prescribed limit the results of scientific research must be applied to industry. The praise indirectly bestowed on the activities of the various governmental branches of scientific research in the preambles to the resolution[1] is well merited. In Great Britain special research commissions have been concerned with scientific studies of hours of labor in relation to health; of the effects of factory work on the health of prospective mothers; of infant welfare; of pure food and milk supplies, and even of such detailed matters as the securing of proper vitamin content in food. Already in this country interesting and important researches have developed knowledge relative to fatigue and production; to the mental effects of prolonged work; to the lighting of industrial establishments, and particularly to such subjects as fire and accident prevention. With strict science as a basis industrial and sociological progress will be well founded.

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[1] We reprint here the resolution, including the preambles, which were omitted in previous publication:

Whereas: Scientific research and the technical application of results of research form a fundamental basis upon which the development of our industries, manufacturing, agriculture, mining, and others must rest; and

Whereas: The productivity of industry is greatly increased by the technical application of the results of scientific research in physics, chemistry, biology, and geology, in engineering and agriculture, and in the related sciences; and the health and well-being not only of the workers but of the whole population as well, are dependent upon advances in medicine and sanitation; so that the value of scientific advancement to the welfare of the nation is many times greater than the cost of the necessary research; and

Whereas: The increased productivity of industry resulting from scientific research is a most potent factor in the ever-increasing struggle of the workers to raise their standards of living, and the importance of this factor must steadily increase since there is a limit beyond which the average standard of living of the whole population cannot progress by the usual methods of readjustment, which limit can only be raised by research and the utilization of the results of research in industry; and

Whereas: There are numerous important and pressing problems of administration and regulation now faced by federal, state, and local governments, the wise solution of which depends upon scientific and technical research; and

Whereas: The war has brought home to all the nations engaged in it the overwhelming importance of science and technology to national welfare, whether in war or in peace, and not only is private initiative attempting to organize far-reaching research in these fields on a national scale, but in several countries governmental participation and support of such undertakings are already active; therefore, be it

Resolved, by the American Federation of Labor in convention assembled, That a broad program of scientific and technical research is of major importance to the national welfare and should be fostered in every way by the federal government, and that the activities of the government itself in such research should be adequately and generously supported in order that the work may be greatly strengthened and extended; and the Secretary of the Federation is instructed to transmit copies of this resolution to the President of the United States, to the President pro tempore of the Senate, and to the Speaker of the House of Representatives.

THE SEARCH FOR "CICATRIZING SUBSTANCES"

The application of accurate methods of measurement, of quantitative procedures, in any branch of science marks a step in the direction of progress. This has been quite as true in medicine as in other fields, such as physics and chemistry. Eye defects are corrected through accurate measurement; metabolic upsets are ascertained through urinary analysis; gastric disturbances are diagnosed through the quantitative examination of stomach contents; febrile symptoms are ascertained by thermometric readings, and blood pressure is evaluated with the help of a manometer. Perhaps these few illustrations will suffice to dispel the impression of uniqueness which may be generated by the application of mathematical laws and formulas to the problems of healing wounds. This procedure has been introduced by Carrel and his associates[1] in their war-time studies of wound healing. The technic involves the accurate measurement of the area of the wounds, to which sterilized cellophan is applied for this purpose, the edges being outlined with a pencil. The area of the drawing can then be ascertained. According to Carrel, cicatrization of a wound is due to two different factors: contraction and epithelization, the former being the more important. Du Noüy[2] maintains that when the wound is kept aseptic, its rate of cicatrization can be represented by a geometric curve and expressed mathematically. One variable is the age of the patient. Given the latter and the area of the wound, so we are told, one can forecast the rate of normal healing. Aside from its prognostic value, the quantitative study of wound areas has made it possible to ascertain the possible usefulness or harm of various antiseptics which the war has brought forth in large numbers for trial. Most of them are reported to be irritating and more or less detrimental to the normal progress of cicatrization. Du Noüy[2] now asserts that no such product as a "cicatrizing substance" has yet been discovered. The ideal conditions of perfect and most rapid healing is realized, he states, when the wound is kept practically sterile, or deprived of pathogenic micro-organisms such as cocci, diplococci and streptococci.

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[1] Carrel, A., and Hartmann, A.: J. Exper. M. **24:** 429 (Nov.) 1916. Du Noüy, P. L.: Ibid. **24:** 451, 461 (Nov.) 1916; **29:** 329 (April) 1919. Carrel, A.: Ibid. **26:** 95 (July) 1917. Du Noüy, P. L.: Ibid. **25:** 721 (May) 1917. Carrel A., and du Noüy, P. L.: Ibid. **26:** 279 (Aug.) 1917.

[2] Du Noüy, P. L.: On the General Expression of the Law of Cicatrization of Wounds, Am. J. Physiol. **49:** 121 (June 1) 1919.

Aviation and Altitude.—Fifteen to 20 per cent. of all the men who pass an ordinary medical examination are unfit to ascend to the altitudes now required of the military aviator. On the other hand, these tests pick out a small group of 5 to 10 per cent. who, without apparent immediate physical deterioration, withstand oxygen deficiency corresponding to altitudes of 20,000 feet or more—Henderson, *Science,* May 9, 1919.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending August 1, there were 10,431 officers in the Medical Corps, a decrease of 634 from the previous week. The Medical Reserve Corps contained 3,087 officers. The total number of physicians discharged since the beginning of the war is 22,448.

General and Base Hospitals

On July 15 there were thirty army general and base hospitals operating. Some of these had already been given a definite date for closing. The following tabulation indicates the location of the hospitals and the approximate date when closed:

1. G. H. Plattsburg, N. Y.
2. G. H. Port Ontario, N. Y., August 1.
3. G. H. Fort Porter, N. Y.
4. G. H. Otisville, N. Y.
5. G. H. New Haven, Conn., September 1.
6. G. H. Fox Hills, N. Y.
7. G. H. Colonia, N. J.
8. G. H. Cape May, N. J., July 20.
9. G. H. Carlisle, Pa.
10. G. H. Fort McHenry, Md.
11. G. H. Takoma Park, D. C.
12. G. H. Hampton, Va.
13. G. H. Roland Park, Md.
14. G. H. Oteen, N. C.
15. G. H. Biltmore, N. C.
16. G. H. Spartanburg, S. C.
17. G. H. Fort McPherson, Ga.
18. G. H. Detroit, August 1.
19. G. H. Fort Benjamin Harrison, Ind.
20. G. H. Fort Sheridan, Ill.
21. G. H. Fort Snelling, Minn., August 1.
22. G. H. Fort Des Moines, Iowa.
23. G. H. Hot Springs, Ark.
24. G. H. Denver, Colo.
25. G. H. Fort Bayard, N. M.
26. G. H. Whipple Barracks, Ariz.
27. G. H. Fort Douglas, Utah, August 1.
28. G. H. San Francisco.
29. B. H. Fort Riley, Kan.
30. B. H. Fort Sam Houston, Texas.

General hospitals at Parkview, Pa., and Eastview, N. Y., were closed July 15. Base hospitals at the following camps, not shown above, are scheduled to be made camp hospitals: Bowie, Texas; Devens, Mass.; Dix, N. J.; Dodge, Iowa; Gordon, Ga.; Grant, Ill.; Jackson, S. C.; Lee, Va.; Lewis, Wash.; Meade, Md.; Pike, Ark.; Shelby, Miss.; Sherman, Ohio; Taylor, Ky.; Upton, L. I., N. Y.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Birmingham—Belden, A. E. (L.)
 Cohn, M. H. (L.)
Brundidge—Bean, J. F. (C.)

ARIZONA

Komatke—Warner, A. R. (C.)
Winslow—Pritchard, J. L. (L.)

ARKANSAS

Blytheville—Usrey, M. O. (C.)
Branch—King, W. J. (C.)
Little Rock—Murphy, P. (C.)
 Rogers, F. O. (C.)
Paris—Jewell, I. H. (C.)
Piggott—Drace, C. W. (C.)

CALIFORNIA

Los Angeles—Ammann, F. X., Jr. (L.)
 Ronan, R. R. (L.)
Oakland—Ward, J. M. (C.)
Richmond—Abbott, C. L. (M.)
San Diego—Wegeforth, P. (C.)
San Francisco—McNamara, R. B. (L.)
San Luis Obispo—Jackson, P. K. (L.)
 Miller, B. Y. (L.)
Santa Monica—Wight, T. H. T. (C.)
Stockton—Price, H. E. (L.)

COLORADO

Denver—Cecchini, A. S. (L.)
 Kent, W. C. (C.)
 Wade, L. H. (L.)

CONNECTICUT

Bristol—Sanborn, E. P. (C.)
Hartford—Landry, A. B. (M.)
 Plante, U. (C.)
New Britain—Lyon, W. (C.)
New Haven—Rogers, O. F. (M.)
South Manchester—Burlingame, C. C. (L. C.)
Waterbury—Dalrymple, S. C. (C.)
Willimantic—Mason, L. I. (L. C.)

DISTRICT OF COLUMBIA

Washington—Breckinridge, S. D. (Col.)

FLORIDA

Chattahoochee — Greene, R. N. (M.)
Clearwater—Davidson, J. W. (L. C.)

GEORGIA

Americus—Smith, H. A. (C.)
Atlanta—Highsmith, E. D. (C.)
 Key, C. T. (L.)
Dawson—Chappell, G. (C.)
Forsyth—Williams, G. W. (C.)
Hartwell—Meredith, A. O. (C.)

ILLINOIS

Bement—Field, A. (C.)
Canton—Johnston, C. J. (C.)
Chicago—Coleman, E. P. (C.)
 Curry, L. T. (M.)
 Cutting, L. D. (L.)
 Dunham, R. W. (L.)
 Eide, A. T. (C.)
 Farrell, P. J. H. (L. C.)
 FitzPatrick, G. (C.)
 Gay, R. J. (M.)
 Jared, V. M. (C.)
 King, C. B. (C.)
 McAuliff, G. R. (L.)
 McCauley, W. B. (L.)
 Mock, H. E. (L. C.)
 Parker, B. R. (L.)
 Rasmussen, C. W. H. (L.)
 Wright, E. P. (M.)
Clinton—Thorpe, S. L. (C.)
De Kalb—Kane, J. P. (C.)
Havana—Morrill, F. G. (C.)
Jacksonville—Hardesty, T. O. (C.)
Kankakee—Hamilton, E. S. (C.)
Springfield—Copelan, I. C. (L.)

INDIANA

Anderson—Hunt, L. F. (C.)
Berne—Jones, D. D. (M.)
Brookston—Rariden, L. P. (C.)
Indianapolis—Aspy, J. A. M. (L.)
 McBride, W. A. (C.)
 Pebworth, A. C. (L.)
Marion—Daniels, E. O. (C.)
Waynetown—Roark, C. A. (L.)

IOWA

Cedar Falls—Heldt, T. J. (M.)
Colfax—Anspach, W. C. (L.)
Des Moines—Price, A. S. (M.)
 Smith, C. F. (M.)
Hamburg—Danley, R. C. (C.)
Lisbon—Gardner, J. R. (M.)
Red Oak—George, A. B. (C.)

KANSAS

Baldwin City—Sheppard, C. E. (C.)
Grainfield—Winslow, G. H. (L.)
Junction City—O'Donnell, F. W. (L. C.)
Pertis—Dillon, J. O. (C.)
Topeka—Miller, M. B. (C.)

KENTUCKY

Covington—Heisel, C. N. (C.)
Glasgow—Turner, C. C. (L.)
London—Mason, J. B. (M.)
Louisville—Flexner, M. (C.)
 Henry, M. J. (C.)
 Jameson, J. B. (C.)
 Spears, L. P. (M.)
 Tracy, R. B. (L.)
Madisonville — Robinson, R. F. (C.)
Maysville—Harover, S. R. (M.)
Newport—Weber, F. C. (L.)
Paducah—Blythe, V. (C.)
 Willingham, E. B. (L.)
Philpot—Kirk, J. A. (M.)
Pine Knot—Sievers, R. C. (C.)

LOUISIANA

New Orleans — Allgeyer, E. E. (L.)
 McSween, J. C., Jr. (C.)
 Royals, W. C. (L.)
Shreveport — Prudhomme, P. W. (L.)
 Ragan, T. (C.)

MAINE

Augusta—Mann, L. L. (C.)
Farmington—Pratt, H. S. (L.)
 Ross, A. M. (L.)

MARYLAND

Baltimore—Ensor, C. B. (M.)
 Laubach, C. A. (C.)
 Worthington, F. D. (L.)
Catonsville—Monmonier, J. C., Jr. (M.)

MASSACHUSETTS

Boston—Fairbanks, A. W. (M.)
Malden—Brown, R. N. (L.)
Northampton—Ball, A. N. (C.)
Springfield—Adams, W. B. (C.)

MICHIGAN

Adrian—Chase, A. W. (C.)
Bay City—Urmston, P. R. (L.)
Detroit—Bush, L. M. (L.)
 Penberthy, G. C. (M.)
Flint—MacDuff, R. B. (L.)
Grand Rapids — Burling, W. M. (L.)
 Roan, O. M. (L.)
 Warnshuis, F. C. (M.)
Holland—Kools, W. C. (L.)
Houghton—Bridgman, W. R. (C.)
Kalamazoo—Morter, R. A. (L.)
Swartz Creek—Houston, J. (M.)

MINNESOTA

Albany—Kohler, D. W. (L.)
Minneapolis — Hamilton, A. S. (M.)
 Maxeiner, S. R. (C.)
 Neal, J. M. (L.)
New Ulm—Groebner, O. A. (L.)
Paynesville—Pilon, P. C. (M.)
Rochester—Goodwin, A. J. (M.)
 Winne, W. R. (L.)

MISSISSIPPI

Hattiesburg—Draughn, D. M. (C.)
Natchez—Smith, H. M. (L.)
Pass Christian—Pratt, J. G. (M.)

MISSOURI

Clever—Williams, L. E. (L.)
Hollywood—Limbaugh, W. R. (L.)
Kansas City—Grier, M. E. (L.)
 Hana, M. A. (M.)
 Teachenor, F. R. (C.)
Palmyra—Stone, A. R. (L.)
St. Charles—Diehr, A. H. (C.)
St. Louis—Herrick, H. C. (M.)
 McKellops, L. G. (L.)
 Owen, R. E. (M.)
 Pawelek, L. G. (L.)
 Tilles, R. S. (C.)

MONTANA

Opheim—Sherrard, G. C. (M.)
Twin Bridges—LeClar, L. C. (C.)

NEBRASKA

Clatonia—Deardorf, B. M. (C.)
Fremont—Reeder, G. S. (L.)
Lincoln—Williams, B. F. (C.)
Lyons—Ryder, F. D. (C.)
Omaha—Hall, L. T. (C.)
Palmyra—Charlton, C. P. (L.)
Scottsbluff—Stoops, R. P. (C.)
St. Paul—Andrews, C. F. (L.)

NEW HAMPSHIRE

Littleton—Page, J. M. (L.)

NEW JERSEY

Arlington—Mutter, A. A. (L.)
Bayonne—Donohoe, L. F. (L. C.)
Cedar Grove—Smith, H. G. (C.)
Collingswood—Jack, H. W. (L.)
Florence—Weber, J. F. (C.)
Freehold—Brown, H. S. (M.)
Glassboro—Duffield, E. M. (C.)
Jersey City—Cosgrove, S. A. (M.)
Paterson—Murn, C. J. (M.)
Phillipsburg—Torrence, J. M., Jr. (C.)
Plainfield—Hallock, F. M. (C.)
Summit—Baker, R. D. (M.)

NEW YORK

Amsterdam—Finch, L. H. (C.)
Batavia—Spofford, H. M. (C.)
Bolivar—Hackett, L. M. (L.)
Brooklyn—Brown, C. W. (L.)
Eckerson, L. B. (C.)
 Napier, C. D. (M.)
 Swan, E. L. (C.)
 Vann, H. M. (L.)
 Woodworth, L. J. (L.)
Buffalo—Eaton, E. L. (L.)
 Metzen, J. A., Jr. (L.)
Byron—Bieber, E. (L.)
Ithaca—Holton, W. B. (M.)
Kingston—DeGarmo, P. W. (L.)
Long Island City — Stein, I. L. (C.)
Middletown—Moore, A. S. (M.)
New York—Bruner, A. B. (L.)
 Cooney, T. E. (C.)
 Edgar, A. B. (C.)
 Gamrin, E. (L.)
 Hartshorn, W. M. (C.)
 Huntley, W. B. (L.)
 Kantor, J. L. (L.)
 Maher, T. F. (C.)
 Post, W. G. H. (L.)
 Roach, C. P. (M.)
 Maher, T. F. (C.)
 Ryan, W. B., Jr. (C.)
 Somers, T. A. D. (L.)
 Vincent, R. M. (C.)
Petersburg—Mann, C. M. (L.)
Philadelphia—Bury, R. W. (C.)

Rochester—Mitchell, H. D. (L.)
Wentworth, E. T. (M.)
Schenectady—Mann, H. M. (L.)
Seneca Falls—Lester, F. W. (M.)
Shrub Oak—Fechtig, A. G. (C.)
Syracuse—Kallet, H. I. (C.)
Watervliet—Krauss, C. A. (M.)

NORTH CAROLINA

East Bend—Benbow, J. T. (M.)

NORTH DAKOTA

Bismarck—Halgren, J. A. (C.)
Dawson—Pryse, R. C. (C.)
Mandan—Nickerson, B. S. (C.)

OHIO

Akron—Barton, E. W. (C.)
Ashtabula—Crosby, C. C. (C.)
Blanchester—Conard, R. (M.)
Chatfield—Barth, K. H. (L.)
Cincinnati—Ravine, W. (C.)
Columbus—Allbritain, J. W. (L.)
Corning—McNerney, N. H. (C.)
Cuyahoga Falls — Searl, W. A. (M.)
Hanoverton—McHenry, J. B. (C.)
Massilon—Holston, J. D. (C.)
New Boston—Mills, A. B. (C.)
Sevile—Beach, J. L. (C.)
Steubenville—Biddle, J. K. (M.)
Tiltonsville—Morrison, P. (C.)
Toledo—Teter, J. S. (L.)

OKLAHOMA

Enid—Thompson, C. E. (C.)
Gates—Nylund, G. A. (C.)
Kiefer—Jones, E. (L.)
Mooreland—Triplett, T. B. (C.)
Muskogee—White, J. H. (C.)
Sapulpa—McCallum, C. L. (L.)
Tulsa—Hooper, J. S. (C.)

PENNSYLVANIA

Canonsburg — Donaldson, L. D. (L.)
Carlisle—Plank, E. R. (M.)
Cynwyd—LeBoutillier, T. (L. C.)
Erie—Rothe, W. R. (C.)
Harrisburg — Zimmerman, G. A. (L.)
Lock No. 4—Sickman, A. S. (L.)
Mahanoy City — Dolphin, J. F. (C.)
McKeesport—McCune, D. P., Jr. (C.)
McKees Rocks—Sierakowski, C. S. (L.)
Philadelphia—Brooke, J. A. (C.)
Carncross, H. L. (C.)
Kohn, L. W. (L.)
Pepper, O. H. P. (L. C.)
Shannon, F. P. (C.)
Somers, R. L. (L.)
Pittsburgh—Frye, D. W. (C.)
Goehring, C. (C.)
Pierce, W. I. (C.)
Sarchet. H. N. (L.)
Scranton—Davis, A. E. (M.)
Wheelock, F. R. (M.)
Shamokin—Gay, L. N. (L.)
State College—Dale, P. H. (C.)
Wellsboro—White, W. F. (L.)
West Chester — Hollingsworth, I. P. (C.)
Wilkes-Barre—Adams, E. A. (C.)
Williamsburg — Whittaker, R. R. (C.)
Windber—Smith, B. J. (L.)
Wyncote—Gordon, E. J. (M.)
York—Ellis, R. L. (L.)

SOUTH CAROLINA

Abbeville—Richie, E. W. (L.)
Columbia—Fulmer, W. E. (L.)
Kingstree—Jacobs, C. D. (M.)

TENNESSEE

Bethpage—Wright, T. E. (C.)
Bradford—Hudkins, I. N. (L.)
Chattanooga—Skelton, C. A. (L.)
Steele, J. B. (L. C.)
Collierville—Miller, J. S. (C.)
Jackson—O'Connor, F. J. (L.)
Memphis—Baughman, C. B. (C.)
Westmoreland — Dotson, W. S. (C.)

TEXAS

Cuthand—DeBerry, M. W. (L.)
Fredericksburg—Wiemers, W. J. C. (L.)
Houston—Culter, E. M. (C.)
Humble—Jones, W. H. (L.)
Sherman—Venable, S. C. (L.)
Snyder—Bannister, J. M. (C.)
Waxahachie—Rayburn, C. E. (C.)
Whitesboro—Coleman, R. H. (L.)
Yorktown—Nowieski, L. W. (L.)

UTAH

Ogden—Nelson, H. W. (L.)
Wardlcigh, C. E. (L.)
Payson—Stewart, L. D. (C.)

VIRGINIA

Coeburn—Wolfe, I. E. (C.)
Norfolk—Faulkner, G. E., Jr. (L.)
Pocahontas—Sowers, M. L. (C.)
Spotsylvania—Harris, W. A. (L. C.)
Wicomico Church — Downing S. (L.)

WASHINGTON

Tacoma—DeWitt, C. H., Jr. (L.)
Willard, H. G. (M.)

WEST VIRGINIA

Benbush—Myers, C. W. (C.)
Century—Farson. J. P. (L.)
Harrisville—Patton, G. C. (L.)
Logan—Lawson, J. C. (L.)
Upper Tract—Moore, C. L. (C.)

WISCONSIN

Abbotsford—Devine, G. C. (C.)
Brodhead—Rowe, L. B. (L.)
Hiles—Halsey, H. A. (C.)
Menomonie—Grannis, I. V. (M.)

WYOMING

Rock Springs—Chambers, O. (M.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

ARKANSAS

Aplin—Matthews, E. L.

CALIFORNIA

Alameda—Miller, H. A.
Los Angeles—Blake, W. P.

COLORADO

Denver—Epstein, W. A.

CONNECTICUT

New London—Lena, H. F.

ILLINOIS

Chicago—Alden, W .C.
Hedgecock, A. J.

INDIANA

Auburn—Leasure, J. K.
Vincennes—Curtner, M. L.

MAINE

Portland—Moulton, M. C.

MARYLAND

Baltimore—Warner, T. B.

MASSACHUSETTS

Boston—Briggs, M. T.
Kimball, J. C.
Malden—Whitcomb, C. A.
Newburyport—Healy, T .R.

MICHIGAN

Detroit—Lau, F. T.
Ironwood—Erickson, A. W.
Owosso—Arnold, A. L.

MINNESOTA

Euclid—Stuhr, J. W.
Minneapolis—Gowdy, R .A.

MISSISSIPPI

Jackson—Callaway, E.

NEW HAMPSHIRE

Manchester—Lightbody, W. R.

NEW JERSEY

Burlington—Anderson, R. D.

NEW YORK

Brooklyn—Gray, I. K.
College Point—Biffar, H. M.
Elmhurst—Mahnken, H. C.
New York—Brodhead, W. F.
Klein, E
Loughlin, J. J.
MeKee, C. S.
Myerson, M. C.
Schur, A. T.
Thomas, W. S.
New Lebanon—Barrett, M. O.
Richmond Hill—Blydenburgh, G. T.

NORTH CAROLINA

Hobbsville—Carter, T. L.
Huntersville—Lackey, M. A.

OHIO

Cleveland—Friedman, C. J.

PENNSYLVANIA

Lansdowne—Casc, E. A.
Montgomery—Decker, P. H.
Philadelphia—Reeves, R. S.
Pottstown—Thomas, B. K.
Williamsport—Rewalt, R. K.

SOUTH CAROLINA

Charleston—Taft, A. R.

VIRGINIA

Quantico—Fackler, C. L.

WASHINGTON

Spokane—Rouse, H.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. W. C. BILLINGS, proceed to Boston, Mass., stopping at Washington, en route, for conference for the study of hospital equipment and administration.

Surg. W. A. KORN, proceed to Whipple Barracks, Arizona, for inspection relative to the suitability for Public Health Service Hospital.

Surg. JOHN T. BURKHALTER, proceed to Anniston, Ala., for inspection relative to suitability for Public Health Service Hospital.

Surg. R. E. EBERSOLE, relieved at Ellis Island, N. Y., proceed to New Orleans, La., and assume charge of the Marine Hospital.

Passed Asst. Surg. ROBERT OLESON, proceed to Madison, Wis., to assist the State Health Officer in establishing an endemic index for the reportable diseases.

Passed Asst. Surg. C. L. WILLIAMS, proceed to New Orleans, La., to assist the State Health Officer in establishing an endemic index for the reportable diseases.

Passed Asst. Surg. W. L. TREADWAY, proceed to New York, to deliver two addresses at Teachers' College, Columbia University.

Passed Asst. Surg. A. R. SWEENEY, relieved at Fayetteville, N. C., proceed to the Marine Hospital, Stapleton, N Y., for duty.

Passed Asst. Surg. C. V. AKIN, designated as epidemiologic aide to the health officer for the State of South Carolina to assist in establishing an endemic index for the reportable diseases.

Asst. Surg. W. S. DEAN, relieved from duty at the Bureau, Washington, D. C., procced to Atlanta, Ga., to assist the State Health Officer in establishing an endemic index for the reportable diseases.

Asst. Surg. VANCE B. MURRAY, relieved at the Marine Hospital, San Francisco, Calif., proceed to Manila, P. I., and report to the Chief Quarantine Officer for duty.

Asst. Surg. CHARLES ARMSTRONG, procced to Columbus, Ohio, to assist the State Health Officer in establishing an endemic index for the reportable diseases.

Asst. Surg. R. E. DYER, proceed to Little Rock, Ark., to assist the State Health Officer in establishing an endemic index for the reportable diseases.

Asst. Surg. M. V. ZIEGLER, proceed to Indianapolis, Ind., to assist the State Health Officer in establishing an endemic index for the reportable diseases.

Passed Asst. Surg. C. R. MILLER (Reserve), ordered to active duty in the Reserve Corps of the U. S. Public Health Service. Proceed to Greenville, S. C., for duty.

Asst. Surg. RICARDO MESTRE (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service. Proceed to Boston, Mass., for duty under the Supervisor District No. 1.

Asst. Surg. FESSENDON N. OTIS (Reserve), ordered to active duty in the Reserve Corps of the Public Health Service. Proceed to the Marine Hospital, Boston, Mass., for duty.

Act. Asst. Surg. A. M. GANAWAY, proceed to St. Louis, Mo., and report to the Marine Hospital for duty.

Act. Asst. Surg. GEORGE HAYES, proceed to Nashville, Tenn., for duty in venereal disease control.

Act. Asst. Surg. D. B. HOLLOWAY, relieved at Newport News, Va., proceed to the Marine Hospital, Cleveland, Ohio, for duty.

Act. Asst. Surg. A. J. HOSKINS, proceed to Palo Alto, Calif., for duty in the Public Health Service Hospital.

Act. Asst. Surg. A. M. KILGORE, proceed to the Marine Hospital, New Orleans, La., for duty.

Act. Asst. Surg. STAFFORD B. SMITH, proceed to the states of New York, New Jersey, Pennsylvania for conference with Health Officers relative to venereal disease control.

Act. Asst. Surg. W. H. WALSH, proceed to Cape May, N. J., for inspection of Naval Hospital, relative to its suitability for use by the Public Health Service.

Influenza Deaths.—The *Weekly Health Index* for March 4, 1919, issued by the Bureau of the Census, shows that in thirty-one of the larger cities of the United States with a population of over 19½ million for the period of twenty-five weeks from Sept. 8, 1918, to March 1, 1919, inclusive, there were 72,009 deaths from influenza and 49,598 from pneumonia in all forms, giving, for the two diseases, a rate of 6.2 per thousand of population. There was said to be an excess of deaths from all causes of 96,679, or 5.0 per thousand of population as compared with the deaths and death rate for 1919.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

Medical Museum Secures Collection of Microscopes.—A large and quite complete collection of microscopes has been assembled at the United States Army Medical Museum, constituting an important addition to the exhibits of that valuable institution. Specimens are included from the crude models of centuries ago to the most modern and powerful of the compound microscopes of today.

Changes in Health Department Personnel.—Dr. John L. Norris, recently captain, Medical Corps, U. S. Army, has resumed his post as assistant health officer, the acting assistant health officer, Dr. John Paul Frey, having been appointed chief of the contagious disease service, vice Dr. Harry S. Bernton, resigned. Dr. Bernton is in charge of the medical work of the Washington Diet Kitchen Association.

Compensation for School Medical and Dental Inspectors.—The recent appropriation act for the District of Columbia failed to include the requested increased compensation for medical and dental inspectors, the basic salary still remaining $500 per annum, the sum fixed in 1903 when medical inspection of schools was first inaugurated. These inspectors will receive, however, the bonus of $240 provided for all federal and district employees receiving basic salaries of $2,000 or less. The chief medical inspector of schools was allowed maintenance for a motor vehicle.

Plans for Medical Society Building Approved.—Plans and specifications for the proposed home for the Medical Society of the District of Columbia have advanced to a point permitting expectations that bids will be invited early in September. The plans of the building have been submitted to the National Commission of Fine Arts and have received the complete approbation of that body. At a recent meeting of the building committee further progress in raising funds was announced. Generous contributions from the lay public have been received. Dr. Lawrence M. Hynson was elected secretary of the committee, succeeding Dr. Hanson T. A. Lemon, deceased.

Personal.—Lieut.-Col. Charles A. Ragen, M. C., U. S. Army, retired, has removed to New York City where he intends to practice medicine.——Dr. Daniel Webster Prentiss has recently returned from France where he was in charge of the surgical service at Base Hospital No. 106, Beau Desert hospital center, near Bordeaux.——Dr. Francis P. Morgan has resumed his work in the bureau of chemistry, Department of Agriculture, having recently returned from service in France with the A. E. F.——Among those recently returned from military to civilian activities are Major A. Barnes Hooe, Lieut.-Col. Luther H. Reichelderfer, Major Walter A. Wells, Major Henry F. Sawtelle and Capt. Howard Hume.

ILLINOIS

Medicine Man Fined.—J. W. Garrett, a colored medicine man of East St. Louis, is said to have been found guilty, July 19, of having violated the medical practice act, and to have been fined $100.

Deaths of 1918.—During 1918, 103,130 persons died in Illinois and of these, 44,605 were residents of Chicago. The death rate for the state was 16.3 per thousand population. The increase in the death rate is due to the influenza-pneumonia pandemic from which 32,334 persons died.

County Officers Reelected.—At the annual meeting of the Ogle County Medical Association, held at Rochelle, July 21, the following officers were reelected: president, Dr. Walter E. Kittler, Rochelle; vice president, Dr. Jesse C. Akins, Forreston, and secretary-treasurer, Dr. Josiah T. Kretsinger, Leaf River.

Hospital Items.—Plans have been drawn for the Tazewell County Sanatorium for Tuberculosis which is to be erected on a site recently purchased in Mackinaw. The building is to cost about $45,000.——A drive has been started at LaSalle to raise $40 000 with which to build an addition to St. Mary's Hospital.——Miss Grace Welch, Millburn, has been appointed superintendent of Jane McAllister Hospital, Waukegan.

Sanatorium for Piatt County.—Mr. Robert Allerton of Chicago, July 30, offered to sell 1,200 acres of land and donate the proceeds to Piatt County if the supervisors would use the amount for the erection of a tuberculosis sanatorium. This offer, amounting to a donation of about $400,000, was offered by Mr. Allerton as a memorial to his father, the late Samuel W. Allerton of Chicago, and his friend, the late John Phalen. The gift was formally accepted by the supervisors of Piatt County, August 2.

Illegal Practitioner Arrested.—Dr. H. R. Orbid, "the Eminent Dr. Orbid of Ohio," was arrested by the Illinois Department of Registration and Education for practicing medicine at Joliet without a license and was committed to jail until he secured a bondsman. As soon as he was released he departed for parts unknown and did not appear for the trial. Dr. Orbid was fined $200 and costs, of which his bondsman paid $100 and will be required to pay the remaining $100 if he cannot locate Orbid and present him in court. It was found that Orbid had in his possession an army officer's uniform with a variety of insignia so that he could assume any rank he desired. There is nothing to indicate that he was ever in the service.

Chicago

Postgraduate Nursing Course.—A postgraduate course of training in nursing is being held at the Illinois Training School for Nurses. The course lasts six weeks, with eight hours work each day for five days a week, and is being taken by eighteen women who hold executive positions in hospitals. Among the subjects are curriculum, planning of hospitals and nurses' residence, ethics of nursing and psychology.

Personal.—P. J. H. Farrell, Lieut.-Col., M. C., U. S. Army, and in command of Base Hospitals Nos. 81 and 81a, A. E. F., France, returned to Chicago, August 4.——Dr. Sophia Brumback has been appointed a member of the morals commission, succeeding Dr. Anna Dwyer.——Radium valued at $3,000 disappeared from the office of Dr. Frank E. Simpson, July 25. He has offered a reward of $500 for the return of the radium.

Site Bought by State.—A new hospital to be known as the State Surgical Institute for Children is to be built on the site of the baseball park at Lincoln and Polk streets. There will be three other hospitals on this site, the Illinois Charitable Eye and Ear Infirmary, a clinic for students of the Medical College of the University of Illinois, and the State Psychopathic Hospital. The land has already been bought for $400,000 and more than $1,500,000 has been appropriated to begin the construction of the hospital group.

Training School for Public Health Nursing.—More than 600 women registered, August 2, for the new course offered by the Chicago Training School for home and public health nursing. Five courses are offered by the school which opened, August 4, in the building formerly occupied by the Loyola Medical School on West Fulton Street. The board of directors for the institution includes, the Mayor, Mrs. Edward Hines, William A. Fetzer, Dr. William A. Evans, the Rev. Samuel Fallows, D. F. Kelley, Simon O'Donnell, and Miss Annie McKenzie, R.N. The Chicago Chapter of the American Red Cross has appropriated $15,000 to meet the expense of these courses.

INDIANA

Health Association Reorganized.—At a meeting recently held at Cedar Lake, the Lake County Health Association was reorganized and the following officers were elected: president, Dr. Otis B. Nesbit, Gary; vice presidents, Mr. G. Miller, East Chicago, and Dr. Eli S. Jones, Hammond, and secretary-treasurer, Mr. R. E. Hall, East Chicago.

Physician Reinstated.—In the case of Dr. George F. Smith, Bicknell, whose license was revoked by the State Board of Medical Registration and Examination, February 27, for alleged misrepresentation in regard to high school credits, an official order of reinstatement has been filed by the board with the clerk of Knox County as the result of an appeal made by Dr. Smith to the Knox Circuit Court.

Personal.—Dr. John N. Hurty, state health commissioner, is ill at his home in Indianapolis.——Dr. Clarence K. Jones has been appointed an alternate on the gynecologic staff of the Indianapolis City Hospital, and Dr. John W. Carmack has been appointed an alternate on the ear, nose and throat staff.——Dr. C. E. Edmondson, Bloomington, has been made head of the new department of hygiene in the Indiana University.

Alleged Violation of Liquor Law.—Dr. Alonzo S. Neely, Indianapolis, is said to have been indicted by the Marion County Grand Jury for violation of the prohibition law on two counts, the first charged the physician with having sold liquor to persons unknown to the grand jury and the second, with having had whisky in his possession unlawfully.——Dr. George Koons, Indianapolis, who was recently convicted in the city court on the charge of having provided morphin for a woman addicted to the drug habit, was tried before the Indiana State Board of Registration and Examination, July 8, on another similar charge.

IOWA

New Officers.—The Austin Flint-Cedar Valley Medical Society held its annual midsummer meeting at Clear Lake, July 8 and 9. Dr. Oren M. Landon, New Hampton, was elected president; Dr. Albin B. Phillips, Clear Lake, vice president, and Dr. William A. Rohlf, Waverly, secretary.

Personal.—Dr. George F. Severs, Centerville, has been appointed president of the state board of health succeeding Dr. Walter L. Bierring, Des Moines.—Dr. Ralph W. Mendelson, Des Moines, is being sent by the Siamese government to have charge of the campaign against cholera in northern Siam.

MARYLAND

Personal.—George Milton Linthicum, Lieut.-Col., M. C., U. S. Army, Baltimore, who served overseas with Base Hospital No. 113, has returned to the United States.

Marine Hospital to Expand.—To relieve the congestion at the Marine Hospital, a new psychiatric ward of thirty beds will be erected within the next two months. It will be a one story building of temporary construction. The hospital is now filled to capacity, with 150 patients, which includes men who have been gassed or wounded overseas.

Government to Run Quarantine Station.—Baltimore city has again entered into contract for a lease of the quarantine station by the government at $1 a year, until Congress makes an appropriation for the grounds and buildings. Suggestions from Health Commissioner Blake that the main office of the station be moved to Fort McHenry or elsewhere in the city, and that a quarantine boat be maintained at the Fort McHenry wharf have been accepted by the government. This will reduce the cost of operating the station and will do away with one or more boat crews.

Infantile Paralysis and Typhoid.—Infantile paralysis has again appeared in Baltimore during the past week, four cases and two fatalities having been reported to the health department. The cases were confined to children and Dr. John F. Hogan, Baltimore, chief of the bureau of communicable diseases, did not consider the situation one to cause alarm. What the officials of the department regarded with more concern were eighteen cases of typhoid from Baltimore, four of which came from the new Annex. Investigation has shown that several cases could be traced to outside infections. All the cases are under investigation. Fourteen cases of typhoid fever at Bakersville were reported to the state department of health by the Washington County Health Board. Samples of water taken from ten wells at Bakersville and vicinity have been sent to the health department for analysis. So far there have been no deaths from typhoid at Bakersville.

Permanent Exhibit at Fort McHenry.—With the assurance that U. S. Army General Hospital No. 2, at Fort McHenry, will be retained as a hospital for the treatment of wounded and diseased soldiers for at least a year longer, the officials there are planning to install a permanent exhibit of the surgical work and to have special days each week for visitors. Col. Junius H. McHenry, New York City, chief of the general surgical work, is anxious that this permanent exhibit of the treatment and cures among the wounded soldiers be shown at the hospital until the post is suspended. Collaborating with Colonel McHenry and the other officers are physicians at the Johns Hopkins Hospital and the University of Maryland who are convinced that this demonstration would prove invaluable to the medical students of the two institutions. The permanent exhibit will be along the lines of the one which attracted such favorable attention at the Medical and Chirurgical Faculty Building, but will be more comprehensive. The physicians at the post have achieved an excellent record in operations. Out of 400 patients operated on since last January, only one death directly attributable to an operation has occurred.

MINNESOTA

Public Health Associations Organized.—Thus far, auxiliaries of the Minnesota Public Health Association have been organized in eighty of the eighty-six counties of Minnesota.

New Officers.—At the fifty-fifth annual meeting of the Wabasha County Medical Society, held at Lake City, July 10, Dr. Jesse A. Slocumb, Plainview, was elected president; Dr. John T. Bowers, Lake City, vice president, and Dr. William F. Wilson, Lake City, secretary-treasurer. The next meeting of the association will be held at Zumbro Falls.

Personal.—Dr. Charles E. Smith, Jr., St. Paul, has assumed the duties of executive officer of the state board of health, succeeding Dr. Henry M. Bracken, resigned. Dr. Bracken is devoting his time to war risk insurance in conection with the United States Public Health Service.——Kenneth Taylor, Col., M. C., U. S. Army, St. Paul, has returned from France.——Dr. Oscar W. Holcomb, St. Paul, and Axel E. Hedback, Minneapolis, have been appointed members of the state board of health, succeeding Drs. Christopher Graham, Rochester, and Werner Hemstead, St. Cloud.

Supervision of Public Health Nurses.—Arrangements have been completed between the American Red Cross and the Minnesota Public Health Association which give the former organization supervision over, and responsibility for, public health nursing in Minnesota. The basic agreement is that the American Red Cross is to secure and place all permanent public health nurses, and help finance them and supervise them. This does not include demonstration nurses or hospital or sanatorium nurses. The association is to conduct public health educational, propagandist and legislative activities and to cooperate with the American Red Cross in all directions regarding public health, but is not to finance county or community public health nurses.

MISSISSIPPI

Colored Practitioners Meet.—At the meeting of the Mississippi Medical and Surgical Association (colored) held in Jackson, July 9, Dr. Daniel W. Sherrod, Meridian, was elected president; Dr. John H. Roby, Canton, vice president, and Dr. Robert L. Johnson, Jackson, secretary.

Hospital Items.—An attempt is being made to secure a bond issue of $8,000 from the city of Meridian with which to purchase the Matty Hersee Charity Hospital property and erect thereon a new modern hospital. At present the institution is being operated by the appropriation of $11,000 per year from the state and $5,000 from Meridian and $2,000 from Lauderdale County.——The board of trustees of the South Mississippi Charity Hospital, Ellisville, has petitioned the governor to call an extra session of the legislature to provide additional funds for the support of a hospital.——Officers of the Biloxi Hospital Association have started a drive for funds for the erection of a new modern hospital building for Biloxi.——A campaign has been opened to secure $250,000 for the Baptist Hospital, Jackson.

Personal.—Dr. C. D. Alexander, Vaiden, has been appointed health officer of Carroll County.——Dr. Robert B. Crisler, Satartia, sustained a severe injury to his arm recently when his automobile backfired.——Dr. Taylor H. Henry, Columbus, has been reelected health officer for Lowndes County.——Dr. Sylvan Myers, Vicksburg, has been elected health officer of Warren County.——Dr. Daniel J. Williams, Gulfport, has been reelected health officer for Harrison County.——Dr. J. B. Middleton, Grenada, has been reeapointed health officer for Grenada County.——Dr. William A. Carpenter, Meridian, has been reappointed health officer of Lauderdale County.——Dr. Thomas R. W. Wilson, Greenville, S. C., who has been in charge of the base hospital, Camp Shelby, has been made director of the hygienic laboratory of the state department of health, Jackson.

MONTANA

Hospital Training Institute.—The Second Montana Institute for Hospital Training in connection with the University of Montana was held at Missoula, from June 30 to July 12, under the charge of Prof. W. G. Bateman of the department of chemistry of the university.

Personal.—Dr. Ernest D. Hitchcock has been appointed state bacteriologist of Montana, succeeding the late Dr. Arthur H. McCray, Helena, and has assumed charge of the laboratory.——The widow of Dr. McCray has been appointed superintendent of public health nurses in Montana.

Public Health Association Organized.—At the final session at the conference of the state health board, held in Butte, July 9, the Montana Public Health Association was organized and the following officers were elected: president, Prof. W. M. Cobleigh, Bozeman; vice president, Dr. Harmon T. Rhoades, Choteau; secretary, Dr. William F. Coagswell, Helena; treasurer, Dr. Wilson A Russell, Hardin, and section heads, Dr. Louis W. Allard, Billings, public health administration; Dr. Caroline McGill, Butte, tuberculosis; Surveyor General Gerharz, Helena, sanitation and water works; Mrs. Harry B. Farnsworth, Missoula, child welfare; Dr. Patrick H. McCarthy, Butte, industrial hygiene, and Dr. Eugene G. Steele, Plentywood, health hygiene. The next meeting will be held at the same time and place as the annual convention of the Montana State Medical Association.

New State Officers.—The Montana State Medical Association held its annual meeting in Missoula, July 9 and 10, under the presidency of Dr. Edward W. Spottswood, Missoula. Helena was selected as the next meeting place and the following officers were elected: president, Dr. Edward M. Larson, Great Falls; vice presidents, Drs. Lawrence Stevens, Laurel, Patrick H. McCarthy, Butte, and Arter W. Deal, Lewistown; secretary-treasurer, Elmer G. Balsam, Billings, and delegate to the American Medical Association, Dr. Edward W. Spottswood, Missoula, the retiring president. The association also adopted the report of a committee which submitted the names of the following five members from which the governor will select one to be named as a member of the state board of health: Drs. E. M. Porter, Lewistown; Austin L. Ward, Havre; Arter W. Deal, Lewistown; Mark D. Hoyt, Glasgow, and Edward M. Gans, Judith Gap.

NEW JERSEY

Urge Memorial Hospital.—Women of Gloucester are making a determined effort to have a memorial hospital erected instead of a monument in memory of the 300 soldiers from Gloucester who went into the service. It is believed that they will be able to raise $25,000 for a hospital.

Drug Crusade Begun.—A crusade against the illegal sale of iodin, paregoric, castor oil and other such medicines by grocery stores and other places which have no license, has been started by the New Jersey State Board of Pharmacists. A tour is being made of each of the South Jersey towns. They claim that no one but a licensed druggist can sell such medicines.

NEW YORK

Combat Against Habit-Forming Drugs.—Federal officials have begun a campaign to stamp out the traffic in habit-forming drugs. In two raids, made July 16, seven persons were arrested, six charged with violation of the Harrison Narcotic Law, and the other, an alleged addict, was held as a material evidence.

Plan Home for Infirm Physicians.—The certificate of incorporation of the Physician's Home, among the incorporators of which are Drs. Graeme M. Hammond, Alexander Trautman, Daniel Cook, Max Einhorn, Silas F. Hallock, Robert T. Morris, and Albert G. Weed, all of New York City, was approved by Justice Ford, August 1. The purpose of the organization is to create and maintain a home for aged and infirm physicians and their wives or widows or to assist them in any other way feasible.

Development of Letchworth Village.—July 9, the governor opened and dedicated Stewart Hall, the school and recreation building of Letchworth Village, and laid the cornerstone of the new group of buildings for women. In his address on this occasion the governor stated that there were at least 33,000 mental defectives in the state, of which only 5,000 were properly provided for. Dr. Pearce Bailey, chairman of the State Commission on Feebleminded, made a strong plea for research into the cause of mental defects and especially urged the establishment of a pathologic laboratory at Letchworth Village.

Drug Law Fails in State.—Reports received from various up-state counties show that the Whitney antinarcotic law is almost wholly inoperative outside of New York City, because of failure of the legislature which passed the act to appropriate the necessary funds for its administration. The state department of drug control announces that in view of the lack of funds with which to carry out the provisions of the law, it will have to depend on individual physicians to report to the health authorities of the various counties drug addicts encountered in private practice. Thus far it is announced that the health authorities have received practically no reports from physicians. It is feared that this condition of affairs is likely to result in an illicit traffic in drugs outside of New York City that will render registration in New York City a farce. Albany has a clinic for drug addicts and it is likely that another will be opened in Buffalo.

New York City

Convalescent Home for Soldiers.—A convalescent home for discharged men from overseas suffering from nervous troubles has been opened in Bronxville. The Seabury Society of New York will maintain the home. The home is already filled but as fast as vacancies occur other patients will be received.

Typhoid in New York City.—During the second quarter of 1919, ninety-nine cases of typhoid fever were reported with twenty deaths, as against 268 cases for the corresponding quarter of last year. Of these cases 89 per cent. were confirmed by laboratory examination. The source of infection was traced in only 24 per cent. of the reported cases.

Health Department Gets Hospital Accommodations for Drug Addicts.—Secretary Daniels of the Navy has granted the use of the buildings at the Pelham Bay Naval Training Station to New York City for the treatment of drug addicts. This will provide accommodations for 1,600 patients within a brief period. The location is regarded as an exceptionally good one because it can be well guarded and secured against the smuggling of drugs which has been one of the difficulties with which the city has had to contend at all other institutions where it has attempted to care for drug addicts.

Many Bogus Diplomas Sold.—Assistant District Attorney De Coro announces that some one hundred New York "physicians," "dentists" and "druggists" face prosecution in the near future. The man arraigned for having sold these diplomas is Nicholas D. Clements of the Bronx, who, two years ago, was sentenced to two and one-half years in Dannemora prison for having sold talcum powder as aspirin. The diplomas for which Clements received from $100 to $150 each purport to be from the Southern Medical Institute, which went out of existence fifteen years ago. Clements asked for clemency in his promise to reveal the names of the seventy-five physicians and attorneys who purchased their credentials from him.

U. S. Public Health Service Takes Polyclinic Hospital.—The Polyclinic Hospital will be taken over by the U. S. Public Health Service, August 15. The institution will be used exclusively for the treatment of war risk insurance cases. The Public Health Service also took over in June, the old Hudson Street Hospital which was used by the Navy for the same purpose. There are accommodations for 450 patients in the Polyclinic and for 120 in the Hudson Street Hospital. Former soldiers who were insured, if ailments develop directly or indirectly from their war experience, will be treated at these hospitals. James L. Robinson, M. C., U. S. Army, is in charge of the Polyclinic and Dr. Richard A. Kearney of the Hudson Street Hospital.

OHIO

Salaries Increased.—The trustees of the Western Reserve University, Cleveland, have voted an increase of 20 per cent. to the salaries of the entire full-time instructing staff of the medical school.

Personal.—Frank Winders, Major, M. C., U. S. Army, Columbus, who has been for many months a director of the medical service of the Port of Embarkation, has been promoted to the rank of lieutenant-colonel, Medical Corps.——Dr. Edward M. Keefe has been appointed local surgeon for the New York Central system, with headquarters at Cincinnati.

Hospitals Must Register.—In compliance with the terms of the law passed by the legislature in March, which went into effect, June 25, every hospital and dispensary in the state must register immediately with the state department of health. The registration and report will serve as a basis for a survey of the hospital facilities of the state. A division of hospitals has been created in the state department of health to look after this survey.

Health Bureau Moved to Columbus.—The health activities of the state for the control of venereal disease have been placed on a more efficient basis by the removal of the bureau of venereal disease of the state department of health to the headquarters of the department of health in Columbus. This bureau was established at Cleveland a year and a half ago when the call of the War Department for antivenereal bureaus found the state without funds for the purpose. Dr. Harold

N. Cole, Cleveland, assumed charge of the bureau and served without compensation until federal funds were awarded to the state for carrying out the program. He has now resigned from the bureau but will continue to serve as consultant.

The Hughes Act.—Arrangements are under way in many counties for meetings of the district advisory committees immediately after the law goes into effect, August 9. These councils are composed in each county, of the mayors of all cities under 25,000 population and the chairmen of all township boards of trustees. At the meeting for organization each council will select the district board of health which will appoint a full-time district health commissioner and other employees from a civil service list. Cities of more than 25,000 population will institute separate health districts, with organization similar to that now in force excepting that health officers and other employees will serve on a whole-time basis and will be appointed under civil service rules.

OREGON

Woman's Medical Club Elects Officers.—At the annual meeting of the Portland Woman's Medical Club, June 10, Dr. Jessie M. McGavin was elected president; Dr. Emma M. Wickstrom, vice president; Dr. Ethel Gray, secretary, and Dr. Amelia Ziegler, treasurer.

Alumni Election.—At the seventh annual meeting of the Alumni Association of the University of Oregon Medical Department, Portland, June 24, the following officers were elected: president, Dr. A. A. Whitham, Portland; vice presidents, Drs. Louis Buck, Portland; Carl Hoffman, Woodland, Wash.; Adalbert G. Bettman, Portland, and James L. Wooden, Clatskanie; secretary, Dr. George A. Cathey, Portland, and treasurer, Dr. Katherine Manion, Portland.

New State Officers.—The forty-fifth annual meeting of the Oregon State Medical Association was held in Portland, June 26 to 28, under the presidency of Dr. Charles M. Barbee, Portland, and the following officers were elected: president, Dr. Burpee L. Steeves, Salem; president-elect, Dr. Joseph A. Pettit, Portland; vice presidents, Drs. William B. Neal, Eugene; Charles S. Edwards, Prineville, and Hugh S. Mount, Oregon City; secretary, Dr. Clarence J. McCusker, Portland; treasurer, Dr. Jessie M. McGavin, Portland, and councilors, Drs. Philip J. Bartle, Eugene, and Abram L. Houseworth, Marshfield.

Personal.—Ralph A. Fenton, Major, M. C., U. S. Army, Portland, who has been in charge of eye work in the Army of Occupation, has been relieved from duty with the Third Army and has returned home.——Dr. Elbert E. Cable, Portland, who has been stationed at Newport News, Va., and New York City as government specialist in community sanitation, has returned to Portland and has been appointed medical supervisor of the War Risk Insurance Bureau for the Thirteenth District, which includes the states of Oregon, Washington and Idaho.——Justin M. Waugh, Major, M. C., U. S. Army, Hood River, who recently returned from abroad, has been promoted to the rank of lieutenant-colonel, Medical Corps.——Dr. Esther C. Pohl Lovejoy, Portland, has been appointed chairman of the American women's hospitals with headquarters in New York City.

PENNSYLVANIA

Personal.—Col. William J. Crookston, Pittsburgh, chief surgeon of the Twenty-Eighth Division in France, has been appointed associate chief medical inspector of the Pennsylvania Department of Health. He will succeed Dr. Howard L. Hull, Camp Hill, who has been appointed chief medical inspector of the Pennsylvania Department of Health.——Dr. Edward Martin, commissioner of health, announces the following appointments in his department: Dr. Edward W. Bixby, Wilkes-Barre, and Miriam Wagner, Philadelphia, assistants in the genito-urinary division; Dr. Roy Ellithorp, Kane, Highland Township, Elk County, and Dr. James Allen, Ranchtown, Crawford Township, Clinton County, health officers.

Philadelphia

Little Mothers' Leagues Formed.—The Child Federation has been cooperating with the public school playground department of the board of education in forming little mothers' leagues to instruct the children in the care of their baby brothers and sisters. The Little Mothers' Leagues have been established in the public schools and in the Lighthouse Settlement, Neighborhood Center and Reed Street Settlement. At the playgrounds the classes are taught by the teachers as a regular part of the playground activities, and at the settlements the classes are in charge of nurses from the division of child hygiene.

To Ask Funds for College.—Plans are afoot for a fund-raising campaign for the Woman's Medical College of Pennsylvania, according to a statement made by Dr. Martha Tracy, dean of the college. The campaign, which will be conducted entirely by women, will open, October 13, and continue until October 23. The Woman's Medical College is the only medical school in the United States which admits women exclusively. The appeal for funds is occasioned by the need for extending and developing the work of the medical college for a new residence hall for nurses and students, and for enlarging and increasing the facilities of the Woman's College Hospital, which is connected with the medical college.

WISCONSIN

Poliomyelitis in Milwaukee.—There have been reported thirty-six cases of infantile paralysis in Milwaukee and all hospitals have set aside beds for the treatment of these cases. The city council has authorized the publication and distribution of pamphlets instructing the people how to prevent contagion and how to deal with the disease.

Personal.—A welcome home banquet was given Dr. Gerhard A. Bading, formerly mayor of Milwaukee, at the Milwaukee Athletic Club, July 15. Dr. Bading has recently returned from the Philippine Islands where he served as captain, M. C., U. S. Army.——Charles H. Stoddard, Major, Wis. N. G., Milwaukee, has been appointed chief surgeon of the state.

State Board Notes.—Dr. Gustave Windesheim, Kenosha, has been appointed a member of the state board of health.——Dr. Cornelius A. Harper, Madison, state health officer, has been reappointed a member of the state board of health.——Drs. George H. Ripley, Kenosha; Henry W. K. Abraham, Appleton; Charles W. Rodecker, Holcombe, and John M. Dodd, Ashland, have been reappointed members of the state board of medical examiners.

Hospital Items.—Drs. S. Wade and John C. Doolittle, Lancaster, have opened their new hospital in the Wright Block.——The Milwaukee County Free Dispensary has been opened at Grand Avenue and Fifth Street, Milwaukee. This is the first unit of the new county hospital which is to be established on the former Schandein estate.——Fifteen physicians of Oshkosh have purchased an apartment building and have organized the Oshkosh Clinic which has been incorporated by Drs. Clarenden J. Combs, Henry W. Morgenroth and Charles H. Nims.

CANADA

Personal.—Dr. Perry G. Goldsmith, Toronto, lieutenant-colonel in the Canadian Army Medical Corps, has been appointed a Commander of the Order of the British Empire.——Lieut.-Col. Graham Chambers, Toronto, who has been overseas since May, 1915, sailed for home on the *Adriatic*, July 28.

University News.—Principal Bruce Taylor of Queen's University, Kingston, Ont., has reported to the board of trustees that it may be necessary to transfer the clinical work of the medical department to Ottawa, when the new hospital is completed, as the population of Kingston makes the supply necessarily inadequate.

Medical Council of Canada.—The annual session of the Medical Council of Canada was held in Ottawa a short time ago, under the presidency of Dr. Richard Eden Walker, New Westminster, B. C. The Medical Council of British Columbia relinquished their local provincial examination for their license in favor of the examination as set by the Medical Council of Canada. Another matter of importance discussed was the negotiation with Great Britain and other countries looking toward reciprocal acknowledgement of licenses. An amendment to the Canada Medical Act providing for these proposed changes will be drafted and presented to the next annual session of the council. Examinations were ordered to be held in Montreal and Halifax in October, 1919, and in Toronto, Winnipeg and Vancouver in June, 1920. Dr. James C. Connell, Kingston, was elected president.

GENERAL

Smallpox on Board Ship.—On the arrival of the troopship *Mobile* at New York, smallpox was dicovered on board and more than 5,000 passengers on the ship were placed in temporary quarantine.

Bulletin of the League of Red Cross Societies.—The first two numbers of a new publication the *Bulletin* of the League of Red Cross Societies published at Geneva, Switzerland, have just been issued. The first number is devoted to the history of the league and its organization, and the second number to the proceedings of the medical conference held at Cannes, France, in April, and already reported in The Journal.

Gastro-Enterologists Elect Officers.—At the annual meeting of the Gastro-Enterologists' Association, held in Atlantic City, N. J., June 9 and 10, the following officers were elected: president, Dr. Thomas R. Brown, Baltimore; vice presidents, Drs. Franklin W. White, Boston, and Joseph Sailer, Philadelphia; secretary, Dr. Frank Smithies, Chicago; treasurer, Dr. Clement R. Jones, Pittsburgh; recorder, Dr. Horace W. Soper, St. Louis, and Councilor, Dr. Walter A. Bastedo, New York City.

Advisory Medical Committee to Children's Bureau.—An advisory medical committee has been appointed to the Hygiene Division of the Children's Bureau, United States Department of Labor. It consists of three members, Dr. Julius Hess, Chicago, representing the Section on Diseases of Children of the American Medical Association; Dr. Richard Smith, Boston, representing the American Pediatric Society, and Dr. Howard Childs Carpenter, Philadelphia, representing the American Child Hygiene Association.

National Tuberculosis Association Elects Officers.—At the annual meeting of the National Tuberculosis Association, held at Atlantic City, N. J., June 15 and 16, the following officers, executive committee members and directors were elected: president, Dr. Victor C. Vaughan, Ann Arbor, Mich.; honorary vice presidents, Sir William Osler and George E. Bushnell, Col., M. C., U. S. Army; vice presidents, Dr. Gerald B. Webb, Colorado Springs, and John M. Glenn; secretary, Dr. Henry Barton Jacobs, Baltimore; treasurer, Henry B. Platt, New York City.

Bequests and Donations.—The following bequests and donations have recently been reported:

Dr. Steven Seymour memorial endowment fund, $100,000 for the endowment of hospital beds in memory of Dr. Steven Seymour of Chicago by the will of his daughter, Mrs. Katherine E. Brown.

Milliken Memorial Hospital, New Orleans, a donation of $5,000 by Dr. Theolon Quayle.

The Associated Jewish Charities, Chicago, a bequest of $50,000 by the will of Louis M. Stumer.

St. Luke's Hospital, South Bethlehem, Pa., $1,000; Allentown, Pa., Hospital, $4,000, by the will of Mr. Araminta A. Herman.

Conference of Women Physicians.—An international conference of women physicians is to be held at 600 Lexington Avenue, New York City, between the dates of September 15 and October 24, at which every medical woman in America and Canada is invited to be present. About thirty women physicians from foreign countries have already accepted invitations to be present. Belgium, China, Denmark, England, France, Holland, Italy, Norway, Scotland, Sweden and Switzerland will be among the countries represented. The hostess for the conference is the Social Morality Committee, National Board of Young Women's Christian Association, and the general purpose is to confer as to the attitude of social education along the lines of health and sex problems, together with the responsibilities related to them in foreign countries, and to discuss possibilities dealing with individual national problems.

The Education of Wounded Soldiers.—In a report issued from the Office of the Surgeon-General of the Army, July 8, it is stated that the staff supervising the work of educational service for the benefit of wounded soldiers at forty army hospitals totals 2,385 persons, consisting of 252 officers, 509 noncommissioned officers, 241 enlisted men, 1,274 reconstruction aids, 78 male and 31 female civilian employees. The largest staff was at Fort Sheridan, Ill., the number engaged in the work being 181. Walter Reed General Hospital at Washington, D. C., had the second largest staff—138. Of 2,524 patients receiving surgeon's certificate of discharge, 2,408 were able to resume their old occupations, or were not in need of retraining. Enrolments in war artcrafts increased from 18,829 in April to 20,641 in May. Those in war academic studies increased from 30,358 to 31,248. The grand total of students in all forms of education was 56,850.

Research Fund Appropriations.—Appropriations were made, June 26, from the Educational Research and Development Fund of the United States Interdepartmental Social Hygiene Board to the following institutions for the purpose of organizing or completing the organization within those institutions of departments of hygiene, the curriculums of which shall include "courses and conferences in informational hygiene, and courses, conferences and training in the applications of hygiene, emphasizing with appropriate and due proportion and proper tact and persistency the serious importance of the venereal diseases, their causes, carriers and prevention, and emphasizing at the same time the other important facts and applications of general hygiene, individual hygiene, group hygiene and intergroup hygiene":

Los Angeles, Calif., State Normal School; Natchitoches, La., Normal School; Maryland Normal and Industrial School (colored); Maryland State Normal School; Michigan State Normal School; Winona, Minn., Normal School; University of New Mexico; Valley City, N. D., Normal School; Reed College, Portland, Oregon; Bellingham, Wash., Normal School; University of Utah; Alcorn, Miss., A. & M. College (colored); Woman's Medical College of Pennsylvania; Harvard University; University of Missouri; Colorado State Teachers College; New York State Teachers College; Cornell University; University of South Carolina; Northwestern University; University of Pennsylvania; Cheney, Wash., State Normal School; Milwaukee, Wis., Normal School; Indiana University, Bloomington, Ind.; University of North Carolina.

An appropriation from this fund was made to a committee of psychologists under Dr. J. R. Watson of Johns Hopkins for

"the purpose of investigating the informational and educative effect on the public of certain motion picture films used in various campaigns for the control, repression and elimination of venereal disease."

Appropriations have been made to the following institutions from the Scientific Research Fund of the board for the purpose of discovering more effective medical measures in the prevention and treatment of venereal diseases:

1. Leland Stanford Junior University Medical School:

    "Investigation into more effective treatment in acute and chronic gonorrhea." Under the direction of Dr. R. L. Rigdon, Chief, G. U. Clinic, and Dr. A. S. Spaulding, Professor of Gynecology.

    "The permeability of the meninges to antisyphilitic drugs—an attempt to increase their permeability." Under the direction of Dr. H. C. Mehrtens, Professor of Neurology, and Dr. Thomas Addis, Director of the Laboratory.

    "Investigation into more effective methods of treating syphilis." Under the direction of Dr. H. Alderson, Associate Professor of Medicine.

2. University of Michigan College of Medicine and Surgery:

    "A research for an improved method of demonstrating the spirochaeta pallida in human tissues." Under the direction of Dr. A. S. Warthin, Director of Pathological Laboratory.

3. Johns Hopkins Medical School:

    "Development of new synthetic drugs for the treatment of gonorrhea." Under the direction of Dr. E. C. White, Experimental Chemist to Brady Urological Institute.

    "Manufacture and investigation of a series of new organic compounds in the treatment of syphilis." Under the direction of Dr. D. M. Davis.

    "Manufacture and investigation of a series of penetrating organic dyes in the treatment of chancroids." Under the direction of Dr. E. O. Swartz.

    "Experimental study of various methods of early treatment of venereal infection with the object of developing simpler technic, more efficient and less expensive drugs." Under the direction of Dr. William Jack.

4. University of Wisconsin Medical School:

    "An attempt to prepare mercurial and arsenical compounds which have a predilection for the central nervous system, in the hope of finding drugs more useful than any known in the treatment of syphilis of the central nervous system." Under the direction of Dr. A. S. Loevenhart, Director of Laboratory.

5. University of Nebraska College of Medicine:

    "(a) Investigation relative to the development of an internal urinary antiseptic."

    "(b) Investigation of the value of certain anilin dyes in the treatment of gonorrhea." Both under the direction of E. G. Davis, M.D., Director of Pathological Laboratory.

6. St. Louis University College of Medicine:

    "Studies in infection by gonococci." Under the direction of R. A. Kinsella, M.D., Director of the Department of Experimental Medicine.

7. Woman's Medical College of Pennsylvania:

    "A serological study of syphilis in pregnant women and new-born children with special reference to the efficacy of the accepted methods of syphilitic treatment." Under the direction of Bertha M. Meine, M.D., Director of Research Department.

8. Washington University School of Medicine:

    "The laboratory (biological) investigation of the latent syphilitic as a 'carrier'." Under the direction of Martin F. Engman, M.D., Professor of Dermatology.

    "A study of hereditary transmission of syphilis." Under the direction of P. C. Jeans, M.D., Instructor and Associate in Pediatrics, and Jean B. Cooke, M.D., Associate in Pediatrics.

9. Cornell University Medical College:

    "Serological study of the gonococcus group." Under the direction of John C. Torrey, Ph. D., Professor of Hygiene.

10. Jefferson Medical College of Philadelphia:

    "A series of studies for the recognition and diagnosis of spirocheta pallida in venereal diseases, and the effect of various drugs and materials as germicidal agents against spirocheta pallida." Under the direction of Randle C. Rosenberger, M.D., Professor of Hygiene and Bacteriology.

11. Yale University Medical School:
"Effect of anilin dyes, particularly Gentian Violet, on the gonococcus with reference to the growth of the organism in media containing the dye, and with reference to the effect on organisms in tissue (therapeutic effect)." Under the direction of J. M. Flint, M.D., and J. W. Churchman, M.D., Professors of Surgery.
"An intensive study of methods for the isolation and identification of the gonococcus with a view to the determination of the homogeneity or heterogeneity of strains and their etiological relationships." Under the direction of George H. Smith, M.D., Assistant Professor of Department of Pathology and Bacteriology.
"The demonstration of syphilitic nature of unusual lesions encountered at the postmortem table." Under the direction of M. C. Winternitz, M.D., Professor of Pathology and Bacteriology.

12. Union University Medical Department, Albany:
"For studies on the nature of the Wassermann reaction." Under the direction of Thomas Ordway, M.D., Dean and Associate Professor of Medicine.
"An attempt to produce generalized infection in lower animals with spirocheta pallida or with gonococcus." Under the direction of George S. Graham, M.D., Professor of Pathology, and W. M. Baldwin, M.D., Professor of Anatomy.

13. University of Minnesota Medical School:
"A study of the permeability of bacterial membranes, particularly the organisms of venereal disease." Under the direction of W. P. Larson, M.D., Chief, Department of Bacteriology and Immunology, and J. F. McClendon, Ph.D., Associate Professor of Physiology.
"Investigation of the chemical and physical properties of the cerebrospinal fluid in the luetic and nonluetic." Under the direction of L. G. Rowntree, M.D., Chief, Department of Medicine, and Charles E. Nixon, M.D., Instructor in Nervous and Mental Diseases.
"Investigation of phenol alcohol derivatives in relation to their antisepsis and chemotherapy of the gonococcus and spirochaete." Under the direction of A. B. Hirschfelder, M.D., Chief, Department of Pharmacology, and H. G. Irvine, M.D., Assistant Professor of Dermatology and Syphilis.

14. Harvard University Medical School:
"An investigation of the properties contributing to the toxicity of arsphenamine, neoarsphenamin and analogous products." Under the direction of Reid Hunt, M.D., Professor of Pharmacology.

FOREIGN

Red Cross Appropriations.—The American Red Cross has appropriated $65,000 to enable the American Women's Hospital Association to send a mobile hospital unit to Serbia for relief work in connection with typhus and other epidemics. Of this amount $25,000 is in cash and the balance in supplies.

Society Organized for the Study of Dietaries.—The *Policlinico* announces that the Società per lo studio della Alimentazione has been recently organized at Florence to study and coordinate research on questions of food for man and animals and to serve as a link between different fields of research and activity in this line. It is proposed to publish a journal and to have courses of lectures delivered to popularize normal standards for nutrition.

Serbia's Greatest Needs.—The death rate from tuberculosis in Serbia during the German occupation amounted to 1,453 per hundred thousand of population. There was also an alarming increase in infant mortality, typhus and influenza. In order to remedy this condition Col. Homer Folks of the Red Cross, who has recently made an exhaustive survey of the Balkan States, recommends the following necessities for Serbia: money, trained medical workers, health officers, medicines, hospitals, clinics, dispensaries, trained nurses, organized public health agencies, district health nurses, and educational campaigns for combating the usual epidemics of typhus and influenza, and the always present diseases of tuberculosis and scarlet fever.

Tribute to Golgi.—Having reached the age limit of 75, Camillo Golgi retires from the chair of general pathology and histology at the University of Pavia, but he still retains charge of the institute connected therewith where he has been uninterruptedly at work for almost fifty years. A scholarship has been founded in his honor by his friends and pupils, the scholarship to be given to the orphan of some physician killed during the war. At an imposing ceremony he was presented likewise with a gold medal and souvenir album signed by the citizens of Pavia, with other honors. His discovery of the stain which first revealed the finer structure of the nervous system was made during his service in a small hospital at Abbiategrasso, remote from the centers of learning. The Nobel prize in medicine in 1906 was divided between Golgi and Ramon Cajal. Golgi is a senator and is of course an honorary member of many neurologic and other scientific societies at home and abroad.

Memorial Hospital in London.—At an organized meeting held at the House of the Royal Society of Medicine, July 17, and presided over by Lord Redding, chief Justice of England, plans were discussed for the American Memorial Hospital to be erected in London at a cost of about ten million dollars. The purpose of the hospital is outlined in the following resolution: "That in commemoration of the cooperation of the medical men of the United States and of Great Britain during the European War, and to strengthen the friendship between the two nations, the American Hospital for Great Britain be, and is hereby founded for medical and surgical treatment of all classes, irrespective of creed, or nationality and for the promotion of scientific study and research." The following have been elected members of the American Medical Committee of the hospital: Drs. Albert J. Ochsner and Franklin H. Martin, Chicago, William J. and Charles H. Mayo, Rochester, Minn., and Rudolph Matas, New Orleans. Ambassador Davis heads the government council of the hospital, and the members chosen for the medical committee in Great Britain include Sir William Osler, Sir Arbuthnot Lane, Sir Humphrey Rolleston, and Sir John Bland Sutton.

LATIN AMERICA

Personal.—Dr. Ricardo Mesa Torres of Taltal, Chile, has just returned to his country after spending several months in the United States obtaining information in regard to medical and public health matters.

Sanitation in Uruguay.—At the suggestion of the secretary of public works, the government has decided to appoint a commission composed of physicians and engineers in order to study and report on the plans for sanitary works in various towns located in the interior of the country.

MEXICO LETTER

Mexico, July 21, 1919.

Yellow Fever Quarantine Still in Force

No new cases of yellow fever have been reported either in Yucatan or in the neighboring states. The port of Progreso has been dropped from the schedule of some of the steamboat companies to avoid the troubles caused by the existing quarantine. Although the Yucatan authorities are urging the raising of the quarantine on account of the losses suffered by the state, the department of public health has not granted as yet this demand.

Repeal of the Prohibition Penalty

The governor of Sonora has repealed the decree he had issued providing the death penalty for those dealing in alcohol.

Trade in Opium

A well organized corporation, the object of which was to smuggle into the United States large quantities of opium, has been discovered. It seems that this smuggling has been going on very smoothly for several years and that the opium received from China and stored in Mexico since before the war was reshipped to the United States in the form of a fluidextract called by the dealers "cooked opium," which was put in cans and sent through the custom houses as castor oil.

Malaria in the Army

It is reported that malaria is prevailing to an alarming extent among the troops on field duty in the zone north of Vera Cruz, in the neighborhood of the port of Tampico. The war department will take necessary measures to control the disease or at least to diminish its prevalence.

A Gift from Viscount Cowdray

Mr. David Muirhead, president of the British Society of Mexico, has received from Viscount Cowdray, the former Sir Wetman D. Pearson, a cablegram from London stating that Lord Cowdray and his wife have decided to give 1,000,000 pesos (about $500,000) for the construction, equipment and maintenance of the new "Hospital Cowdray" to be founded in Mexico. Viscount Cowdray is one of the oldest oil men of Mexico.

Prize for the Discovery of Typhus Germ

The newspaper *El Universal* has just offered a prize for the discovery of the germ that causes tabardillo (typhus fever). The person who in the opinion of the National Academy of Medicine achieves this will receive $25,000, the amount offered by Felix Palavicini, the manager of *El Uni-*

versal. Mr. Palavicini has long been a promoter of noble endeavors. When secretary of public education he sent all medical quacks before the courts of justice. As a journalist he was a warm friend of the Allies. At present he is an earnest advocate of closer relations between Mexico and the United States and every week is devoting a certain space in his journal to scientific medicine. The conditions governing the contest relative to the discovery of the typhus germ will be approved by the Academy of Medicine before they are published.

Personal

Dr. Ernesto Cervera has been admitted as a member of the section of bacteriology of the Academy of Medicine after the thesis on hemolytic streptococci presented by him was approved by the section. Dr. Cervera is a professor in the school of medicine. He completed his studies in the Pasteur Institute of Paris.

Deaths

Edward Cowles ⊕ Plymouth, Mass.; Dartmouth Medical School, Hanover, Mass., 1863; College of Physicians and Surgeons in the City of New York, 1863; aged 82; captain and assistant surgeon, U. S. Army, from 1863 to 1872; resident physician and superintendent, Boston City Hospital, from 1870 to 1879; medical superintendent, McLean Hospital, Waverly, Mass., from 1879 to 1893; professor of mental diseases in Dartmouth Medical School from 1885 to 1914 and thereafter emeritus professor; instructor in mental diseases in Harvard Medical School from 1889 to 1914; trustee from 1890 to 1908 and nonresident lecturer on mental diseases at Clark University, Worcester, Mass., since 1904; one of the best known alienists of New England; author of many monographs on hospital construction, training of nurses and mental diseases; died at his home, July 25.

Malcolm McKinnon, Sandpoint, Idaho; Trinity Medical College, Toronto, Ont., 1895; aged 52; president of the Bonner County Medical Society in 1917; formerly surgeon to the Fosston (Minn.) Hospital; commissioned captain, M. C., U. S. Army, Nov. 8, 1918, and on duty at Camp Funston, Kan., and honorably discharged, Dec. 5, 1918; was instantly killed in an automobile accident near Baker City, Ore., recently.

Julius Francis Henkel, Detroit; Detroit College of Medicine and Surgery, 1896; aged 46; appointed lieutenant-colonel and chief surgeon of the Michigan National Guard, 1905; who had been in the military service since 1891, and in 1907 was elected president of the Detroit Light Infantry; a member of the Association of Military Surgeons of the United States; died at his home, July 22.

Isaac H. Cadwallader ⊕ St. Louis; Rush Medical College, 1875; aged 68; lecturer on materia medica and therapeutics in the Woman's Medical College for three years; a member of the staff of the Missouri Baptist Sanitarium since 1891, and physician in charge since 1900; died suddenly at his summer home at Arthur's Point, Minn., July 22, from cerebral hemorrhage.

Daniel Arnold Babcock, Fall River, Mass.; New York Homeopathic Medical College, New York City, 1874; aged 66; a member of the staff and secretary of the advisory board of the Union Hospital, Fall River; died in Boston, May 25, from cerebral hemorrhage.

George R. Pogue, Greeley, Colo.; Detroit College of Medicine and Surgery, 1892; aged 58; formerly of Grand Rapids, Mich.; a member of the Colorado State Medical Society; died at the Woodcroft Hospital, Pueblo, Colo., July 8.

Frederick William Koehler, Buffalo; University of Buffalo, N. Y., 1889; aged 52; a member of the Medical Society of the State of New York; medical inspector of the Buffalo Department of Health; died at his home, about July 18.

Andy Jackson Stewart ⊕ Provo, Utah; College of Physicians and Surgeons, Baltimore, 1904; aged 46; a specialist on diseases of the eye, ear, nose and throat; died at his home, May 25, from pneumonia.

Daniel Malloy Prince, Laurinburg, N. C.; Medical College of the State of South Carolina, Charleston, 1871; aged 71; a member of the Medical Society of the State of North Carolina; died at his home, July 16.

Melanchthon Marion Ritchie, Harrisburg, Pa.; Jefferson Medical College, 1874; aged 69; a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; died at his home, July 20.

Charles Conrad Abbott, Bristol, Pa.; University of Pennsylvania, Philadelphia, 1865; aged 76; a well known authority on animal and plant life in the United States; died at his home, July 29, from nephritis.

Louis Gally Wogan, New Orleans; Tulane University, New Orleans, 1903; aged 40; a member of the Louisiana State Medical Association; died in New Orleans, June 7, from pulmonary tuberculosis.

Thomas J. Brown, Winston-Salem, N. C.; Leonard Medical School, Raleigh, 1914; aged 32; a colored practitioner; also a pharmacist; died at his home, July 1, from septicemia, due to an infected wound.

William Albert Ross, Barrie, Ont.; Victoria University, Coburg, Ont., 1882; L.R.C.S. (Edin.) 1884; L.R.C.P. and S. (Lond.), 1885; aged 57; died at his home, May 15, from pernicious anemia.

William H. Becher, North Industry, Ohio (licensed, Ohio, 1896); aged 70; a member of the Ohio State Medical Association; a practitioner for fifty years; died at his home, July 16.

George W. Westbrook ⊕ Ila, Ga.; Atlanta (Ga.) Medical College, 1889; aged 53; president of the Ila Bank; died at his home, July 19, from cerebral hemorrhage.

Fred Bayard Lyon ⊕ Wichita, Kan.; Northwestern University Medical School, Chicago, 1903; aged 39; died at his home, July 20, from heart disease.

Josef Israel Manson ⊕ San Francisco; University of Syracuse, N. Y., 1897; aged 49; died at Brockway, Lake Tahoe, Calif., July 28.

John Louis Irwin, Chicago; McGill University, Montreal, 1879; aged 59; died at his home in Maywood, Ill., July 31, from heart disease.

Thomas Howell White, Yonkers, N. Y.; Yale University Medical School, New Haven, Conn., 1862; aged 80; died at his home, July 21.

Alphonse Lanoue, Ghent, Minn.; Laval University, Montreal, 1902; aged 49; died at the home of his niece in Holyoke, Mass., July 15.

Sumner G. Berry, Ashley, Ill.; Kentucky School of Medicine, Louisville, 1888; aged 52; died at his home, May 27, from accident.

William S. Clarke, Litchfield, Ky.; University of Louisville, Ky., 1886; aged 67; died at his home, May 20, from nephritis.

Frank H. Good, Reading, Pa.; University of Pennsylvania, Philadelphia, 1878; aged 64; died in the Reading Hospital, July 26.

Frederick William Weber, Baltimore; Baltimore University School of Medicine, 1888; aged 69; died at his home, July 22.

John W. Hobart, Richmond, Va.; Boston University, 1875; aged 80; died at his home, May 3, from cerebral hemorrhage.

David Cary, Fort Wayne, Ind.; aged 79; a practitioner for forty-two years; died at his home, July 9, from senile debility.

Walter B. Cowan ⊕ Dialville, Texas; Barnes Medical College, St. Louis, 1897; aged 47; died at his home, July 23.

John Wesley Monjar, Seneca, Pa.; Baltimore Medical College, 1899; aged 53; died at his home, July 9.

Marriages

Ralph de Ballard Clarke, Lieut., M. C., U. S. N. R. F., West Haven, Conn., to Miss Lucy Emeline French of Winter Hill, Mass., June 28

Frank Oscar Brunckhorst, Capt., M. C., U. S. Army, Hortonville, Wis., to Miss Amelia M. Rohrbeck of Wyocena, Wis., June 12.

Henry Franklin Schantz, Reading, Pa., to Miss Irene G. Clark of Niagara Falls, N. Y., at Reading, July 23.

John Thomas Perry, Greenwood, Ark., to Miss Edith Louise McCullough of Fayetteville, Ark., July 17.

Henry W. Edwards to Miss Audrey Simpson, both of Los Angeles, at Pico Heights, Los Angeles, July 14.

Charles E. Goodman, Virginia, Minn., to Miss Esther Gomberg of Duluth, Minn., at Detroit, July 18.

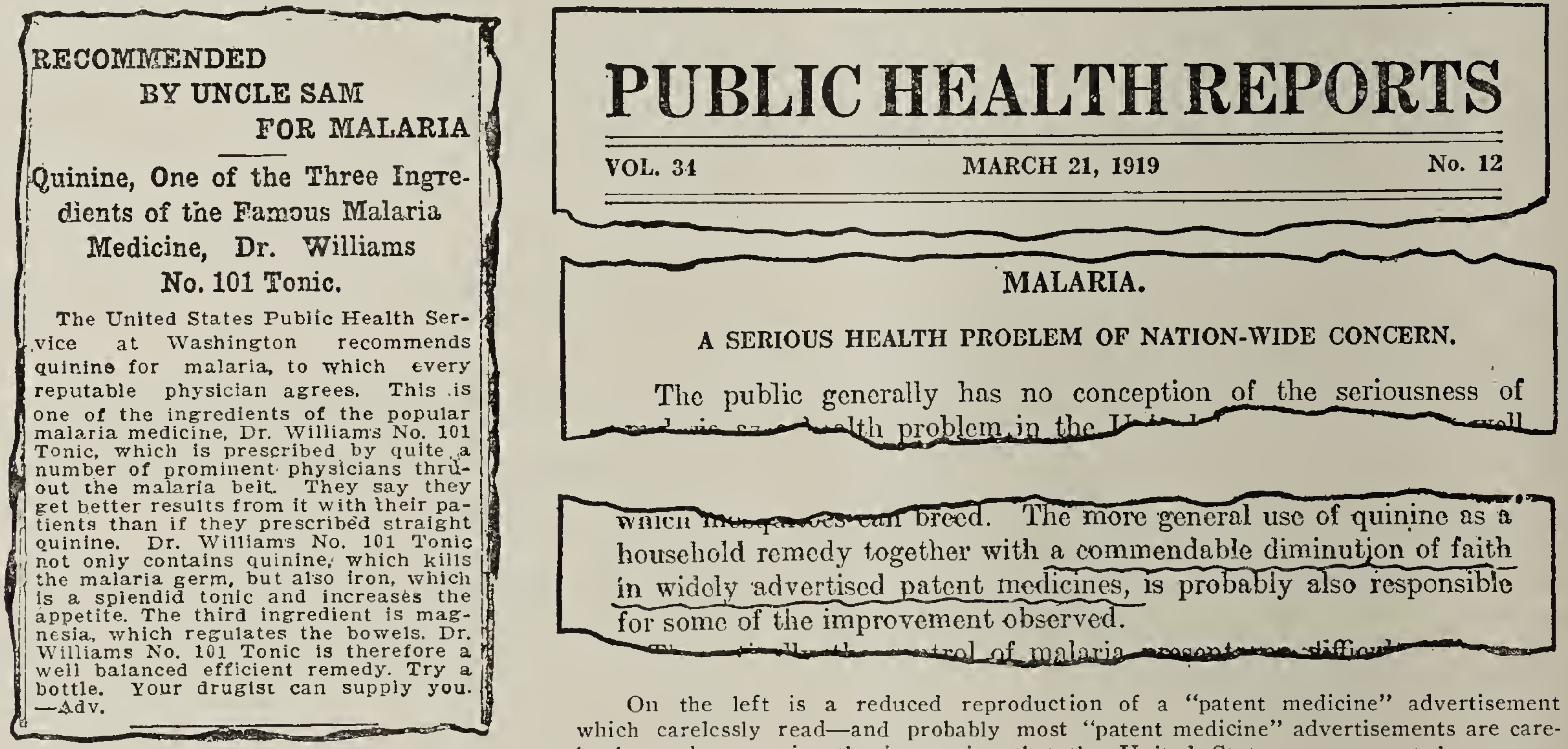
⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

RESTORIA

"Restoria for Bad Blood" is sold by the Restoria Chemical Company of Kansas City, Mo. The label declares the presence of "alcohol, 34 per cent."—an admission that is required by the Food and Drugs Act. Restoria is sold as a sure cure for syphilis. It is "the Miracle Medicine," "the Medicine of Last Resort," it is "Safer—Surer—Cheaper than the Serum Treatments," it contains "no mercury—no arsenic, ask the druggist." No information, of course, is given as to what Restoria contains, except the information that the law demands. It is said to be "of French origin, and has been known and prescribed throughout Continental Europe for more than fifty years."



RECOMMENDED
BY UNCLE SAM
FOR MALARIA

Quinine, One of the Three Ingredients of the Famous Malaria Medicine, Dr. Williams No. 101 Tonic.

The United States Public Health Service at Washington recommends quinine for malaria, to which every reputable physician agrees. This is one of the ingredients of the popular malaria medicine, Dr. Williams No. 101 Tonic, which is prescribed by quite a number of prominent physicians thru-out the malaria belt. They say they get better results from it with their patients than if they prescribed straight quinine. Dr. Williams No. 101 Tonic not only contains quinine, which kills the malaria germ, but also iron, which is a splendid tonic and increases the appetite. The third ingredient is magnesia, which regulates the bowels. Dr. Williams No. 101 Tonic is therefore a well balanced efficient remedy. Try a bottle. Your drugist can supply you. —Adv.

PUBLIC HEALTH REPORTS

VOL. 34 MARCH 21, 1919 No. 12

MALARIA.

A SERIOUS HEALTH PROBLEM OF NATION-WIDE CONCERN.

The public generally has no conception of the seriousness of

which [illegible] breed. The more general use of quinine as a household remedy together with a commendable diminution of faith in widely advertised patent medicines, is probably also responsible for some of the improvement observed.

On the left is a reduced reproduction of a "patent medicine" advertisement which carelessly read—and probably most "patent medicine" advertisements are carelessly read—may give the impression that the United States government has recommended "Dr. Williams No. 101 Tonic." As will be seen by the reduced reproduction on the right, what the United States Public Health Service has said about the use of quinin in the treatment of malaria, was supplemented by the statement that the "diminution of faith in widely advertised patent medicines" was doubtless responsible for the fewer cases of malaria today. The advertiser of "Dr. Williams No. 101 Tonic" apparently overlooked the latter statement.

While Restoria is recommended for rheumatism, kidney trouble, lumbago, eczema, and the omnipresent "catarrh," it is especially and particularly featured for syphilis or "blood poison." Here are some of the things the booklet has to say regarding syphilis and its treatment with Restoria and by other means:

> "Restoria goes to the seat of the disease. It cleanses the Blood, as it were, eradicating from it every trace of the Syphilitic virus."
>
> "One month of Restoria treatment may be equal to the services of the most eminent specialist, for whose skill you would be required to pay hundreds of dollars."
>
> ". . . to the average doctor this dreadful malady [syphilis] is only a name, and the patient is looked upon as a horrible example, on whom he (the doctor) may practice and profit while he prescribes."
>
> "The average physician is utterly incapable of handling this dreadful malady. He lacks the experience, but he will not tell you so. He will assume a knowledge he does not possess. He will do the best he can for you. He will fill you with mercury or arsenic, perhaps, and make a helpless wreck of you in time; and all the while charge you all the fee he can get."
>
> "The unfortunate Syphilitic is considered common prey, and any physician is justified in trying anything on him, and charging three prices for the service."

Restoria was first brought to the attention of The Journal in November, 1917, by a letter from the Council of National Defense, written by the chairman of the Subcommittee for Civil Cooperation in Combating Venereal Diseases. The letter stated that the Restoria concern had had the effrontery to write to the Venereal Disease Committee of the Council of National Defense, asking for a recommendation of Restoria! More than a year later—in April, 1919—a physician informed The Journal that there was an effort to finance Restoria, and samples had been sent to him at the request of a friend who had been invited to take some of the stock.

An unopened, original bottle of Restoria was submitted to the A. M. A. Chemical Laboratory, and tests were made to determine the presence or absence of mercury, arsenic or iodids. The chemist's report may be summarized thus:

> Restoria contains no mercury or arsenic, but does contain iodid, probably potassium iodid, and calculated to potassium iodid corresponding to 1.693 grams in 100 c.c. It also contains much vegetable extractive, some alkaloidal drug, and a bitter oil or oleo resin.

Correspondence

DRAINAGE AFTER CHOLECYSTECTOMY

To the Editor:—A very recent personal experience with a cholecystectomy and choledochotomy followed by T tube drainage of the common duct leads me to make some comments on the experience for the benefit of those practicing this procedure.

The most annoying symptoms following the operation, aside from the pain produced by coughing, sneezing and the like, were those referred to the stomach. These symptoms were similar to those experienced at intervals for years prior to the operation, and consisted of an almost continuous nausea accompanied by a terrific burning in the epigastrium. After a time vomiting would occur followed by a period of relief of the burning and nausea; but the act itself, which was resisted as long as possible, was accompanied by excruciating pain in the wound, and the muscular effort involved was sufficient to break one of the silkworm-gut stitches.

It was found that a quarter grain of morphin would give relief from these symptoms long enough to allow of several hours' rest and the ability to take some food once in the twenty-four hours, so that for two weeks, the length of time the tube was allowed to remain, my daily diet consisted of a piece of toast and coffee. This resulted in the loss of 20 pounds in weight in the two weeks.

The withdrawal of the drainage from the bed of the gallbladder and the tube from the common duct was followed by the immediate relief of these symptoms and rendered the morphin unnecessary. The bowel end of the T tube was found occluded by a stone on its withdrawal, which accounted for the clay-colored stools and the large biliary drainage from the wound. This fact demonstrates the etiologic relationship between the stomach symptoms and the presence of foreign bodies in the gallbladder or common duct or the absence of bile from the intestine, or both.

I have been led to wonder why a tube is ever placed in the common duct. As George Crile said in a discussion of this subject before the Chicago Surgical Society, "Why drain a drain?" If the common duct is patent, the tube is not needed because it makes little difference whether pus or toxic material is drained into the bowel or outside the abdomen. It does no harm in the bowel. If the common duct is not patent, it must be made so before the operation is completed and the tube again is not needed. Then, too, the presence of the tube in the duct is not unproductive of harm. If it fits too tight it may cause necrosis of its walls. It is an invitation to the deposition of cholesterin and bile salts; and, lastly, it is the cause of distressing nausea, and vomiting and pyrosis, which militate against the patient's recovery.

It is in the hope that others who are obliged to undergo this operation may have a more satisfactory convalescence that this personal experience is related.

Budd Van Sweringen, M.D., Fort Wayne, Ind.

THE PRODUCTION OF SHOCK

To the Editor:—In The Journal, July 19, 1919, p. 178, Cannon makes the statement in a footnote that "Meltzer (*Penn. M. J.* **22**:129 [Dec.] 1918) has stated that I became 'converted to the theory that the most essential factor in the production of shock is acidosis.' I have never published the idea that there was in the acidosis of shock a primary cause for the low pressure." This is literally true. Cannon has nowhere stated in clear words that he is of the opinion that, in shock, acidosis is the primary cause for the low pressure. But one comes to such a conclusion from various statements which Cannon made in his article on "Acidosis in Cases of Shock, Hemorrhage and Gas Infection" (The Journal, Feb. 23, 1918, p. 531). On page 532 there is the statement: "From the evidence presented above, the conclusion is warranted . . . that as a general rule the lower the pressure the lower the [alkali] reserve. . . . Cases of blood pressure due to shock . . . have a diminished supply of alkali in the blood. As a general rule, the lower the pressure, the more marked the acidosis. . . . Shocked men . . . can be quickly relieved of their distress by intravenous injection of a solution of sodium bicarbonate." Page 615: "There is evidence that acid or change in the blood in the direction of acidity may have depressive effects on the blood pressure." Page 616: "As acid develops in tissues poorly supplied with oxygen, the blood vessels locally affected by these acids may reasonably be expected . . . to undergo relaxation." I was especially impressed by a statement of Bayliss (*J. Physiol.*, **52,** Proc. Physiol. Soc., xviii): "These recent experiments have led me to modify the point of view which experiments previously done in conjunction with Captain Cannon had inclined me to take. They compel me to look on acidosis and its treatment as of secondary importance." This statement implies that Bayliss entertained previously the view that acidosis is the primary cause of the low blood pressure in shock, a view which was formed on the basis of experiments which he carried out together with Cannon. It did not occur to me that two such authors as Bayliss and Cannon, working together, would entertain at the time of their work a different notion as to the primary cause of acidosis and both should nevertheless recommend the intravenous injection of sodium bicarbonate for the treatment of shock. My term that Cannon became *converted* was used because I believe that Wright was the first one to recommend the use of sodium bicarbonate.

I did not discuss the correctness of certain theories of shock. It was, as I stated, "an appeal to physiologists . . . to adhere firmly to the careful, critical methods which they are in the habit of employing in their physiologic researches, even if by doing so, as a consequence, the actual yield to medicine may be slow and, perhaps, even small." That appeal was, and still is, well founded.

S. J. Meltzer, M.D., New York.

[Note.—The letter of Dr. Meltzer was referred to Dr. Cannon, who replies:]

To the Editor:—From an investigator's statement of facts to draw a conclusion which he did not, then to attribute to him that conclusion, and finally to criticize him for drawing the conclusion seems to me not a good example of adhering to "careful, critical methods." I quite agree that Dr. Meltzer's appeal was, and still is, well founded.

W. B. Cannon, M.D., Boston.

TEETH FORMATION IN EPILEPSY

To the Editor:—I would like to ask through The Journal, if any physicians have observed a condition which I have found in the mouths of epileptics and also those mentally weak? Having had the privilege, for several years, of seeing the roentgenograms of the teeth of these individuals, I have found that in most cases the apexes of the teeth, if fully formed, were blunted to a marked degree, and in some there was only partial root development.

I make this inquiry, thinking that it may lead to further investigation by others better equipped.

George B. McClintock, D.D.S., Cincinnati.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TONSILS AS FOCI OF INFECTION

To the Editor:—Kindly advise me where I can get literature on diseased tonsils and their relation to other constitutional conditions.

Austin M. Grove, York, Pa.

Answer.—The following references may be consulted:

Hemolytic Streptococci and the Tonsils, editorial, The Journal, May 3, 1919, p. 1295.
Davis, J. L.: Diseased Faucial Tonsils, Their Toxic, Infectious and Reflex Effects, *Ann. Otol., Rhinol. & Laryngol.* **27**: 1265 (Dec.) 1918.
Nichols, T. J., and Bryan, J. H.: Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers, The Journal, Nov. 16, 1918, p. 1813.
Hammond, R.: Diseased Teeth and Tonsils as Causative Factors in Arthritis, *Am. J. M. Sc.* **156**: 541 (Oct.) 1918.
Moore, J. J.: Chronic Tonsil Infections, *J. Lab. & Clin. Med.* **3**: 283 (Feb.) 1918.
Harris, H. B.: Constitutional Conditions Resulting from Tonsil Infections, *Ohio State M. J.* **13**: 235 (April) 1917.
Crowe, J.; Watkins, S. S., and Rothholz, A. S.: Tonsil Infections and General Systemic Disorders, *Bull. Johns Hopkins Hosp.* **28**: 1 (Jan.) 1917.
Billings, Frank: Focal Infections, New York, D. Appleton & Co., 1917; Mouth Infection as a Source of Systemic Disease, The Journal, Dec. 5, 1914, p. 2024; Focal Infection: Its Broader Application in Etiology of General Disease, ibid., Sept. 12, 1914, p. 899; Chronic Focal Infection as a Causative Factor in Chronic Arthritis, ibid., Sept. 13, 1913, p. 819.
Rosenow, E. C.: Mouth Infection as a Source of Systemic Disease, The Journal, Dec. 5, 1914, p. 2026.
Mayo, C. H.: Mouth Infection as a Source of Systemic Disease, The Journal, Dec. 5, 1914, p. 2025.
Smith, A. J.; Middleton, W. S., and Barrett, M. T.: Tonsils as a Habitat of Oral Endamebas, The Journal, Nov. 14, 1914, p. 1746.
Wilson, N. L.: The Faucial Tonsils as a Gateway to General Infections, The Journal, Nov. 7, 1914, p. 1638.
Beck, J. C.: Chronic Focal Infection of Nose, Throat, Mouth and Ear, The Journal, Nov. 7, 1914, p. 1636.
Rosenow, E. C.: Etiology of Arthritis Deformans, The Journal, April 11, 1914, p. 1146.
Ingals, E. F.: What Relation, If Any, Have the Faucial Tonsils to Pulmonary Tuberculosis? The Journal, July 12, 1913, p. 113.

SKIN INK FOR OPERATIVE WORK

To the Editor:—Please publish a formula for a skin ink to be used in operative work, which will not be removed by water, alcohol, ether or benzin.

L. N., New York.

Answer.—N. S. Finzi (*Brit. M. J.* **1**:52 [Jan. 12] 1918; abst. The Journal, Feb. 23, 1918, p. 573) uses a 5 per cent. pyrogallol and 2 per cent. iron solution, made as follows: pyrogallic acid, 1 gm.; denatured alcohol, 10 c.c.; solution of ferric chlorid, 2 c.c., and acetone, sufficient to make 20 c.c. This solution is kept in a bottle with a camel's hair brush attached to the cork. The mark on the skin is brownish gray at first, but after a few hours it turns a brilliant black.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.

Hawaii: Honolulu, Sept. 9-11. Sec., Dr. J. R. Judd, Honolulu, Hawaii.

Illinois: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.

Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.

Massachusetts: Boston, Sept. 9-11. Sec., Dr. Walter P. Bowers, State House, Boston, Mass.

New Hampshire: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.

New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.

Georgia March Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports the written examination held at Atlanta, March 4-5, 1919. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Twenty-six candidates were examined, all of whom passed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Emory University	(1919)	85.4, 86.2, 86.8, 87.4, 87.4, 87.5, 87.9, 88.1, 88.2, 88.3, 88.3, 88.5, 89.2, 89.2, 89.5, 89.5, 89.8, 90.3, 90.8, 91.1, 91.5, 91.6, 91.8, 92.1, 92.7.
Columbia University	(1918)	95.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Medical College of Alabama	(1885)	Mississippi
Georgia College of Eclec. Med. and Surg.	(1914)	Missouri
University of Louisville	(1909), (1915)	Kentucky
Baltimore Medical College	(1896)	New Jersey
University of Maryland	(1915)	Maryland
University of Pennsylvania	(1892)	Texas
Meharry Medical College	(1917), Missouri; (1918, 3)	Tennessee
University of Nashville	(1908)	Alabama
Vanderbilt University	(1917)	Tennessee

Indiana February Examination

Dr. William T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, Feb. 26-28, 1919. The examination covered 16 subjects and included 100 questions. An average of 75 per cent. was required to pass. Thirty-seven candidates, including three osteopaths, were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Indiana University	(1919)	85.3, 86.7, 87.4, 87.7, 88.3, 88.5, 88.6, 88.7, 89.2, 89.3, 89.6, 89.6, 89.7, 89.9, 90, 90.1, 90.1, 90.6, 90.6, 90.9, 91, 91.4, 91.7, 91.7, 91.7, 92, 92.1, 92.3.
Johns Hopkins University	(1916)	86.9, 91.8
Harvard University	(1918)	87.1
Dartmouth Medical School	(1904)	84.5
Meharry Medical College	(1914)	80.3
National University, Athens	(1884)	77.1

Dr. Gott also reports that 26 candidates, including 2 osteopaths, were licensed through reciprocity, from Aug. 1, 1918, to April 17, 1919. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1913), (1914)	Illinois
Illinois Medical College	(1908)	Illinois
Loyola University	(1917)	Illinois
Rush Medical College	(1887)	Illinois
Indiana University	(1909)	Texas
Hospital College of Medicine, Louisville	(1906)	Kentucky
Louisville National Medical College	(1910)	Tennessee
University of Louisville	(1875) Illinois, (1916) Wisconsin, (1917)	Kentucky.
University of Michigan Homeopathic School	(1908)	Michigan
Eclectic Medical Institute	(1909)	Ohio
Medical College of Ohio	(1886)	Ohio
Pulte Medical College	(1880)	Illinois
University of Oklahoma	(1912)	Oklahoma
Jefferson Medical College	(1909)	Ohio
Meharry Medical College	(1906) Kansas, (1915)	Georgia
University of Nashville	(1888)	*Mississippi
Vanderbilt University	(1893)	Kentucky
National University, Athens	(1895)	Illinois

* There is no record of this candidate's ever having a Mississippi license.

Iowa March Examination

Mr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, March 24-26, 1919. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Fifty candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1917)	89.8
Rush Medical College	(1917)	90.1, 93.5
University of Illinois	(1919)	94, 90.5
State University of Iowa College of Medicine	(1919)	81.8, 85.2, 85.2, 86.7, 87.1, 87.3, 87.5, 87.6, 88.1, 88.2, 89, 89.1, 89.3, 89.5, 89.5, 89.5, 89.8, 90.1, 90.1, 90.2, 90.5, 90.5, 90.7, 90.7, 90.8, 91.1, 91.3, 91.3, 91.5, 91.6, 91.6, 91.8, 91.8, 91.8, 92.1, 92.5, 92.6, 92.6, 93.2, 93.7, 93.8, 93.8, 94.8.
University and Bellevue Hospital Medical College	(1903)	83.5
University of Pennsylvania	(1917)	88.6

The following candidates were licensed through reciprocity, April 29, 1919:

College	Year Grad.	Reciprocity with
American College of Medicne and Surgery	(1905)	Illinois
Chicago College of Medicine and Surgery	(1910)	Illinois
Illinois Medical College	(1908)	Illinois
Rush Med. Coll.	(1888) Missouri, (1915) Illinois, (1916, 2)	Illinois
University of Kansas	(1913)	Kansas
Johns Hopkins University	(1905)	Illinois
Tufts College Medical School	(1912)	Maine
St. Louis Medical College	(1880)	Missouri
St. Louis University School of Medicine	(1917) Missouri, (1915)	Missouri.
Univer. Med. Coll. of Kansas City	(1892) Nebraska, (1910)	Kansas
John A. Creighton Med. College	(1901), (1916), (1913)	Nebraska
University of Nebraska	(1916)	Nebraska
Eclectic Medical College, Cincinnati	(1916)	Nebraska
Ohio Medical University	(1902)	N. Dakota

Oklahoma April Examination

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 8-9, 1919. The examination covered 11 subjects and included 110 questions. An average of 60 per cent. was required to pass. Five candidates, including 1 osteopath, were examined and passed. Twenty-six candidates, including 3 osteopaths, were licensed through reciprocity, and 12 candidates were granted reregistration licenses. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1910)	78
Chicago College of Medicine and Surgery	(1917)	70
University of Illinois	(1919)	87
Boston University	(1919)	86

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Little Rock	(1910)	Arkansas
Southern College of Medicine and Surgery	(1913)	Georgia
Bennett Medical College	(1910)	Indiana
Rush Medical College	(1906) Missouri; (1914)	Missouri
Keokuk Medical College	(1896)	Kansas
State University of Iowa College of Medicine	(1912)	Iowa
Louisville Medical College	(1889)	Texas
University of Louisville	(1901) Kansas; (1915)	Kentucky
University of Michigan Medical School	(1906)	Michigan
Barnes Medical College	(1900)	Texas
Medico-Chirurgical College of Kansas City	(1904)	Kansas
St. Louis College of Physicians and Surgeons	(1910)	Iowa
St. Louis University	(1916), (1917)	Missouri
Lincoln Memorial University	(1909)	Tennessee
Meharry Medical College	(1917) Tennessee; (1918)	Georgia
Memphis Hospital Medical College	(1903)	Arkansas
Tennessce Medical College	(1901)	Kentucky
University of the South	(1898)	Texas
Vanderbilt University	(1880)	Tennessee

Book Notices

Traitement des Psychonévroses de Guerre. Par G. Roussy, Agrégé à la Faculté de Paris, J. Boisseau, Ancien Interne des Hôpitaux, et M. d'Œlsnitz, Ancien Interne des Hôpitaux. Paper. Price, 4 francs. Pp. 191, with illustrations. Paris: Masson et Cie, 1918.

This small volume is really a sequence to "Psychonevroses de Guerre" by Roussy and Lhermitte, in which the general principles of treatment were considered. In the meantime, Roussy, Boisseau and D'Œlsnitz, having had exceptional opportunities for the study and treatment of war neuroses, have accumulated a number of conceptions and convictions concerning these disorders. Their ideas are embraced in the present work. The authors very pertinently remark that the analytic study of therapeutic results, especially of the mode of disappearance of a nervous disorder, naturally helps one to understand the mechanism of inception and the evolution of such disorder.

As most French authors are fairly well agreed as to the ordinary types of neuroses, their nature and treatment, the authors of the present volume have devoted especial study to the type of trouble specially emphasized by Babinski and Froment, called by them "physiopathic" or of "reflex nature." Babinski and Froment maintain that these cases are not purely functional and that they cannot be shown to be organic in the ordinary acceptance of the term. With the conclusions of Babinski and Froment the authors of this work take positive issue. They believe that such cases are essentially psychopathic or psychogenic, and that such circulatory and trophic abnormalities as may be present are purely secondary. For instance, in an old case of hysterical paralysis with contracture, there is the paralysis and contracture which can be rapidly removed by appropriate psychotherapy and which disappeared during general anesthesia. But there have been in the course of time added to the functional disorder changes in the joint similar to those found after fracture when the extremity has been too long immobilized. These changes, of course, do not disappear under general anesthesia and are only gradually removed by physiotherapy.

In Chapter I there are brief descriptions of the multitudinous types of disability, types which sometimes depend on the particular anatomy and physiology of the joint involved. Chapter II is devoted to the steps of birth and fixation of a neurosis, without any profound psychologic analysis, and Chapter III to practical prophylaxis in the army.

With Chapter IV we reach the details of treatment. The authors divide their procedure into: (1) preparation; (2) relief from the motor trouble ("unhooking," detachment, uncoupling); (3) fixation (of the result obtained), and (4) training, medical and military. Of these they think the first perhaps the most important. The object is to procure the proper mental attitude. This is begun by an intelligent and detailed examination. Then the patient is informed that he is curable and is going to be cured. Next he is placed in bed under proper influences. These embrace encouraging, explanatory and sympathetic but authoritative talks by a competent physician; talks with and letters from comrades who have been cured; stories by the nurses of brilliant successes; the placing of a patient with an inveterate case in a ward of men convalescent from similar trouble, etc. Not until the patient has reached "phychic maturity" is the next step taken. And the authors insist that the physician must also be ready—in good form; for the next move involves a mental contest between patient and physician from which the latter must emerge victor. Occasionally, if the preparation has been imperfect, the struggle may last two or three or four hours; but the physician is not to desist until his result is attained. Details of the physician's armamentorium and technic must be read in the original. Steps 3 and 4 follow the general lines recognized by all neurologists. This chapter is illuminated by a citation of striking cases and by convincing photographs. It seems incredible that paralysis and contracture of the hand with "boxing glove" edema, all of thirty-three months' duration, could disappear in eighteen hours. But such is one illustrative case.

Chapter V contains detailed consideration of the various conditions grouped by Babinski under the term "physiopathic." The authors are not able to clarify all of them; but for the vast majority their explanations seem to be quite adequate. This chapter gives the results of very important investigations. A short chapter on prognosis and an excellent bibliography terminate the volume. No neurologist can afford to be without it, and every one attempting to treat functional nervous disorders should read it. We believe there is now an English translation.

The Soldier's Heart and the Effort Syndrome. By Thomas Lewis, M.D., F.R.C.P., F.R.S., Physician of the Staff of the Medical Research Committee. Cloth. Price, $2.25 net. Pp. 144 New York: Paul B. Hoeber, 1919.

The views of Thomas Lewis concerning the "effort syndrome" are well known, especially through the report of the Medical Research Committee and the frequent references to it and quotations from it in current medical literature. It is well, however, to have these views, matured by added experience and authoritatively revised, in convenient and compact form, as in this attractive little volume. The "effort syndrome" is here fully considered as to nature, symptoms, prognosis and treatment. There are also discussed other cardiac disorders of soldiers. One notes with hearty approval the emphatic protest against assigning too much importance to the cardiac murmur. At the same time we feel that there is a real danger that Lewis, as well as Mackenzie, has made such extreme statements about the insignificant value of the systolic murmur from the standpoint of both diagnosis and prognosis that through his powerful influence the profession at large will come to believe that all endocardial murmurs are practically negligible. Such a belief, if the basis of practice, would be decidedly harmful. While much that is contained in the book is of purely military application, there is a great deal that will bear transfer to civil practice. The volume will be found useful, therefore, not only in the army but also by the physician in private or hospital practice. The style is the orderly, lucid style that we have come to associate with the name of Thomas Lewis, though it does not, as it seems to us, come up to the standard of his other writings. Perhaps more deliberate revision, with pruning, will remove some evidences of haste. Certainly some of the loosely constructed sentences of the preface ought not to be allowed to stand in their present form.

War, Science and Civilization. By William Emerson Ritter, Director of the Scripps Institution for Biological Research of the University of California. Cloth. Price, $1.25 net. Pp. 125. Boston: Richard G. Badger, 1919.

This book, written in 1915, reflects the views of a certain number of college and university teachers in the early years of the war. Two statements on the first page would probably not be made today, even by a biologic student of warfare. "It is incumbent on the people of our country to give more heed to one of Germany's claims than so far we have given. We must grant that she deserves 'more room in the sunshine' than she has." The verdict of the civilized world today is that Germany has forfeited any claims she might have had to a "room in the sunshine" and that she deserves principally a protracted period of repentance and restitution. The other statement is: "We gladly recognize that the good Germany has done mankind generally by cultivating the sciences and arts of peace outweighs the harm she has done in promoting war." Few will agree with Professor Ritter in this statement. Even if the author believed it at the time he wrote it, Germany has a long debit account on her balance sheet, and it has grown beyond belief in the last four years. Another view advanced by the author is the voluntary surrender of Hawaii to Japan on the ground that Japan needs land and that we have more than we need. By the same reasoning, we should have given away everything west of Pittsburgh after the Revolutionary War. The aim of the writer is to illuminate civilization and international relations by the pure white light of biologic science. The first problem, he says, is to find the way "whereby the nations of the world, some of which truly need a larger share of Nature's wealth than they possess, while others possess more than they really need, may adjust their relative needs without resorting to war." He asks, "Is an international arrangement possible whereby a nation might under certain circumstances give over to other nations portions of its territory or other economic advantages peacefully, deliberately, and without immediate and definite compensation?" His own answer is "No, as long as politics, national and international, rest on a philosophy of nature and human nature as defective as that upon which they now do rest; but yes, if political practice could be based on a philosophy that should conform to the actual facts of nature and human nature." Most readers will, we think, disagree fundamentally with this statement. Political practice is today based on the actual facts of nature and human nature rather than on idealistic and abnormal unselfishness. Nations as well as individuals are subject to the struggle for existence and survival of the fittest, and must feed their own children before they give to others. Professor Ritter's views were hardly timely in 1915, and they are still less so at present.

Personal Identification: Methods for the Identification of Individuals, Living or Dead. By Harris Hawthorne Wilder, Ph.D., Professor of Zoology in Smith College and Bert Wentworth. Cloth. Price, $5 net. Pp. 374, with illustrations. Boston: Richard G. Badger, 1918.

Since human beings are not registered regularly by the government—in many places not even at the time of their birth—it is not infrequent for a human being to become lost from his community and, through lack of any means of identification, to disappear as if—in the words of the "Hun"—he had been "sunk without a trace." For many years the chief interest attached to personal identification lay in its relationship to the proving of guilt of those who had violated the law. It has frequently been necessary, however—and is daily becoming more so—to prove identification in connection with such legal problems as inheritance, when death occurs by burning, drowning, or other mutilating causes. In this book the authors consider identification as it is made by all of the various methods thus far known. The work is divided into two parts, describing, first, methods which furnish partial identification, including the more common marks, such as general configuration, moles, scars, habits and voice, and, second, methods which furnish absolute identification, including finger prints, palm prints and foot prints. The book is illustrated throughout by interesting cases and instructive pictures, including legal controversies in which personal identification figured prominently. To all physicians interested in medicolegal subjects this book will appeal particularly.

Military Surgery of the Ear, Nose and Throat. By Hanau W. Loeb, M.D., Major, Medical Reserve Corps, U. S. A. Medical War Manual No. 8. Authorized by the Secretary of War and under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, $1.25. Pp. 176. Philadelphia: Lea & Febiger, 1918.

In this booklet the author reviews the surgical literature of the present war on the subjects included in the title. The book was prepared primarily for the use of commissioned otolaryngologists; and, as these are presumed to have had elementary training, it makes no presentation of elementary principles. The author presents references to more than 500 bibliographic articles from recent British, German, Italian, French and American literature.

Problems of Fertilization. By Frank Rattray Lillie, Professor of Embryology, University of Chicago. Cloth. Price, $1.75 net. Pp. 278, with illustrations. Chicago: The University of Chicago Press, 1919.

Since the two primary impulses of all life are self preservation and race preservation, man has always been interested in the method of reproducing his kind and in the various physiologic and pathologic factors that are involved. After an enlightening history of early studies on this subject, Dr. Lillie presents briefly the morphology of fertilization, the physiology of the sperm cell and all the processes of fertilization, the problem of specificity in fertilization and the problem of activation. The theory of Dr. Lillie has been that the spermatozoon undergoes some activation necessary for its part in the internal events of fertilization: in other words, that the spermatozoon itself needs to be fertilized and that this takes place on its passage through the cortex of the ovum. In presenting other theories of activation, the author points out the plausibility of this particular view. To those already well grounded in elementary embryology, this book will form an enlightening second step.

Medicolegal

Valid Law—Meaning of Word "Medicine"—Neuropathy

(*Commonwealth v. Seibert (Pa.), 105 Atl. R. 507*)

The Supreme Court of Pennsylvania, in affirming a judgment that affirmed a conviction of the defendant, a neuropath, of practicing medicine without a certificate of licensure, holds constitutional the statute of that state which makes it unlawful for any person to engage in the practice of medicine and surgery, or to hold himself forth as a practitioner in medicine and surgery, or to assume the title of doctor of medicine and surgery, or doctor of any specific disease, or to diagnose diseases, or to treat diseases by the use of medicines and surgery, or to sign any death certificate, or to hold himself forth as able to do so, unless he has first fulfilled the requirements of this act and has received a certificate of licensure from the bureau of medical education and licensure and has had such license duly recorded.

The court says that the determination of the several inquiries raised must depend on the proper understanding to be derived from the words of the statute involved. Of controlling importance in this connection is the word "medicine," a word susceptible of distinct meanings; one indicating nothing more than a remedial agent that has the property of curing or mitigating diseases, or is used for that purpose, while the other indicates an art of healing or science which has for its province the treatment of diseases generally. The latter has much the wider and more comprehensive significance, of course, and while, as so used, it may be in a sense technical, yet unquestionably the wider is the popular sense in which it is employed and understood. Furthermore, whatever is technical in it has been so far popularized by common usage and understanding that no one, however unlearned, can fail to observe the true distinction between medicine as a drug and medicine as a science or profession. It is in the latter sense that the word is employed in the statute.

The one danger provided against was, not the promiscuous sale of drugs or other remedial agents, but the unrestricted and unregulated practice of medicine or the art of healing; medicine here being used to denote an art or science having for its object the cure of diseases and the preservation of health, whether with aid of drugs or any remedial agencies whatever. The manifest and only purpose of the statute was to confine the right to invite public confidence in the skill and efficiency of those who would hold themselves out to the public as medical doctors, to those only who have had an examination by an impartial board of examiners created by the statute and acting for the state, and have been accredited by the board as having met the requirements of the law and received its license.

Giving the act this interpretation, the defendant by his conduct brought himself unquestionably within its terms; he engaged in the practice of medicine, that is, he held himself out to the public as one instructed and skilled in the healing art. By printed sign exposed in front of the office, styling himself as Dr. J. A. Seibert, Neuropath, he represented himself as skilled in the healing art, and invited the confidence and patronage of the sick and afflicted generally. The distinction that was sought to be made between neuropathy and medicine could avail the defendant nothing if it be kept in mind that the legislative meaning of the latter word, when used in the expression "practice of medicine," covers and embraces everything that by common understanding is included in the term healing art. The defendant held himself out to the public and invited its confidence and patronage as a "practitioner of neuropathy." The use of this term necessarily implied that he was skilled in the science of pathology, a science which unquestionably has for its province "the treatment of diseases, their nature, causes, progress, manifestations and results." This to the lay mind, no less than the professional, would import that neuropathy was a branch of medicine. What more could be said of allopathy, homeopathy or any other science of healing with such termination as its adopted designation?

Quarantine and Habeas Corpus

(*Ex parte Hardcastle* (*Texas*), *208 S. W. R. 531*)

The Court of Criminal Appeals of Texas, in ordering that a writ of habeas corpus be granted, says that the relator was held under an order of the city health officer of San Antonio, by virtue of quarantine regulations established in accord with Chapter 85 of the acts of the fourth called session of the thirty-fifth legislature, under a statement of the order of arrest that, according to the information of the health officer, the relator was affected with gonorrhea. It was agreed that the sole issue in the case was whether or not the decision of the proper health is final or whether it can be inquired into by writ of habeas corpus.

The legislature, under the police power, has authority to authorize the establishment of quarantine regulations for the protection of the public against contagion from those persons whose condition is such as to spread disease, and, incident thereto, to authorize the arrest and detention of such persons; and such, the court understands, is the purpose of the statute in question. Under its terms, the proper health officer may issue a warrant by virtue of which a lawful arrest may be made without preliminary thereto affording the person affected a hearing; but if, after arrest, such person challenges the right of the authorities to continue the detention, the fundamental law accords him the right to have the legality of his detention inquired into by a proper court in a habeas corpus proceeding. The law denies to no one restrained of his liberty without a hearing the right to prove in some tribunal that the facts justifying his restraint do not exist. The health authorities causing the arrest of the relator derived their power to do so from the alleged existence of the fact that the relator was affected with the disease mentioned, and that her detention was required in the public interest to prevent contagion. If those facts did not exist, the officer had no jurisdiction to continue the restraint, and the court in the habeas corpus proceeding has authority to inquire whether the facts essential to jurisdiction exist.

The decision of the Supreme Court of Washington (*State v. Superior Court for King County*, 174 Pac. R. 973), to which this court was referred as illustrating an exception to this rule, does not, this court thinks, extend so far as to support the contention that the decision of the health officer who ordered the arrest of the relator was conclusive against her right to an inquiry in a habeas corpus hearing touching the existence of the facts on which such officer acted. The Washington decision construed a statute passed under a special provision of the constitution of that state, authorizing the "establishment of boards of health with such powers as the legislature may direct." The statute enacted under this power did not make the initial order of arrest conclusive, but established the board of health as a forum of appeal, and specially provided that its decision reviewing that of the health officer should be final.

The Texas constitution, unlike that of the state of Washington, contains no special provision on the subject; but the power to establish quarantine, as existent under the Texas constitution, is an incident of the police power vested in the legislature under the general power to pass laws. The Texas statute does not declare that the initial order of arrest shall be conclusive; nor does it designate any tribunal to which one detained under an order of arrest issued by the health officer may appeal for a hearing. The fair and reasonable interpretation of the statute under which the relator was held is that which accords the health officer the power to order arrest and detention, leaving to the person detained the right to invoke the decision of the established judicial tribunals of the state on questions raised, either of fact or of law, involving the validity of the detention. Wherefore the court concludes that, under the act of the legislature in question, the relator had the right to a hearing on writ of habeas corpus, and therein to prove the nonexistence of the facts necessary to authorize her continued detention and thereby obtain release.

State Board of Health Requiring Vaccination

(*Rhea v. Board of Education of Devils Lake Special School District* (*N. D.*), *171 N. W. R. 103*)

The Supreme Court of North Dakota, in reversing a judgment that was rendered in favor of the defendant in this mandamus case growing out of the exclusion from the public schools maintained by the defendant of the plaintiff because he had not been vaccinated, says that, while the researches of counsel and the investigations of the court had failed to disclose the existence of any direct authority on the exact question presented under the facts in this case, it appears that there are ample precedents for the principles which the court deems controlling. Boards of health and boards of education possess only such powers as the statutes confer on them. The power to legislate cannot be delegated to them; but when the legislative policy is determined by the competent legislative authority, ample administrative powers may be vested in executives or boards to the end that the legislative rule may be properly enforced.

It was alleged that the defendant board of education, claiming to act under and pursuant to an order of the state board of health, made an unlawful order requiring that all pupils should be vaccinated before being admitted to the public schools of the district; and it was contended on behalf of the defendant that, since Section 425 of the Compiled Laws of North Dakota of 1913 requires the vaccination of minors generally, it was proper for the state board of health to promulgate an order which would not affect adversely any one who had complied with the statute. However, the failure to comply with the compulsory vaccination statute results in making the one who thus fails guilty of a misdemeanor, and subjects him to the prescribed punishment. It is not particularly the function of the board of health to compel compliance with this statute. The board is not the public prosecutor. Even the public prosecutor could not compel vaccination. He can only punish for violations of the statutes, and to exclude one from school on the same ground would be to add a penalty not included in the statute. The powers of the board of health are limited to such needful rules and regulations as may be required for the prevention and spread of contagious and infectious diseases, and the fact that the legislature has purported to make vaccination compulsory does not add to or subtract from the scientific data on which the board of health may determine whether or not a proposed rule or regulation is "needful." The authorities uniformly hold that a board of health, constituted as that of North Dakota is, possessing requisite general powers for the prevention and spread of contagious diseases, cannot promulgate and enforce rules which merely have a tendency in that direction, but which are not founded on any existing condition, or on a danger not reasonably to be apprehended.

Section 400 of the Compiled Laws of 1913, making it the duty of the board of health to make and enforce all needful rules and regulations for the prevention and cure of contagious and infectious diseases, is held not to authorize the board of health to issue an order denying to children the right to attend the public schools except on the condition of being vaccinated, when it appears that there is no prevailing epidemic of smallpox, and no imminent danger from this disease is reasonably to be anticipated.

Sections 1346 and 426 of the Compiled Laws of 1913, defining the duties of school officers with reference to the supervision of the health of schoolchildren and their exclusion from schools when infected with infectious or contagious diseases, the court construes and holds not to authorize the exclusion for nonvaccination, in the absence of a showing of danger due to the existence of smallpox in the community, or that such danger is reasonably imminent.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Tri-State District Medical Society, Rockford, Ill., Sept. 1-4.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN ASSOCIATION OF ANESTHETISTS

Seventh Annual meeting, held at Atlantic City, N. J., June 9-10, 1919

(Concluded from page 361)

SYMPOSIUM ON ANESTHESIA FOR WAR SURGERY

A Plea for Chloroform

Dr. William B. Howell, Montreal: Whether from climatic conditions or a difference in the quality of the ether supplied, or possibly owing to the special type of patient, many of whom were given to excessive cigaret smoking, ether alone was not as satisfactory an anesthetic as in civilian surgery, and many anesthetists were glad to turn to the free use of chloroform. The majority of soldiers coming to operation were wounded only slightly, and apart from their wounds, were in excellent physical condition. They were highly resistant to ether and inclined to shout and struggle during induction. While induction could be facilitated by the preliminary use of nitrous oxid-oxygen or ethyl chlorid, when available, their lack plainly indicated the efficiency of chloroform in getting large numbers of wounded rapidly ready for the surgeons. Chloroform, in war surgery, should be used only by those experienced in its administration, and then preferably by means of a dosimetric apparatus like that of Vernon Harcourt. Depth of anesthesia and significance of danger symptoms cannot be gaged accurately when chloroform is given on the open mask. A dosimetric inhaler enables the anesthetist to know what he is doing and to escape the dangers incident to fibrillation during induction from too light anesthesia. While atropin is not necessary before chloroform anesthesia, morphin may be used, if given in moderation. Oxygen and warmth give chloroform additional safety. When the respiratory system is embarrassed by incipient tuberculosis, emphysema, coryza, bronchitis or empyema, chloroform may be used with considerably more satisfaction than other anesthetics and with better results. Chronic bronchitis, or "Flanders cough," was very prevalent in the Ypres district and accounted to some extent for the popularity of chloroform. In strong, muscular soldiers, chloroform is especially adapted for the reduction of dislocations and the setting of fractures.

Effects of Ether and Nitrous Oxid-Oxygen Anesthesia in Cases of Shock and Hemorrhage

Dr. W. B. Cannon, Boston: The sensitiveness of shocked and exsanguinated soldiers to anesthesia is a very interesting as well as important point in war surgery. If you talk to a surgeon about operating on a shock patient he will tell you he does not wish to touch the man on account of the danger involved. His hesitancy is due to the fact that the blood pressure falls to a perilous extent during the surgical procedure. In a series of cases we studied we found that the blood pressure fell during operation from 88 systolic down to 62, and from 62 diastolic down to 31, a calamitous drop when one considers that the pressure was already so low as to be barely enough to keep the tissues properly supplied with oxygen. Accompanying this fall was a marked drop in the carbon dioxid content of the plasma. It was found in the laboratory that these imperiling symptoms during operation were largely due to anesthesia. Animals were used experimentally to test out the effects of several anesthetics on shocked conditions. Under ether there was an invariable and marked fall in blood pressure. Under nitrous oxid-oxygen anesthesia the effect depended on the relative amounts of gases in the mixture. In a ratio of 6:1 the effect of nitrous oxid-oxygen was almost that of ether. Ratios of 5:1 and 4:1 also precipitate falls in blood pressure. However, with a ratio of 3:1 the effect on blood pressure becomes negligible. There is no doubt that nitrous oxid-oxygen is the anesthetic of choice in shock and hemorrhage, especially when given with the greatest possible admixture of oxygen. If morphin is previously administered, the amount of nitrous oxid in proportion to oxygen can be reduced greatly. Furthermore, many shocked soldiers are so dulled that they can be operated on in analgesia, and surgical anesthesia is not necessary. Under ether anesthesia there is a means of sustaining blood pressure, and that is to start transfusion or infusion at the beginning of the operation and let it continue gradually while the operation is going on. Pressure is thus held up to a proper level, the blood stream is kept going with no reduction in its rapidity, and the shocked soldier gets through the operation in much better shape than would otherwise be possible.

Experiences with Anesthesia in Thoracic Surgery in the War Zone

Dr. Howard Lilienthal, New York: The principles observed in arranging an apparatus were to provide a flow of air, preferably from a foot bellows, to pass through an ether container, in varying quantity and to be carried to the patient's pharynx by means of nasal tubes. Provided precautions were taken to avoid pumping liquid ether into the patient's throat or allowing the ether in the container to become too cold from excessive air pumping, little difficulty was experienced with the apparatus, once those trained had caught the knack of administration. Of course patients had to be anesthetized to the surgical plane before making the shift to the endopharyngeal technic. After this shift it was only necessary for the anesthetist to carry as smooth and light an anesthesia as was consistent with the surgical procedure to meet the surgeon's demands. The endopharyngeal method of etherization worked well for all plastic operations about the head, face and neck and for extrathoracic work on the chest. At first it was doubted that it would suffice for intrathoracic surgery; but it was soon found that the amount of pressure that could be maintained within the pharynx with endopharyngeal anesthesia was quite sufficient to keep the lungs in any state of inflation desired and yet not to interfere with pulmonary movement. If anything, this method proved more flexible than endotracheal anesthesia and more practically serviceable.

Ether Analgesia by Inhalation for Minor Operations, Especially in War Surgery

Dr. Frances Haines, Chicago: This method was developed in U. S. Base Hospital No. 13 in France as a result of the very frequent need of producing analgesia or very light anesthesia for certain operative procedures. Nitrous oxid being unobtainable in this hospital center, and local anesthesia being unsuitable for handling many types of wounds, this method of ether analgesia resulted from the spur of necessity. Our surgeons called for a method safer than ether by mouth or ethyl chlorid mixtures and for an analgesia often lasting more than three minutes. Thorough preparation of the patient, both physical and psychic, is more important to the success of the analgesia than to the safety of the patient. Mild catharsis and restriction of food and liquids should be the same as before general anesthesia. A hypodermic of morphin and atropin, one hour before operation, aids materially in calming the patient's mind. The patient's confidence should be gained. A Schimmelbusch mask covered with two layers of fine wool stockinette is the preferable apparatus. A towel or gauze roll is in readiness for wrapping around the edge of the mask. The patient's eyes are protected with wet cotton. The mask is saturated with ether as in using the so-called "ether-rausch" and more or less rapidly approached to the patient's face, and after two minutes is surrounded by the towel. The patient is usually in an analgesic stage in four minutes, with or without complete loss of consciousness, but without excitement. Ether is administered continuously to within a few seconds of the termination of the operation. Within a minute, as a rule, even though analgesia is continued for from five to ten minutes or longer, the patient will be awake and in possession of his faculties. Theoretically, this analgesic stage seems difficult and almost impossible to maintain; but in practice it worked out successfully in 95 per cent. of the cases in which it was attempted. The only contraindication to its use is in partially united fracture, which might be broken should the patient resist during the opening of a sinus or insertion of a drain.

Experiences of an Anesthetist at the Front

DR. W. S. SYKES, Cleveland: Ether was used most extensively on account of its convenience and comparative safety and its not entailing cumbersome apparatus. The Scotch surgeons in the British service clung to chloroform, and their results were excellent. Ethyl chlorid was used to a considerable extent in the British service, particularly for minor operations. Ether-oxygen was a favorite method at the front in serious cases, the oxygen from a low pressure tank being sent through a Shipway apparatus to provide a warmed ether vapor. Owing to the scanty supply of nitrous oxid it had to be reserved for most desperate cases, in which it certainly proved a life saver. Toward the close of hostilities when compact, portable American gas-oxygen devices and cylinders of compressed gasses became available, the nitrous oxid-oxygen technic, as demonstrated by American anesthetists at the front, won the favor of surgeons of all the allied armies. It gave promise, also, of obviating to a great extent postoperative pneumonia. While many penetrating wounds of the chest were operated on under local anesthesia or nitrous oxid-oxygen at the base hospitals, nearer the front we used the warmed ether vapor, occasionally modified with the admixture of chloroform. Ether vapor was found quite superior to the drop method in every respect. It also saved the surgical team from working in an ether-laden atmosphere, something very much appreciated when shifts continued for from twelve to fourteen hours. Morphin was withheld from those in severe conditions of shock, as it lowered their resistance in a marked degree. Even one-fourth grain of morphin may invite disaster in the presence of shock or hemorrhage. Chloroform was, of course, contraindicated in shock. Ether depression was dreaded after operations in the same circumstances, and nitrous oxid-oxygen proved the anesthetic of choice in this condition. It was found very dangerous to alter the position of patients on the table after anesthesia had continued for more than half an hour. Consequently, in cases of multiple wounds, the minor ones received first attention and then the patient was placed in a posture which would demand no further change. The wounded, fresh from the front, were subconsciously exalted and prone to excitement during induction. This exaltation disappeared rapidly and was observed infrequently at the base and not at all on the return to home hospitals. Five c.c. of chloroform as a single dose proved to be an invaluable method for transient anesthesia or analgesia for minor procedures. While spinal anesthesia was used to some extent in base hospitals, it was found to be especially dangerous in all patients showing a reduction below normal of the hemoglobin index. Consequently its utility was limited.

Ether Administration in the Upright Posture

DR. FRANK DYER SANGER, Baltimore: Complications under etherization are distinctly respiratory in character. Hence it would seem logical to operate on patients under ether anesthesia in the same posture in which conscious patients seek relief from respiratory embarrassments, such as cyanosis, dyspnea and apnea. The same proposition held true for patients with broken compensation, despite the time-honored theory of cerebral anemia. Even for artificial respiration the upright posture has all the anatomic and physiologic advantages, since in it all the muscles assisting in the respiratory act have their proper play. The position offers many advantages from the operator's standpoint. The exposure in nose and throat work is good, illumination is easy, and hemorrhage and oozing are less troublesome than in the recumbent posture. Less assistance is required. Ether administered by any method in this posture is easy; not infrequently the anesthetist can act as surgical assistant as well. I have never had an ether death or serious ether emergency in twenty-two years, during which I have employed the upright posture constantly.

Spinal Anesthesia

DR. W. G. HEPBURN, Montreal: At the Montreal General Hospital we use the following solution for spinal anesthesia: stovain 5 gm., and commercial glucose 5 gm., dissolved in 95 c.c. of physiologic sodium chlorid solution. This solution has a specific gravity of 1.031 and a neutral reaction, and is kept in sealed glass ampules of 2 c.c. capacity. The dosage is regulated in accordance with the weight, age and vitality of the patient. The maximum dosage is 0.07 gm. of stovain or 1.4 c.c. of solution, and the minimum 0.01 gm. The injection is made in the third lumbar interspace under rigid aseptic precautions, after 1 or 2 drams of spinal fluid have escaped. The saline menstruum of the solution tends to neutralize the osmotic factor, and the glucose exerts a cohesive action to counterbalance the diffusible tendency, so that the high specific gravity will carry the solution to the lowest dependent portion of the cord. Consequently, the sitting posture, and a semiupright posture during injection and operation, are used for sacral anesthesia. The lateral posture with hips and head elevated is used for low abdominal operations. For operations below the level of the umbilicus, analgesia is checked when the xyphoid is reached by quickly lowering the hips to the level of the table. For upper abdominal operations the analgesia is allowed to ascend to the level of the fourth intercostal space. By continuing the elevation of the head and shoulders during operation and for six hours after shock, faintness, respiratory distress and depression symptoms may be obviated entirely. Spinal anesthesia is used most advantageously in diabetics, or for patients suffering from advanced cardiac, pulmonary or renal insufficiency. It eliminates the dangers of postoperative acidosis. Operative analgesia persists for a period varying from forty-five minutes to two hours. Stovain has been detected in the spinal fluid twenty-four hours after injection, and traces have been demonstrated in the urine seventy-four hours after injection.

AMERICAN PEDIATRIC SOCIETY

Thirty-First Annual Meeting, held in Atlantic City, N. J., June 16-18, 1919

(*Concluded from page 293*)

Ostogenesis Imperfecta-Congenita

DRS. H. M. MCCLANAHAN and W. W. WILLARD, Omaha: A male child, 3 months old, presented this deformity at birth. Several fractures were present, including fractures of the forearm, thighs and legs. At the time the child came under observation, masses of callus could be felt in the shaft of the thighs, arms and legs. The Wassermann reaction was negative and the von Pirquet test was negative. The child died of exhaustion after being in the hospital about six weeks. So far as I could ascertain, this was the youngest case with a fatal issue reported in which a careful histologic study was made.

DISCUSSION

DR. JOSEPH BRENNEMANN, Chicago: We ordinarily think of these patients as being in a serious condition, yet I have seen one child apparently in perfect health. After having had some kind of nutritional disturbance, its arm became sore and it was found to have a flail joint. A little later the other arm became sore, and it was found that the four long bones of the forearm were broken. No more fractures occurred.

DR. L. EMMETT HOLT, New York: I recently saw a child who had a fracture at the middle of the tibia, and six months later a similar fracture on the opposite side. In another instance a diagnosis of scurvy was made because of tenderness over the bones, and roentgen-ray examination revealed typical fractures. It is apparent that the influence of heredity is of some importance in these cases. This type of fracture has nothing in common with the green stick fractures.

Dr. Charles Herrman, New York: About half of these cases show a family history of fragility of the bones. It is probable that there is a hereditary factor, but it is not only the bones that are abnormal, but also the ligaments and other structures. Another feature in these cases is the blue sclera, which is present in about half of the cases, and that also shows that the condition is not a disease confined to the bones, but that probably all the tissues of the body are somewhat abnormal.

Do Calories Measure the Value of Food?

Dr. Henry Dwight Chapin, New York: Heat measurement is not always a safe guide for estimating food values. In practice, the tendency is to keep a table of caloric values and to lay out the diet by arithmetic. The physician is likely to think that the caloric count is correct and that when he has met the caloric requirements the food problem is solved. Nutrition is not a simple oxidation process. In the animal body, energy resulting from chemical combinations may be converted into other forms without passing through the form of heat. Foods must be selected for their right physiologic value for each individual.

DISCUSSION

Dr. Fritz B. Talbot, Boston: Physiologists are agreed that conclusions drawn from observations made on animals cannot always be applied to living children. I cannot agree that oxygen is not necessary in the presence of muscular contraction. It has been conclusively proved that every time a muscle moves the production of carbon dioxid is increased, and carbon dioxid cannot form without oxygen. The trouble that has come from caloric feeding in the past is due to lack of knowledge of the foundation on which it is based. Another factor is that some of the food calories are lost in the feces. Twenty per cent. of all protein taken in is consumed in making the remaining 80 per cent. ready for use in the body. The assumption that in using the caloric method of feeding one is using an accurate method is very inaccurate. The baby must first be fed what agrees with it and what it can digest. Second, the food must be well balanced. Third, one must see that the baby gets enough. I do not believe in any method of feeding; at the same time I do not think we should omit anything of value in determining whether or not a baby is getting what is correct, and the determination of calories sometimes helps.

Dr. J. P. Sedgwick, Minneapolis: The estimation of the caloric value of food is a very valuable aid in determining the quantity of food an infant is getting. The determination of calories employed as a method of feeding is a great mistake. The estimation of the caloric value of food is not a method of feeding. One can feed protein or sugar or fat exclusively and still have the requisite number of calories; hence it is very incorrect to use the term "caloric method of feeding."

Dr. F. W. Schlutz, Minneapolis: We should not discard the caloric measure of food altogether. It is about the only one we have for measuring the intake of food. It must be taken in connection with the tolerance for the different food elements.

Dr. W. McKim Marriott, St. Louis: The caloric intake of food is subject to the laws of the conservation of energy and matter. When food is taken into the body it must be utilized in the processes of the animal organism or it must be stored. What is lost through the feces is as though it had never been taken. The difficulty in the caloric estimation of the food intake is that we have not estimated the amount used by the energy output. The error is in our method of making the computation and not in the caloric method.

Dr. L. Emmett Holt, New York: Dr. Roche introduced percentage feeding, and by a misnomer it has come to be known as the "percentage method," in the same way the caloric measure has come to be known as the "caloric method." The estimation of percentages is exceedingly important. The caloric estimation of food values is of importance, but it is a method of statement and not a method of feeding.

Study of Stools of Institutional Children to Determine Existence of Intestinal Parasitic Infection

Drs. Laurence R. DeBuys and H. L. Dwyer, New Orleans: The study of 597 children in seven institutions shows that the frequency of the infections by the various parasites were in the order named: *Trichuris trichiura, Ascaris lumbricoides, Hymenolepis nana, Oxyuris vermicularis, Strongyloides stercoralis, Necator americanus* and *Hymenolepis diminuta.* The hygiene, general care, duration of residence in the institution, previous environment, association with dogs, eating of dirt, and absence of systematic medical inspection, seemed to have a direct bearing on the frequency of intestinal parasites. The symptoms usually attributed to "having worms" were as frequent, and some a little more frequent, in those not infected than in those infected. Eosinophilia is a valuable aid in the diagnosis of infection with intestinal parasites. It is, however, not pathognomonic, and its absence does not exclude an infection. The eosinophils were found as high as 28 per cent. in infected cases and 18 per cent. in negative cases. The diagnosis of intestinal parasitic infection is an extremely easy matter, the only way of making a positive diagnosis being by finding the parasite or the ova in the stool of the individual. Vermifuges should not be given to the child unless it is known that the infection exists and its character is ascertained, when the specific drug may be given to combat the particular infection.

DISCUSSION

Dr. J. P. Sedgwick, Minneapolis: The medical profession is inclined to regard intestinal parasites as of less importance than do the laity. If we look for intestinal parasites, I think we shall find them much oftener than we have heretofore.

Dr. Joseph Brennemann, Chicago: Patients harboring *Ascaris lumbricoides* have come under my observation and have shown no characteristic symptoms.

Dr. Oscar M. Schloss, New York: The symptoms depend on the grade of infection. In one instance a child had a very severe diarrhea with blood and mucus in the stools. These symptoms had persisted for a long time, and even after the infection had cleared up many ova continued to be found in the stools. It is a difficult matter to get rid of them, sometimes taking months of heroic treatment. The oxyuris may be present in great numbers without producing symptoms. Sill has called attention to one symptom produced by this parasite, namely, pain in the right iliac region. I have seen several instances in which marked anemia was present in those infected with dwarf tapeworm; however, in proportion to the amount of infection, the symptoms are very slight.

Dr. Howard Childs Carpenter, Philadelphia: We had an epidemic of *Hymenolepis nana* in a foundling asylum in Philadelphia, where we made a careful study to determine, if possible, the mode of transmission. We trapped rats, but found them negative. It has seemed to me that the transmission was a direct hand to mouth infection. It is difficult to get rid of this parasite. Long after the parasites were no longer found in the stools, the ova were still present.

Dr. W. McKim Marriott, St. Louis: In one case this parasite was found in the appendix. The boy presented the symptoms of appendicitis. The appendix was found to contain oxyuria.

Dr. A. G. Mitchell, Philadelphia: In France, many children are infected with *Ascaris lumbricoides.* Some of these children have acute symptoms which clear up when the infestation is eliminated. In some cases the worms have got into the stomach and the patients have complained of gastric symptoms; others have intestinal symptoms, diarrhea, etc. Whether or not the worms are the entire cause of the symptoms I cannot say; but the general nutrition of the children improves when the infestation is eliminated.

Glucose Tolerance in Atrophic Infants

Drs. H. F. Helmholz and L. W. Sauer, Chicago: In these investigations the Woodyatt apparatus and glucose manufactured by the Corn Products Company were used. The strength of the solutions was made approximately 10, 15 and 20 per cent. The actual concentration was determined polariscopically. It is immaterial, so far as tolerance is concerned, whether 10 gm. of glucose is injected in a volume of 10 c.c. or in a volume of 100 c.c., provided it is injected evenly in a given unit of time. If no sugar appeared in the urine in thirty minutes, glycosuria would not occur even after several hours of continuous injection. Injections were made in atrophic and in more nearly normal infants. The tolerance of those more nearly normal did not exceed 1.1 gm. per kilogram per hour, while the tolerance of atrophic infants ranged from 1.5 to 1.8 gm. per kilogram per hour. It appears that the sugar tolerance of normal infants does not differ much from that of normal adults. The tolerance of atrophic infants is considerably greater.

DISCUSSION

Dr. Oscar M. Schloss, New York: In our experimental work we found that by increasing the sugar up to a certain point there will always be an increase of sugar in the urine, even though it is not sufficient to reduce copper solution. Another point of interest is that there may be considerable difference in renal permeability at different times.

Dr. W. McKim Marriott, St. Louis: We have shown that atrophic infants can take large amounts of sugar. We have administered glucose by mouth and find that as much as 1.5 gm. of sugar per kilogram per hour can be given before glycosuria shows itself.

AMERICAN THERAPEUTIC SOCIETY

Annual Meeting, held at Atlantic City, N. J., June 6 and 7, 1919

The President, Dr. Douglas Vander Hoof, Richmond, Va., in the Chair

Indigestion and Gastro-Intestinal Disorders

Dr. Douglas Vander Hoof, Richmond, Va.: The term "indigestion" has become obsolete. This disturbance is a symptom and not a disease, and yet it is one of the most frequent complaints that brings the patient to seek advice of the physician. I have made a study of 1,000 cases in which the patients complained of "indigestion," and I have tabulated the causative factors. The most frequent cause was found to be chronic appendicitis (one fifth of all cases); together with gallbladder lesions, the causative factor in one third of all cases is accounted for. Peptic ulcer is the cause in one tenth of the cases; kidney and heart disease in one tenth; cancer in less than 4 per cent. of the cases; hypo-acidity in about one sixth of the cases. Miscellaneous conditions, such as pellagra, dysentery, lesions of tonsils and teeth, peritoneal tuberculosis, and hypertrophic spondylitis were found to play a part.

DISCUSSION

Dr. Thomas F. Reilly, New York: Probably the last place to look for stomach symptoms is in the stomach itself. I think that two thirds of the therapeutic measures employed are in connection with stomach symptoms.

Dr. Jacob Diner, New York: I am greatly interested in the statistics presented, particularly those dealing with kidney lesions as the cause of indigestion. There is often a nephritis present, usually the chronic interstitial or the parenchymatous kind. In New York City, in social work, 65 per cent. of all complaints are for indigestion. On investigation of the teeth, large pus pockets and alveolar abscesses are found, and if one can persuade these people to have their teeth looked after, the indigestion disappears of itself.

Dr. Oliver T. Osborne, New Haven, Conn.: Not enough emphasis is laid on the character of the food taken. One should not starve these patients, but undoubtedly many of them are eating wrong. Young people want to put two meals in one, that is, they drink milk as they would water with solid meals; that is putting too much work on the stomach. There are plenty of dietetic mistakes that the physician could stop, and thereby clear up the indigestion completely.

Dr. F. M. Pottenger, Monrovia, Calif.: The innervation of the intestinal tract and stomach is controlled by the sympathetics and vagus. Stimulation of the former produces inhibition; of the latter, increased activity of the muscle and glands, and causes increased tension throughout the whole gastro-intestinal tract. This tension can produce the whole syndrome of appendicitis as well as that of hyperchlorhydria. The variability of the symptoms is because the stimuli do not explode in every individual alike. The profession has more or less discarded neuroses, but a large group of people are vagotonics, or perhaps the better term is parasympathetics.

Dr. Douglas Vander Hoof: We made the diagnosis of gastric neuroses with considerable hesitation. Many cases were organic and not functional. The functional cases were vagotonics.

Peripheral Irritations and Remote Results

Dr. Robert T. Morris, New York: A child with a bean in the ear responds by nausea and vomiting, caused by the reflex irritations from the cerebral center. In loose kidney, the afferent impulse is sent to the cord center and the efferent impulse disturbs the sympathetic autonomic ganglions. Peripheral irritations lead into many misconceptions in practice because of difficulty in reading the true meaning of the symptoms. Peripheral irritations doubtless cause disturbances, any one of which may cause symptoms, while in the next case no reaction at all is produced by the same sort of stimulus. It becomes, therefore, a question of the character of response made by the patient. If we take as an example a strong, red-blooded man, with 100 per cent. hemoglobin, he will not respond to a peripheral irritation which would upset the sympathetic machinery of another person born with a narrow costal angle, with gunstock scapula, with relaxation of peritoneal supports, with high arched palate—in other words, with defective response and thus increased tendency to react to almost any peripheral irritation. With relaxation of peritoneal supports, with a sagging colon, dragging on the nephrocolic ligaments the kidney will get out of place and never get back again. This may or may not become a second step in the concatenation of the patient's distress. It may or may not send an impulse to the cord center which finds an efferent response, resulting in the disturbance of the entire gastro-enteric system. Disturbance of the digestive function step may cause fermentation and putrefaction on account of the involvement of the gastro-intestinal tract, and the poisoning may induce such a remote result as melancholia and manic-depressive insanity. One has to be particularly on guard against generalization.

Medical Treatment of Goiter

Dr. Granville M. Ryan, Des Moines, Iowa: In treatment, the conditions must be clearly indicated. There has been no result as yet from efforts to find a counteracting agent for the thyroid toxin. Quinin hydrochlorid and salicylates have been used. Tincture of aconite is used to moderate the tachycardia. Attention must be paid to environment and hygienic conditions. Absolute rest, physical and mental, is an essential. An ice bag to the gland and small doses of bromid are indicated in acute exacerbations. The use of quinin and urea sometimes achieves good results. Use of the roentgen ray and removal of the tonsils are indicated in selected cases. The intelligent care of a good trained nurse is the most efficacious step in treatment, proper home care of these patients being practically impossible. In some cases the combined efforts of the medical man and the surgeon are necessary, the medical care preceding the operation, and supplementing it until recovery is complete.

DISCUSSION

Dr. O. T. Osborne, New Haven, Conn.: No matter how many data the laboratory has furnished, nor how much is read on the subject, the results from therapy must be reached through clinical study. It may be necessary to give some drug, or a dose of a gland to test the case and find out whether the gland is hyperactive or hypo-active or simply absorbed. The rapid heart (130) without dyspnea is *always* of thyroid origin. Exophthalmic goiter is an attempt of the thyroid to counteract the effect of intoxication. Certain cases of this disease are improved by giving thymus. There is no question as to the necessity of rest, proper diet and the avoidance of irritating drugs.

Dr. F. M. Pottenger, Monrovia, Calif.: By studying the patient physiologically, one gets a different attitude to that of experimental study. I am glad to hear that Dr. Osborne puts his faith in clinical observations, rather than laboratory work. There is a long way between a guinea-pig and a man. Clinical study requires the same care and close attention as laboratory work, and close observation will bring out many points.

Dr. H. C. Gordinier, Troy, N. Y.: In early cases the patients recover with nothing but rest, plenty of fresh air and a lactovegetarian diet. Goetsch of Baltimore makes use of the epinephrin test which is a valuable addition to diagnostic methods in hospitals where the calorimetry method can be carried out.

Dr. H. C. Wood, Philadelphia: Symptomatic treatment has its place, for instance, in the control of the tachycardia. There are a number of efficient remedies for reducing the heart rate. Veratrum viride is as accurate as digitalis, and can be used while one is waiting for etiologic treatment to cause subsidence of the thyroid symptoms.

Dr. John C. Hemmeter, Baltimore: Professor Hamburger, president of the last international congress on physiology, in studying the increase of hyperthyroidism in the army in Holland, found it to be 10 per cent. Among the German people it was 8.5 per cent. It will soon be seen in this country in the nature of an epidemic, and preparation must be made to meet it. Ten per cent. of an army of a million means 100,000 cases. Are all these people infected? It would seem more like a physiologic process. The chromatolytic process does not necessarily mean intoxication. Why can there not be a thyroid neurosis, pure and simple?

Dr. W. F. Milroy, Omaha: During the hot season when the streams were dried up, a party of young people were daring each other to cross a ravine over a plank which was about 10 feet from the ground and had no supporting railing. One young woman made the attempt and got across for about 200 feet, when she got dizzy and fell. She was considerably shaken up, and when she came back collapsed entirely. She was assisted home. She immediately became ill and showed at once a markedly enlarged thyroid and marked exophthalmos with a very rapid pulse. She had never had any symptoms before, and was apparently in perfect health when she tried to cross the bridge.

Angina Pectoris

Dr. H. G. Gordinier, Troy, N. Y.: Amyl nitrite and morphin sometimes give relief. Use of tobacco should be limited or prohibited; exercise and diet should be limited. Winters should be spent in the South. Treatment by nitrites is almost specific. Inhalations can be given with large doses of nitroglycerin, and then if no relief comes, morphin and atropin may be given to ward off vagus inhibition. Antisyphilitic treatment should be instituted when a positive Wassermann test is obtained.

DISCUSSION

Dr. Douglas Vander Hoof, Richmond, Va.: The figures in regard to syphilis mean more than mere statements. There is good reason to believe that 20 or 25 per cent. of cases are associated with syphilitic cardiovascular disease. Normal blood pressure, both systolic and diastolic, often exists for years in these cases. In regard to nitroglycerin, one surgeon who could not walk a city block without pain in his chest was enabled to carry on his surgical practice while taking nitroglycerin. Whenever it was necessary for him to walk he put a nitroglycerin tablet in his mouth. Angina is a syndrome, not a disease. Typical angina symptoms are seen in pericarditis in children, in myocardial disease, and in affections of the coronary arteries.

Dr. A. E. Roussel, Philadelphia: The classical symptoms of intense anginal pain need not be accepted as the only manifestation. Although no deaths are caused by indigestion, many symptoms are caused by gas, which are the same type of disease. If these symptoms were recognized and treated, patients would live longer.

Dr. Thomas F. Reilly, New York: There is often the danger of a patient's dying in a second attack, and for that reason the family should be warned of the danger. The physician may give a morphin hypodermic and the family will blame him for the death of the patient. Morphin is of more use than nitrites in angina pectoris, but the attacks are often recurrent.

Dr. H. C. Gordinier, Troy, N. Y.: I had one prominent patient fall down dead after the use of nitrite. It is a wise step to warn the family of the seriousness of the condition, before using morphin.

Rest in Tuberculosis

Dr. Francis M. Pottenger, Monrovia, Calif.: I tried the exercise plan. When I found it did no good I stopped it and tried rest instead, and began to get good results. The question of rest in tuberculosis must be based on something more definite than temperature. It is a question of conserving the patient's strength, and there should be enough energy left at the end of the day to take care of the normal demands of the day, plus the extra demands of the disease, plus reserve power. Fighting power must be conserved to the utmost. Rest and exercise must be applied in the right way. It is not enough to tell the patient to rest, as if he understood how it should be carried out. Most physicians understand very little of the minutiae of the rest treatment. Twenty-five per cent. more energy is required for rest in a chair than for rest in bed; sitting up and conversing requires 45 per cent. more energy. The difference between sitting up and lying down will turn the scale in many cases. Exercise increases the strain on the heart, already burdened by the effects of tuberculosis and the acidity of the blood, thus favoring breaking down of the enzymes, and autolysis. Every patient must be put to bed and kept there as long as there is any question of active tuberculosis. When the disease becomes quiescent, the patient begins to exercise by sitting up, perhaps for five or ten minutes at a time, increasing to twenty or thirty minutes, and then two or three hours. When he can sit up two or three hours without tiring, exercise is started, walking perhaps 50 or 100 feet a day. This graduated exercise means the rehabilitation of the patient, and brings him to the point at which he can walk from 2 to 10 miles a day without getting tired, and without toxemia. If one cannot do that, one has failed. Mental rest is of as much importance as physical rest. Rest and exercise must be adjusted to each individual. The sum of the matter is to treat by rest until the disease is inactive, and then to bring up exercise until the patient is well able to stand it.

Treatment of Influenza and the Pneumonia Incident Thereto

Dr. Jacob Diner, New York: There is no panacea and no standard method of treatment. The rule of treatment in our cases was subject to changes. Instead of digitalis, veratrum viride and aconite, and sometimes nitrites were used. The patient was put to bed in a properly ventilated room, without extremely cold temperature; 70 F. was considered advisable. Warm baths and good covering were provided. Ten grains of quinin and Dover's powder were administered at once. Hot lemonade, whisky and hot water bags to the feet were used. Hot drinks were used as long as the patient was awake, to provoke copious sweating. After twenty-four hours, an alcohol rub and change of sheets was ordered. No other food than milk was used. Cascara was used for the bowels. Nausea and vomiting were avoided on account of the weakening effect. The patient was kept in bed for seventy-two hours after return to normal of the temperature, pulse and respiration. Nourishing food was given at frequent intervals. Attention was paid to blood pressure and, in cases below 110, epinephrin, from 3 to 5 drops of a 1:1,000 solution, was found useful. With persistence of temperature, the case was considered as a potential pneumonia, and quinin and Dover's powder were continued. If râles were heard, hot flaxseed poultices were used every half hour. Digitalis and epinephrin were used. If the patient appeared toxic, 10 c.c. of camphor and olive oil were used. This was later discontinued. If the sputum was tenacious, ammonium salts were given, from 5 to 10 grains well diluted. With liquid expectoration, codein was used. Pleuritic complications were treated by hot applications and strapping, if necessary, aspiration and thoracotomy. The pleura was irrigated with saline solution. The patients were of the poorest class, those admitted to a charity hospital. Forty per cent. of those admitted died in forty-eight hours; 30 per cent. died within twenty-four hours. The total mortality was 24 per cent. of 642 cases. The mortality under 10 years of age was zero. The next lowest death rate was between 10 and 20 years. The highest mortality was in patients more than 60 years of age. The patients who died seemed to fail from deep, well marked toxemia.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

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Homologies of Maxillary and Vomer Bones of Polypterus. E. P. Allis, Jr., France.—p. 349.
Studies of Mammary Gland. IV. Histology of Mammary Gland in Male and Female Albino Rats from Birth to Ten Weeks of Age. J. A. Myers, Minneapolis.—p. 395.
Histology of Blood and Red Bone Marrow of Leopard Frog, Rana Pipiens. H. E. Jordan, Charlottesville, Va.—p. 437.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

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*Tolerance of Freshly Delivered Women to Excessive Loss of Blood. J. W. Williams, Baltimore.—p. 1.
*Analysis of Signs and Symptoms of Early Ectopic Pregnancy. N. S. Heaney, Chicago.—p. 17.
*Nourishment of Pregnant Woman. E. P. Davis, Philadelphia.—p. 23.
*Disease of Appendix and Pelvic Organs in Female. C. G. Childs, New York.—p. 31.
Case of Gastroschisis; Perforated Diaphragm; Anorchidy; Cloaca; Absence of Colon and Rectum; Imperforate Anus; Spina Bifida; Spinal Scoliosis; Sacral Lordosis and Split Pelvis. S. B. Schenck, Brooklyn, N. Y.—p. 38.
New Form of Obstetric Delivery Table. H. C. Ingraham, New York. —p. 46.
*Position of Navel of Man. N. Niwase, Tokyo.—p. 49.
Case of Full Term Ectopic Pregnancy. R. M. Rawls, New York. p. 53.

Excessive Loss of Blood by Pregnant Women.—Williams' study concerning the amount of blood lost during the third stage of labor and shortly thereafter and its clinical effects, is based on observations made on 1,000 consecutive spontaneous full-term labors. In the entire series the average time elapsing between the birth of the child and the extrusion of the placenta was 15.3 minutes, the extremes being spontaneous expulsion immediately following the birth of the child and a difficult Credé expression at the end of ninety minutes. The average bleeding was 343.7 c.c. with the extremes varying from zero to 2,500 c.c., the placental period having been entirely bloodless in two patients. Less than 300 c.c. were lost in 527 cases. Only forty-six patients lost more than 900 c.c. of blood, and 100 lost less than 100 c.c.

Early Ectopic Pregnancy.—Heaney urges that every patient presenting herself with the suspicious symptoms of a threatened, imminent or incomplete abortion should be examined with the possibility in mind that she may have an ectopic pregnancy, more especially if the cramps are located in the side of the pelvis instead of being over the uterus.

Nourishment of Pregnant Woman.—Davis says that especially valuable in pregnancy are the earthy salts and fruit acids contained in vegetables and fruits. Vegetables furnish abundantly substances needed in the development of the skeleton, while fruits and fruit pulp and fruit acids are the best possible laxatives for a pregnant patient and if used with a free supply of water they rarely fail to maintain the action of the bowels. Where indigestion is annoying and persistent, especially valuable is the juice of the fresh lime and also that of the fresh pineapple. Acidity and gastric indigestion may be annoying the patient and lead her to believe that she cannot take acids in any form. In estimating the diet of pregnant patients, the very important part played by water must not be forgotten. At least 1 quart of good water is required in twenty-four hours, and if the patient's metabolism is deficient a mildly saline water will prove of great benefit, but the mistake must not be made in cases where metabolism is deficient, of having the patient drink water in such excess that the kidneys are overcome and cease their function. Fresh air as a means of nourishment is of special importance to the pregnant patient.

Disease of Appendix and Pelvic Organs.—The results of a study in 746 cases are given by Child. He believes that disease of the pelvic organs in the female is an important exciting cause of appendicitis, and to a lesser extent the appendix may be a cause of right adnexal disease. In by far the greater number of cases of coexistent pelvic disease and appendicitis the primary source of infection is in the pelvis. Involvement of the appendix is nearly four times more frequent in right adnexal disease than in left. As the possibility of an involved appendix should always be borne in mind when operating on diseased adnexa, so also should the possibility of diseased adnexa be borne in mind when operating on the appendix. An appendix may be pathologic macroscopically yet not microscopically so, and vice versa, and should always be removed, if possible, when the abdomen is opened. Appendicitis in the female is associated so frequently with pelvic disease, that Child considers it to be a gynecologic condition.

Position of Navel of Man.—An examination of 1,000 persons convinced Niwase that there exists a typical geometric figure with reference to the position of navels. He measured the distance from the superior anterior iliac spine to the upper end of the middle line of the symphysis; from these two points to the under end of the navel and from its upper end to the inferior end of the processus xyphoideus. In most cases the length between the navel and iliac spine, the iliac spine and the symphysis, the symphysis and the navel are quite the same; in other words, the navel exists on the vertex of the right triangle drawn, though not on a plane, but on an irregular spherical surface and stood on the line combining symphysis and superior anterior iliac spine, in 86.8 per cent. of the subjects. This geometric figure with reference to the navel, Niwase terms the umbilical right triangle.

Archives of Ophthalmology, New Rochelle, N. Y.

July, 1919, **48**, No. 4

Autogenous One-Piece Epithelial Grafts for Restoration of Eyelids. E. B. Heckel, Pittsburgh.—p. 311.
Revolver Bullet Injury of Both Orbits with Many Eye Symptoms. Preservation of Vision in One Eye, That of Other Remaining Useful, but Below Normal. J. A. Spalding, Portland.—p. 317.
Extirpation of Lacrimal Gland for Relief of Epiphora. C. R. Holmes, Cincinnati.—p. 323.
Radical Treatment of Epiphora. A. Wiener, New York.—p. 334.
Case of Conjugate Deviation of Eyes with Astereognosis. H. A. Riley, New York.—p. 340.
Focal Infections of Eye from Intestinal Tract. J. G. Dwyer, New York.—p. 344.
Treatment of Intestinal Infections. J. J. Connellan, New York. —p. 350.
Autotoxic Factor in Sympathetic Ophthalmia. A. Knapp, New York. —p. 356.
Two Unusual Complications of Herpes Zoster Ophthalmicus: (a) Acute Retrobulbar Neuritis (Neuritis Axialis); (b) Acute Glaucoma. C. A. Veasey, Spokane.—p. 364.

Boston Medical and Surgical Journal

July 24, 1919, **181**, No. 4

What General Surgery Has Gained from the War. H. Cabot, Boston. —p. 79.
Empyema. H. Gage, Worcester.—p. 84.
*Empyema in Children, With Special Reference to Diagnosis. F. S. Churchill, Boston.—p. 87.
Diphtheria, the Uncontrolled. B. W. Carey, Boston.—p. 92.
Bronchitis; Most Significant Disease of War. G. A. Soper, New York.—p. 95.

Empyema in Children.—Churchill claims that empyema in children is relatively infrequent, developing in only about 5 per cent. of the cases of lobar pneumonia. It is gradual in onset. In all cases of pneumonia, the possibility of its development should be borne in mind and the primary, original disease carefully studied. Its early diagnosis, with fluid small in amount, is often difficult; late diagnosis, with fluid considerable in amount, is easy. The diagnosis in infants and children is more difficult than in adults. Exact examination of the chest, performed daily, is often necessary to detect the condition. A displaced apex beat is an important diagnostic sign. In all cases of pneumonia where fluid in the pleural cavity is suspected, Churchill says, the exploring needle should be used, and if necessary, repeatedly.

Canadian Journal of Mental Hygiene, Toronto

April, 1919, **1**, No. 1

Functions of a Psychopathic Hospital. E. E. Southard, Boston.—p. 4.
Scope and Aims of Mental Hygiene Movement in Canada. C. M. Hincks.—p. 20.
Story of Toronto General Hospital Psychiatric Clinic. C. K. Clarke, Toronto.—p. 30.
Neuroses of War. H. P. Wright, Montreal.—p. 38.
Immigration, Past and Future. W. G. Smith, Toronto.—p. 47.
Immigration and Canadian National Committee for Mental Hygiene. J. D. Page, Quebec.—p. 58.
Social Service and Mental Hygiene—A New Course of Training. R. M. MacIver, Toronto.—p. 62.
Subnormal Intelligence as an Educational Problem. P. Sandiford, Toronto.—p. 65.

Endocrinology, Los Angeles

April-June, 1919, **3**, No. 2

*Function of Chromaphil Tissues. I. Pearlman and S. Vincent, Winnipeg, Canada.—p. 121.
Death Produced by Tying Suprarenal Veins. F. A. Hartman and W. E. Blatz, Toronto, Can.—p. 137.
*Significance of Epinephrin in Muscular Activity. C. M. Gruber, Boulder, Colo.—p. 145.
*Action of Some Ovarian and Corpus Luteum Extracts on Pupil of Frog's Eye. D. I. Macht and S. Matsumoto, Baltimore.—p. 154.
Physiologic Action of Thyrotoxin. E. C. Kendall, Rochester, Minn. —p. 156.
New Point of View in Approaching Diagnosis and Treatment of Patient. G. Draper, New York.—p. 164.

Function of Chromaphil Tissues.—It seems probable from Pearlman and Vincent's work that the chromaphil tissue, especially, perhaps, the so-called "medulla of the suprarenal" may have important functions connected with the distribution of blood in the body, if not under normal conditions, at any rate in times of nervous and muscular strains.

Significance of Epinephrin in Muscular Activity.—In many experiments performed on perfused, excised muscles, the betterments were so marked and the vasoconstriction so striking that Gruber is convinced that only one conclusion can be drawn, i. e., epinephrin exerts some specific action on fatigued muscle other than that due to mere circulatory changes.

Action of Some Ovarian and Corpus Luteum Extracts on Pupil of Frog's Eye.—It was found by Macht and Matsumoto that the corpus luteum extracts, whether prepared from the fresh gland or from the desiccated product, produced a distinct dilatation of the pupil in from thirty to sixty minutes, depending on the concentration employed. Ovarian extracts, on the other hand, were found to produce very little or no change in the size of the pupil. Inasmuch as the ovarian preparations which were used contained small quantities of corpus luteum, the slight dilatation noted after the use of such extracts is ascribed to the lutein content. The difference between the effects of the ovarian and corpus luteum extracts, however, is so great that the authors regard the ovary and corpus luteum in so far as the effect on the pupil is concerned as being very different glandular bodies.

Indiana State Medical Association Journal, Fort Wayne

July 15, 1919, **12**, No. 7

Vaccines and Serums; Their Use and Abuse. B. W. Rhamy, Fort Wayne.—p. 179.
Differential Diagnosis of Affections of Right Upper Abdominal Quadrant. J. S. Nixon, Kokomo.—p. 183.
Differential Diagnosis Between Lesions of Gallbladder and Stomach. B. P. Weaver, Fort Wayne.—p. 186.
Premature Alopecia. O. E. Spurgeon, Muncie.—p. 190.

Iowa State Medical Society Journal, Des Moines

July 15, 1919, **9**, No. 7

Our Part in Social Education. J. F. Throckmorton, Chariton.—p. 207.
Infant Feeding. L. S. Dietrich, Marengo.—p. 208.
Thyroid; Its Functions and Diseases. W. J. Herrick, Ottumwa. —p. 212.
Epidemiologic Aspects of Typhoid in Iowa. J. H. Hamilton, Iowa City.—p. 218.
Five Cases of Strangulated Hernia, Complicated by Acute Appendicitis. L. H. Kornder, Davenport.—p. 223.

Journal of Cutaneous Diseases, Chicago

June, 1919, **37**, No. 6

*Chaulmoogra Oil in Treatment of Leprosy. H. T. Hollmann, and A. L. Dean, Honolulu.—p. 367.
Lepothrix. J. E. Lane, New Haven.—p. 387.
*Treatment of Erysipelas. W. H. Guy, Pittsburgh.—p. 399.

Chaulmoogra Oil in Leprosy.—In twelve years' experience in the treatment of leprosy, Hollmann has seen cases in which the manifestations of the disease have disappeared and the lesions become bacteriologically negative from the administration of chaulmoogra oil alone. Two patients subsequently had a recurrence of the disease, one within seven months, and one within two years. Twenty-six patients were treated with fractions of the fatty acid isolated by Dean from chaulmoogra oil. Hollmann is convinced that these fractions are superior to chaulmoogra mixtures. They are administered more easily, a much smaller dose is required at each injection, and there is more marked and more rapid amelioration of the disease. In the use of the ethyl ester of these fractions subcutaneously, the authors have noticed reactions in the leprous lesions. In six months' time large nodules have entirely disappeared, leaving deep crater-like scars. Of the twenty-six patients treated, seventeen showed marked improvement; one patient showed slight improvement and only three patients showed no improvement, being under treatment only three months or less. Of the twenty-six patients treated, eight have become bacteriologically negative in less than two years.

Treatment of Erysipelas.—The usual applications were used by Huy from time to time, but boric acid solution is his choice. The general treatment was largely symptomatic. A polyvalent antistreptococcic serum was used in all cases; and 75 per cent. of the cases were influenced favorably. Amelioration of symptoms was too closely connected with the administration of serum to be explained on any other basis. An abortive effect was obtained in two cases seen and injected within the first six hours of the infection. In the majority of cases following the administration of serum there was a fall in temperature, pulse rate and respiration, followed in the course of a few hours by a slowly mounting temperature, which, however, usually did not reach its original height. At the same time the toxemia was lessened and patients were comparatively comfortable. Second and third injections usually acted in the same way, to the end that the course of the disease was in many cases probably shortened, and in most cases certainly modified as to severity. In about 25 per cent. of the cases serum seemed to have absolutely no effect, and in the majority of cases no particular reason could be assigned for this failure of therapy, but two cases were probably accounted for by reason of general debility, one patient having been in bed for some months as the result of a gunshot wound and the other suffering from pulmonary tuberculosis.

Journal of Immunology, Baltimore

March, 1919, **4**, No. 2

*Studies in Osmotic Pressure. I. Mechanism of Boric Acid Hemolysis. M. Kosakai, New York.—p. 35.
*Id. II. Nature of Osmotic Pressure. M. Kosakai, New York.—p. 491.

Mechanism of Boric Acid Hemolysis.—After blood corpuscles have been treated for a short time with certain concentrations of boric acid that are not directly injurious to those cells, the sudden immersion of the treated corpuscles in physiologic solution of sodium chlorid causes their complete hemolysis. This "boric acid hemolysis" Kosakai found does not occur if the addition of the physiologic saline solution is made gradually or if the corpuscles are immersed, even suddenly, in more concentrated solutions of sodium chlorid or of other nonhemolytic substances. That the destructive force responsible for this form of hemolysis is that of "osmotic pressure" is shown by the fact that the minimal nonhemolytic concentrations of all of the substances examined were found to be identical "osmotic concentration."

Nature of Osmotic Pressure.—The results of the experiments made by Kosakai support the conclusion that osmotic pressure is not a direct property of a solute but is solely the pressure exerted by water which has passed, by the yet unexplained process of diffusion, through a semipermeable membrane to the side of the higher osmotic concentration.

Journal of Infectious Diseases, Chicago

June, 1919, **24**, No. 6

Anaphylatoxin and Anaphylaxis. XI. Ultra-Filtration and Fractionation of Anaphylatoxin. P. H. De Kruif and A. H. Eggerth, Ann Arbor, Mich.—p. 505.

*Study of Hemolytic Streptococci in Throat and in Empyema. B. Lucke and M. H. Rea, Camp Zachary Taylor, Louisville, Ky.—p. 533.

Sodium Oxy-Mercury-Ortho-Nitro Phenolate (Mercurophen). With Special Reference to Its Practical Value as a Disinfectant. J. F. Schamberg, J. A. Kolmer, George W. Raiziss and M. E. Trist, Philadelphia.—p. 547.

*Serum Studies on Etiology of Influenza. J. A. Kolmer, M. E. Trist, and E. Yagle, Philadelphia.—p. 583.

Epidemic of Pneumococcus Bronchopneumonia. E. F. Hirsch and M. McKinney, Camp Grant, Rockford, Ill.—p. 594.

*Effect of Foreign Protein on Kidney. E. T. Bell and T. B. Hartzell, Minneapolis.—p. 618.

*Spontaneous Nephritis in Rabbits and Its Relation to Chronic Nephritis In Man. E. T. Bell and T. B. Hartzell, Minneapolis.—p. 628.

*Protection Afforded by Various Filters Against Bacterial Suspension in Air. R. C. Tolman, E. W. Guernsey, V. D. Charleston and R. H. Dougherty.—p. 637.

Hemolytic Streptococci in Throat and in Empyema.—Streptococci isolated from the throat and from empyema exudate during the epidemic of the winter of 1917 and 1918, appeared biologically identical and highly virulent as based on criteria mentioned by Lucke and Rea. Their study confirms the observations of others, using immunologic procedures, and gives additional support to the belief that the streptococcus carrier state is an indication of the possibility of complications in respiratory tract diseases.

Serum Studies in Influenza.—The general results of the study made by Kolmer indicate that antibodies and particularly the complement fixing body, are developed in the serums of most influenza patients for *B. influenzae* and to a lesser extent for hemolytic streptococci and *M. catarrhalis;* similar studies were not made with pneumococci. These results, however, cannot be interpreted as an indication that the bacillus of influenza is the primary or chief cause of influenza inasmuch as this bacillus very probably possesses in the majority of cases sufficient pathogenicity to stimulate antibody production as an organism of secondary infection; similar studies with the streptococci of scarlet fever and the micrococci of acute anterior poliomyelitis indicate that what are very probably organisms of secondary infection, may stimulate specific antibody production. In general, the results of this investigation indicate on the basis of antibody production by the various organisms studied, that the bacillus of influenza produces most antibody during the course of the disease, and if this bacillus is not the actual or primary cause of the infection it is at least the chief organism of secondary infection, with streptococci ranking second in antibody production and importance.

Effect of Foreign Protein on Kidney.—The purpose of the investigation made by Bell and Hartzell was to determine whether chronic nephritis can be produced experimentally in rabbits by a foreign protein. Repeated shock was produced in a few animals, but in most of the experiments no attempt was made to produce anaphylaxis. Nontoxic foreign proteins, such as ascitic fluid, do not produce renal injury of any kind in the rabbit when infected intravenously in moderate amounts. The repeated production of anaphylatic symptoms with this protein likewise does not injure the kidney. Egg albumin may produce slight parenchymal injury when injected in large amounts, but usually it causes no damage. Toxic foreign proteins such as sheep serum produce considerable parenchymal injury to the kidney which in some instances seems to lead to the rapid development of a renal infection comparable in all anatomic respects to the ordinary type of spontaneous nephritis. The fact that streptococci were isolated in pure culture from the kidneys of such animals shows that the lesion is essentially infective, and not the direct result of foreign protein or anaphylatoxin. No lesion comparable to human chronic glomerulonephritis has been produced experimentally. There is no experimental evidence that foreign protein is in any way responsible for chronic nephritis in man.

Spontaneous Nephritis in Rabbits.—Bell and Hartzell claim that the investigators who believe they have produced chronic nephritis experimentally have not had controls adequate to exclude the spontaneous disease, and the lesions described correspond closely with spontaneous lesions. No chronic glomerulonephritis has been produced experimentally. There is no anatomic or pathogenetic relationship between spontaneous nephritis in the rabbit and human chronic glomerulonephritis.

Protection by Filter Against Bacteria in Air.—Tests were made by Tolman et al. to determine the degree of protection offered by various filtering materials against suspension in air of *B. prodigiosus.* Buttercloth masks have been found to give inadequate protection against bacteria in this form. Felts are available which give complete protection against air borne bacteria of the size of *B. prodigiosus.* The portable electrical precipitation apparatus of Lamb gives complete protection against bacterial suspensions, killing the bacteria in its action. A mask with a felt filter with an area of 125 square inches and a pressure drop of about 1 inch of water has been constructed which will give complete protection. The efficiency of the buttercloth filter is greatly increased by wetting the cloth. It might be possible to arrange an efficient wet filter mask which would be much simpler, more comfortable, and cheaper than those in which felt is used.

Journal of Laboratory and Clinical Medicine, St. Louis

July, 1919, **4**, No. 10

Communicable Disease in U. S. Army During Summer and Autumn of 1918. V. C. Vaughan, Ann Arbor, Mich., and G. T. Palmer, Springfield, Ill.—p. 588.

*Physiologic Investigation into Dynamic Action of Heart in Functional Cardiac Disorders. C. J. Wiggers, Cleveland, and H. D. Clough, Lakewood, N. J.—p. 624.

Effect of Intravenous Diarsenol. W. C. Rappleye, Foxborough, Mass.—p. 630.

*Edestin Method for Estimation of Pepsin in Stomach Contents. P. R. Farrington, and R. C. Lewis, Boulder, Colo.—p. 635.

Turkish Wash Cloths for Packs in Experimental Surgery. F. C. Mann, Rochester, Minn.—p. 639.

Heart in Functional Cardiac Disorders.—A consideration of collected data in the light of physiologic facts Wiggers and Clough state makes possible the following conception as to the cardiac derangement in cases of functional cardiac disorders and at least certain types of compensated organic lesions: The normal heart possesses a mechanism whereby the systole is shortened when the rate is accelerated. This is especially evident when the rate increases beyond eighty per minute. The musculature, while subjected to more frequent periods of contractile stress, is automatically spared to some extent through a shortening of systole. In functional cardiac disorders, this compensatory mechanism (whatever its nature and cause) may be entirely abrogated, or, what is more common, does not become operative until the heart has accelerated to a far greater extent (100 to 120 per minute). In other words, whenever the functionally disordered heart is accelerated above eighty per minute its period of systole is not shortened as is that of the normal heart and consequently the myocardium is exposed more frequently to prolonged period of contractile stress. This condition, favoring the onset of rapid cardiac fatigue is more serious since the hearts of these subjects are usually rapid even at rest. It appears that the same deficiency in the adjustment of systolic length to the duration of the cardiac cycle exists in many organic heart cases. Owing to the fact, however, that the heart rate in these individuals is usually slow, at least during rest and moderate activity, the myocardium is in this way spared from the consequences of such failure to shorten.

Edestin Method for Estimation of Pepsin.—It is claimed by the authors that the method proposed for the preparation of edestin gives a product of sufficient uniformity to be used in the estimation of peptic activity without the necessity of ascertaining its exact edestin content. The procedure for determining peptic activity gives a clearer end point than that of the pea globulin method, is very practical for clinical use.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

June, 1919, **13**, No. 3

*Action of Drugs on Output of Epinephrin from Suprarenals. II. Concentrated Salt Solutions (Sodium Carbonate) Injected into Circulation. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 167.
*Id. III. Nicotin. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 183.
*Presence of Histamin (B-Iminazolylethylamin) In Hypophysis Cerebri and Other Tissues of Body and Its Occurrence among the Hydrolytic Decomposition Products of Proteins. J. J. Abel and S. Kubota, Baltimore.—p. 243.

Effect of Concentrated Salt Solutions on Output of Epinephrin from the Suprarenals.—Stewart and Rogoff found that intravascular injection of small volumes of concentrated salt solutions (sodium carbonate) causes a temporary increase in the rate of liberation of epinephrin from the suprarenals. They conclude that this increase is presumably due to stimulation of the nervous mechanism which governs the epinephrin output since it is accompanied by symptoms of a general excitation of the bulbospinal centers, and is not obtained or only in a minor degree, when even larger quantities of the carbonate are injected in more dilute form. The authors caution that in experiments on epinephrin output, it is not advisable to use concentrated solutions of salts in tubes connecting an artery with a mercurial manometer.

Effect of Nicotin on Output of Epinephrin from the Suprarenals.—The predominant and by far the most durable action of nicotin, whether administered intravenously or hypodermically, on the epinephrin output Stewart and Rogoff point out is a depressant or paralyzing action. The maximum diminution of the epinephrin output is rather rapidly reached and then there is a more gradual recovery, which when the dose is not too large, proceeds till the original output is approximately attained. At the time of maximum depression no epinephrin at all may be detected in the suprarenal vein blood by the test objects chiefly employed (rabbit intestine and uterus segments). The depressant action is preceded by a transient stage of excitation, lasting, as a rule, in these experiments not longer than from half a minute or less to a minute. In this stage the rate of epinephrin output is markedly increased (from two or three to ten or fifteen times the original output or even more, under our experimental conditions.) The latent period of the transient excitation, with intravenous injection of the drug, is very short. In some of the experiments there was evidence that it could not have exceeded a few seconds. The brief stage of excitation passes rather abruptly into the much more durable stage of depression. The maximum increase in the rate of epinephrin output is followed at a relatively short interval by the maximum depression of the rate, after which begins the gradual recovery. The changes in the rate epinephrin output are roughly parallel to the changes in the blood pressure caused by nicotin, indicating that when the sympathetic ganglion cells on the afferent vasomotor path are being stimulated or depressed, a corresponding stimulation or depression is being exerted on the efferent suprarenal secretory path. The nicotin effect on the epinephrin output is, speaking generally, the converse of the strychnin effect. The nicotin action develops more suddenly than the strychnin action.

Presence of Histamin in the Hypophysis Cerebri.—Histamin, B-iminazolyl-ethylamin, a substance which stimulates plain muscle tissue in minute doses, which depresses the circulation, and which causes a shocklike prostration when administered in doses that lie beyond the limits of toleration, is a widely distributed constituent of all animal tissues, organ extracts and enzymatic products, whether derived from animal or vegetable proteins. Histamin, according to Abel and Kubota, is a constituent of our diet and we daily consume no inconsiderable amount of the base, some of which is present in the form of the free base or a simple salt, while more of it is in all probabality produced in the course of digestion. They suggest that histamin plays an important rôle as stimulant for the gastric and intestinal musculature and also as a dilator of capillaries during digestion, and that histamin is the most powerfully acting among the depressant substances which have their origin in mutilated tissues, and hence plays the leading rôle among the chemical factors concerned in traumatic shock. Histamin is the plain muscle stimulating and depressor constituent of the posterior lobe of the pituitary gland.

Medical Record, New York

July 26, 1919, **96**, No. 4

Tuberculosis Problem After World War. S. A. Knopf, New York.—p. 136.
Episeotomy: Its Relation to the Proper Conduct of Perineal Stage of Labor. C. G. Child, Jr., New York.—p. 142.
Explanation and Treatment of Effort Syndrome, Neurocirculatory Asthenia (Soldiers') Irritable Heart. G. E. Barnes, Herkimer.—p. 144.
Poison Gases in Warfare. G. G. Nasmith.—p. 146.

Nebraska State Medical Journal, Norfolk

May, 1919, **4**, No. 5

Immediate and Ulterior Results of Great War in Their Relations to Medical and Surgical Practice, and to Disease Prevention. J. M. Banister, Omaha.—p. 123.
Methods of Dealing With Surgical Patients in Base Hospital Center in France. H. W. Orr, Lincoln.—p. 127.
Hospital for Tuberculous. L. T. Sidwell, Kearney.—p. 129.
Surgery of Prostate. E. A. Watson, Grand Island.—p. 130.
*Bacterial Findings in Abscessed Teeth in Children. A. L. Smith and R. W. Ludwick, Lincoln—p. 131.
Dental Infections from Viewpoint of Roentgenologist. R. L. Smith, Lincoln.—p. 134.

July, 1919, **4**, No. 7

Hospital Standardization and Medical Efficiency. J. S. Welch, Lincoln.—p. 193.
Postoperative Care of Surgical Patients, Lesson Learned from Army Methods. A. J. Brown, Omaha.—p. 197.
Evolution of Suprapubic Operation of Prostatectomy, and Its Latest Status. J. E. Summers, Omaha.—p. 202.
Diverticulitis and Peridiverticulitis. M. Emmert, Omaha.—p. 208.
Herniotomy Under Local and Spinal Anesthesia. H. B. Boyden, Grand Island.—p. 210.
Heat and Cold In Surgery. C. H. Breuer, Lincoln.—p. 212.
Roentgen Diagnosis of Kidney Lesions. R. L. Smith, Lincoln—p. 216.
Lip Reading: An Aid to Hard of Hearing Adults. E. B. Kessler, Omaha.—p. 217.
Human Infection Carriers; Their Significance, Recognition and Management. C. E. Simon, Baltimore.—p. 218.

Bacterial Findings in Abscessed Teeth in Children.—In these 107 cases Smith and Ludwick found the *Streptococcus hemolyticus*, 26 times; *Streptococcus pyogenes*, 19 times; *Streptococcus viridans*, 2 times; *Staphylococcus pyogenes-citreus*, 9 times; *Staphylococcus aureus*, 36 times; *Staphylococcus pyogenes-albus*, 7 times; *Bacillus pyocyaneus*, once; *Diplococcus pneumoniae*, 18 times; *Micrococcus catarrhalis*, 4 times; *Bacillus fusiformis, Spirochete vincenti* (Vincent's angina), once; a diphtheroid bacillus, 3 times. In eight cases the pus was sterile.

New Jersey Medical Society Journal, Orange

April, 1919, **16**, No. 4

Present Status of Cancer Problem. L. D. Bulkley, New York.—p. 111.
Control of Venereal Diseases. L. L. Davidson, Newark.—p. 114.
An Original Device for Control of Hemorrhage from Large Sinuses of Brain by Invulsion of the Outer Wall into the Lumen. W. P. Eagleton, Newark.—p. 116.
Public Health and Child Hygiene. E. S. Hamblen.—p. 118.

New York Medical Journal, New York

July 26, 1919, **110**, No. 4

Influenza and Bronchopneumonia at Camp Lewis. W. J. Kerr, San Francisco, H. K. Berkley, Los Angeles, and T. H. Coffin, Portland. p. 133. To be cont'd.
Case of Syphilis with Mild Relapsing Symptoms Fifty-Five Years after Inoculation. V. C. Pedersen, New York.—p. 140.
Cardiovascular Response to Infection. S. E. Earp, Indianapolis.—p. 141.
Interpretation of Serologic Formulas. D. M. Kaplan, New York.—p. 144.

Tuberculin in Tuberculosis. M. Staller, Philadelphia.—p. 148.
Mental Mechanisms in the Psychoses and Neuroses. P. R. Lehrman, New York.—p. 150.
Souvenir of My Captivity; Typhus at Cassel. H. Poisson.—p. 152.

Northwest Medicine, Seattle, Wash.

July, 1919, **18**, No. 7

The Physician and Service. C. M. Barbec, Portland.—p. 123.
Hypothesis on Influenzal Pneumonitis. E. O. Houda, Tacoma.—p. 130.
When Teeth are a Source of Focal Infection. J. B. Schlund. Tacoma.—p. 134.
Two Cases of Melanotic Sarcoma of Choroid. C. A. Veasey, Spokane.—p. 137.

Ohio State Medical Journal, Columbus

March 1, 1919, **15**, No. 3

What Physicians can do to Help Bureau of Juvenile Research. H. H. Goddard, Columbus.—p. 144.
Limitations of Cesarean Section. E. G. Zinke, Cincinnati.—p. 150.
The Industrial Cripple. W. G. Stern, Cleveland.—p. 153.
Some Practical Suggestions for Living Under Allen Treatment. M. L. Arnold, Columbus.—p. 159.

Southwestern Medicine, El Paso

June, 1919, **2**, No. 18

Our Purposes. W. W. Watkins, Phoenix.—p. 1.
Surgery of Appendix. J. H. Morford, El Paso.—p. 9.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

June, 1919, **24**, No. 1

Some Biologic Effects of Small Quantities of Radium. W. S. Lazarus-Barlow.—p. 1.
*Osseous Abnormalities of Foot Which Cause No Discomfort. G. A. Pirie.—p. 12.
*Unusual Case of Torticollis. R. W. A. Salmond.—p. 14.
Mobile Roentgen Ray Wagon Unit. H. C. Head.—p. 15.
Spastic Paralysis of Deltoid Muscles; Leukoplakia; Lagophthalmus. J. D. Harris.—p. 28.

Osseous Abnormalities of Foot which Cause No Discomfort.—Pirie reports two cases in which pain in the foot was caused by the fact that the scaphoid of each foot had been developed from two centers, and the parts remained distinct.

Unusual Case of Torticollis.—A man was grazed on the back of the shoulder by a piece of shrapnel. A typical and well marked torticollis developed at once, lasted for a week, and then gradually passed away completely. On roentgen-ray examination, the second and third ribs were found to be fractured near their vertebral articulations, the seat of the fracture in the second rib corresponding to the attachment of the scalenus posticus muscle. Salmond concludes that the torticollis was, no doubt, due to the head and neck being involuntarily held in the position of greatest rest to the scalenus posticus muscle, and, perhaps, in a lesser degree, to one or other of the deep seated muscles of the back, and its extension into the neck; in other words, it was Nature's method of keeping the fracture at rest while it was uniting.

British Medical Journal, London

July 5, 1919, **2**, No. 3053

Old Humanities and New Science. W. Osler.—p. 1.
*Diagnosis of Tuberculosis by Complement Deviation Method. C. Y. Wang and J. Crocket.—p. 7.
Will the Use of Scopolamin and Morphin in Labor Help to Improve Birth Rate? W O. Greenwood.—p. 9.
*Cure of Multiple Warts on Face. C. Ind.—p. 11.
Significance of Cerebral Cortex. G. E. Smith.—p. 11

Diagnosis of Tuberculosis by Complement Deviation Method.—Wang and Crocket use a tubercle antigen which is essentially the bodies of the tubercle bacilli after their fatty substance has been removed. The syphilitic antigen is an alcoholic extract of the human heart, with or without the addition of cholesterin. The patient's serum is collected as for a Wassermann test from an arm vein with a needle. The blood suspension is prepared from defibrinated ox blood, which at the final washing should be spun at a fixed speed for a definite time, so that approximately the same thickness of blood is obtained each time. The complement used is that of guinea-pig serum from 4 to 18 hours old. This investigation deals with the examination of serums from 104 tuberculous subjects and 220 controls. Of the tuberculous, in fifty-seven cases tubercle bacilli were found in the sputum, and in forty-seven they were absent. Altogether forty-nine patients had received tuberculin treatment at one time or another. The controls were 100 positive and 100 negative Wassermann serums, and of twenty serums taken from persons clinically known to be free from tuberculosis. The findings of the cases investigated, therefore, furnish 85 per cent. positives out of 104 tuberculous subjects. As none of the controls reacted positively to the test, it may be justifiable to regard the test as specific, and where a reaction is provoked a diagnosis may safely be pronounced, not only that the disease is present, but also that the lesion is in an active condition. Here, as in the Wassermann test, a negative finding is significant, though inconclusive. The nonspecific reaction which other observers have found was due, the authors suggest, to the presence of lipoids in their antigen and, in part, also to the tested serums being insufficiently heated.

Cure of Multiple Warts on Face.—The use of a saturated alcoholic solution of salicylic acid followed by abscission was surprisingly effective in Ind's case. The warts and skin around were painted three times a day for one day with this liquid. On the following morning the warts were cut off by a flat sharp steel instrument, bevelled on one side only; this passes freely over the healthy skin, but when it comes to the wart it is cut off, leaving a slightly bleeding point. The surface is painted at once with the salicylic solution and twice more later during the same day, three times in all. This turns the little red points a brownish black color, tiny scabs form which are allowed to drop off, taking about a week to do so, and leaving a perfectly clear healthy skin. The forehead is bathed with pure alcohol once a day until the scabs have all dropped off. There is neither pain nor scarring, and sepsis does not occur. The treatment is useless for larger warts. The use of the salicylic solution prevents pain when the warts are cut off and also prevents recurrence afterward.

Glasgow Medical Journal

July, 1919, **10**, No 1

Relics of William Hunter. A. Napier.—p. 1.
Syphilis of Nervous System and Its Treatment. I. Mackenzie.—p. 4.
*Investigation Into Phenomena of "Serum Disease": Relation Between Its Various Forms and Proteins of Horse Serum. T. G. Davidson. p. 20. To be Cont'd.
With the 1/1st Lowland Field Ambulance in Gallipoli. G. H. Edington.—p. 30.

Phenomena of "Serum Disease."—A study by Davidson of the clinical and statistical differences between the three types of rash noted in serum disease has disclosed that these rashes differ from each other: (*a*) in their clinical appearances and manifestations; (*b*) in their relative frequency of occurrence; (*c*) in their minimum and maximum incubation periods and in the length of the interval of time between these two points; (*d*) in their average incubation periods; (*e*) in their order of occurrence; (*f*) in the character and course of their graphs; (*g*) in their duration. The relative frequency of occurrence of the three types is urticarial most, morbilliform less, and circinate least frequent. The order of occurrence of the three types is urticarial first, morbilliform second and circinate last. These findings suggest the possibility of the cause of each type of rash being also different and distinct. The distinction between the three types of rashes becomes even more marked in an investigation of some of the accompanying symptoms of "serum disease," and the theory that the causal factor in each type is not the same but of different origin is considerably strengthened. The most important accompanying symptoms are pyrexia, joint pains, edema, enlarged glands, and increase in the cardiac dulness.

Japan Medical World, Tokyo

June 22, 1919

*Studies on the Nature of Anaphylactoid Symptoms Caused by Repeated Intravenous Injection of Arsphenamin and Its Prevention. N. Hirano.

Nature of Anaphylactoid Symptoms Caused by Repeated Intravenous Injection of Arsphenamin.—On the basis of Millian's report that he had successfully prevented the development of anaphylactoid symptoms by the previous administration of epinephrin, and by his experience that it may develop severely in a patient having involvement in the suprarenals, such as a thymicolymphatic constitution or Addison's disease, Hirano concluded that there must be some intimate relation between arsphenamin and the suprarenal. The results of various experimental studies showed that by the administration of arsphenamin there occurs a sudden consumption of epinephrin in the circulating blood and the consequent supply of the deficit may not always be effected by the suprarenals, when anaphylactoid symptoms develop. This conclusion has been drawn from the following facts ascertained by experiments: 1. Arsphenamin anaphylactoid symptoms may be prevented by the previous administration of epinephrin. 2. Arsphenamin and neo-arsphenamin interrupt, to a certain degree, the epinephrin sublimate reaction in vitro. 3. The blood serum of the animals that received the intravenous injection of either arsphenamin or neoarsphenamin contained a smaller quantity of vasocontractile substance than did the normal serum, if the serum was prepared from the blood withdrawn immediately after the injection of arsenic compounds. 4. The epinephrin content of both suprarenals decreases after the injection of arsphenamin. 5. A slight increase of the epinephrin content of the suprarenals was noted in rabbits that had been treated with repeated injections of arsphenamin. If a therapeutic dose of arsphenamin be given to the animals that had been thus treated, no remarkable decrease of the epinephrin content would ensue. But if the previous treatment was made with neo-arsphenamin, the epinephrin content of the suprarenals would indicate a remarkable decrease.

June 29, 1919

*Tsutsugamushi Disease: Results of Investigation during 1918. N. Hayashi, Muskoyama, and Oshima.

Tsutsugamushi Disease.—The authors collected as many specimens as possible from one infected region examined them and found that there are three different forms of the infecting organism. Only one form was found to give infection to the host. The mites are not only found infesting the field voles but also domestic fowls and a bird, *Acrocephalus orientalis.* The fact that these birds harbor the mites is a very important fact to know. This fact alone will make the elimination of the source of infection most difficult. It will also favor the distribution of the disease to a wider region. The field voles that harbor the mites live in a very restricted region along the rivers, while the bird has a wider habitat. The prevention of the disease has been experimentally carried out. The method consists in (1) the use of overalls in the field work; (2) the disinfection of the soil, and (3) the application of chemical preparations, especially insecticides to the exposed parts of the skin. By the use of the overalls and the insecticides, good results have been obtained, but the disinfection of the soil is very difficult to attain. The best way of extirpation of the infection seems to consists in the use of the overalls and the insecticides and the extirpation of the hosts of the akamushi, i. e., the field voles, the birds, etc.

Journal of Tropical Medicine and Hygiene, London

July 1, 1919, **22**, No. 13

Case of Pentosuria Contracted in Tropics. A. Castellani and F. E. Taylor.—p. 121.
*Acquired Cranial Deformity. P. M. Brett.—p. 122.
Bosch Yaws, the Dermal Leishmaniasis of Dutch Guiana. E. Bonne.—p. 122.

Acquired Cranial Deformity.—Among the Mombettu tribe of Bantu stock which lives in the Haut-Uele district of the Belgian Congo the mothers artificially deform their infants' heads. It is their custom to compress the child's head by tight bands made of fiber. As the little skull grows it assumes an elongated shape. This deformity remains when adult life is attained and becomes a distinctive feature of the tribe.

Lancet, London

July 12, 1919, **2**, No. 2

Spread of Bacterial Infection. W. W. C. Topley.—p. 45.
*Streptococcal Infections of Septic Wounds at a Base Hospital. A. B. Porteous.—p. 49.
*Certain Organisms Isolated from Cases of Influenza. H. J. B. Fry.—p. 51.
Results to be Expected from Antenatal Care. E. Holland.—p. 53.
Pneumokoniosis in Man and Horse. W. C. Rivers.—p. 55.
Tuberculosis from a West Indian Standpoint. J. Geoghegan.—p. 56.
*Influenzal Pneumonia: Bacteriology of Complications in Fatal Cases. O. Heath.—p. 58.

Streptococcal Infections of Septic Wounds at a Base Hospital.—Porteous suggests that, as a rule, it is not the circulating blood which is at fault in cases of streptococcal septicemia, and in all probability there is some deficiency in the local protective mechanism which allows access of the streptococci to the blood stream. It would seem to follow, also, that for the successful treatment of a case of septicemia the most essential element would be the thorough local treatment of the infected focus. It has been observed that when an infection has become circumscribed by the collection of leukocytes in the walls of the wound and by the other factors which operate locally in this connection, it is very difficult to graft a serious streptococcal infection on the wound. It follows from this that the utmost care should be taken in the first few days after the injury to keep out the streptococcus and to avoid any treatment which will inhibit the development of the defensive processes. In the after-treatment fresh tissue should only be opened up when there is a very urgent necessity.

Certain Organisms Isolated from Cases of Influenza.—In the course of an investigation of material derived from cases of influenza during the three waves of the present epidemic, when searching for Pfeiffer's bacillus, gram-negative, "Pfeiffer-like" bacilli were frequently isolated. They were not, however, hemophilic and grew rapidly and readily on ordinary agar. They have been isolated by Fry from sputum, postmortem material and in blood culture. The organisms derived from the latter source were isolated from the blood of two German prisoners, out of four cases examined, at the commencement of the third wave of the epidemic in February, 1919. The camp to which the prisoners had belonged had escaped the two previous waves, but was overwhelmed by the present one, a large proportion of the prisoners being severely attacked. The organism was obtained in 2 per cent. glucose broth and appeared in twenty-four hours in the blood culture, as round or oval, gram-negative "yeastlike" bodies, from 3 to 5 microns long and from 2 to 4 microns broad. Subculture to agar produce gram-negative bacilli, varying in size from coccal or coccobacillary forms to short filaments. The "yeastlike" bodies rapidly disappeared from the blood culture, and were replaced by clumps of gram-negative bacilli, in the neighborhood of which could be seen, in some cases, gram-negative amorphous masses, resembling the ruptured envelopes of the above mentioned "yeastlike" bodies.

Bacteriology of Influenzal Pneumonia.—Pneumococcal or streptococcal organisms were found by Heath in sixteen postmortems; in two out of three serous fluids taken during life; and in nineteen out of twenty sputums examined bacteriologically. Emphasis is laid on the hemorrhagic and infective nature of the fluids found postmortem. Attention is drawn to the high percentage of fatal cases which came from "low category" units.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 23, 1919, **43**, No. 18

*Lethargic Encephalitis. G. Etienne.—p. 482; H. Claude and H. Schaeffer.—p. 521.
*Serodiagnosis of Typhus. Vialatte, Collignon and H. Bénard.—p. 484.
Fatal Influenza with Progressive Azotemia, Libert.—p. 489.
Urticaria after Intravenous Injection of Electrargol, Libert.—p. 492.
*Injection of Air in Treatment of Traumatic Hemothorax. P. Emile-Weil and Loiseleur.—p. 494.
*Blood Cysts in Pleura or Lung. Sergent and Pruvost.—p. 497.
*Wassermann Reaction in Scarlet Fever and Measles. L. Laederich and L. Bory.—p. 504.
*Convulsions after Gassing. G. Blechmann.—p. 507.
Syphilitic Parotitis. A. Lemierre.—p. 510.

Paratyphoid A Thyroiditis. A. Lemierre and Taberlet.—p. 513.
*Meningococcus Septicemia. A. Lemierre and P. Lantuéjoul.—p. 515.
*Bronchial Spirochetosis. G. Delamare.—p. 526.

Lethargic Encephalitis.—Etienne's patient was a girl of 17 who suddenly developed diplopia and slept for three weeks. She then recovered except for slight facial paralysis. The spinal fluid seemed to be normal in every respect throughout. An elderly man about the same time suddenly developed delirium and high fever, then deep somnolency, with death the second day. Claude and Schaeffer's patient was a woman of 42 and the somnolency had followed a week of headache. Ptosis was complete, and the woman died in less than three weeks. The temperature was high toward the last but the spinal fluid was clear and under normal pressure. Necropsy disclosed lesions of acute encephalitis in the isthmus of the brain, lower portion of the bulb, and the opto-striated nuclei. The lesions closely resembled those of Wernicke's polyencephalitis except for the absence of hemorrhagic foci. Aside from the special seat of these lesions, they differed also in other respects from the lesions of ordinary acute encephalitis, particularly encephalitis following influenza, in which edema of the brain is the predominating lesion.

Serodiagnosis of Typhus.—The agglutination of the Proteus X was pronounced in the forty cases of typhus reported.

Treatment of Hemothorax.—Weil and Loiseleur treat traumatic hemothorax by puncture and injection of air or nitrogen, and they expatiate on the advantages of this procedure, describing three illustrative cases. They consider it important to filter the air as the blood offers a good culture medium for germs.

Encysted Hematoma in Pleura or Lung.—Sergent and Pruvost remark that they do not know of any systematic study of this subject that has been published. With roentgen examination such hematomas are readily recognized, and the history of a trauma or unexplained hemoptysis will give the clue. Otherwise chronic pleurisy or hydatid cyst may be suspected. In one of the three cases described, a boy of 9 had hemoptysis after long violent running; in another case there was a history of a contusion. The blood may be evacuated through the air passages or it may become permanently encysted; even after evacuation of the cyst the walls may be so stiff as to hamper the movements of the lung.

The Wassermann Reaction in Eruptive Diseases.—Laederich and Bory found in 20 cases of scarlet fever, 4 of smallpox and 13 of measles that these acute infections modify the blood serum in the same way that syphilis does, only less intensely and only for about two weeks at most.

Convulsions After Gassing.—The convulsions, loss of consciousness and rise in blood pressure that followed exposure to mustard gas all subsided at once after withdrawal of 500 gm. of blood. The case teaches the importance of determining the blood pressure and bringing it down to normal by venesection in certain cases, the other symptoms being likely to retrogress with this.

Meningococcus Septicemia.—Lemierre was unable to detect the meningococcus in the blood, spinal fluid, throat or skin lesions, but the agglutination test cleared up the case and permitted effectual serotherapy. The infection induced intermittent fever and recurring eruptive phenomena, thyroiditis, epididymitis, orchitis and parotitis, with only a slight meningeal reaction. The fever every evening for four months suggested malaria. During the febrile attacks there were severe pains in legs and lumbar region, and in time there was some muscular atrophy in the legs, but there was never any Kernig sign or stiffness of the back of the neck and only occasionally was there any headache and then it was mild. The appetite kept good most of the time. Repeated bacteriologic examination of the blood was negative but a neutrophil polynuclear leukocytosis pointed to some bacterial infection.

Bronchopulmonary Spirochetosis.—Delamare recalls that recurring hemoptysis is characteristic of this affection, as also the fetid sputum. Arsenic treatment gives good results in the cases not complicated with tuberculosis. Emetin does not seem to benefit.

Journal de Médecine de Bordeaux

June 25, 1919, 90, No. 12

Principal Factors of Congenital Debility. A. Moussous.—p. 235.
*Infant Mortality at Bordeaux. Chambrelent.—p. 240.
Asylum for Pregnant Women. Chambrelent.—p. 245.
Asylum for Infants. Rocaz.—p. 246.
Model Milk for Young Children. Rocaz.—p. 249.
*Cure of Neuralgia under Fixation Abscess. Roumaillac.—p. 250.

Infant Mortality in French Cities During the War.—Chambrelent relates that the infant death rate at Bordeaux had reached in 1910 to 1912 its lowest point, namely, 10.9 per cent. but during the war it gradually increased until it was 23.1 per cent. in 1918. At Toulouse a similar rise was recorded, from 11 to 21 per cent.; at Marseilles, from 11 to 17 per cent., and at Rouen from 19.6 to 25. At Paris, from 15.51 in 1913 the infant death rate progressively declined to 13.96 in 1918. At Lille it was lower than ever known before, dropping from 20 in 1913 to 15.4 in 1918. Calmette ascribes this to the fact that as no factories were running at Lille the women stayed at home with their infants, and as not a drop of cow's milk was obtainable during the four years of the war, breast feeding was universal. It was supplemented by the condensed milk furnished at first by the American and later by the Spanish-Holland relief board. Calmette in a recent report commented most favorably on the excellence of this system of infant feeding. Even on condensed milk alone there were no more of the gastro-intestinal disturbances to which from 18 to 21 per cent. of the infants formerly had succumbed. The infant dispensaries and well baby stations were maintained at Lille throughout the war as before. The infant death rate at Paris was also the lowest ever known there. Ample dairy facilities had been provided for the city, fearing a siege, and the children had first-class milk throughout. This was not done at Bordeaux and the high death rate among infants shows the penalty. Chambrelent extols the valuable work done by two institutions at Paris where needy pregnant women are given a home until ready for the Maternity. One of these institutions has provisions for the woman's bringing her small children with her. A third institution is open day and night to shelter any woman in need. He urges the necessity for similar institutions elsewhere.

Fixation Abscess Cures Neuralgia.—The woman of 34 in the case described by Roumaillac had had for five years agonizing right trigeminal neuralgia, the attacks often coming on several times a day, evidently from autointoxication. An injection of 1.5 c.c. of turpentine, old and yellow, was then made in the left thigh. It induced a violent reaction, almost a diffuse phlegmon, but the neuralgia stopped at once and there has been no recurrence during the four years since.

Le Nourrisson, Paris

May, 1919, 7, No. 3

*Congenital Stenosis of the Pylorus. A. B. Marfan.—p. 129.
*Athrepsia in Inherited Syphilis. Ribadeau-Dumas and Faroy.—p. 146.
Influenza in Young Infants. C. Achard.—p. 163.
*Boarding Out Infants in the Country. P. F. Armand-Delille.—p. 166.
*Latent Meningeal Reactions in Inherited Syphilis. Lavergne.—p. 172.

Congenital Stenosis of the Pylorus.—Marfan remarks that this anomaly is very rare in France and in all Latin and Slavic countries. The infants take the breast or bottle as if famished, but soon drop it and seem to suffer pain, and there is pronounced oliguria as the children drink little and vomit profusely. One infant in his service died the thirty-eighth day after birth with nervous symptoms suggesting the action of a poison formed in the stagnating stomach contents. The congenital stenosis may cause no appreciable disturbance for a few years and then, under some inflammatory swelling or spasm, the pylorus may become impassible for the first time at the age of 2, 3, or even 11 or 12. After excluding esophageal regurgitations and merycism or rumination, the differentiation from ordinary habitual vomiting is based on the shortness of the periods of relative relief, on the absence of alternating periods of constipation and diarrhea (common with habitual vomiting), and on the roentgen findings. Further evidence is afforded by the lack of improvement under ordinary medical treatment. If no benefit is apparent in three weeks, operative measures should be considered. His illustrations of the pathologic anatomy of congenital stenosis of the pylorus show the futility of expecting benefit from medical measures alone with complete impermeability.

Athrepsia with Inherited Syphilis.—The defective development liable with inherited syphilis in the liver, pancreas and parotid is shown by examples with four illustrations. The profound changes found in these organs readily explain the imperfect digestion of these infants. Specific treatment must be begun very cautiously, with milligrams rather than centigrams, as some children with inherited syphilis cannot bear specific treatment.

Boarding Out Infants in the Country.—Armand-Delille describes as a model to be imitated the working of the Speedwell Society in New York, which makes a specialty of boarding out weakly infants in a village readily accessible from the city. Each of the villages has its unit of a resident physician and visiting nurse. The nurse takes to each infant daily its quantum of nursing bottles, adapted to its age and condition, one nurse for twenty infants being the ideal. The board money, $14 a month, and the expense of the milk, $5, and of the clothing and medicines, plus the salaries of the physician and nurse do not total over $1.15 a day, which is less than it would cost to keep the child in the hospital in New York. This society has been at work for fifteen years, he relates, and has thus cared for 3,500 friendless infants, many of whom have thus found permanent homes.

Latent Meningeal Reactions with Inherited Syphilis.—Lavergne has done lumbar puncture on infants in Marfan's hospital service even when there was nothing to suggest meningitis. The findings in the infants and older children confirm the rule that with inherited syphilis any changes in the cerebrospinal fluid should be considered as demonstrative as any other symptom eslsewhere, and should call for energetic treatment, mercurial and, if possible, arsenical, until the lymphocytosis has disappeared. The lymphocytosis and albuminosis testify that the nervous system has been touched, to a certain extent. A spontaneous cure is possible but it is folly to count on it. Complications may be developing which will entail destructive lesions that might have been warded off by treatment in time, repeated until the puncture fluid no longer shows lymphocytosis.

Paris Médical

June 14, 1919, **9**, No. 24

- *Epidemic Scurvy. A. Benoit.—p. 469.
- *Diffuse Encephalomyelitis and Lethargic Encephalitis. R. Cruchet.—p. 474.
- Giant Polyps in the Bladder. F. Cathelin.—p. 478.
- Manganese in Treatment of Tuberculosis. S. Mélamet.—p. 481.

Epidemic Scurvy.—The severe scurvy affected suddenly and simultaneously sixty-three men in a body of 350. The clinical picture reached its acme the second day, and after this day subsided, as if by magic, regardless of the treatment or lack of treatment or dietetic conditions.

Encephalomyelitis and Lethargic Encephalitis.—Cruchet states that in nine months (1917) he encountered forty cases of what seemed to be a subacute encephalomyelitis. The lethargic encephalitis described by others seems to him to be the same disease. He gives the details of some more recent cases and reiterates that any connection with influenza seems improbable as his early series was before the pandemic was heard of. Probably the cause is not single.

Presse Médicale, Paris

Feb. 24, 1919, **27**, No. 11. Rec'd July 21, 1919

- *Intravenous Injections of Peptone in Infectious Diseases. P. Nolf.—p. 93.
- Localization of Tuberculous Processes in Fissures of Lungs. Piéry.—p. 95.
- Phases of Influenza Epidemic. F. Trémolières and M. Rafinesque.—p. 98.

Intravenous Injection of Peptone in Treatment of Infectious Disease.—This subject was brought down to date by Professor Nolf in his address presented at the Atlantic City Meeting, and summarized in The Journal, June 28, 1919, p. 1901.

Progrès Médical, Paris

May 31, 1919, **35**, No. 22

- *Carbon Dioxid Snow in Treatment of Skin Lesions. L. Lortat-Jacob and G. Vitry.—p. 209.
- *Mineral Waters in Treatment of Sequelae of Intestinal Infections. J. Baumann.—p. 211.
- Some Indispensable Formulas in Dermatology. L. Bory.—p. 213.
- *Syphilitic Pott's Disease. A. Aimes.—p. 214.

Carbon Dioxid Snow in Treatment of Skin Lesions.—Lortat-Jacob extols the benefit from localized freezing of the tissues in treatment of certain skin affections, but he has abandoned the use of the carbon dioxid pencil as not ensuring precision in the application. He uses what he calls a cryocautery, the carbon dioxid snow being formed within it and then acetone is added. This dissolves the snow but does not reduce the temperature. Its advantage is that it allows a more perfect contact of the snow with the skin. An index shows the graduated pressure; the time can be estimated by the watch. He ascribes the benefit from this treatment to the intense modification in the circulation as there is no sterilizing action from it.

Mineral Waters and Sequelae of Enteritis.—Under the heading "Practical Hydrology" the *Progrès* is publishing a series of articles on the mineral waters and spas of France, and the indications for their use.

Syphilitic Pott's Disease.—Aimes discusses the points which aid in differentiating syphilitic from tuberculous caries of the spine. He suggests that the rarity of syphilitic Pott's disease may be due simply to blunders in diagnosis. It is rare with inherited syphilis; it almost invariably affects men, and the usual location is in the cervical vertebrae. Cases are known in which sequestrums from the vertebrae were expelled through the mouth. When syphilitic excrescences can be detected, the diagnosis is facilitated. The pain is not relieved by repose, as with true Pott's disease, and exacerbation of the pains at night is characteristic. The prognosis depends on the phase in which treatment is begun, before irreparable lesions have become installed. The complications may include paralyses, dysphagia, sphincter trouble or even sudden death as in four cases on record. Radioscopy may reveal osteophytes. Even if syphilis and tuberculosis are both present, the benefit may be great from proper treatment of the syphilis. Vertebral sarcoma is generally secondary.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 31, 1919, **49**, No. 22

- *Biologic Test for Active Tuberculous Focus in the Human Body by the Response to Intradermal Injection of Auto-Urine. H. Wildbolz.—p. 793.
- Etiology of Influenza. J. L. Burckhardt.—p. 809. Cont'n.

Biologic Test for Active Tuberculosis.—Wildbolz reports that his research during the last year and a half and experiences with more than 200 persons have demonstrated that when there is an active process of tuberculosis the urine contains an antigen which injected by the Mantoux intradermal technic induces infiltration and redness. This does not occur with urine from healthy persons or in urine from persons with healed tuberculous processes. It never occurs unless the person gives a positive response to injection of 1 : 10,000 tuberculin, but it seems to occur whether the urine is from the person being tested or not, so long as he has an active tuberculous process anywhere in the body, in glands, peritoneum, lung, bones or elsewhere. Wildbolz evaporates morning urine to 1 : 10, passes once or twice through a paper filter impregnated with 2 per cent. phenol, and then makes three sets of two injections on the arm, the two upper with 1 : 1,000 tuberculin; 3 or 4 cm. below this, two with 1 : 10,000 tuberculin, and, the same distance below, two with a minute amount of the 1 : 10 evaporated urine. The response with an active tuberculous process is the same with the urine as with the diluted tuberculin, but the tuberculin response persists unmodified after the process has healed, while the urine response fades out completely. A similar response was never obtained in the nontuberculous, not even in syphilis, influenza, etc., with the single exception that urine containing large amounts of staphylococci induced a reaction, so that the findings are not pathognomonic in certain cases of nephritis.

With this exception, this biologic reaction, he reiterates, may be depended on to reveal the tuberculous or nontuberculous nature of lesions, and will also disclose when they are healed. If the urine reaction persists after the clinical healing of the known process we can be confident that there is some other active process elsewhere.

The specific nature of the urine reaction is demonstrated still more conclusively by the fact that, after subsidence of the urine reaction, if an injection of 1:1,000 tuberculin is made nearby, the apparently extinct urine reaction flares up anew, the infiltration and redness becoming distinct again. This does not always occur, but it is frequent enough to testify to the specific nature of the urine reaction. He cites three cases of different types to show the reliability of the findings with this urine test. In one, a boy of 13, had for over a year what seemed to be a tuberculous process in the ankle region, rebellious to all treatment. The roentgen findings were negative, the process being apparently in the soft parts. The urine test was negative, and the operation finally revealed a wood splinter in the depths of the fistula. In another case the positive urine reaction was not heeded as the diagnosis otherwise was so obscure, but necropsy revealed the grave tuberculous process in the kidney. In another, the course confirmed the urine test which testified that the case was one of incipient pulmonary tuberculosis instead of the supposed stasis hemorrhages from the uncompensated heart defect. By comparing the urine response with the response to the tuberculin test, we can obtain better insight than ever before on whether treatment must be kept up or the patient can be regarded as clinically cured. He repeatedly obtained a negative urine reaction in women nephrectomized a year or a year and a half before on account of isolated tuberculous processes in that kidney. He has never yet noted this rapid subsidence of the urine reaction in men after nephrectomy for this cause, and he assumes this to prove that there is still some lingering tuberculous process, possibly in the prostate or seminal vesicles. If repeated urine tests fail to give a positive response, year after year, we may accept this as evidence that the tuberculosis has been radically cured. He warns that patients being treated with tuberculin may give misleading findings as the tuberculin passing into the urine might induce the reaction. Wildbolz is now engaged in research on intradermal injection of other body fluids, the serum, pleural and joint effusions and cerebrospinal fluid, and with the ophthalmoreaction with the milk of tuberculous cows. He is physician in chief of the Inselhospital at Berne.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 8, 1919, **40**, No. 46

Influenza in 1918. E. Belliboni.—p. 458.

Policlinico, Rome

June 15, 1919, **26**, No. 24

*The Cerebrospinal Fluid during Malaria in Children. G. Genoese.—p. 737.
Echinococcus Cyst in Abdominal Wall. R. Vergano.—p. 750.
Influenza and Malaria. P. Castellani.—p. 751.

The Cerebrospinal Fluid During Malaria in Children.—Genoese reports the findings in the lumbar puncture fluid in ten cases of malaria in children. The fluid was found pathologic during the malarial attacks, the reaction to the meningeal irritation being both chemical, physical and cytologic. The albumin content is high but not to such a degree as in acute meningitis. There is usually more or less intense lymphocytosis and the chlorid content is increased, but this does not inevitably occur. In some of his cases the fluid was merely under high pressure, with high albumin content but no cells in the fluid, although the complete meningeal clinical picture was present. Rubino has reported (1914) a case in which a boy of 9 was taken suddenly with what seemed to be typical meningitis, fatal the twelfth day, with continuous high fever after four days in the hospital. The lumbar puncture fluid was clear but under high pressure, with 0.5 albumin and lymphocytosis. The necropsy revealed signs of pernicious malaria with hyperemia in the meninges. Genoese's experience has been that pathologic conditions are present when there is more than one lymphocyte per cubic millimeter. In another case a child of 2 began to have irregular fever, vomiting and diarrhea. There were no clear meningeal symptoms but the fluid was under high pressure and contained 0.5 per thousand albumin, 8.2 chlorids, and a moderate number of lymphocytes. The blood showed malarial parasites, and prompt recovery followed under quinin.

June 22, 1919, **26**, No. 25

*Spasmophilia in Children. T. Luzzatti.—p. 769.
Digitalis in Influenzal Pneumonia. D. Giannelli.—p. 788.
Paralysis Following Intragluteal Injection of Quinin. G. Sabatini.—p. 792.

Spasmophilia in Children.—Luzzatti in this review of present conceptions of spasmophilia emphasizes the difficulty at times of differential diagnosis of convulsions. Electric tests will usually decide whether they are of spasmophilic origin or not, but they cannot be relied on exclusively. One child with jacksonian convulsions developing suddenly presented the spasmophilic response to the electric tests, but the course of the case soon revealed tuberculous meningitis. In another case the diagnosis of meningitis was disproved by speedy recovery with signs of influenza. In both, there was evidently a substratum of spasmophilia. The latter affects principally young infants. He warns further that epilepsy in young children is generally atypical. Judging from the literature, children with spasmophilia often display a tendency to neuropathies and psychopathies as they grow up. Chloral by the rectum is the most rapid and harmless treatment during spasms, with sodium bromid and calcium bromid at other times, and cod liver oil with phosphorus. Hot baths, a cold douche to the chest and back, then putting the child in a warm bed and rubbing him, and stimulation of the skin or nasopharynx in other ways are among the measures suggested for respiratory spasm; chloroform, not being inhaled, is of little use. Regulation of the diet is of prime importance.

Riforma Medica, Naples

May 31, 1919, **35**, No. 22

*The Anergy Theory and the Predisposition to Infections. G. Galeotti.—p. 437.
*False Dextrocardia. C. Guarini.—p. 438.
*Osteomyelitis of the Jaw. B. De Vecchis.—p. 439.
Aortitis. O. Cantelli.—p. 440.
Peculiarities of Influenza in Istria. M. Gioseffi.—p. 444.
Protection for Pregnant Women and for Infants. G. Cristalli.—p. 452.

The State of Anergy or Predisposition to Infections.—Galeotti defines anergy as the inability of the organism to produce antibodies. This may be because an invading infectious germ may destroy the antibodies as fast as they are produced; or it may render the tissues incapable of producing them; or it may absorb the antibodies and thus render them useless. He includes in the term antibodies, opsonins and bacteriotropins, that is, all the defense reserves of the body, and urges research along the lines of these three hypotheses for better comprehension of the predisposition to infections. Influenza seems the most striking example of a condition of anergy produced by some unknown virus which throws down the barriers against invasion by any germs which happen to be on hand.

False Dextrocardia.—Sclerosis of the lung with retraction of the entire mediastinum from pleural adhesions induced apparent dextrocardia in Guarini's case.

Osteomyelitis of the Jaw.—De Vecchis emphasizes that in every acute and subacute affection in the neck or face, the possibility of the origin in a dental lesion must be borne in mind.

Brazil-Medico, Rio de Janeiro

Sept. 14, 1918, **32**, No. 37

Helminthology of Southern Brazil. IV. L. Travassos.—p. 289.
Forked Thumb. A. F. de Magalhães.—p. 290.

May 17, 1919, **33**, No. 20

*Treatment of Chronic Constipation. A. da Silva Mello.—p. 153.

Treatment of Chronic Constipation.—Mello reports that his experience with Rosenfeld's method of treating habitual constipation with an antidiarrheic diet was not favorable. (Rosenfeld's article on the subject was summarized in The

Journal, Jan. 23, 1915, p. 376.) Mello remarks that Rosenfeld's success in his cases was probably due to the fact that he happened on a series of cases of psychic, hypotonic and rectal constipation or mild degrees of spastic constipation, all of which are likely to yield readily to almost any treatment. Mello's cases were the graver forms, with irritation of the intestine, and the antidiarrhea diet is directly contraindicated. He refers disparagingly also to Kellogg's article in The Journal, June 30, 1917, saying that no method of treatment can be applied indiscriminately to all cases of constipation. Kellogg's system is the exact opposite of Rosenfeld's, and yet, Mello remarks, each writer makes much the same claims of constant success.

Gaceta Médica de Caracas

April 15, 1919, **26**, No. 7

*Vitamins and Symbiotes. F. A. Risquez.—p. 69. Concluded in No. 8, p. 82.
*Relapsing Fever in Venezuela. E. Tejera T.—p. 72.

The Question of Deficiency Diseases.—In the discussion that followed Risquez' paper on vitamins and symbiotes, Razetti said that beriberi did not exist in Venezuela until it appeared in Guiana. It had been imported from Brazil, and it is now spreading through the country, from the south northward, and will undoubtedly reach Caracas in time. The populace in Venezuela are living with the same customs and the same food now as a century ago. How can this invasion of the country be reconciled with the assumption that beriberi is a diet-deficiency disease? Ayala stated that beriberi had been unknown in his region in past epochs but comparatively recently it has invaded the extensive region of the llanos and reached Del Tuy although there has been no change in the food of the inhabitants. Machado emphasized that polyneuritis is not inevitably beriberi, and that polyneuritis may be due to a number of causes. He had an epidemic of fifteen cases of polyneuritis in a garrison many years ago, but the ration never included rice. The fifteen men were sent to camp out, a mile or so away, and all promptly recovered, although the food supplied was the same. The general opinion of the meeting seemed to be in favor of an infectious element in beriberi.

Relapsing Fever.—Tejera has had two cases of relapsing fever in persons from Trujillo, and he found that a certain tick which abounds there is capable of infecting rats with spirochetes which seem to be identical with the parasites found in the blood in relapsing fever.

Medicina Ibera, Madrid

May 24, 1919, **7**, No. 81

*Albuminuria after Operations on the Nose. D. J. M. Barajas y de Vilches.—p. 141.
Parenteral Injections of Milk in Treatment of Certain Eye Affections. B. C. Duran.—p. 143. Cont'n.
Induced Pneumothorax to Arrest Hemorrhage. E. Hervada.—p. 145.

Albuminuria After Operations on the Nose.—Barajas was recently called in consultation in a case in which after turbinectomy diffuse edema developed, from head to feet, with intense albuminuria. This latter gave the clue as he had encountered a number of cases in which albuminuria followed cauterizing or operating on the nose. It is evidently a reflex action, and soon subsided. He theorizes to explain the course of the reflex by way of the pituitary and medulla oblongata.

Prensa Médica Argentina, Buenos Aires

May 10, 1919, **5**, No. 34

*Partial Meteorism Simulating Gallstone Colic. C. B. Udaondo.—p. 333.
Opening Lecture in Dermatology Course. M. Aberastury.—p. 334.
*The Arrhythmias. P. M. Barlaro.—p. 337.
*Tuberculous Pericolitis in Syphilitic. P. M. Barlaro.—p. 340.

Partial Meteorism Simulating Gallstone Colic.—Udaondo's patients were two women who for two or three years had been having intermittent violent pain in the right hypochondrium, radiating to the back and lasting for fifteen or thirty minutes. The pain was as intense as mild gallstone colic, and the location was the same, but the pains always terminated with diffuse abdominal pain and an imperious movement of the bowels. Radioscopy demonstrated accumulation of gases in the colon, especially at the angle nearest the liver. This pressed on the liver and elicited the intense pains. In one of the women bradycardia, attenuation of the corneal reflexes and spastic constipation revealed a tendency to vagotony. Under atropin and strontium bromid, with complete change from starch food to a predominantly albuminoid diet, the symptoms all subsided. Small doses of castor oil were also given daily at first.

Arrhythmias.—Barlaro here inaugurates a series of articles on arrhythmias. This one is accompanied with nineteen illustrations in the text.

Constipation from Pericolitis.—Barlaro reports the case of a syphilitic young woman with a tuberculous pericolic lesion which entailed constipation and recurring pains. The laparotomy showed the colon covered with membranes which were easily detached. Mercury and tuberculin were then given on alternate days and the young woman has been in good health since.

Progresos de la Clínica, Madrid

April, 1919, **7**, No. 76

*Plastic Surgery of the Face. A. Cortés Lladó.—p. 129.
*Mineral Waters in Disease of the Digestive System. B. B. Campos.—p. 147.

Plastic Surgery of the Face.—In this third and profusely illustrated article, Lladó discusses reconstruction of the entire nose, of the lip, cheek, and chin, with extensive bibliography, including some recent theses on maxillofacial surgery.

Mineral Waters in Treatment of Chronic Digestive Disturbances.—In this second article by Campos, he classifies the various diseases of the digestive apparatus according to the indications for different types of mineral waters. He warns in conclusion that the use at home of mineral table waters may be dangerous, as they are usually taken without medical supervision or advice. Some persons take a certain mineral table water regularly for years. Even although it may have been advised by a physician to start with, conditions may have altered since so that the special mineral water used may be directly contraindicated. Mineral waters, he reiterates in conclusion, should never be regarded as beverages but as medicines, and their use at the spa or in the home should always be for reasonable indications. Although bottled water loses some of its radioactive and other power, yet it resembles the water as it comes from the spring closely enough for the indications for it to be practically the same.

Even when all indications and method of taking are correct, the water cannot be kept up indefinitely without risk of modifying the blood pressure, injuring the kidneys, and favoring production of calculi. Morbid processes, besides, are usually progressing or retrogressing, so that what may be useful in one phase may be directly harmful in another phase. For example, carbonated waters may give relief in cases of deficient secretion of gastric juice, as they stimulate the secretory function. But this action is directly injurious with hyperchlorhydria, whipping up the already excessive secretory function. He adds that 75 per cent. of those in Spain who suffer from stomach disturbances have hyperchlorhydria. Injury is also liable with dilatation of the stomach as the carbonated waters increase the distension. Another prevalent and injurious custom is to take a strong alkaline mineral water with the meal. This neutralizes the gastric juice and impedes digestion. Mixed with wine, the alkali in the water forms new compounds with the tartaric and other acids in the wine, and the mineral water ceases to be alkaline, while the alcohol content of the wine is not modified by the new chemical compound. Weakly mineralized waters are the true table waters where pure drinking water is not available or where the drinking water has no lime. Also for persons who are becoming demineralized, as in tuberculosis, rachitis, scrofula and pregnancy. Mixed with wine, they form a sodium tartrate which, being laxative, counteracts the astringent action of lime. On the other hand, persons inclined to gout, to gallstones and urinary stones should refrain from waters with mineral content, and use mostly distilled water. He gives a classified list of Spanish mineral waters to meet the various indications.

Revista Española de Medicina y Cirugía, Madrid

May, 1919, **2**, No. 11

*Surgery at the National Medical Congress. A. Esquerdo.—p. 242.
Bacteriology and Influenza Id. J. Peset.—p. 244.
*Radium and its Applications. Mme. Curie.—p. 254.
Influence of War Surgery on Surgery in General. R. dos Santos. —p. 256.
The Mineral Waters of Spain. F. Tous Biaggi.—p. 294.

Surgery at the Madrid Congress.—This entire number of the *Revista* is devoted to this national medical gathering, the first of its kind in Spain. It was described in the Madrid Letter, page 207. The borderland subject of gastric ulcer elicited an especially lively discussion between internists and surgeons, as also radiologic treatment of uterine cancer.

Radium and Its Applications.—Mme. Curie described the three classes of rays discharged by radium and their action on the tissues. She prophesied that emanations would in time be used altogether, instead of radium itself, in treatment of malignant tumors, microbian and toxic lesions, roentgen-ray burns, etc., and for injections, and also in the form of natural mineral waters. Mme. Curie closed her address with lantern slides showing the primitive laboratory in a wooden building where she and her husband made the wonderful discovery of radium. It will be remembered that she has twice been the recipient of a Nobel prize; in 1903 with her husband (the physics prize), and 1911 to herself alone (the prize in chemistry).

Revista Española de Obstet. y Ginecología, Madrid

January, 1919, **4**, No. 37

*Case of Pubiotomy. D. Agusti Planell.—p. 9.

Pubiotomy.—In Planell's case the severed pubic bone had to be stretched apart for a distance of 6 cm. to permit extraction of the living child at term, weighing 3,325 gm. There was no apparent injury from this and the episiotomy except a slight laceration in the lower portion of the anterior vaginal wall. He always delivers the child at once, and the comparatively easy and rapid delivery in this extreme case teaches anew, he declares, the superiority of pubiotomy over cesarean section in certain conditions which he defines in detail.

February, 1919, **4**, No. 38

*Acute Ileus of Gynecologic Origin. Vital Aza.—p. 49.
*Pregnancy after Roentgen Modification of Uterus. V. Conill.—p. 56.

Acute Ileus of Gynecologic Origin.—In Aza's case the large left ovarian cyst had such a long pedicle that the cyst had crossed to the other side of the abdomen, dropping into the right iliac fossa, while its pedicle passed over a sagging loop of the transverse colon and had strangulated the latter.

Pregnancy After Roentgen Treatment of Metritis.—The woman of 40 had been married at 17 and had had the uterus curetted at 25 for menstrual irregularities. The irregularities had persisted and at 40 the menorrhagias were so severe that roentgen treatment was commenced. The uterus was very large, reaching above the umbilicus, apparently the seat of diffuse fibromatosis or metritis with sclerosis. Four sittings were given, but the course then was interrupted by the epidemic of influenza, and when the woman returned again she was pregnant. She gave birth to a healthy child eleven months after the treatment had been begun. It was the first child after twenty-three years of sterile marriage. Conill theorizes that the succulent, swollen lining of the uterus had impeded conception before.

March, 1919, **4**, No. 39

*Puerperal Embolism. A. Franco.—p. 97.
Derodymus Monster. V. Lobo.—p. 99.
*Contracted Pelvis. García-Casal.—p. 101.
*Treatment of Cancer. E. Ribas y Ribas.—p. 105. Commenced in No. 37.—p. 13.

Puerperal Embolism.—Franco discusses the factors which promote embolism, such as local interference with the circulation, the arteries working harder than usual, the veins suffering from pressure, etc. In addition to extreme care in warding off or correcting all such factors, he seeks to reduce the coagulating tendency of the blood by giving sodium citrate, and has found this a valuable aid in treatment of phlebitis and embolism. He gives an intravenous injection of 200 gm. of a 5 per thousand solution of the sodium citrate in physiologic saline; if there is insufficiency on the part of the kidneys he uses distilled water instead of the saline. He repeats the injection daily for three days and after this on alternate days if it has to be kept up longer. The blood pressure rises, with diuresis, a chill and slight transient fever. He sometimes withdraws 300 gm. of blood beforehand. This treatment was a brilliant success in the two cases in which he has applied it. Later he read that sodium citrate was being given by the vein in cases of war wounds to aid in warding off phlebitis and thrombosis.

Contracted Pelvis.—García-Casal had planned to apply pubiotomy in the case described in which the pelvis was extremely contracted and deformed from rachitis and scoliosis. But owing to the unusually small size of the child it was delivered spontaneously in ten hours under expectant treatment.

Cancer.—Ribas emphasizes the existence of a precancer stage and the necessity for its early recognition. The blood with cancer shows acidosis, leukocytosis, high antitryptic and hemolytic power and reduction of the glycolytic ferment. He notes further that certain individuals are refractory to cancer, while certain families seem to display a hereditary predisposition to malignant disease although the hereditary transmission of cancer itself is denied by most authorities. In treatment of cancer he urges surgical intervention at the earliest possible moment but adds that remarkable cures have been realized with the roentgen rays and radium, also with vaccines or emulsions and autolysates. They might be supplemented with organotherapy when there is reason to assume liver insufficiency or endocrine upset.

Revista Médica de Chile, Santiago

February-March, 1919, **47**, No. 2-3

*Acidosis and Surgery. A. Wall.—p. 55.
Spasm of Shoulder and Face Muscles. E. Malbran.—p. 59.
*Gonococcus Peritonitis. L. Vargas Salcedo.—p. 63.
*Trachoma in Chile. J. Thierry.—p. 70.

Acidosis and Surgery.—Wall reports some cases in which symptoms caused by acidosis were mistakenly ascribed to some supposed tumor casually discovered, or to the appendix. Operative treatment for the assumed tumor had no effect on the acidosis, the actual cause of the symptoms, except possibly to aggravate it. The surgeon may never learn of his blunder as when the symptoms persist or return the patient has no further use for the surgeon and hence does not return to him. In one case recently a young woman had been having general malaise for three or four days, intense headache, vomiting, and pain in the hypogastrium and right iliac fossa. The tenderness was diffuse and included part of the hypogastrium. This was her first alarming attack, but for some years there had been periods of diarrhea alternating with constipation. Called in consultation, Wall doubted the diagnosis of appendicitis that had been made, and called for examination of the urine for acetone. The acetone reaction was intense and the reaction for diacetic acid was positive. Under treatment of the acidosis with sodium bicarbonate by the mouth and rectum, the whole clinical picture rapidly subsided. If appendicectomy had been done as proposed, the general anesthesia might have brought on fatal coma. He emphasizes that acidosis does not signify exclusively retention of acetone bodies. The essential element in it is the depletion of the alkali reserve in the blood. Starvation acidosis must be counteracted; and he makes a practice of combating postanesthetic disturbances by giving the alkali by the rectum and even by the vein. The results have been most gratifying in his long experience with this. In another case reported, a myoma in the uterus casually discovered was accepted as the cause of the symptoms, explained later as acidosis by examination of the urine. Tenderness from ovaritis contributed to mislead the physician to ascribe the whole trouble to the tumor. Of course acidosis does not exclude a possible surgical affection, but the possibility of acidosis should always be borne in mind.

Gonococcus Peritonitis.—Salcedo relates that the onset of gonococcus peritonitis does not differ from that of any diffuse peritonitis, but the general condition keeps more favorable than with peritonitis of other origin; there is not so much vomiting or tympanism, the tongue is moist and the septicemia seems to be mild. The laparotomy shows that the primary focus is in the tube or ovary or both. The secretions do not have the usual fecaloid odor. He advocates operating at once, and reports two cases from his large experience. In one fatal case the gonococcus and streptococcus were associated, and the toxemia was intense.

Trachoma.—Thierry reviews his 136 cases of trachoma during twenty years of practice at Valparaiso. Trachoma is evidently becoming more prevalent, mostly imported cases. He urges stricter measures against its introduction into the country, saying that every thousand dollars spent now for this purpose represents the saving of a million later.

Revista de Medicina y Cirujía, Caracas

April, 1919, **2**, No. 13

*Drainage of Seminal Vesicles. J. C. R. Morales.—p. 265.
Dietetic and Medical Treatment of Bladder Calculi. A. Benchetrit. —p. 273.
*Hookworm Disease in Venezuela. J. B. Ascanio-Rodriguez.—p. 282.
Peforation of Velum by Larvae of Fly. A. Pietri.—p. 288.

Drainage of Seminal Vesicles.—Morales explains how infectious processes in the seminal vesicles are liable to entail retention of secretions and of pus, and the necessity for evacuating them. He urges practicing the procedure on the cadaver, and expatiates on the fine results likely to be realized when this focus of insidious infection is cleared out. The best results are realized in cases with joint lesions; he reports that 76 per cent. have been cured in this rheumatic group and 23 per cent. much improved. In the group with local suppuration, 61 per cent. have been cured and 23 per cent. improved, but no benefit was apparent in 14 per cent. In the group in which pain was the main symptom, 66 per cent. were cured and 25 per cent. improved. In fully 25 per cent. in this group calculi contributed to the clinical picture. In the pus cases the suppuration usually involves the prostate and neck of the bladder. A radical cure can be anticipated only by resection of the vesicles and the prostate. Morales warns that the state of the sexual functions should be determined before any action on the seminal vesicles. Otherwise the physician might be held responsible for any preexisting abnormal conditions. In about 10 per cent. there is postoperative impotence, but this is transient. Chronic spermatocystitis generally modifies the sexual functions. He describes in detail the Fuller and Squier methods for evacuating the seminal vesicles, saying that the former is generally regarded as difficult and dangerous.

Hookworm in Venezuela.—Rodriguez lists the numerous places where his patients had acquired hookworm, showing that practically the whole country is infested.

Revista de Medicina y Cirugía, Havana

June 25, 1919, **24**, No. 12

*Exencephalous Monster. R. Fernández Valenzuela.—p. 319.
*Seat of Sensations of Hunger and Thirst. J. F. Arteaga.—p. 327. Commenced in No. 11, p. 289.

Exencephalous Monster.—Valenzuela gives an illustrated description of a typical instance of this form of monstrosity. She accepts some anomaly in the amnios as probably responsible for the malformation.

Seat of Hunger and Thirst.—This is the article which won the Gordon y Acosta prize for Arteaga. He discusses whether in the present status of our knowledge it is possible to determine the seat of the sensations of hunger and thirst, replying to his question in the affirmative. He explains that hunger and thirst are phenomena common to the cells of every living being as manifestations of the lack of chemical elements indispensable for the life of the cells. These trophic sensibilities of the cells may be unconscious in the lower animals but they become conscious phenomena as the nervous system of vertebrates becomes more highly developed. In man, hunger is manifested by painful contractions of the stomach, and thirst by dryness of the mouth and throat. These phenomena are purely reflex, the principal centers for hunger and thirst being in the medulla oblongata, but Auerbach's plexus is also involved, especially in relation to hunger. He discusses in detail the phenomena from lack of lime, etc., in man, animals and birds, and the way in which amphibious animals change their diet as they live in water or air.

Revista de Psiquiatría, Lima

April, 1919, **1**, No. 4

*National Problems of Mental Health. H. F. Delgado.—p. 203.
Paraplegia of Traumatic Origin. E. Odriozola.—p. 214.
*Question of Survival. L. Avendaño.—p. 220.
Medicolegal Course. O. M. Quesada.—p. 226.
Disability from Chronic Paranoia. H. Valdizan.—p. 237.

Psychopedagogics.—Delgado discusses the inadequacy of the care of the insane in Peru, there being only one asylum, and this has accommodations for only a tenth or twentieth of the insane throughout the country needing institutional care. As an aid in building up a more rational care of the mentally deranged and, above all, for prophylaxis of mental derangement he, with Valdizan, has organized a four months' course for school teachers and others on the psychology, psychiatry, and hygiene of the child, neuropathology of the school, and the Montessori method.

Question of Survival.—A man and wife had been assassinated at night. The woman had been stabbed at twenty-three points while the man had been stunned and killed with heavy blows with a club. The assassin would not have ventured to attack the man in this way, Avendaño concludes, if the wife had not been already dead before the husband came in.

Semana Médica, Buenos Aires

May 15, 1919, **26**, No. 20

Proposed Medical Curriculum. G. A. Alfaro.—p. 503.
Pin in Child's Appendix. R. A. Rivarola and A. Sein.—p. 506.
*Ferrán's Conception of Tuberculosis and Vaccine Prophylaxis. M. R. Castroman.—p. 507.
*Syphilomania. C. F. Gandolfo.—p. 522.
Urine as Antigen in the Wassermann Reaction. J. Bacigalupo.— p. 523.
*Typhus. G. Giacobini.—p. 529.
*Determination of Acetone in the Urine. P. B. Guggiari and G. M. Crovato.—p. 532.

Vaccination in Prophylaxis of Tuberculosis.—Ferrán's conception of the tubercle bacillus as only the third phase in the life of the micro-organism responsible for tuberculosis has been already described in these columns. His later research has confirmed him more and more in his views and in the efficacy of vaccination based on them. The first stage of the micro-organism he calls the alpha stage. The bacillus then is merely an ordinary nontoxic saprophyte, but under certain conditions it induces phlegmasia and even galloping consumption but without tubercle production and without true tubercle bacilli. The second stage of the micro-organism corresponds to Much's granules, and the third stage is the true tubercle bacillus. The importance of this conception lies in the fact that by a vaccine prepared against the first phase, the nonacid resisting alpha bacillus, the system is immunized against it and thus the whole chain is broken up and it does not progress to the other stages. It is easy to cure this phase of pretuberculosis by the alpha bacillus vaccine, but once the second or third phase is reached and the true tubercle bacillus installed, vaccine treatment is impotent. Castroman reiterates that the hopes based on tuberculin treatment of this phase have not been realized in practice.

Syphilomania.—Gandolfo reiterates that every person benefited by the salicylates is not inevitably rheumatic, and every person that improves under mercury is not necessarily syphilitic, as so many seem to think now. Syphilis is diagnosed at every turn, no matter what the history may be. He is convinced that we are passing now through a period of syphilomania.

Typhus.—Giacobini relates that in infants typhus appears with an itching eruption, with phlyctenosis. The eruption subsides after the first few days in the grave cases. In older children and in adults, the eruption is of the petechial type. Another characteristic feature of the disease is the edema in the brain, and this is responsible for the cerebral disturbances and is directly connected with the skin lesions, as the skin and brain are formed from the ectoderm. The cerebral symptoms or the skin symptoms may predominate; with the former he gives hot baths to induce revulsion to the skin, seeking to imitate the natural eruption revulsion. He has observed a complication of typhus not mentioned in the textbooks; this is a hemorrhagic process in the peritoneum at about the eighth day. This peritoneorrhagia with thready pulse, he says, calls for ice to the abdomen and deep injections of ether, under the rigid abdominal wall, injecting daily 3 or 4 c.c. of ether. This aids in the resolution of the process, sterilizes, and wards off the otherwise almost inevitable purulent peritonitis. He repeated these injections daily for ten and fifteen days and the cerebral symptoms and the general condition rapidly improved. In conclusion he reaffirms the importance of the principle of relieving congestions and edema in the brain by inducing or promoting the eruption.

Acetone in the Urine.—Guggiari and Crovato have modified the Imbert technic, as they describe, and commend their modification as superior to it for determination of the acetone in the urine.

Siglo Médico, Madrid

May 31, 1919, **66**, No. 3416

*Roentgen Treatment of Hypertrophied Prostate. B. N. Cánovas.—p. 433.
*Strabismus. B. Castresana.—p. 434. To be cont'd.
Nevi. Sicilia.—p. 439.

Roentgen Treatment of Hypertrophied Prostate.—Cánovas emphasizes that benefit from roentgen exposures can be counted on only when the hypertrophy is of the glandular type of tissue. This may retrogress under the influence of large doses of hard rays. Notable improvement of all the symptoms for from six months to a year to date followed the roentgen treatment in his cases of this adenomatous group. He urges a tentative course of roentgen treatment in every case before operating on an enlarged prostate. The best results may be anticipated when the tissues are most sensitive to the rays, but this imposes extra caution as acute retention may follow too large a dose of the rays. More than a year has elapsed in four of his ten cases and the previous frequent attacks of retention have not returned. In one case the discovery of polyps called for operative measures. The pain disappeared in another case and the tenesmus, but one diabetic with bilateral hernia has not shown any benefit. The outcome is not known in another case. Cánovas does not give any details as to his technic, but he warns in conclusion that "catching cold," constipation and indigestible food are liable to aggravate conditions with an enlarged prostate.

Operative Correction of Squint.—Castresana resects the muscle and passes three sutures underneath the stumps, through the sclera and through the conjunctiva at each side of the wide crescentic gap cut in the conjunctiva. The central suture is horizontal but the two others curve outward, thus embracing more fibers of the sclera. As the threads are drawn up, this indirect advancement of the muscle corrects the deviation of the eye, and the stout adhesions which form render the correction permanent. The ends of the threads are fastened to the skin with plaster. The antagonist muscle can also be stretched through a linear incision. He emphasizes that the outline of the sutures taken in this way is that of a rhomboid, with the horizontal diameter longer than the vertical. The results have been extremely gratifying in the eighty cases in which he has applied this technic since 1915. As a rule he calculates resection of 2.5 mm. of muscle for 10 degrees of deviation. A number of cases are illustrated and the article is to be continued.

June 7, 1919, **66**, No. 3417

*Tabes and General Paresis. E. F. Sanz.—p. 453.

Tabes and General Paresis.—Sanz regards as valuable innovations in treatment of syphilis of the nervous system the adoption of mercuric cyanid, and its administration by the vein as also arsphenamin, supplemented by intraspinal infusion of arsphenaminized spinal fluid. The indications differ with tabes and general paralysis only in that the intravenous treatment alone may suffice for the latter, but tabes is rebellious to intravenous treatment alone. He protests against an inevitably pessimistic attitude in syphilis of the nervous system. Although a complete cure is out of the question, yet the clinical picture can be materially softened, especially when the diagnosis is made early. The progress of science has facilitated this with tabes, but we are not certain with general paresis.

June 14, 1919, **66**, No. 3418

*Influence of the Prostate on Bladder Infections. P. Cifuentes.—p. 473.
Influenza. C. M. González.—p. 477.

Influence of the Prostate on Bladder Infections.—Cifuentes comments on cases in which cystitis was induced and kept up by an infectious process in the prostate. He reports in detail a case for which the colon bacillus alone seemed responsible, and in which the shadow of a phlebolith led to the mistaken assumption that a bladder stone was the cause of the bladder disturbances. The cystitis had flared up anew whenever the man "caught cold" or got chilled.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 26, 1919, **1**, No. 17

*"Miracles" in Medicine. W. Nolen.—p. 1468.
The Bacteriology of Influenza Pneumonia. I. Snapper and L. K. Wolff.—p. 1483.
*Oil Dermatitis. D. Brocx.—p. 1488.
Lethargic Encephalitis in Adult. D. J. Beck.—p. 1494.

Miracles of Healing.—This was the presidential address delivered at the recent annual meeting of the Netherlands Medical Association. Nolen described in detail the case of a woman of 44 totally helpless from paralysis for ten months, which had developed gradually during the preceding three years. During several months' stay at a sanatorium she regained the use of her legs, but they became paralyzed again on return home. She had to be fed, and turned in bed, but had no fever. Nolen then passively exercised her joints and made her sit up in bed, making her continue this spontaneously, and improvement speedily progressed to complete recovery. He relates that he has had a number of such "miracles of healing," and compares them with similar miracles of healing on record through the ages. He emphasizes that these miraculous cures are not the work of supernatural, magic forces but of psychic measures within the reach of every one, but not to be picked up without effort. Of course there are some people so easily impressed and unreflecting that they respond to even the most blatant quack advertisements. But most sick persons do not want to have anything to do with quacks, and they place their confidence in regularly qualified physicians. The psychic measures which these patients require must be taught, must be studied over, thought out and adapted to the special case. One inconsiderate word may spoil everything. In the medical course the diseased mind is well studied, but nothing is taught of the workings of the normal mind. What would we think of a farmer sowing the seed for his crops without any knowledge of the conditions and nature of the soil! Body and mind are closely bound together and exert a constant interaction on each other, and the study of "miracles of healing" contains many a useful lesson for us.

Oil Acne.—Brocx comments on the wide prevalence of acne, furuncles, pruritus, etc., in persons working in oils. He found reducing substances in the urine of four persons thus affected. This suggests that deficiencies in the diet may be the determining factor, an endogenous factor cooperating with the oil.

Hygiea, Stockholm

May 16, 1919, **81**, No. 9

*Treatment of Oxyuriasis. H. Kjerrulf.—p. 401.
*Influence of the School on the Spread of Influenza. E. Zander.—p. 415.

Treatment of Oxyuriasis.—Kjerrulf comments on the wide distribution of oxyuris in all countries and in all classes, and relates experiences which demonstrate the inefficacy of tanacetum and other remedies which have outlived their vogue.

He has been most successful with basic aluminum acetate, 1 gm. three times a day, given with a purgative of senna, sulphur and compound licorice powder, administered for three or four days. To ward off reinfection, the anus is smeared with a salve containing 1 part thymol to 2 parts each of camphor and quinin sulphate in 30 parts lard. He has been using this combined treatment for eight years.

The School and the Spread of Influenza.—Comparison of the curve of influenza in and outside of a large school at Stockholm showed that the school morbidity closely paralleled the general morbidity. The figures seem to demonstrate further that influenza is not contagious during the first day. Consequently if children taken sick are sent home at once there is no need to close the school.

May 31, 1919, **81**, No. 10

*Roentgen Study of the Duodenum. A. Akerlund.—p. 449.

Duodenal Ulcer.—Akerlund comments on the local spasm that may be induced by duodenal ulcer, and on the distant spasm which it may induce in the body of the stomach. The local spasm at the site of the ulcer explains some of the symptoms with duodenal ulcer. It occurs as often as spasmodic contraction of the stomach with gastric ulcer. A roentgenogram showing local constricting spasm in the bulbus of the duodenum, accompanied by local tenderness, is convincing proof of duodenal ulcer, he thinks. This spasm causes a characteristic scalloped outline in the roentgen shadow of the upper duodenum; there seems to be always a round protruding bunch which represents the ulcer itself, the spasm nearly closing the lumen of the duodenum just above and below this knob shadow. The pylorus is generally wide open. This spasm of the region of the duodenal ulcer explains the initial hypermotility and the "paradoxic" four hours' retention, the spasm coming on gradually as digestion progresses, after the hypermotility at first.

The remote spasm in the stomach with duodenal ulcer may occur with quite normal conditions in the stomach. With roentgenoscopy he has witnessed this spasmodic contraction of the middle of the greater curvature of the stomach develop under his eyes when pressure was applied to the tender duodenal ulcer. This is a very important aid in the diagnosis of duodenal ulcer. He describes three cases of simultaneous gastric and duodenal ulcer, verified by operation in one case. The others are doing well under internal measures alone. He gives the roentgen findings also in some cases with a diverticulum in the duodenum. In one case it was associated with chronic pancreatitis. In another case a diverticulum near the duodenojejunal flexure was seen filled with air at first and later with the contrast suspension, when the patient lay prone for an hour while the stomach was emptying itself. The diverticulum seemed to belong to the stomach but was not found at the laparotomy. The necropsy disclosed it extending up back of the pancreas. Goldammer has recently published a similar case. De Quervain and others have explained such findings as a functional spastic diverticulum production in the stomach, but Akerlund is convinced that the diverticulum in such cases is an organic formation but originating, not in the stomach, but at the duodenojejunal flexure. The roentgen shadow seems to locate it in the stomach, but this is only a mistaken interpretation of the roentgenogram. Akerlund's case and Goldammer's case were identical apparently with de Quervain's and Schlesinger's four cases and, as in them, the diverticulum could not be found at the laparotomy.

Norsk Magazin for Lægevidenskaben, Christiania

June, 1919, **80**, No. 6

*Polydactylous Families in Norway. K. Bonnevie.—p. 601.
*Vagus Neuroses after Influenza. E. Gundersen.—p. 633.
Influenzal Eruption. T. Seip.—p. 640.
Proposed Legislation on Tuberculosis. N. Heitmann.—p. 643.

Polydactylous Families.—Bonnevie has found in a certain district in Norway a number of families with a supernumerary little finger, perfect or rudimentary, on the right hand and sometimes on both hands. Four or five generations of the different families are known to present these finger anomalies more or less frequently. Intermarriage between the different families shows that all of them trace back to one common ancestor, about 1660, who presented the finger anomaly in a pronounced form. Forty of his descendants in the six different families are known to have been polydactylous, and not all the members of the families were examined. The polydactylism is shown in these families to be a primary dominant character, although checked in its development in some. There is no evidence of a weakening of the anomaly through succeeding generations. Examination of two apparently normal members transmitting the anomaly to their children, revealed a rudimentary knob at the base of the little finger. The University of Christiania has founded an Institute for Research on Heredity, and this is its first official communication.

Vagus Neuroses After Influenza.—Gundersen remarks that the clinical picture of vagus affections has been built up on theoretical premises rather than on study of the patients themselves. He does not know of any published cases of functional vagus affections or vagus neurosis like the case he describes here in a medical student. After an apparently mild attack of influenza, he developed attacks daily, lasting an hour or less, and coming on suddenly with intense pain in the heart region. The pain spread to the left shoulder and he felt as if his heart stood still and then beat slowly and faintly. There was also pain in the stomach, and the left part of the epigastrium protruded until the close of the attack. The physician called at the first attack diagnosed hysteria. Similar attacks followed on succeeding days. The pulse dropped suddenly from 70 to 55, and vision seemed impaired, and there was difficulty in breathing, and polyuria followed the attack. The clinical picture thus included bradycardia and pain in the heart, local meteorism from intestinal spasm, spasm in the pharynx and bladder (polyuria), and eye phenomena probably from spasm in the ocular muscles. The young man was given bromids and atropin after these attacks had been returning daily for two weeks, and they subsided permanently. By exclusion, Gundersen diagnoses the case as allied to anaphylaxis, the vagus neurosis being a manifestation of autointoxication.

Ugeskrift for Læger, Copenhagen

June 12, 1919, **81**, No. 24

Influenza in Danish Sanatorium. I. C. Rahbek.—p. 973.
Danish Case of Echinococcus Disease of the Liver. S. Felding and Kelsted.—p. 980.

June 19, 1919, **81**, No. 25

*Isolation Period for Scarlet Fever. V. Bie.—p. 1011.

Isolation Period for Scarlet Fever.—Bie remarks that authorities differ in regard to the length of time scarlet fever convalescents must be kept isolated. Some say to four, others up to eight weeks. He analyzes the experiences at the Blegdamshospital where the isolation period has been gradually shortened more and more. No effect on the incidence of the disease in the town could be detected when the scarlet fever patients were discharged the thirty-eighth day. The large number of scarlet fever patients, 3,175, and the nearly three years' experience seem to justify acceptance of the conclusions that thirty-eight days is a long enough period of isolation. Sørensen with 10,299 patients in ten years and an isolation period of fifty-six days, had 3.6 per cent. return cases, while Bie had only 1.9 per cent. with his thirty-eight day period. Sørensen's percentage varied very little from year to year while Bie's percentage showed a constant downward trend, from 2.3 to 1 per cent. This testified that the shortening of the isolation period had not contributed to spread the disease; return cases and complicating nephritis were no more frequent, and it is possible that the period might be shortened to thirty-five days. He pays great attention to the nose and throat before discharging the patients, heeding this more than desquamation. One child was kept in the hospital for sixty-four days as the nasopharynx still showed pathologic conditions kept up by adenoids. When finally allowed to go home, the sixty-fourth day, the child's sister became infected and was brought to the hospital the sixth day.

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SUGGESTIONS FOR AN IDEAL COURSE IN THERAPEUTICS *

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My text I take from McCrudden: "The teaching of therapeutics is one of the weakest points in the training of the medical student." Ideal, as I employ it, does not mean visionary and unattainable perfection, but rather "that which is conceived as supremely excellent or very desirable." I shall consider the subject under three headings, namely, the pretherapeutic teaching, the theoretical therapeutic and the clinical therapeutic teaching.

I. PRETHERAPEUTIC TEACHING

To make any course successful it is requisite that both students and teachers shall have adequate preliminary training in the fundamentals on which the course is based. One of the criticisms often aimed at clinicians in the dispensary and hospital is that they teach many absurd things in treatment because they are familar with neither physiology nor drug actions. In some measure this is true. But the ultimate remedy lies, not in abolishing the teaching of therapeutics by merely clinical men, but in increasing the time allotted in the curriculum to the pretherapeutic subjects, physiology, physiologic chemistry and pharmacology. Our present students, some of whom will in time become the teachers and leaders in medicine, must be more highly educated in methods of physiologic and pharmacologic thought, and must by the experimental method receive greater instruction in how to make observations, how to draw inferences and how to collate results. It goes without saying that the physiology and pharmacology teachers have a right to expect that the material of their teaching shall be utilized in the later years.

II. THEORETICAL THERAPEUTIC TEACHING

The purpose of theoretical therapeutic teaching is to orientate the student in the subject, that is, to familiarize him with the whole matter of it.

In this course it is necessary that the student should learn how to combat every symptom that may appear at every phase of every stage of each of the diseases of internal medicine. He does not study individual cases. But since only rarely in any patient do all the symptoms require treatment, it should be the effort of the teacher to impress this on the student by pointing out the probable course of a patient's illness if this or that symptom remains untreated. In this course, furthermore, it is necessary to write prescriptions, but the teacher should discourage the student from attempting to memorize set prescriptions. Last, but not least, the student should be made to justify or condemn all therapeutic recommendations by physiologic and pharmacologic argument; and because of this the teachers are best chosen from among those clinical men who have had intensive training in pharmacology or experimental therapeutics.

All didactic lectures should be abolished except a very few that may deal with principles, such as those of dietetics, serum therapy, electrotherapy and other special therapies; and the teaching of each of these should be assigned to the department to which it naturally belongs, for example, the principles of serum and vaccine therapy to the departments of serology and bacteriology, and the principles of organotherapy to the department of pharmacology. It is not to be expected that the principles underlying these therapies can be adequately taught by a clinical therapeutist.

III. CLINICAL THERAPEUTIC TEACHING

A. *The Type of Clinical Teacher.*—In the best teaching in any subject it is a fundamental proposition that facts must be handled by the student at school as he may be expected to handle them in the world at large; or, to apply this idea in therapeutics, the undergraduate must be taught to handle the facts on which the treatment is based as he may be expected to handle them when he is practicing medicine. It follows from this that his clinical therapeutic teachers must be practicing physicians, men who will understand the needs of the sick patient in the home and the physician's office, and will take cognizance of all factors, from outside the patient as well as from inside him, that may influence the patient's mental and physical comfort. I am mindful of the words of Sir James Mackenzie in speaking of cardiac decompensation: "It may be taken as an axiom that if the patient does not get sufficient sleep he will never get well," and of those of Ray L. Wilbur: "Reassurance is often as comforting as opium and has fewer after-affects." Indeed, a sick body is not infrequently only the physical expression of a sick mind. In many instances, the removal of an outside influence has an important scientific value as a measure of treatment, and has as pronounced a physiologic action as the most potent of pharmacopeial drugs. Better for our students we could not do than have them see at work those clinicians who appreciate the personal relations of the patient, and who not only inspire by their erudition and enthusiasm, but also show that humanity that always leaves the patient, whether poor or rich, better in spirit because of the medical interview. Such men always remember that they are treating a patient that has a disease rather than a disease that has the patient.

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

B. *Deciding on the Treatment.*—Furthermore, students should be taught to practice as the great consultants practice. These, when outlining a plan of treatment, remove themselves from the patient and the patient's friends, to sit down quietly and review the data at their disposal in a clear, cold, logical manner, without sentiment, until the plan is matured. Then, in dealing with the patient, they show kindness and consideration.

In teaching the student in the dispensary or at the bedside, why expect him to give offhand the treatment of each individual symptom without consideration of the patient as a whole? Let us rather habituate him to getting away from the patient, in small clinic sections, perhaps, for that moment or two of thought which will permit a mental survey of all the probabilities in the particular case. For in our clinical work we are not treating tonsillitis, typhoid fever and gastric ulcer, each with its numerous possibilities in the way of symptoms, but we are treating a particular patient with tonsillitis, typhoid fever or gastric ulcer at the particular stage and with only such conditions or symptoms as that particular case manifests. If we teach a student to exact uninterrupted moments for consideration of the treatment, may we not save him later from the many therapeutic failures which result, at least in part, from a habit of permitting submergence of his thoughts on the patient's symptoms by an irrelevant introduction of the anxieties of friends, and sometimes the neighborhood gossip?

C. *The Use of Specialists.*—We are teaching students that they may become practitioners. Then, in order to teach the student in a practical manner, we must teach him to think and act as he should when he is a practitioner. Therefore, let us inquire into the method of the higher type of practicing physician. When he wants the very best for his patient, he does one of two things: either he calls on a specialist, or he adopts a plan of treatment that has been approved by specialists. Why does he call a specialist or accept as valuable only what the specialist approves? Because he looks on the specialist as one who, by concentrating his knowledge, his powers of investigation and his clinical cerebration on a particular class of patients, is able to diagnosticate and apply measures for relief in a more certain manner than can be done by others.

Perhaps the first group of men who separated from general medicine to practice a specialty were the surgeons. Then followed neurologists, gynecologists, and all the others that we have, until eventually, for sheer self-protection, the leaders in medicine who remained were forced to give themselves a name, and for want of a better, chose that of internists working in the field of internal medicine. But with the great advances in this field it soon became evident that no one man could give intensive attention to the whole of it; and as a consequence, in internal medicine itself, alone or sometimes joined with related subjects, there have come to be specialties, such as gastro-enterology, cardiology, syphilology, tuberculosis, tropical diseases, contagious diseases, kidney diseases and the diseases of metabolism. We even have specialists in diabetes, in intubation, in transfusion and in hay-fever. As we have general surgeons and special surgeons, so we have general internists and special internists. Is this specialism absurd? Not at all! Medicine has possibly lost something by specialism, but it has gained much more.

That eminent and inspiring teacher, Sir William Osler, said of specialists:

> They have contributed largely to inculcate the idea of thoroughness. Better work is done all along the line, and a shallow diffuseness has given place to the clearness and definiteness which comes from accurate study in a limited field. The day has gone by for Admirable Crichtons, and although we have a few notable illustrations in our ranks, of men who have become distinguished authorities in several fields, such are necessarily rare and likely to become still more uncommon.

This he said twenty-five years ago. Think of the strides in specialism that have been made since that time! Further, Dr. Osler says:

> The public has not been slow to recognize the advantage of a division of labor in the field of medicine. It must, indeed, be a comfort to thousands to feel that in the serious emergencies of life expert skill is now so freely available.

In any subject in medicine, for the latest and most approved methods, whom do we ask? Is it the general practitioner? Or, in internal medicine, is it the general internist? For answer we need only refer to the program of this section, on which we see papers scheduled from eminent specialists, two in transfusion, two in alcoholism, two in the realm of anaphylactic or related phenomena, one in diabetes and one in the field of radium therapy. We asked these men to address us because they are specialists and therefore authorities in the subjects on which they are to speak. I would not have you think for a moment that any one of these men knows nothing beyond his specialty. On the contrary, these and all worthy of confidence in a specialty are men who, while knowing everything about one thing in medicine, know also something about every other thing in medicine. Did it ever strike you that one of the grandest features about specialists is that they are all preeminently therapeutists, their whole aim in laboratory, hospital, dispensary and private practice being to attain therapeutic results?

If, then, we grant that the greatest heights in diagnostic skill and successful treatment are reached by specialists, and that they are the men who can give the best to the general practitioner, let us by all means utilize them to give the best to the student.

To this I give emphasis because, in spite of its appreciation and utilization by the profession at large and by the public, specialism inside the realm of internal medicine has failed to find encouragement in some of the more conservative, or perhaps I might say more antique, colleges and hospitals. In internal medicine we are almost at the dawn of specialism, and I am sure that nobody here thinks that that trend is going to stop where it is.

D. *Dispensary and Hospital Services.*—Even hospital training leaves the graduate therapeutically unfit; and this may be accounted for, without reproach to the attending physicians, by the fact that today the hospital services are as large as they were when internal medicine was a much smaller subject. So that by the time the attending physician has ended his discussion of the complex and intellectually stimulating problems of diagnosis, he lacks the time to do more than outline the treatment in a brief and routine fashion, and frequently leaves it entirely to the youthful house physician. Here, I myself can cast no stones. Because of this tendency we see every day in our best hospitals cardiac patients given caffein all day to the verge of poisoning and, as a consequence, failing to get necessary sleep until deluged with dangerous doses of morphin; nephritics with edema nauseated by large daily doses of salts to remove liquid, but not having liquid stools; patients with chronic constipation left to the chance shots of a sapient junior who makes evening rounds; and diabetics receiving diets in which all or most of the daily allowance of carbohydrate is given at only one of the meals, so that sugar unnecessarily continues in the twenty-four-hour urine. And the most astounding fact of all is that often the attending physician passes these things unnoticed. And interns with this training, and students so trained, we are turning out to practice medicine.

By a proper division of labor in the hospital and dispensary, and by having an adequate force, which should be made up partly of specialists, each man in his own sphere can be assigned that amount of work which will permit him to give *equal attention to both diagnosis and treatment.* In other words, the rounds in the hospital must be just as much therapeutic as diagnostic. Not only will this result in gain for the attending physicians, the interns and the students, but it will prove a very great boon indeed to the now only too frequently mistreated patient. Moreover, it will permit a proper collation of the results of treatment, a matter on which I lay great stress. With proper assistance, it should be the duty of every attending physician to summarize on every record, each week or on the patient's discharge, the therapeutic measures employed and the results obtained. In course of time this will furnish many data relative to the successes and failures of like treatment in many cases with like conditions, and to the comparative values of different methods of treatment, including, in some instances, the method of watchful waiting.

It would seem that even now, as the result of laboratory and clinical research, every therapeutic recommendation might properly be required to meet the challenge of the experimental test; or if it cannot, must be accepted only tentatively and transfixed with a question mark.

E. *Classes of Teachers.*—I am well aware that there are two seemingly irreconcilable ideas regarding the teaching of therapeutics, namely: Shall therapeutics be taught by the clinicians in each branch of internal medicine, or, since at the present time we must still employ drugs extensively, shall it be taught by those who have given such intensive attention to the action of drugs that they can think physiologically and pharmacologically? At present both classes of teachers must be used. In the future, whether near or distant, I trust that all advanced medical men will think physiologically and pharmacologically.

F. *Demonstrations in Special Therapies.*—Instruction should be arranged for in the use of other remedial measures besides drugs and psychotherapy. In certain of the special therapies, demonstrations should be given in the dispensary or hospital best equipped for the purpose, and I wish that all hospitals might be so equipped. For example, electrotherapy might be taught in the neurologic clinic or hospital ward, mechanotherapy in the orthopedic clinic or in a hospital with a Zander equipment, and massage in the clinics of medicine, surgery and orthopedic surgery.

G. *Need for Large Clinical Institutions.*—I might further suggest that for concentrated teaching in medicine we need large clinical institutions so that the patients of each kind will be sufficiently numerous to permit a proper grouping and consequent satisfactory division of labor. This completes my suggestions.

PRESENT NEED AND TENDENCY

A physician's ability to treat his patients successfully is what constitutes his direct personal value to them, and it is the ultimate *raison d'être* of his calling. Granting, then, the truth of our text that today "the teaching of therapeutics is one of the weakest points in the training of the medical student" this is my ideal: *In the college curriculum and in the hospital have treatment given the consideration that it demands in the practice of medicine,* and have it taught both by special students of therapeutics and by those who would be considered by the medical world authorities in the sundry groups of diseases.

To install improvements or to change a plan, no time could be more propitious than the present, for already eight states, before giving a license to practice medicine, demand a year of internship in an approved hospital; and eight medical schools have increased their course of study to five years. Other states and other schools must soon follow. Hence, in the resulting enlargement of the curriculum and the increased standards of practice, may we not hope that these ideals may be reached?

SUMMARY

My suggestions for an ideal course in therapeutics are:

1. In the pretherapeutic teaching, insure habits of physiologic and pharmacologic thought by allowing more time in the college curriculum for training in physiology, physiologic chemistry and pharmacology.

2. For the theoretical teaching, orientate the student in the subject by systematic quiz-lectures covering all the diseases of internal medicine in all their phases. Select the teachers for this from among those practicing physicians who, through intensive work in pharmacology or experimental therapeutics, have acquired special ability and special knowledge for thinking physiologically and pharmacologically. Omit didactic lectures, except the few required to teach principles in special fields of therapy, and assign these to the departments best fitted to give them.

3. For the clinical teaching: (*a*) Teach the student to review the patient as a whole rather than as a collection of isolated symptoms, and teach him to isolate himself while he deduces the treatment from the available data.

(*b*) In the dispensary and hospital, utilize specialists in the sundry branches of internal medicine.

(*c*) In the hospital, increase the medical staff and, as a consequence, reduce the size of the service assigned to each attending physician. Demand that rounds be therapeutic as well as diagnostic, and that the results of all therapeutic measures be recorded.

(*d*) Have special clinics and ward teaching devoted to treatment by clinicians who are versed in the actions of drugs and are willing to devote special attention to the problems of therapeutics.

(*e*) For teaching in the special methods of therapy, arrange for demonstrations at those dispensaries and institutions in which the necessary operator and equipment are available.

(*f*) In the dispensary and hospital have the patients grouped to permit of a satisfactory division of labor.

(*g*) Above all things, teach the student to think as the practicing physician should think.

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EFFECT OF THE WAR ON MEDICAL EDUCATION *

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The emergency of the great war put us all, as a nation and as individuals, to an unusual test of efficiency. Much of value may be learned by the study of this experience. It is not only desirable that the knowledge thus gained should be utilized for the benefit of the community, but it is our duty to the soldiers who won this war—especially to those who made the supreme sacrifice—to make the most of this unusual opportunity and to secure for the people of the nation benefits which will in part offset the devastation of war.

This duty to learn lessons of value from our experience in the war applies to all branches of human endeavor. We are asking what we may learn that will improve medical education. We have properly taken pride in the great advances in medical education in the past fifteen years—but many of us were too well satisfied. Of course, we knew we had not reached our ideal, but I think few of us realized how far the average medical school is from that ideal.

"By their fruits ye shall know them." Approximately one third of the physically fit registered physicians of this country were actually submitted, in army service, to a searching practical test of efficiency. Never before was there such an opportunity to test the product of our educational institutions in medicine. We have in this country a few of the best medical schools in the world, yet not one but can learn much of value from the deficiencies of some of its graduates under this "acid test." The general verdict in regard to the average graduate from what have been regarded as good medical schools is disconcerting to earnest medical educators. The need for further improvement is greater than we thought. It is probable that this lesson, learned from the war, will give added impetus to our endeavors to improve medical education.

Already these matters are receiving attention. It is too early to formulate final conclusions. Statistical data are not yet available for this study. Yet perhaps some of the most valuable lessons will be learned from the general observations and impressions of intelligent medical teachers who have been in a position to observe the qualifications of considerable numbers of medical officers. My contribution on this subject is based in part on personal experience and in part on the observation of others. It is not intended to be an exhaustive or complete study of the subject—rather is it an opportunity to record some personal impressions and conclusions, while the events are still fresh in mind. It has been my aim to avoid dogmatism and to check my personal opinions, as far as possible, by the experience of others who had better opportunties for observation in active field service.

DISORGANIZATION OF MEDICAL EDUCATION

The immediate, obvious effect while the war lasted was the serious disorganization of medical education. The chief factor was the loss of the teachers who volunteered for military service. This, however, was a temporary effect, which will soon be recovered from as these men return to civilian life and duties. It is believed that they will bring to their teaching a stronger feeling of service, a greater earnestness of purpose, and a broader knowledge of the application of medical science, which will make them more valuable teachers.

The removal of so many of our best teachers had an undesirable effect on the quality of the instruction given in many cases. This, of course, has varied in different places. How serious this injury may be, and how much it will affect the thoroughness of the training of those who were studying medicine during the war, cannot be estimated at the present time. This is a problem that demands serious consideration on the part of medical schools that suffered in this way; and the defects can be offset, to some extent at least, before these students graduate. On the whole, the ideals and standards of medical education were maintained unimpaired during the war, and it is not believed that these standards will be lowered in any way as a result of this experience. Rather has the need of maintaining high standards been emphasized.

The effect of such impairment of the quality of the instruction was lessened because of the greater earnestness and better application on the part of the students. This was due, in the case of the better students, to the spirit of earnest enthusiasm so commonly engendered by the war, which caused the individual to put his very best effort into whatever he was doing. These students were "doing their bit" in the way that was considered wisest. But under the draft regulations and the resulting army supervision of medical education, the dull, lazy or indifferent student found a special incentive for work in the knowledge that failure to keep pace with the progress of his class meant active service as a private in the ranks. More than one dean has expressed the wish that some similar incentive to work might be a permanent feature in education.

BENEFITS FROM ARMY CONTROL

The enforcement of the regulations of the Surgeon-General, in carrying out the selective service regulations, was not only useful in maintaining the accepted standards of medical education, but resulted in the discontinuance of a few of the poorest schools. The privileges extended to medical students by the selective service regulations were limited to students in "well-recognized" schools—and the standard adopted for a "well-recognized" medical school was recognition by the state boards of medical examiners in 50 per cent. of the states. This lenient, though fair standard practically excluded the schools in Class C of the classification of the American Medical Association. So large a proportion of the students in these schools were taken by the draft that several of these schools found it impracticable to continue.

In another way the army control was useful: in securing a stricter enforcement of regulations, especially those concerned with the admission and promotion of students, and greater uniformity in the regulations governing these matters. Laxity in this respect was not usually intentional on the part of the school authorities. It was most commonly due to carelessness on the part of assistants; but sometimes it was due to the indifference of those responsible for the administration of such regulations, or to the persistence of a leniency in interpretation that was more common a few years ago than it is now. As a result of this army supervision the authorities of the medical schools in general have, I think, a keener appreciation of their responsibilities for the enforcement of such regulations; and care in these matters will continue and medical education will be improved in consequence.

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*Owing to the lack of space, portions of this article have been omitted. The complete article appears in the author's reprints.

DEFICIENCIES IN MEDICAL TRAINING

Chiefly as a result of the stimulation and wise guidance of the American Medical Association, through its Council on Medical Education, great improvements in medical education have been brought about in the past fifteen years. Looking back at the conditions that existed before 1904, we may well feel proud of the advance that has been made. But there is a danger that such feeling of pride in what has been accomplished may develop into a feeling of unwarranted satisfaction, and that we lag in the arduous journey toward the attainment of a really satisfactory condition of medical education. Looking behind to see how far we have traveled is not always the safest or best way of estimating how far we still are from our journey's end, especially when we journey toward a goal that still advances during the time that we are traveling.

It was to be expected that many of the older graduates, who received their training before these advances were generally adopted, would make an unsatisfactory showing in the efforts of the Medical Department to carry to the fighting men the benefits of modern scientific medicine. But deficiencies in training were not confined to these older men—or to the graduates of poor schools. The proportion of younger men—of those who graduated within the past decade—was very large, and the experience of the Army is a reasonable test of the results of modern medical education.

Experience as chairman of an examining board for the Medical Reserve Corps enables me to say that the poor medical schools do not turn out safe practitioners for the community, even though they succeed in passing the state boards. My service as an examiner for the Medical Reserve Corps extended over a year and a half, from the time of the mobilization for the Mexican border, in the late spring of 1916, until I was ordered to the Surgeon-General's Office toward the end of November, 1917.

Definite instructions that candidates from low grade medical schools should not be examined for the Reserve Corps were not issued by the Surgeon-General until about the first of September, 1917, and up to that time candidates who were graduates from such schools were examined by our board. With very few exceptions, candidates who graduated from Class C medical schools failed to pass the examinations successfully. It has been asserted by one of the local Class C schools that the Boston examining board was prejudiced against the graduates of that school, because the members of the board were graduates of the Harvard Medical School. Such a claim is unjustified, is practically absurd, because the members were among the leading physicians of Boston, and no explanation of the attitude of the board is called for because of any such charge. But such an explanation is important in estimating the value of our study of the product of poor medical schools. What I have to say applies to all Class C schools more or less, the degree varying in direct proportion to the poorness of the school.

The function of the examining board was to select those canditdates who were qualified physically, morally and professionally to care properly for our soldiers. We were acting for the Army only, and it was definitely understood by all members of the board that the selection of physicians for military duty was to be based on a fair judgment of the evidence of qualifications for such duty, and was not to be influenced by any preconceived ideas on the subject of medical education or otherwise. It was fully recognized that some men of ability might for some reason have attended a poor medical school, and might especially through subsequent study or experience, have overcome this handicap and become qualified for the duties in question. The need for medical officers was sufficiently great to demand the acceptance of all properly qualified candidates.

If a man was found to be qualified physically and morally, the next step was to ascertain his professional attainments by an oral examination. If this was not satisfactory, he was given a further chance in a written examination. The oral examination was under the control of the board, but the written examination was set by the Medical Department of the Army, the sealed papers being opened only at the time of examination, and in the presence of the candidates. While the papers in the written examination were marked by members of the board, they were sent to the Surgeon-General's Office for review, and for independent marking if desirable. The system was practical and fair, both in conception and execution.

The patriotic desire to serve in the war was not limited to the graduates of good schools, and it was the aim of the examining board to give the patriotic graduates of poor schools — as long as they were permitted to examine them — a square deal and an absolutely fair chance to demonstrate proper professional qualifications. Some of these men had ability more than sufficient to become excellent physicians, had they had an adequate training, and the members of the board were greately impressed with the injustice, both to these men and to the community, by the poor schools which offer an inadequate training when a satisfactory training can be obtained in better schools at no greater expense.

It may be said in general that the brighter graduates from Class C schools showed a fair knowledge of matters that could be learned from textbooks and quizzes. They were decidedly deficient in practical knowledge of disease, such as would be gained from good laboratory and bedside teaching. They were particularly deficient in any practical knowledge of contagious diseases and other infections—matters of extreme importance not only in the camp life of the Army, but in the ordinary life of the community.

Two of my stock subjects, in the oral examination of such candidates in medicine, were the means of early detection of typhoid fever and of tuberculosis. I think every one will admit the importance of the recognition of each of these diseases in an early stage, both for the proper care of the individual and to prevent the spread of these diseases through the community or the camp. Yet hardly a graduate from a Class C school was found who, without further instruction obtained elsewhere, was qualified for such work. Physicians so poorly qualified are a menace to the public, for they assume the responsibility of protecting the public from the danger of the spread of such diseases.

WHY SUCH SCHOOLS SHOULD CEASE TO EXIST

Actual experience with medical officers in the field and in camp showed that the Army standards were not too high, but rather raised the question whether the standards, or their administration, were not dangerously low. If these requirements are essential for the proper care of soldiers, are they not equally essential for the proper care of the public in time of peace? It seems to me that it is high time for the medical profession to say even more boldly and emphatically to the public that low standard medical schools and careless or indifferent licensing boards in medicine are a menace to the health of the community. There is no longer a reasonable excuse for the existence in this country of a medical school so poor as to be placed in Class C by the Council on Medical Education. After all the educational work on this subject by the Council, and patient waiting for improvement, a school that remains in this class must have in control men who cannot, or who will not, raise the standard of the school to a proper level. Such schools should cease to exist. If they continue, they should not be recognized by state licensing boards in medicine. Yet by the last reports some of these schools were recognized by from a third to nearly half of the licensing boards.

NEED FOR IMPROVEMENT IN METHODS OF LICENSURE

I know very well that in some instances the licensing boards in medicine recognize Class C schools because they have no legal authority to discriminate in their recognition of medical schools. These boards should endeavor to get such legal authority from the legislature. The experience of the Army in finding so many licensed practitioners of medicine professionally unfit for the medical care of our soldiers should be a strong argument for improvement in the methods of licensure. Improvement in this respect implies, first, authority to insist on an adequate medical training before a candidate is accepted for examination; and, secondly, a sufficiently thorough examination to test his efficiency.

In some cases it may be necessary to educate public opinion before such authority can be obtained. The opportunity for such education of the public is better today than ever before, for the war has given the millions of men in service a better insight into the value of a good doctor; the experience of the community in putting up with the scarcity of physicians—including those who were not qualified to take care of the soldiers—has given those who stayed at home a better insight into this problem. The medical profession will be derelict in its duty if it does not take advantage of this state of public opinion, and endeavor to secure better laws governing the licensure of physicians, and better enforcement of the laws that already exist.

This campaign for the education of the public should be pushed—not for the benefit of the medical schools or of the profession, but for the protection of the public itself—until a license to practice medicine is based on a satisfactory general education, a sufficient knowledge and practical training in the sciences on which medicine is based, and a proper theoretical and practical training in the fundamental medical sciences and in the clinical branches of medicine. Only after such thorough training is a physician qualified to recognize and correctly diagnose disease when it exists. Only with such training can he bring to the public the advantage of modern scientific medicine. If he has this foundation and is skilled in diagnosis, the question of the method of treatment may be left safely to his judgment. These requirements should be uniform for all candidates for licensure, whatever the method of care of the sick is to be; for the practice of any branch or form of medicine implies the ability to recognize conditions of disease.

Theoretically, if a man has the qualifications mentioned above, it matters little where or how he obtained his training. Practically such a training can today be obtained only in a good medical school and on the basis of the premedical education required by the better schools. A satisfactory test cannot be based alone on the best examination now given by any state board. Hence the importance of insisting that a candidate for licensure shall have had an adequate preliminary education and have completed his medical course in a really good medical school. This problem of the requirements before examination for licensure should not be permitted to be confused by any questions of schools of medical treatment, or sects or cults in medicine. And on this point also the public needs to be enlightened.

BASIS OF JUDGMENT OF SCHOOLS

Judgment of medical schools, irrespective of sect, should be based on actual performance, on the completeness and thoroughness of instruction, and on adequate equipment. It should not be based on the paper requirements of catalogues, which are too often a camouflage to cover inadequate training. Tabulations of subjects and hours — the common arguments of sectarian schools for equal recognition with regular medical schools—have no real value unless backed by laboratory and clinical advantages and quality of instruction equal to those of good medical schools. The same method of inspection that is applied to the regular medical schools has shown the schools of the so-called medical cults to be lacking in these essential respects, as far as such inspections have been permitted.

I have stated that Class C schools should not be recognized by state licensing boards in medicine. If the public were awake to their own interests, Class B schools and a number of schools at present ranked in Class A would also not be recognized. This statement is warranted not merely from a theoretical educational standpoint, but by the practical experience of the Army in this war. But there is danger in raising standards for licensure so rapidly as to get too far ahead of public opinion. It is a question how far such standards should be advanced as long as the public is so tolerant of medical cults as to allow their graduates privileges in practice which should be granted only to those who are thoroughly trained in the investigation and recognition of disease.

It is expected that the Council on Medical Education will soon make a new survey and classification of medical schools. The leniency in grading, wisely exercised at the last classification, is not warranted now; and, if such classification is to mean much from an educational standpoint, a number of schools now ranked in Class A cannot be retained in the highest class designated by the Council. This question is complicated by the consideration that the Council has looked on Class A as a standard for acceptable schools, not only from an educational point of view, but also from the point of view of recognition by state licensing boards. As matters stand today, the practicable standard for recognition must be placed considerably lower than is desirable from the educational point of view. The lower limit for Class A schools should be raised somewhat higher than it is at present; but because Class A is the accepted standard for licensure in a number of states, it is not practicable to raise the limit to the level demanded by educational considerations alone. It would seem desirable to establish in some way a higher subclass, to include only those schools which are found to be *fully* satisfactory from an educational standpoint.

Army experience would seem to indicate that, in the rating of medical schools, greater emphasis should be placed on the thoroughness of the instruction in the fundamental medical sciences, on the methods by which the student is trained actually to apply this scientific knowledge to clinical cases, and especially on the extent and excellence of the teaching of clinical subjects to individual students. The textbook, the recitation, the didactic lecture, and the clinical lecture before a whole class still have their places in medical teaching; and valuable time would be wasted if *all* instruction had to be repeated over and over again to small sections. But a satisfactory clinical training can be obtained only in such small groups that the student can handle the patients himself, and can receive individual attention from a well-qualified teacher. Too many of our students in reputable schools have received most of their "clinical" training from amphitheater seats; they have had only written examinations to test their qualifications for practice; and, if they have taken an intern year, it has helped them little because the average hospital is poorly equipped and the staff too busy or too indifferent to instruct the intern, or not qualified to teach modern medicine. It is no wonder that these men in the army hospitals could not make a dependable physical examination of patients. The clinical teacher, with experience as medical chief of an army hospital, who in my hearing has expressed the greatest tolerance of such men, said: "After all they were no worse than the average practitioner in civilian life." I think he is right. But what a comment on the average training given in an average medical school!

VALUE OF INTENSIVE CLINICAL TRAINING

The Army has taught us another valuable lesson: that great improvement in such men can be secured by intensive practical clinical courses under competent instructors. Medical schools will render an immense service to the community if they will make adequate provision for similar training of practitioners. Adequate training means much more than the ordinary "postgraduate" course given in the past. Here is a definite need—of so great importance to the community that provision for such training might well be developed by state authorities. It is as legitimate public welfare work as the measures for preventing disease now being so widely adopted by public authorities.

CONCLUSION

Such are a few of the reflections that occur to me in considering what the effect of the war will be on medical education. The need of further improvement is clear. In some instances, the direction for such improvement is clearly pointed out. In others, careful study and deliberation will be necessary. I feel sure that medical educators will give these matters serious attention, and that the improvement of medical education will receive a great impetus as a result of our war experience.

THE FIFTH, OR INTERN, YEAR

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The fifth, or intern, year as a requirement for graduation in medicine has been in operation for a year in at least two institutions: the University of Minnesota Medical School and Rush Medical College. The methods of administration adopted in these schools are essentially the same, although they were arrived at quite independently. In each school the matter has been placed in the hands of a standing committee of the faculty. This committee determines what hospitals are to be approved, and posts or prints the list for the information of the students who are seeking internships. These lists are as yet provisional and tentative, and a student who contemplates accepting a service in a hospital not on this list reports the fact to the committee, which then investigates the hospital and decides on its acceptability.

REGULATIONS GOVERNING THE INTERN YEAR

Of the methods of procedure at Minnesota, Dr. Litzenberg, the chairman of the Committee on the Intern (called there the seventh) Year, writes:

> On account of the war, the seventh year requirement was waived last year for all men who entered the service. Others were required to take the seventh year in hospitals under our supervision. The exact number I cannot say. However, this year the whole class were required to take the seventh year. We had no difficulty in securing good appointments for all of the men.
>
> We have no printed rules and regulations which we can give you, but our requirements are about as follows: Each student is required to take his seventh or intern year in a hospital approved by the Seventh Year Committee. This requirement conforms in the main to the rules laid down for a Class A hospital by the American College of Surgeons. This must be of sufficient size, must have a well conducted clinical laboratory, roentgen-ray department, and an organized staff of high class men. Each student is required to register with the registrar of the university for his seventh year, giving the name of the hospital in which he is to serve his time. We will not let our students go to hospitals unless they will agree to furnish them high class clinical instruction, and we ask the superintendent of the hospital to oversee the instruction which the interns are to get or to nominate some member of the staff who will be responsible for the teaching of the interns. It is our desire to arrange systematic teaching for the interns and not the hit or miss "knowledge by experience" plan.
>
> We require that the student is to do his work in such a manner that he may be recommended for his degree after he has spent the seventh year in the hospital. Our requirements are explained to the superintendent of the hospital in cases where the hospital is not here, so that they understand our requirements. The interns are given distinctly to understand that this is an additional student year, and that the kind of

work they do will determine whether or not they will receive their M.D. degree. In Minneapolis and St. Paul, members of our own teaching staff supervise the work of the interns. It is their duty to see that the intern does his work well and that the staff give him proper instruction.

We feel that this additional year is necessary for the proper preparation of men to begin the practice of medicine, but we also feel that we have only made a beginning and that the work must be carefully planned and organized. If interns are to serve only in the same manner as in the past, there is no advantage in the additional year; but, under the proper supervision, we are convinced that it can develop as one of the greatest advances in medical education in recent years. On account of the interference of the war, this is the first year that it could be given a fair test. We anticipate that it will prove our contention—that a properly conducted clinical year in a well managed hospital, under systematic instruction, will greatly add to the quality of men turned out to practice.

The method pursued in Rush Medical College is quite similar, and printed regulations are given to each student. The work of the fifth year may be completed by an internship in an approved hospital or by a year of advanced clinical work in one of the departments of the college. On the satisfactory completion of the year's work, the student is entitled to his degree of Doctor in Medicine.

The student who elects an internship must secure a position in a hospital either by examination or appointment and immediately notify the dean, who will inform him promptly whether or not the hospital chosen is approved. During his service, the intern is required to report to some member of the faculty to whom he is assigned, and to submit copies of some of the case histories written by him. Whenever possible, the supervisor will be a member of the medical staff of the college in which the student is taking his intern service. If a student abandons an internship without the consent of the hospital authorities or without valid and ample reason, he will be denied his degree. An examination may be required at the end of the intern service. Unless excused by the faculty, the student must be present at the convocation when his degree is to be conferred.

The supervision of internships is under a committee on the fifth year assisted by such members of the faculty as they may designate. Each supervisor, so far as possible, shall visit and inspect the hospitals in which the interns under his charge are serving. He shall see to it that reports of the work done and case histories written by each intern shall be submitted as often as is deemed necessary. At the end of each intern service the supervisor will obtain from the hospital a report as to whether or not the intern has done satisfactory work. He will then make his report to the committee on the fifth year, stating whether each student under his charge is entitled to receive his degree with or without examination.

The committee assigns to each member of the class a "faculty supervisor" to keep in touch with the students during their year of hospital service, to advise and assist them and to report to the faculty, through the fifth year committee, when the service of each intern has terminated, his recommendation as to whether or not his work has been satisfactorily performed, and his eligibility for the degree. About 75 per cent. of the interns last year were under the immediate supervision of the members of the faculty who were members of the medical staffs of the hospitals in which they were serving.

Fortunately, it has been possible in many hospitals to enlist the services of Rush graduates who are familiar with the ideals of standards of the institution, and who are glad to assist in this new movement. At intervals the resident supervisor sends to the faculty supervisor one or more clinical histories taken at random from those written by the intern. These are reviewed and later returned to the hospital. Each intern is encouraged to undertake, in addition to his routine duty, some piece of investigative work, the results including a survey of the literature on that topic, to be embodied in a thesis.

REPORTS OF INTERNS ABOUT HOSPITALS

For several years, graduates of Rush serving internships in hospitals outside of Chicago have been asked at the close of their term of service to send to the college a detailed statement in reference to the hospital in which they have served, with critical comments. In this way much information has been gathered of great service to the students of later years in deciding on the hospitals in which they would accept service. Such evidence, in reference to the character of a hospital and of the professional character and ability of the staff, needs to be carefully scrutinized, for once in a while, the report from a student will give evidence of personal animus against some member or members of the hospital. Such exceptions have been rare. On the other hand, from no other source is it possible to procure such direct, accurate and unbiased information concerning the character of a hospital, especially as to the personnel of the staff, altogether the most important item both from the standpoint of the education of the intern and of service to the patients. These interns, after a year of service in the institution, are in position to know about it. They are mature men, averaging about 27 years of age at the time of entering on hospital service, and their judgment is very much worth while. I apprehend that in any comprehensive survey of the hospitals of the United States, such as is being planned by the American Hospital Conference, recently organized, no information will be found of more value than that furnished by those who have served as interns within their walls. Some of the faculty supervisors have sought this information by formal questionnaires sent to the interns under their charge; others have simply asked the intern for a description of the hospital conditions, to be expressed in his own way. It remains to be seen which is the more effective plan.

THE INTERN YEAR—A UNIVERSAL REQUIREMENT

No graduate should enter on independent practice without at least a year of experience at the bedside under skilled and careful supervision. The experience of the medical corps of the United States Army in the world war strongly emphasized this need. In former times this practical training was obtained at the hands of a preceptor. This preceptor plan, never so well carried out in this country as in Great Britain, began to fall into disuse when the fundamental medical branches, physiology, bacteriology, etc., began to advance so rapidly and the annual session in the medical school was lengthened to six, seven, and soon to eight or nine months. The rapid changes in the methods of general practice, moreover, soon made it difficult for a physician to give much formal instruction or technical training to his student. For twenty years or more the preceptor system in the United States has been practically obsolete.

For the great mass of students, the hospital internship is today, as it has been for many years, the only means of securing such training. Such hospital service has always been sought and secured by a few—usually the more ambitious and capable students. Until a comparatively recent time, however, such positions were so few and the graduates so many, that it is probable that 80 or 90 per cent. of the physicians now in this country began the practice of medicine, by themselves, immediately after graduating from the medical school.

INTERNSHIPS NOW EXCEED THE NUMBER OF INTERNS

During the last fifteen years there has been a remarkable increase in the number of hospitals, while the number of graduates has lessened. At the present time there is an annual demand for over 3,500 interns, while the number of graduates from the medical schools of the United States is less than 2,700 each year. For nearly a decade it has been possible for every graduate of a first class medical college to secure an internship, and from 90 to 95 per cent. of graduates of the best medical schools have done so. In five states, a year of hospital internship is now a prerequisite for licensure. Three other states will soon exact the same requirement, and other states are quite certain to follow their example. Eight medical colleges now require the intern year for graduation, and others are soon to do so.

The hospital internship is no longer for the privileged few, but will soon be required of every graduate in medicine. The real question now is, How shall this year of hospital service be controlled and administered? Shall it be left in charge of the hospitals; shall it be controlled by the licensing boards, or shall it be made an integral part of the medical curriculum by withholding the degree until its satisfactory completion, the faculty of the medical school being thus made responsible for its proper and efficient conduct? There seems to me to be no question that the last plan is the most advantageous for all interests concerned: for the students, the medical school, the hospital and the people whom these graduates are to serve as physicians.

It has been objected that most of the hospitals into which the graduates enter for intern service are not under the control of the medical college, and the faculty cannot, therefore, supervise the hospital work of its students in such a way as to insure its being worthy of credit on the course required for the degree.

The experience of the University of Minnesota and of Rush Medical College during the past year controverts that objection. But this very objection is one of the most forceful arguments for the general adoption of the plan.

THE MEDICAL SCHOOL AS A FACTOR IN THE IMPROVEMENT OF HOSPITALS

There is no greater desideratum in medicine in this country today than the general elevation of the standards of practice, both scientific and ethical, in hospitals.

In the important movement which has been initiated by the creation of the American Hospital Conference to survey hospitals of the United States and to encourage and assist them to improve their standards and methods of practice, no single factor is in position to be so helpful or to exercise more effective pressure than are the stronger medical schools. The hospitals must have interns, the medical schools alone can furnish them, and they are in position to say to the hospitals: "Unless you can furnish to our students proper facilities and conditions for effective work under proper supervision and advice by competent, willing members of your medical staff, we shall not permit our students to enter your service. We shall be glad to assist you in every way possible to make your hospital work most effective as an educational process for your interns, and thereby it will most surely be made the best possible for the patients within its walls, and the most satisfactory for your medical staff and administrative officers.

"Proper facilities and equipment for thorough scientific work must be provided; exhaustive thorough examination be made of every patient; accurate, comprehensive histories be written, laboratory findings in connection with his own patients must be done, at least in part, by the intern under the supervision of a competent pathologist; the intern must not be burdened with so many hours of intern work that he has not ample time for study and reflection in connection with his cases; and, most important of all, there must be a responsible medical staff including some men who are capable of directing and advising the intern and who are willing to give the necessary time and effort to do this."

If all of the hospitals in which our students serve internships were as good as the best, it would perhaps be less important that the intern year be made part of the curriculum and be brought under the supervision of the faculty of the medical schools. It is because they differ so widely in efficiency, and that the kind of training which the intern receives varies so much, that effort should be made to improve the poorer institutions. No class of men are so well qualified to do this as are those who are engaged in medical education—the faculties of the medical schools.

FEW LEGAL DIFFICULTIES

Are there any legal difficulties in the way of making this intern year a requirement for graduation? Inquiry has been made of the medical examining boards in the several states in regard to this matter. In all but a few of the states, the student who has completed four years of work in a medical school may serve as an intern without a license to practice. In a few states he may take the examination for licensure without possession of a diploma. In Illinois and Wisconsin, special provision is made by statute, whereby the student presenting a certificate that he has completed four years of study in a recognized medical school may take the examination for licensure, and if he passes this, receive a temporary license authorizing him to practice as an intern only. This temporary license is replaced by a permanent license, without further examination or fee, when he has completed a year of internship and has secured his diploma from the medical school. In four states, South Carolina, South Dakota, New Jersey and Washington, no license can be secured without the presentation of a diploma, and one may not practice as an intern without a license. This restriction certainly should be repealed, otherwise the hospitals in these states will be unable to secure the service of interns from the medical schools requiring the intern year for graduation.

CONTINUOUS, SINGLE SERVICE THE BEST

Another rule which should be modified is that laid down in some of the states in which the intern year is a prerequisite for licensure, demanding that the intern's service shall be of the mixed or of the rotating type. The growing tendency in the best hospitals is in the direction of a continuous service for a year in one department. When this change was made in the Presbyterian Hospital of Chicago, some ten years ago, I realized that it was inevitable because long continuity of service is unquestionably in the best interest of the patient and contributes greatly to the comfort and efficiency of the attending staff. I felt, however, that it was an unfortunate change for the intern. I have changed my mind. After observing the results of the plan since the change was made, I am convinced that it is very much better for the intern to confine his work to one department for a full year, or at the very least for nine months, rather than to go bobbing about from one service to another every few weeks. Only by remaining in one service long enough to become really efficient and well trained in that line does he secure the maximum pedagogic value from his hospital service. Of course, he ought, if possible, to follow a year of surgical service by six months or a year on the medical side; better still if the sequence is reversed, the medical work preceding the surgical. In hospitals when the number of patients is about equally divided between the medical, including pediatrics and neurologic cases, and the surgical cases including gynecology and the other surgical specialties, the ideal arrangement is for every intern to secure a year on the medical side, followed by a year in the surgical service.

LONGER HOSPITAL SERVICE FOR THE BEST MEN

Does a two year service seem too long? Even that is not sufficient to develop strong, thoroughly trained men to whom we may look for leaderhip in medicine in the next generation. The reason this country has developed few great masters in the medical as well as in the other sciences is that we have been unwilling to devote ourselves to the long years of patient, grinding tutelage, advancing slowly, under recognized masters, until we have laid broad and firm foundations. I look to see the time when those interns who have proved themselves most capable and promising will advance after two years of internship to a second and then a first assistantship, and finally to the position of resident physician or surgeon or obstetrician—of course on a gradually increasing salary—remaining in the service of the hospital for a period of from five to seven or eight years. Men so trained, under a strong, capable medical staff, will be in a class all by themselves in the medical profession of this country. It is by such a procedure as this that the masters in medicine of the European countries have been developed, and that is why American physicians went to Europe in such large numbers, previous to the great war, for advanced training and postgraduate instruction. Moreover, it is only by some such plan as this that the rapidly increasing demand for interns can be met. The present wide discrepancy between the annual numbers of graduates in medicine and the vacancies in internships, would be much greater than it is were each intern to be assigned only so many patients as he can care for efficiently; and the excess of the demand over the supply is certain to become greater in the next few years, for the hospitals in this country are multiplying rapidly, while the number of graduates in medicine is unlikely to increase at all for some years to come. If, therefore, this supply of available interns is to be no greater than it is now, the only solution seems to be a longer period of service from each one of those we have.

The response of the hospitals to the questionnaire as to their equipment, facilities, staff, etc., and to the request for cooperation in making the intern year of greater pedagogic value, has been very prompt and satisfactory. With few exceptions the hospital officials and members of the medical staffs seem quite as eager to improve the work of the hospital as are the college faculties to have them do so. The education of the intern is by no means the only function of the hospital, nor, indeed, its primary duty. Its first obligation is the care of the sick. As Dr. Warner[1] has ponted out, the modern hospital has come to be a complex institution with a number of purposes to fulfil. It must educate nurses, social service workers and hospital administrators. It ought, moreover, to provide for and to insist on research in clinical medicine. Fortunately, its many functions are not incompatible with one another, but are mutually helpful. Nothing is more certain to sustain and to advance the quality of its scientific work, and to conduce to the welfare of its patients, than is the participation by the staff in the education of its interns.

The extent of its equipment, and the number of salaries of full time or part time men on its staff, is limited by its financial resources; and very few hospitals are heavily endowed. The demands made on any hospital for improvement involving increased expenditure must be reasonable, for the sums available for such purpose are conditioned by the income of the hospital. The medical school can be helpful in advising hospital officials as to how they can best utilize the resources at their command. Few of our institutions are conducted more uneconomically and inefficiently than many of our hospitals. A hospital in which more than 50 per cent. of the annual income is expended for salaries of the administrative officers, and these are not few in number, is in need of services of an efficiency expert.

The cordial cooperation of the several national associations representing the interests involved in the present day hospital, through the medium of the American Hospital Conference, gives large promise of a nationwide improvement in hospital practice that will render the demand of the fifth, or intern, year as a condition of graduation much less difficult of administration. When this demand becomes universal and every student is assured of a year of clinical work as an intern, it ought to arrest the tendency (quite manifest of late, and very much to be deprecated) to force back into the sophomore year courses in clinical medicine, surgery and obstetrics. The sciences fundamental to medicine, anatomy, physiology, et al., are of such great and growing importance that the student should devote every working moment of the first two years exclusively to them.

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[1] Warner, A. R.: Hospital Standardization, J. A. M. A. **72**: 914 (March 29) 1919.

Dementia Praecox.—The rate of incidence of dementia praecox is higher in large cities as a class than in small ones, but the individual exceptions to the rule seem to indicate that the size of the city is not the dominant factor.—*State Hospital Quarterly,* Utica, N. Y., May, 1919.

PLEA FOR A STANDARDIZED COURSE OF INSTRUCTION *

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CAMP GREENLEAF, FORT OGLETHORPE, GA.

At the annual meeting of the American Laryngological, Rhinological and Otological Society in 1912, the subject of medical education in its relation to the specialty of otolaryngology was one of the principal topics of discussion. It was the unanimous opinion that a reform was demanded, especially in graduate instruction, and a committee was appointed to consider the subject and present recommendations.

This committee, of which the chairman was Dr. D. J. Gibbs Wishart, presented a report the following year, which, among several recommendations, contained one to the effect that the other national societies covering this specialty be invited to appoint representatives to serve on a joint committee, whose business it should be further to consider the subject. The invitation was generally accepted, and a committee was appointed which held numerous meetings and three years ago presented the results of their deliberations in a report to the constituent societies. Considerable progress had been made toward the adoption of this report when the United States entered the war. This automatically stopped, for the time being, further action. It served, however, to supply the greatest object lesson possible for the vital necessity of this reform. This necessity, at an early period in the war, made itself apparent to those who had charge of this division of medical work in the Surgeon-General's Office. The result was the organization of the School of Otolaryngology at Camp Greenleaf, Georgia. This served to set forth in a way never before possible the true status of the specialty of otolaryngology in this country.

I desire, accordingly, to give briefly a history of the school and then to make certain observations based on our experience there.

ORGANIZATION

The School of Otolaryngology, Camp Greenleaf, was organized May 12, 1918, and the first class began its work on the eighteenth of the same month. On the first of these two dates, Lieut.-Col., then Major, Thomas J. Harris, M. C., reported under orders from the War Department as instructor in otolaryngology. A considerable number of student officers was awaiting instruction, and a class of sixteen was detailed to receive it.

It was part of a comprehensive scheme of postgraduate instruction for medical officers which owed its conception to the far-seeing mind of Gen. Edward L. Munson, M. C. The need of such training to render the medical man competent properly to do the work in the army which was to be required of him had already, before America entered the conflict, impressed itself on General Munson.

The full story of how it was put into execution at Fort Riley by Col. William Bispham, M. C.; at Fort Benjamin Harrison by Colonel Ashburn, M. C., and at Camp Greenleaf by Col. W. H. Page, M. C., of what has been accomplished by them, by their successors and by the officers working under them deserves to be, and undoubtedly will be, reported in full at the proper time. It is sufficient at this time to say that the accomplishments proved to be among the most important, so far as medicine is concerned, brought about by the great war.

BUILDING

A room in Ward Q of the general hospital was set aside as a lecture room, and equipment sufficient to permit of beginning work the following week was gathered together. The school was operated in connection with the ear, nose and throat department of General Hospital No. 14, and soon outgrew the quarters assigned to it. This led to the removal of the school, in July of the same year, to McDonald Field, where two buildings and half of a third building were assigned for its use.

The lower floor of one of these (Ward 29) was set aside for clinical and teaching purposes. It contained two treatment rooms, 31 by 10 feet, with concrete floors and electric lights; a well lighted operating room, 24 by 21 feet, with a concrete floor; a sterilizing room; a private treatment room for officers; a dispensary room; an office for the director, and a lecture room, 48 by 24 feet in size. All of these were conveniently connected, one with the other.

The three wards, together, contained 128 beds, most of which were constantly occupied.

EQUIPMENT

At the beginning, the equipment of the department was exceedingly meager; one nasal speculum and a tongue depressor virtually represented all that the staff had to work with. A requisition for a complete list of instruments and equipment was sent in early, and in due time everything that was needed in an up-to-date ear, nose and throat clinic, both for treatment and for teaching, was provided. The grateful thanks of the department are due to all the various purchasing officers of the Surgeon-General's Office. Without such equipment, it would have been impossible to do the work that was accomplished.

The operating room was fitted up with two operating tables and an operating chair, gas and oxygen outfit, an instrument cabinet, dressing cases, etc. The sterilizing room was provided with an electric sterilizing apparatus, capable of sterilizing all dressings and instruments for the department. Each treatment room contained four places for examination and treatment of patients, with a wash bowl at each place serving as a cuspidor, and electric connections for lights. At the end of each room there was a place for the assistant in charge of the clinic to work. Each room was provided with a modern suction apparatus. The private treatment room was also well equipped and contained a suction outfit. The lecture room was provided with blackboards and a Bárány turning chair.

The school was particularly fortunate in possessing an unusually valuable collection of cut sections of the head, lent by Lieut.-Col. Harris P. Mosher, M. C., and Lieut.-Col. William H. Haskin, M. C. In addition to these, there was a good supply of wet specimens of the head, a gift of Lieut.-Col. C. W. Richardson, M. C., a fine collection of lantern slides of the accessory sinuses, the gift of Col. Hanau W. Loeb, M. C., of St. Louis, and a collection of excellent slides of the ear, a gift of Dr. B. Alexander Randall of Philadelphia. Without these collections, satisfactory teaching would have been impossible.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

CLINICAL MATERIAL

The clinical material was at all times abundant. At no time were there less than 1,200 patients, and there were often as many as 2,000 or 2,500 in the hospital. In addition to this, the various camps scattered throughout the park contained as many as 60,000 troops at times, and served as feeders.

THE STUDENT OFFICERS

Altogether, 110 student officers passed through the school. These were selected after careful examination by the director or his representative, and were only a portion of those who desired to take the course. On account of the limited time, it was impossible to admit beginners, only those showing evidence of real fitness being received; and these were not allowed to continue if they proved, after a short time, to be incompetent.

OUTLINE OF THE COURSE

The course was planned to run from four to six weeks, but from the fact that the War Department did not order the men away at the end of that time, it extended in many cases to eight and ten weeks. It was the endeavor to make the course as thorough as it could be made in the time allotted for it. It consisted of lectures and practical work, observation of operations, ward walks, and the performance of operations by the officer himself, as he showed his ability.

The lectures were given by the director of the department, by his assistants, and by the heads of other departments, including that of the School of Laboratories, School of X-Ray and School of Ophthalmology. Much attention was given to anatomy, which was taught with wet and dry specimens, lantern slides and on the cadaver. For practical work, the class was divided into small groups in charge of assistant instructors. Each student officer was provided with a head mirror and examining instruments, and required to make examinations and diagnoses himself. Each week, the subjects treated during the week were gone over in quiz by the director of the school. At the end of the course, a written examination was given, as well as a practical examination. The officers' ratings were based on the results of these two examinations.

A report of the ratings was sent each month to the Surgeon-General. Officers who had graduated satisfactorily from the school were assigned as assistants in the wards of the hospital. Those who showed themselves especially qualified were given temporary assignments as ward surgeons to the hospital, remaining in this capacity until they were ordered elsewhere by the War Department.

CONCLUSIONS

As already stated, the School of Otolaryngology was only a part of a comprehensive plan of graduate instruction for medical officers. Scarcely had this country entered on the war, before the pressing need of such instruction became evident to those in charge of the several training camps for medical officers. All those who had to do with these camps, in any capacity, were agreed that an unwarrantedly high rating had been placed on medical education in this country. So far as otolaryngology was concerned, this was driven home with increasingly painful consciousness the longer the war continued.

At Camp Greenleaf, a board of examiners representing the various branches of medicine and surgery met daily to examine every student officer immediately on his arrival. By this plan, every one representing himself as specially interested in any one of the specialties was assigned for examination by the director of the particular school. In this way, opportunity was given to ascertain the qualifications of several hundred men drawn from all parts of the country who claimed to be otolaryngologists or to have had more or less training in that specialty. The results of these examinations were as astonishing as they were disappointing. Whether the applicants for admission to the school had practiced the specialty for a few years or many, all, with comparatively few exceptions, showed a woful lack of knowledge of its fundamentals. With increasing emphasis as the weeks went by, the need of adequate and thorough graduate education truly to fit men for such work forced itself on those to whom the duty of making such examinations was assigned. Inquiry shows that out of the entire number who presented themselves, very few had had little more than a six weeks' course of graduate instruction. The all-important subject of anatomy was a closed book to them. With such a thing as the physiology of the nose, throat and ear, few had any acquaintance. Pathology, bacteriology and neurosurgery did not enter their field of knowledge. For most of them, the broad field of otolaryngology, with its intricate sidepaths, meant only the ability to remove tonsils and straighten septums.

This alarming lack of qualifications on the part of the average otolaryngologist, practicing in the cities and towns of this country, as demonstrated by the results of these examinations, served but to drive home with greater emphasis the need of comprehensive and adequate graduate instruction in otolaryngology. So long as the six weeks' course is given to any and all who are prepared to pay the prescribed tuition, apart from whether proper qualifications are possessed or not, so long will our country continue to be at the mercy of ill trained and uneducated specialists.

The deductions from the experience gained in our work at Camp Greenleaf may be summarized under three heads:

1. The desirability of admitting to a course like the one just outlined, only men properly qualified. Much of the failure of the various postgraduate schools, as now constituted, has arisen from the custom of admitting to the various courses all who were in a position to pay the prescribed fee. So long as a teaching institution is dependent for existence on the fees of the students, so long will this error exist. The majority of the student officers who took the course had already taken courses in postgraduate schools and regarded themselves competent to perform the more common operations on the nose and throat, but were found entirely lacking otherwise.

2. The importance of a graded course of instruction in both theoretical and practical work. In too many cases the student is in the habit of selecting what appeals to him and passing over anything else. The specialty of otolaryngology is so broad that the well trained specialist cannot afford to be ignorant of a single phase of it.

3. The value of full-time instruction. Instead of a hurried hour twice a week, the result of the exigencies of private practice, the instructor should give his undivided time from morning to night to the interest of the students. No greater need exists today in undergraduate or postgraduate medical teaching than that of full-time instruction. This can be secured only by releas-

ing the teacher from the requirements of private practice by giving him an adequate salary.

We cannot too earnestly and emphatically urge the need of a reform in our present methods of instruction. Never was the time so ripe for actively pushing a properly worked out program of graduate education. Such a program has been presented to this section by the committee having the matter in charge. It contains three all-important recommendations:

1. There should be a standardized curriculum extending over a period of at least two years, to be given at Class A universities or colleges.

The details of this curriculum have been carefully worked out. A consideration of it is not in order on this occasion, further than to say that it calls for both didactic and clinical instruction, the former to include a thorough training in the basic subjects, such as anatomy, physiology and pathology, covering a period of six months, to be followed by residence in some special hospital as intern.

2. The student should pass a comprehensive examination on the completion of the course.

3. A special degree ought to be conferred by the university or college. As a preliminary to this special instruction, the student shall have engaged in general practice for at least four years.

No graduate school dependent on fees of the student for support is in a position to carry out the curriculum proposed. The postgraduate school, as now constituted, has a distinct and extremely important function, that of affording opportunity for the graduate in medicine to "brush up" and acquaint himself with the most up-to-date methods and procedures. It is not suitably endowed to give the systematic instruction which we are outlining now. For this, proper endowment or affiliation with an adequately endowed or properly supported university is essential, in order that no consideration of financial return will affect the carrying out to the letter of the curriculum decided on. Such a graduate school should have means to put into operation what is now generally recognized as the sine qua non of any proper clinical teaching, that is, paid, full-time instruction. It is necessary only to mention it to condemn the present method of one hour of clinical teaching three times a week, the inevitable result of the demands of private practice, on which the teacher must rely for a living. Only the unsuccessful practitioner or he who is blessed with a private income can possibly be depended on to give a sufficient amount of time to clinical teaching to secure the results desired.

If the Committee on the Teaching of Otolaryngology can have your support, and that of the other national societies, it is their earnest hope and expectation that within a few years a marked change for the better will be witnessed in the qualifications of those who enter this specialty. This section can do much in advancing the reform. It is violating no confidence to say that up to the present time the medical schools of the country have not been overenthusiastic in offering their support. Harvard, alone, under the leadership of Professor Crockett, has taken definite steps in conformity with these plans of education. A similar forward movement by the leading universities of the country is essential to the success of the movement. This can be brought about only by the active and vigorous backing of the members of this influential body of otolaryngologists, and this support on behalf of the committee we earnestly solicit at the present time.

ABSTRACT OF DISCUSSION

Dr. John G. Bowman, Chicago: Dr. Harris' paper is a keen analysis both of the need of specialization in otolaryngology and of the way to meet that need. Dr. Harris seems clearly to have in mind the chief principle which makes for specialization. That principle is the necessity of leadership. Out of 1,000 men, let us say, in otolaryngology there are ten who see exactly what the specialty means in relation to the science and the practice of medicine; and these men see also the practical steps by which specialization may wisely develop. Dr. Harris is one of the ten. The business of the ten is not only to state clearly the ideal to be attained. Their business is also to state with quite as much definiteness the first step and second step, and possibly the third step, which lead directly toward the ideal. We all have too much experience in problems of the kind before us to believe that we can attain the ideal merely from a mood of enthusiasm or from expressions of hope. The problems before us are two in number: First, what can be done to encourage higher specialization in otolaryngology among the men now practicing otolaryngology? Second, what can be done in the medical school to encourage and to bring about the requisite specialization in otolaryngology before the medical graduates go into independent practice? Both these questions need serious consideration. Answering the first question, it seems to me that careful and regular review on the part of otolaryngologists of their own successes and failures is the first essential. In other words, the otolaryngologists, let us say, should check up their own work at least once in each thirty days and analyze for themselves wherein they have succeeded and wherein they have failed. Such analyses will require, obviously, the keeping of careful case records and the use of clinical laboratories. Answering the second question, we must analyze the scientific attainments required in the practice of otolaryngology and then bring these attainments to the medical school curriculum. When you, the leaders in your specialty, become really determined to add, let us say, one year of special graduate work to the medical curriculum for the training of those who elect otolaryngology, you will win the cooperation of the medical schools. But you must be determined, for a half hearted effort, as things stand now, will scarcely receive a hearing among the medical schools.

Dr. H. P. Mosher, Boston: Dr. Harris' paper is definite and complete. Dr. Bowman gives us some practical help and puts some of Dr. Harris' recommendations into concrete form. Between the two we have had this subject covered very completely. I would, however, like to soften one point brought out by Dr. Harris. The figures quoted by Colonel Munson will go around the country from paper to paper, from society to society. They are correct, but I think they should be softened. I have not until now been soft in speech in regard to the war, but really I do not think that these figures should go just as they stand. In order to explain why I am softening, I will tell you how the men were picked. The men as they came in who were known to the Surgeon-General's Office, the older men of the different specialties, were at once sent to the base hospitals and if possible put in charge. The younger men were also sent, preference being given to the men who came from recognized special hospitals. These two classes did not give enough men and then the question arose how to train men, and it ended by sending a double staff to the base hospitals, because it was hoped that the first staff would soon go abroad and the second staff would take their place. Then we were told that we could not send any more men over. About this time the schools were opened and we began to send men to the schools, and by that time we had only the poorer men left. Now be a little considerate when you quote these figures. The figures are true, but use them as kindly as you can.

Dr. D. J. Gibbs Wishart, Toronto, Canada: I cannot add much to what has already been said by Dr. Harris, but I want to make one point, and that is, that we will only get anywhere by the height of the ideal we have before us, and if as a profession in this country we desire to turn out men, to have men practicing who are a credit to the profession, we must have a high ideal of the great breadth of laryngology and what it stands for. Each one of us, in our own particular sphere of action, by having such an ideal set before us, will do a great deal through our influence in our local society and in the communities with which we are connected and with the public generally in placing before these different bodies these ideals, and I want to emphasize the necessity of having these ideals as high as possible. To the fathers of laryngology in this country who went abroad and studied many years, we owe a great deal, but now we have coming a large number of men who have not been abroad and who are trying to enter the profession in order that they may derive certain benefits they think accrue to those who practice the specialties; but they are not aware, because we have failed to show them, of the demands to be made on them in practicing the specialties, and I would ask that you carry away with you from this meeting the determination that so far as you can do it in your own sphere you will help to raise these ideals and to show to your weaker brethren that there is something more in otolaryngology than simply the removal of tonsils or the resection of a septum.

Dr. C. G. Coakley, New York: I think the fault is with the organization of our teaching, not only here but abroad. There is no place abroad, there is no place in this country, where a man can get the instruction as outlined by Dr. Harris; that is, the preliminary study by which he will be grounded in the whole work, in anatomy and physiology, for, say, six months before he goes into his special hospital. The able men who are turned out in this country adequately equipped are the young men who have been fortunate enough to have a service in a special hospital devoted to otolaryngology, whether in service one year or sixteen months or two years. These men come out practically equipped, they are good operators, but many times they lack that preliminary training, that thorough grounding in anatomy which is so necessary to enable them to do the kind of work which ought to be done by the 990 men instead of the ten. It ought to be comparatively easy to establish a six months' training course in several of our universities. It will need but little additional capital and endowment; it will not need full-time men of the very highest rank in the profession. The younger men who have recently completed their hospital training are the practical men. They will have several hours a day while they are accumulating their practice to devote to this type of work and would be very glad of the comparatively small remuneration necessary to enable them to do that work. These are the practical men to do it and the leaders can supervise the work. Establish such a six months' course in two or three cities and you will advance to a much higher plane in this country than anything that has existed here or elsewhere.

Dr. Joseph C. Beck, Chicago: After my medical service terminated in Europe I thought, as Dr. Bowman said this morning, now is the time to do something along the line of future education, of development in special work. We know how many men would go abroad every year to get their education, and we well remember that we were informed very early in the war, when the Germans were ahead, that after this war the various clinics in Austria and Germany, Vienna and Berlin, would be closed to America. It was my idea to find a substitute or an improvement, for I believe it can be an improvement, along these lines of clinics and courses. I set to work in the country I was in at that time —Prague—to find out what they thought about it, and found the clinical profession anxious to do all they could. I was told we could organize a clinic such as they had in Vienna, and succeeded in doing so. I was then given permission by the Czecho-Slovak government to travel through the allied countries and see what was being done, and if possible organize an interallied clinic. I went to Rome, Italy, and found the same cordial reception and courtesy on the part of the clinical professors, who were anxious to do what they could. I succeeded in organizing a clinic there. I went to France, but found the work had already been put under way by Colonel Lloyd of New York, who had organized a school for military men as a forerunner to courses in civil practice. In London I found still greater advances made. I found that Sir St. Clair Thomson, Sir Arbuthnot Lane and Sir William Osler had been working on this matter, having a school in which they were teaching men in various branches. Coming home, I naturally reported to my own school, the University of Illinois, and presented the subject to them. My plan being a university proposition, I asked for a meeting of our faculty, presented the subject to them and they endorsed my proposition. Since I have been in Atlantic City I received a letter from a Dr. Franklin of London who informs me that an Anglo-Czecho-Slovakian committee is being considered to further the interests of our specialty in the Balkan countries and at the contemplated University of Prague.

Sir St. Clair Thomson, London, England: England is slowly waking up now that the war is over; we have one eye open and the other is slowly opening, and we owe this to America and Americans. Sir Arbuthnot Lane, Sir James McKenzie and Dr. Bruce of Toronto came back from their visit to America last summer so impressed with their reception and what had been told them that it was only at the end of July we called a hurried meeting to consider what we could do. They brought us the message that Americans were willing to come to London if we could "deliver the goods," and that it was up to us to try to take the place of Vienna and Berlin as the Mecca for the student of medicine. The only good thing I have done in the matter is to design the title. At Christmas we realized that large numbers of American military officers were being demobilized and passing through London, some of them flocking to Oxford and Cambridge and Edinburgh, so we had to get to work in a hurry and establish what we called an emergency postgraduate course. We also have the building of a real postgraduate hospital for which the money is forthcoming. There is also a rumor that wealthy men from this side will build an American hospital in London, where the poorest traveler may go, and also, what we have nothing to equal on our side, a private hospital with what we call paying wards. What we all need is reciprocity, but the greatest good on earth will be to make the Englishman lose his insularity and to get our students to come over here and study in your hospitals and universities, to show the Englishman, of whom I am the *avant courier*, that there is a body so distinguished, so large and so hospitable as the American Medical Association.

SPECIAL POINTS IN ABDOMINAL SURGERY

EMPHASIZED BY MILITARY EXPERIENCE *

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The experience in abdominal surgery in the great war may be discussed under the following headings: (*a*) comparison between the intestine of the average soldier and of the average civilian; (*b*) the factor of exhaustion—the effect of cold and wet; (*c*) the time factor; (*d*) the comparative effects of lesions of the solid and of the hollow viscera; (*e*) combined thoracic and abdominal wounds; (*f*) the phenomena and treatment of internal hemorrhage; (*g*) the prevention and treatment of shock, before, during and after operation; (*h*) the anesthetic factor; (*i*) the incidence of bronchopneumonia after abdominal operations; (*j*) retroperitoneal infections; (*k*) the treatment of peritonitis; (*l*) operative technic, and (*m*) comparison with civilian abdominal surgery.

COMPARISON BETWEEN THE INTESTINE OF THE AVERAGE SOLDIER AND OF THE AVERAGE CIVILIAN

Soldiers whose general condition had not been too greatly impaired by exhaustion from fighting, by wet and cold, or by shock or hemorrhage showed a resistance to infection rarely seen in civilian surgery. I observed apparently as marked an increase in the firmness and the thickness of the muscles of the intestine of the average soldier as compared with the average civilian patient, as the leg or arm muscles of the soldier were larger and firmer than those of the civilian.

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EFFECT OF EXHAUSTION AND OF COLD AND WET

Soldiers wounded after a protracted season at the front, especially if cold and wet, as was almost universally the case during the winter months, with their general resistance lowered by bodily fatigue and mental stress, bore penetrating abdominal wounds badly.

THE TIME FACTOR

The length of time between the receipt of the wound and arrival at a hospital was a vital factor. After the tenth hour the prognosis became progressively worse until the twentieth hour, when, as a rule, the established infection made operative measures inadvisable.

COMPARATIVE EFFECTS OF LESIONS OF THE SOLID AND OF THE HOLLOW VISCERA

Lesions of the liver and spleen were far less grave than lesions of the hollow viscera. Generally speaking, surgical intervention was not indicated for lesions of the liver or of the spleen, excepting for the control of hemorrhage. For the control of progressive hemorrhage from the liver, gauze packing proved preferable to attempts to suture. Badly shattered spleens were best excised.

Lesions of the large intestine resulted in a higher mortality than lesions of the small intestine. In cases of gunshot wounds of the small intestine, it was surprising to find to what an extent, in many cases, leakage was controlled by the contraction of the muscular wall. As to mortality, lesions of the stomach were comparable to those of the small intestine.

COMBINED THORACIC AND ABDOMINAL WOUNDS

Combined thoracic and abdominal wounds were especially grave. The practical point is that the thoracic approach is usually better than the abdominal approach, provided there are no perforations lower than the stomach as indicated by the entrance and the exit points.

OUTSTANDING PHENOMENA OF INTERNAL HEMORRHAGE

The two outstanding phenomena of internal hemorrhage were a mounting leukocytosis and a falling temperature; the treatment employed included operation, morphin and blood transfusion, the giving of fluids, and keeping the patient warm.

PREVENTION AND TREATMENT OF SHOCK AND THE ANESTHETIC FACTOR

The best treatment for hemorrhage and shock is heat and rest, fluids, morphin, and blood transfusion. Among the conclusions adopted by the Interallied Surgical Congress, acting as a sort of supreme court of surgery, were the following:

> 1. The anesthetic of choice is nitrous oxid-oxygen.
> 2. "For abdominal cases and for patients suffering from shock, local anesthesia may be employed in conjunction with the administration of nitrous oxid and oxygen."

Among the evidence offered in support of these conclusions, Major-Gen. Sir Anthony Bowlby presented the work of one of the most brilliant British military surgeons, Capt. Douglas C. Taylor, and the work of the chief of the anesthetic service of the British army, Capt. Gregory Marshall. The following statement by Captain Taylor I am privileged to quote:

> Until the summer of 1917, my colleague, Capt. G. Marshall, invariably gave ether for my laparotomies for gunshot wounds of the abdomen. No series of 100 consecutive cases showed a recovery rate of much over 50 per cent.
>
> During the summer and autumn of 1917 I did 101 laparotomies for abdominal wounds, and nearly half of them were given nitrous oxid and oxygen, combined with infiltration of the abdominal wall with eucain and procain. The more serious cases, i. e., those with rapid pulse and low pressure, were nearly all done by this method.
>
> Of this series, twenty-seven died at the casualty clearing station, and seventy-four were evacuated to the base. Of the latter there have been only two deaths, both from secondary hemorrhage, one from the kidney and the other from the rectum and the buttock.

That is, by the employment of anociation, Dr. Taylor's mortality rate was reduced from approximately 50 per cent. to 29 per cent. So far as I am aware, this is the best record of the war.

Captain Marshall, in turn, has demonstrated that patients may apparently do well during ether anesthesia but do badly afterward, while they do well both during and after nitrous oxid-oxygen anesthesia.

The experience on a large scale of the resuscitation teams from the Lakeside Unit, which served continuously throughout Field Marshal Haig's great offensives in Flanders in 1917, showed that in abdominal operations somewhat better results were obtained if, before the beginning of the operation, sufficient blood were transfused to permit a safe performance of the operation; and if, again, at the completion of the operation, an ample amount of blood, up to 750 c.c., were given. Furthermore, if a let-down appeared later, the transfusion might be repeated. Meanwhile, the advantages of comfort, rest, warmth, morphin and fluids were added.

INCIDENCE OF BRONCHOPNEUMONIA

In abdominal surgery, the general experience was that, during the winter months, there were more deaths from bronchopneumonia than from peritonitis. In certain winter campaigns, on account of the fatigue of the troops from heavy front line duty, from cold and wet and difficult surroundings, the incidence of bronchopneumonia was so high that operations were temporarily suspended.

RETROPERITONEAL INFECTION

In military, as in civilian surgery, retroperitoneal infections carried a higher mortality than intraperitoneal infections.

TREATMENT OF PERITONITIS

Military experience also emphasized the essential points in the treatment of abdominal infection established by civilian experience, namely: (1) nitrous oxid-oxygen as the anesthetic of choice; (2) anesthetized incision; (3) accurate, clean-cut operation to diminish both infection and shock; (4) adequate drainage; (5) Fowler's position; (6) vast hot packs over the entire abdomen, spreading well down over the sides; (7) 5 per cent. sodium bicarbonate, with 5 per cent. glucose by rectal tap, continued as long as it is tolerated; (8) primary lavage of the stomach, repeated only if indicated; (9) from 2,500 to 3,000 c.c. of physiologic sodium chlorid solution administered subcutaneously every twenty-four hours until the period of danger is past; (10) in grave, acute peritonitis, morphin given hypodermically until the respiratory rate is reduced from 10 to 14 per minute and held to this rate until danger is past.

The technic that will deal successfully with the exhausted, infected soldier with a perforation of the intestine will be of equal value to the exhausted civilian patient.

Certain points in technic in contradistinction to general management may be mentioned:

1. Assuming good technic, as compared with a rapid operator a slow surgeon has a high mortality. 2. Sutures are easily tied too tightly. 3. No drainage is required in operations on the small intestine. In operations on the large intestine, drainage may be used, but never in contact with the line of suture. 5. Retroperitoneal infected wounds should be treated by the Carrel method. 5. The abdominal wall may be divided in any direction with impunity. 6. In great emergencies, a temporizing fistula may be made by marsupializing a hopelessly damaged coil. 7. Although not every penetrated abdomen holds perforated viscera, every perforated abdomen should be opened. 8. I have seen patients whose abdominal wall had been torn wide open, and whose intestine was cold, covered with mud, and perforated withal, get well under the management outlined.

CONCLUSION

The principal experiences on which the foregoing summary is based were with the British in Flanders in 1917, and with the American forces in the Argonne in 1918. The outstanding conclusion from this experience is that the general principles which govern the successful handling of the problems of abdominal surgery are the same in military and in civilian practice. A good abdominal surgeon in military surgery will be a good abdominal surgeon in civilian surgery, and vice versa.

VALUE OF CONVALESCENT BLOOD AND SERUM IN TREATMENT OF INFLUENZAL PNEUMONIA *

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The futility of the usual forms of treatment during the epidemic of influenzal pneumonia was early manifest. With a fatality much greater than our common pneumonia, it suggested the pandemics of old when "the pestilence stalked at noon day through the city, and the doomed inhabitants fell like grass beneath its scythe."

Though the causal agent was undetermined, it seemed that the serum of convalescents might possibly contain antibodies in sufficient quantities to influence favorably the course of the disease.

Serum from patients convalescent from scarlet fever was found by Huber and Blumenthal, Von Leyden[1] and others to be of some therapeutic value in that disease, and both experimentally and in human beings the serum of poliomyelitis convalescents is beneficial if used early.[2]

Richardson and Connor[3] recently demonstrated that the serum of patients convalescent from measles conferred a certain amount of immunity.

We did not know at this time that convalescent serum had been used at the naval hospital at Chelsea, Mass., and just as we were starting the treatment, McGuire and Redden[4] published their results.

Our cases were too few in number to determine fully the value of this form of therapy, and the occurrence of a slight epidemic of hemolytic streptococcus cases early in 1919 increased the difficulty of interpreting our results. Yet certain observations were made that may be of interest and from them certain conclusions seem warranted.

Fifty-six patients received injections of convalescent serum, convalescent blood, or both. One other patient had several treatments, but is excluded because he had a large empyema when treatment was instituted.

Since we at first did not have enough serum for all cases, and as the mild ones usually resulted in recovery without any special treatment, we thought the best test would be to treat only those patients who were seriously ill. As will appear, some exceptions to this rule were made.

According to their condition when treatment was instituted, the cases were divided into four groups. This grouping is only approximately correct, as prognosis, at all times difficult, is especially so in an unfamiliar and very fatal malady.

Group A, 10 per cent. of the cases. Very favorable; mildly toxic; small area of pneumonia; no cyanosis nor vomiting; urine negative.

Group B, 19 per cent. Toxic symptoms more marked; pneumonia more extensive; mind clear; little or no cyanosis; seriously ill but recovery probable.

Group C, 30 per cent. Seriously ill; prognosis poor but patient not moribund, beginning gray cyanosis; often delirium; usually albumin and casts in the urine; as a rule, several lobes extensively involved.

Group D, 41 per cent. Very seriously ill; cyanosis, as a rule, marked; usually delirium or stupor; extensive lung involvement, with a rising temperature, pulse and respiration.

In primary pneumonia the respiratory rate in general gives a good index of the seriousness of the infection. In influenzal pneumonia the patient may be very toxic and have a poor prognosis, but with respirations only slightly increased.

In a group of patients selected because of their serious condition, the mortality rate to be significant should be compared with a like number of equally sick untreated patients. So overwhelming was the epidemic that this could not be done. The mortality in 435 cases of pneumonia, including those patients treated with convalescent serum, was 52 per cent.[5] The mortality of the serum-treated patients was approximately 45 per cent. but the prognosis was distinctly bad in over 70 per cent. when treatment was instituted. Twelve of the fatal cases were in Group D, three in

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* From the Walter Reed General Hospital.

* This paper and that of Dr. J. B. Herrick which follows are part of a symposium on "Influenza." The previous papers appeared in the issues of The Journal for August 2 and 9.

* Because of lack of space, this article is abbreviated in The Journal by the omission of the case reports. The complete article appears in the Transactions of the sections and in the author's reprints.

* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Kolmer, J. W.: A Practical Text-Book of Infection, Immunity and Specific Therapy, Philadelphia, W. B. Saunders Company, 1915.

[2] Amoss and Chesney: J. Exper. M. **25**: 581 (April) 1917.

[3] Richardson, D. L., and Connor, Hilary: Immunization Against Measles. J. A. M. A. **72**: 1046 (April 12) 1919.

[4] McGuire, L. W., and Redden, W. R.: Treatment of Influenza Pneumonia by the Use of Convalescent Human Serum, J. A. M. A. **71**: 1311 (Oct. 19) 1918.

[5] Fell, E. W.: Postinfluenzal Psychoses, J. A. M. A. **72**: 1658 (June 7) 1919.

Group C, and in only one, a pregnant woman, did the prognosis seem fairly good. She aborted; the temperature reached normal, but death ensued (Case 8).

Of the favorable cases (Groups A and B) the mortality was less than 25 per cent.

In a few cases which ended in recovery following the use of convalescent blood or serum, it did not seem that the outcome was in any way influenced by the treatment. We accordingly have listed these as unimproved in the classification appearing below.

There was a difference of opinion among the medical officers at the hospital as to the merits of the treatment. Lieut. A. D. Rood,[6] in charge of the general pneumonia ward, considered it to be without value. Capt. Sothorne Key, the ward surgeon of the officers' ward, thought highly of it. Major Randolph, chief of the medical service, felt that in some cases it was of real value. As the medical officer who was directing this investigation, I appreciated the fact that the favorable results obtained in the officers' ward were not duplicated in the general ward. The reason for the difference, however, was not apparent until the two groups were studied separately.

The accompanying table shows that in 80 per cent. of the patients in the general pneumonia ward the prognosis was poor at the time the serum was administered, and 60 per cent. seemed quite hopeless. In the officers' ward, on the other hand, the prognosis was unfavorable in 62 per cent. and utterly bad in only 22 per cent. The enlisted men had had their pneumonia 5.4 days when treatment was started, while the patients in the officers' ward had been ill only 3.9 days.

Lamb and Brannin,[7] in studying the epidemic at Camp Cody, found that death occurred, on an average, at the end of 4.9 days after the onset of the pneumonia.

In the officers' ward, notwithstanding the fact that in 62 per cent. of the cases the prognosis was unfavorable, 72 per cent. of the patients showed definite improvement, while in the general ward only 17 per cent. were benefited.

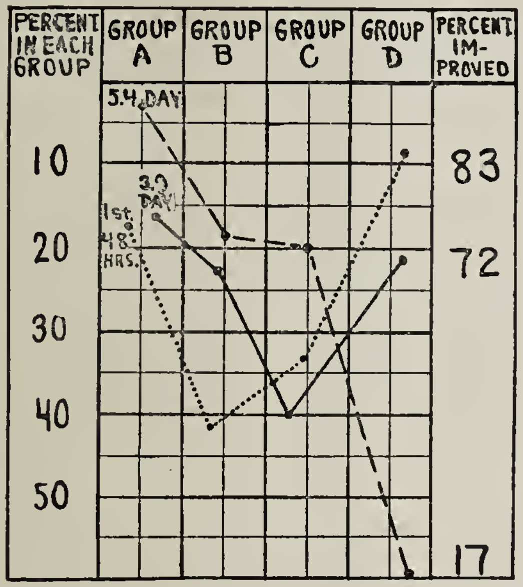

Chart 1.—Importance of early treatment: Groups A, B, C and D refer to the patients' condition when treated, A being most favorable, D least so. The first column shows the percentage in each group. Broken line, patients ill 5.4 days when treated; 60 per cent. in Group D, of whom 17 per cent. only improved. Solid line, patients ill 3.9 days; only 22 per cent. in Group D, while 72 per cent. were benefited by treatment. Dotted line, twelve patients ill not over two days; 8 per cent. were in Group D, and 83 per cent. showed definite improvement.

RESULTS OF TREATMENT IN TWO GROUPS OF CASES, AND THE DETERMINING FACTORS

	Number of Cases	Condition When Treated* A Per Cent.	B Per Cent.	C Per Cent.	D Per Cent.	Day of Disease	Definite Improvement Per Cent.
Officers and Stat. Off.	32	16	22	40	22	3.9	72
Pvts. and N.C.O..	24	4	16	20	60	5.4	17

* A, B, C and D refer to the prognosis, A being very favorable, B, C and D increasingly bad.

All patients admitted to the wards for officers immediately came under the ward surgeon who was to have charge of them, and serum was frequently given within a few hours after admittance. All cases going to the general medical wards first went to the receiving ward where after a careful examination and short period of observation they were sent to their proper destination. This was deemed necessary to detect the contagious diseases and to avoid filling up the pneumonia ward with various other acute respiratory diseases. But a disadvantage existed in that the pneumonia patients often did not arrive in the pneumonia ward till from twelve to twenty-six hours after admittance. When the cause of the difference in the results in the two wards became apparent, treatments were given in the receiving ward; but by this time the epidemic had nearly subsided.

It is noteworthy that all who have written on the treatment of influenzal pneumonia, irrespective of the agent used, state that good results are obtained only when treatment is given early; that is, within the first two or three days of the disease.

In twelve of our cases, treatment was given within forty-eight hours after the appearance of the pneumonia. One patient had a beginning empyema when treated. Of the eleven remaining, all except one (90 per cent.) recovered. The fatal case was a hemolytic streptococcus infection.

McGuire and Redden[8] had an exceptional opportunity to observe the effect of convalescent serum in a small but virulent epidemic of influenza that developed among the officers and crew of the *Yacona*. Twenty cases of bronchopneumonia developed in eighty patients with influenza. All were promptly treated with serum, and all except one recovered.

In the first cases treated we used the serum obtained after allowing the blood to clot. Later we adopted the suggestion of Hartman[9] and collected blood in sodium citrate solution. The serum thus obtained is plasma, but, for the sake of simplicity, is called by the more common name. Twenty-eight patients, in 59 per cent. of whom the prognosis was unfavorable, received a total of forty-nine injections of serum, and definite improvement resulted in half. Five of this group who did not improve developed a hemolytic streptococcus infection. One died from a pneumococcus Type IV meningitis.

In ten cases, seventeen injections of citrated blood of pneumonia convalescents were given. Six patients received only one injection, three received two each, and one was given five. In eight of the ten patients the prognosis was poor, in two utterly hopeless. The two last mentioned died, but five of the other six who were seriously ill definitely improved. The only patient not seriously ill who did not improve developed an empyema.

In eighteen cases at least one injection of convalescent blood and one of convalescent serum were given. The fact that all required more than one treatment

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6. Rood, A. D.: New York M. J. **109**: 493 (March 22) 1919.

7. Lamb, F. H., and Brannin, E. B.: The Epidemic Respiratory Infection at Camp Cody, N. M., J. A. M. A. **72**: 1056 (April 12) 1919.

8. McGuire, L. W., and Redden, W. R.: Treatment of Influenzal Pneumonia by the Use of Convalescent Human Serum, J. A. M. A. **72**: 709 (March 8) 1919.

9. Hartman, F. W.: New Methods for Blood Transfusion and Serum Therapy, J. A. M. A. **71**: 1658 (Nov. 16) 1918.

would indicate that they constituted a more unfavorable group than the other two. The prognosis was bad in 83 per cent., and only 39 per cent. showed improvement.

The number of injections required to obtain the desired result is of interest. The chance of recovery is inversely proportionate to the number of treatments required. Of twenty-seven patients in whom marked improvement was noted, fourteen required only one treatment, five received two (the second injection was probably unnecessary in two cases), and five required three treatments. Only one patient received four treatments who was benefited, and two who received as many as five showed improvement. The last two had been ill a long time and received small amounts of serum. Had larger amounts been used, it is possible that fewer treatments would have been required.

McGuire and Redden[8] used only one injection in one third of their cases, and of the remainder, two thirds needed only two. We used from 100 to 150 c.c. of serum; from 300 to 400 c.c. of whole blood was usually used, though in a few of our earlier cases amounts of less than 100 c.c. were employed. One of our most striking cases was in this group (Case 1). When blood was used, donor and recipient were always typed for agglutinins. This is not necessary with serum. Pooled serum was used in about one half the cases. We obtained the blood when the temperature had been normal about ten days, depending on how seriously ill the patient had been. Officers, their wives and nurses, gave their blood as willingly as did the patients in the general ward.

EFFECT OF CONVALESCENT SERUM ON THE SYMPTOMS AND COURSE OF THE DISEASE

Conscious patients in whom the influenza symptoms were marked, experienced relief, almost without exception, in a few hours. Headache and malaise would cease and a number of times severe vomiting of several days' duration promptly stopped (Cases 2 and 20). The detoxication was quite a definite thing. I talked with many officers and nurses during convalescence, and with hardly an exception they said they "felt entirely different" after the treatment. Cyanosis when not extreme would show improvement within twenty-four hours (Cases 3 and 4). One intensely jaundiced patient showed a remarkable clearing up of his jaundice within forty-eight hours after his treatment (Case 5).

The slight clouding of the sensorium frequently present was usually dissipated, but only occasionally did the patients who were delirious show a prompt clearing of consciousness. The rule was for the temperature, pulse and respiration to begin to fall, reaching normal in from thirty-six to forty-eight hours, depending on whether there was a chill. No change would be noted in the mental picture until from twenty-four to thirty-six hours later.

No improvement took place in the mental condition of one patient who had a complicating empyema and was much disoriented for weeks, though he received six treatments. He ultimately recovered. Ross and Hund,[10] using convalescent citrated blood, found that the temperature reached normal 1.5 days after the treatment and 9.5 days after the outset of the disease, while, with the untreated patients, the temperature did not become normal till the fifteenth day.

It was the rule that no extension of the pneumonic process took place after improvement in the symptoms occurred. A similar observation was made by McGuire and Redden. In a few cases, however, after a slight though definite improvement, a rapid extension followed with a fatal termination as a rule. One officer who showed such an extension into the only uninvolved lobe again showed prompt improvement and recovered when another treatment was given (Case 6).

Cowie and Beaven,[11] as a rule, found an increase in the signs following the use of typhoid vaccine.

The physical signs often would show no improvement until several days after the temperature, pulse and respiration had reached normal and all symptoms had subsided. In fact, the roentgenologist not infrequently would consider the patient still very critically ill, or even progressing, from a study of the daily negatives, when clinically he was quite convalescent.

After seeing the lungs at postmortem, it is difficult to understand how organs exhibiting so little normal tissue can continue to function, and it is even more remarkable that recovery sometimes takes place.

REACTIONS

Transfusions of normal citrated blood for various conditions are followed by a chill in about 20 per cent. of the cases.[12]

A reaction took place in twenty-three (16 per cent.) of our series of 140 intravenous injections. It is quite possible that a few patients may have had a slight reaction that escaped notice. The reaction was such as is seen following the injections of various foreign proteins. Within half an hour the patients feel chilly, and then have a shaking, followed by an elevation of temperature. In only one instance did the temperature go very high, and then 107 was recorded. As a rule, the temperature rapidly fell, reaching normal in about twelve hours.

Reactions occurred with about equal frequency with whole blood and with serum.

O'Malley and Hartman,[13] using plasma, report a "response," usually a chill and sweat, in 75 per cent. of their cases, and the improvement was more prompt when the reaction took place.

RESULTS OF REACTION

In the great majority of instances, coincident with the fall in the temperature following the chill, the pulse and respiration dropped and there was marked clinical improvement. This took place with such regularity that we considered a chill a good omen. But in the case of four patients, all very ill, the reaction may have hastened their death (Case 7). It seems possible that the severe reaction in Case 3, reported by Cowie and Beaven,[11] following an injection of typhoid antigen, may have hastened the fatal outcome, though they do not suggest this possibility. A severe reaction in a very sick patient is not to be regarded lightly. It may save his life, and it may hasten his death.

In the case of two of our patients who were treated at the same time, with serum a week old, marked flushing of the face accompanied the reaction (Cases 7 and 8). The serum was perfectly clear and sterile and free from any preservative. With this exception, the serum used was rarely over two days old. The blood was never over twenty-four hours old, and as a rule it was used within twelve hours. Blood not used when obtained was put into serum at the end of twenty-four hours, or sooner, if the donor and recipient were not compatible.

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[10] Ross, C. W., and Hund, E. J.: Treatment of the Pneumonic Disturbances Complicating Influenza, J. A. M. A. **72**: 640 (March 1) 1919.

[11] Cowie, D. M., and Beaven, P. W.: Nonspecific Protein Therapy in Influenzal Pneumonia, J. A. M. A. **72**: 1117 (April 19) 1919.

[12] Lewisohn, R.: Am. J. M. Sc. **157**: 253 (Feb.) 1919. Pemberton: Surg., Gynec. & Obst. **28**: 262 (March) 1919.

[13] O'Malley, J. J., and Hartman, F. W.: Treatment of Influenzal Pneumonia with Plasma of Convalescent Patients, J. A. M. A. **72**: 34 (Jan. 4) 1919.

Prior to a few years ago, it was assumed that the reaction resulting from the injection of an antigen was a specific one. The improvement in chronic arthritis following the reaction induced by the intravenous injection of typhoid antigen demonstrated that bacteria in no way responsible for the pathologic condition could cause a reaction that might be followed by improvement. Yet these "nonspecific" reactions may be more specific than at first appears. It is, indeed, quite possible that they furnish the incentive for the production of specific antibodies.

Beneficial results have been reported in various conditions employing a variety of foreign protein.

Cowie and Beaven[11] were able to produce a reaction in influenzal pneumonia which in several instances was followed by improvement by injecting typhoid antigen.

Lamb and Brannin[7] observed improvement following the injecting of a variety of foreign protein, but only when a chill was produced.

Roberts and Cary[14] employed a vaccine made of pneumococci, Types I, II and III, streptococci and staphylococci; and when a reaction was produced, improvement usually followed.

It is noteworthy that in 80 per cent. of our cases in which definite improvement was shown, there was no reaction which is suggestive of specificity.

Nineteen patients received injections of blood or serum from healthy individuals who had not had influenza or pneumonia. One having an empyema when treated is not considered. In five the prognosis was good (A and B), and 20 per cent. seemed benefited. This is in striking contrast to the 75 per cent. showing improvement in the same type of cases with convalescent blood or serum. In fourteen the prognosis was poor, and in 21 per cent. of these improvement followed. In one very sick patient the result was striking (Case 9). It is therefore evident that except in an occasional case the transfusion of "normal" blood is without benefit, with which opinion McGuire and Redden[8] concur.

Ten patients received serum or blood from patients who had had influenza but not pneumonia. Leaving out of account one patient with a large empyema, there were nine to be reported on. The prognosis was poor in six. Slight improvement followed in one case, and in two others, in both of which a chill occurred, there was marked improvement (Case 11). In all, twenty injections of blood or serum of influenza convalescents were given, and in four (20 per cent.) a reaction occurred.

On the assumption that the pneumonia following influenza might be due to secondary organisms, possibly the pneumococcus, we decided to try the effect of transfusion from healthy adults who had not had influenza or pneumonia, and who had been vaccinated with the triple vaccine prepared at the Army Medical School.

Notwithstanding the fact that almost all of our pneumonia cases belonged to Type IV, we thought this worthy of trial because Cecil and Austin[15] found that vaccination against the first three types appeared to diminish the number of Type IV infections. Blood was obtained a week following vaccination, as, at that time, immune bodies are at their maximum.

In seven cases the "normal" immunized blood or serum was given, but in only one case did improvement follow (Case 12). This was a lobar pneumonia with a high leukocyte count, and as the serum was administered on the fifth day, it is possible that the falling temperature was the normal crisis. In this connection it is of interest that Cecil and Vaughan[16] found that prophylactic vaccination with the pneumococcus lipovaccine did not lower the mortality in influenzal pneumonia.

Two patients with a hemolytic streptococcus pneumonia were given transfusion from patients convalescent from hemolytic streptococcus tonsillitis. One showed no improvement; the other had two injections, both being followed by a chill, and recovery took place (Case 13).

STUDY OF THE LEUKOCYTE COUNT

Uncomplicated cases showed the leukopenia so characteristic of the disease. A steadily rising count usually heralded the advent of an empyema. It did not seem that the degree of leukopenia afforded any trustworthy guide as to the prognosis, though a very low count indicates a general infection.

Notwithstanding that many counts were made, our records are not sufficiently complete to be of much value. It so happened that nearly all of the cases in which complete studies were made before and after injections proved to be hemolytic streptococcus cases.

Ross and Hund[10] found that there was a rise in the leukocytes following the transfusion of convalescent citrated blood, which in some cases reached 24,000. A fall to normal was observed as further improvement took place. They do not state whether any difference was observed in the patients who reacted with a chill and in those without a reaction. An increase is commonly found following a protein reaction. In one of our cases the leukocytes rose from 3,300 to 23,000 following a sharp chill occasioned by the transfusion of convalescent blood.

In another case in which there was no reaction following the injection of 300 c.c. of convalescent blood, the leukocytes rose from 5,700 to 13,400 by the end of twenty-four hours. A patient who received 200 c.c. of "normal" serum without reaction or notable improvement showed the following count: before treatment, 5,100; first hour after, 5,100; second hour, 5,700; twenty-four hours later, 4,200.

An increase in the number of leukocytes was noted in some who died, while some showed a falling count. In others there was no change. Following three injections of convalescent serum given in one case during twenty-four hours without reaction but with well marked clinical improvement, the leukocytes rose from 3,000 to 11,300.

The intense congestion of the lungs that characterizes this malady affords an ideal site for the growth of various organisms, the most dreaded being the hemolytic streptococcus. The longer the patient is ill, the greater becomes the danger of the infection. It is perhaps significant that hemolytic streptococcus infections were more frequent among the patients treated with "normal" blood than among those receiving convalescent blood.

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[14] Roberts, Dudley, and Cary, E. G.: Bacterial Protein Injections in Influenzal Pneumonia, J. A. M. A. **72**: 922 (March 29) 1919.

[15] Cecil, R. L., and Austin, J. H.: J Exper. M. **28**: 19 (July) 1918.

[16] Cecil, R. L., and Vaughan, H. F.: J. Exper. M. **29**: 457 (May) 1919.

Of eleven cases in which convalescent blood or serum was given during the first forty-eight hours of the pneumonia, in one a hemolytic streptococcus complication developed. Nineteen patients were treated on the third or fourth day, and eight died. Seven came to necropsy, and five showed the hemolytic streptococcus as the predominant organism. On the other hand, Lamb and Brannin[7] felt that the hemolytic streptococcus did not increase the mortality of influenzal pneumonia. We did not observe any difference in the results obtained with citrated blood, plasma or serum. Whole blood is to be preferred possibly on theoretical grounds, as the introduction of a considerable number of healthy blood corpuscles that will probably continue to function for some time might furnish material aid to the sorely taxed red cells of the recipient.

Cases of hemolytic streptococcus infections were fewest after the use of convalescent whole blood; but, as our series was small, too much significance should not be attached to it.

Specificity of action, which our cases suggest, is not borne out by the work of Lesné[17] and his co-workers, who have been investigating the action of citrated plasma. They believe that it acts as a foreign protein, and they found that patients injected with "normal" plasma or with their own plasma did as well as when convalescent plasma was used. Their series was small, and they appear to have produced a reaction in nearly all of their cases.

When laboratory facilities are at hand, the use of whole blood is simpler and quicker, as it takes only a few minutes to determine the iso-agglutinins. Plasma is obtained by allowing the citrated blood to stand several hours; no grouping of recipient and donor is required, and the serum from several donors can be pooled, which is of advantage.

It does not seem necessary at this time to describe the method of obtaining the blood and administering the treatment, as this has been taken up in detail by several writers on the subject.[18] To insure a supply of fresh serum, each patient when treated should promise to give some blood when convalescent.

SUMMARY

1. Fifty-six patients with influenzal pneumonia, in 70 per cent. of whom the prognosis was poor, were treated with the blood or serum of convalescent patients with a mortality of approximately 45 per cent.

2. Twelve cases were treated within forty-eight hours after the development of the pneumonia. One patient had a beginning empyema when treated; another developed a hemolytic streptococcus infection and died; and one other died. The remaining ten showed prompt improvement and recovered.

3. Thirty-two patients had been ill with pneumonia for an average of 3.9 days when treated, and 72 per cent. showed distinct improvement.

4. Of twenty-four patients ill 5.4 days when treated, 17 per cent. showed improvement.

5. Nine patients, six of whom were seriously ill, were treated with blood or serum of patients convalescent from influenza but who had not had pneumonia. Only two exhibited well marked improvement following the treatment, and both reacted with a chill.

6. Nineteen patients received transfusions of blood or serum from individuals who had not had influenza or pneumonia. No better results were obtained in the cases in which the prognosis was favorable than in the serious cases. Twenty per cent. seemingly were benefited.

7. Nine patients were given blood or serum from healthy adults vaccinated a week previously with triple pneumonia vaccine. In only one case, a lobar pneumonia with a leukocytosis, did improvement follow.

8. Sixteen per cent. of our patients treated with convalescent serum reacted with a chill and rise of temperature. With but four exceptions prompt improvement followed the reaction. In four critically ill patients, death was possibly hastened by the reaction.

9. In 80 per cent. of the cases in which definite improvement was shown no reaction was manifest.

10. Over half of the patients showing improvement required only one injection to obtain the desired results.

CONCLUSIONS

1. The transfusion of "normal" blood or serum is only exceptionally of value in influenzal pneumonia.

2. The blood or serum from individuals vaccinated against pneumococcus Types I, II and III possesses no advantages over "normal" blood in this type of pneumonia.

3. Too few patients were treated with convalescent influenza serum to warrant definite conclusions. The impression received was that it was less potent than convalescent pneumonia serum but of more value than "normal" serum.

4. The transfusion of blood or serum from convalescent influenzal pneumonia patients is occasionally of value though used as late as the fifth day of the disease. When used early, within the first three days, a distinct improvement in all symptoms is to be noted in the majority of cases. It seems to lower the mortality, shorten the course of the disease, and diminish complications.

5. The early employment of convalescent serum, therefore, appears to be a therapeutic measure of definite value.

902 Main Street.

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[17] Lesné: Presse Méd. 27: 181 (April 7) 1919.

[18] Compare Footnotes 4, 7, 8 and 9.

TREATMENT OF INFLUENZA BY MEANS OTHER THAN VACCINES AND SERUMS *

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CHICAGO

This brief paper will be essentially an expression of personal opinion as to the treatment of influenza by means other than serums or vaccines. This opinion is based on an experience with the disease in the epidemic of 1889 and 1890 and the years immediately following, as well as in the epidemic through which we have just passed. Experiences of other physicians, as revealed by personal communication and by observation of their practice, are also laid under contribution. Many articles on the subject have been read, but no claim is made that the enormous mass of literature that has resulted from the visitations of this serious disease has been

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

carefully studied or thoroughly digested. The task would be both discouraging and unprofitable, because so many of these articles are the result of superficial observation and limited experience; so many ignore the fact of the self-limitation of the infection and its natural course; so many conclusions are crude, and so many are reached by a mental process in which an optimistic credulity takes the place of the more desirable scientific skepticism.

Perhaps, however, the task would not be wholly unprofitable if it were to let us know more nearly where the profession stands today in the matter of drug and other treatment of influenza, and if it were to serve forcibly to bring home the lesson that as yet we have no specific treatment for the disease, no one or two drugs on which all physicians are agreed as to their preeminent value in prophylactic or active therapy.

No drug is known to prevent the occurrence of influenza. Many have been tried, but a review of the reports made by optimistic clinicians is far from convincing. A drug of this category is quinin, warmly advocated, though without adequate proof, by many Italian physicians, but by others of the same country regarded as without value.

Segregation of those who are ill and the prohibiting of public gatherings must lessen the number of contact infections. Perhaps it would be more nearly correct to state that such measures lessen the rapidity of the spread of the disease by lessening the concentration of exposures. The impression one gets from a consideration of the incidence of influenza as it has occurred in the camps and larger cities is that in spite of all practicable quarantine measures the epidemic goes through the populace sparing the immunes, but affecting the susceptibles, approximately 30 per cent., of the total number. Prohibition of public gatherings seems to spread the disease more thinly over a longer space of time. It may act also to postpone the occurrence until such time as the less virulent type is prevalent. By this diluent action fewer fatalities may result. Both these are desirable ends, and so these measures are to be encouraged.

Reports of clinical observations and experiments vary as to the value of the gauze masks. There can be no doubt that a properly constructed mask worn by the patient must lessen the danger of droplet infection of nurses, attendants and other nearby patients, and thus minimize the danger of carriage of the disease or of crossed infections. The masking of physicians and nurses acts in the same way, though not to the same degree. The suggestive effect of the mask, emphasizing care as to cleanliness, is not to be undervalued. The faulty way in which masks are sometimes constructed, the carelessness with which they are worn and the use of soiled masks are productive of no good and, at times, cause harm. The mask properly used has probably come to stay, though its exact value is far from determined. And such a clinical experiment as that in which the attempt was made to transfer influenza by the swabbing of the throats of healthy individuals with the nasal and throat secretions of influenza patients, without resulting transference of the disease, goes far to shake one's faith in the mask as a preventive measure against influenza.

In order to be convinced of the fact that there is no generally accepted plan of treatment, it is only necessary to see cases in consultation with other physicians, or to read the abundant literature on this disease of the last six months, or to go back to the voluminous writings published after the epidemic of 1890 and the years immediately following. The utter lack of uniformity as to drugs recommended is the best proof that there is no one remedy of sovereign value. That this is the fact, not alone in the English speaking medical world, but in other lands as well, is revealed by a perusal of the medical supplement of the *Review of the Foreign Press* issued by the British General Staff, War Office. Take, for instance, the number for April, 1919, in which there are abstracts from recent French, Italian, German, Scandinavian and Swiss journals. A catalogue of the remedies advocated reads: intravenous injection of camphor oil, camphorated oil with guaiacol, intravenous use of mercuric chlorid, intravenous injections of hexamethylenamin, quinin in large doses, collargol, colloid gold, colloidal metals in combination with antistreptococcal serum, calcium chlorid, neo-arsphenamin, diphtheria antitoxin and tetanus antitoxin. Certainly some one has blundered in reaching conclusions.

There is, however, one feature of the treatment of influenza on which all agree, namely, the importance of early rest in bed and the continuance of such rest until fever, cough and other symptoms have for several days disappeared. It is a common experience for the patient who does not at once give up when attacked by the disease, or who leaves his bed early and attempts to go to work the moment he thinks he has the requisite strength, to suffer from a recurrence of symptoms, possibly to have pneumonia appear, or to be incapacitated on account of persistent cough, irritable heart or nervous and muscular weakness. A few days added to the period of rest would often save the patient from a protracted convalescence or prevent serious sequelae.

A sunlit room, plenty of fresh air and a light diet with a liberal amount of liquids should be allowed and enjoined. The bowels should be opened fully at the beginning of the illness and not allowed to become sluggish at any time.

One of the hardest things to do in the treatment of a serious, self-limited, infectious disease is to refrain from prescribing drugs merely because the diagnosis has been made. The self-restraint of the level-headed physician is likely to be swept aside by the thought of the possible grave consequences of the malady, and his accustomed good judgment is apt to be smothered in the semihysterical atmosphere of alarm that pervades the community during the visitations of the epidemic. He forgets that a large proportion of patients with influenza do not need a single dose of medicine. There should be no routine treatment according to which certain drugs are given at stated periods, whether or not there is a clear indication for their use. The treatment is really expectant, symptomatic and individualistic.

It was my lot to be in charge of the influenza isolation wards in the Presbyterian Hospital, Chicago, during the recent epidemic. There were about 160 nurses, members of the hospital personnel and medical students from Rush Medical College who were patients. The disease was vicious and severe; pneumonia and other serious manifestations were common. Of the 160 patients, only one died, a nurse. So far as I could learn, there had been no prophylactic vaccination or use of serum in any case; no treatment of this kind was instituted in the hospital. There were no standing orders as to drugs. No acetylsalicylic acid, phenacetin, digitalis, codein, quinin, atropin or other remedy was to be prescribed as a routine. Rest in bed from the very beginning of the symptoms, and for several days after the cessation of the symptoms, was the standing order. Liquids were given freely. I have wondered whether if I had used some vaccine or serum or other supposed specific I might not now be eager to get into print with my record of only 0.6 per cent. mortality. Nay, I should have been in print long before this. I merely have the satisfaction of knowing that no lives were taken by drugs (I think I am free of the charge in the one fatal case with extensive pneumonia), and that cautious conservatism gave Nature a chance to work a cure. We trust we helped her in her healing work.

The remedy that seemed of greatest value was digitalis. Without waiting for alarming indications of failing heart to develop in the way of feeble tones, rapid action, arrythmia or dilatation, digitalis was given by the mouth, hypodermically or intravenously in small or large doses as need arose. I am sure that by its intravenous use several patients were very materially benefited, and that in some instances dangerous or even fatal heart failure was averted. I never saw harm result from its careful use, except that occasionally it induced nausea when given in large or frequent doses, as it necessarily had to be. Next to digitalis, the drug that seemed to me to be most helpful was opium—nearly always given as a hypodermic of morphin, or when the allaying of an annoying cough was the desired aim, in the form of heroin or codein. Pain, sleeplessness and severe cough have seemed clearly to indicate its use. The benefit from one sixth grain of morphin to the patient who, racked with cough and distressed by the pain of a pleurisy, has not slept for twenty-four hours, is too self-evident to need argument. There is too much fear of a hypodermic injection under these circumstances; fear both on the part of the physician and of the laity. Camphorated oil may be extremely helpful when there is a weak heart. In influenza in a patient who had been asthmatic and in whose chest there was much wheezing, I have seen good come from administering epinephrin. Hypodermoclysis or proctoclysis may be helpful. I think I saved one life by bleeding.

But I must be careful, or I shall lay myself open to the charge of having my pet drugs, or a treatment which I claim is curative. And to have favorite remedies which we talk about too much is to expose ourselves to the danger of believing in them more than is warranted by the facts. Even the quack comes to have a half-way belief in the curative powers of his methods. One ought not to be a nihilist as regards drugs in this disease; but no apology is needed for being a good deal of a skeptic as to the value of much of the therapy that is prevalent. Wholesale and indiscriminate drugging and the giving of huge doses is much too common. There should be a management of influenza as rational and simple as that of a developed case of typhoid fever, in which, today, in the hands of the intelligent physician and the enlightened public, drugs play a subordinate rôle. How much harm may be done by overdrugging no one can estimate. But the danger is real and not imaginary.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROSENAU, FROST, PARK, CONNER, ROSENOW AND STURDIVANT, MC COY, STOLL AND HERRICK

Dr. Augustus B. Wadsworth, Albany, N. Y.: The essential conditions under which the etiologic relationship of an organism to an infectious process is established have not been fulfilled with any organisms that have been isolated from influenza. We attempted to study this whole problem very carefully and thoroughly—bacteriologically and pathologically. At first we failed to find the influenza bacillus in the cases studied, but later, with improved technic, we were able to establish its presence. At first these cultures apparently were all similarly variable in morphology and uniform in their hemophylic cultural reactions. The thermal limits of growth were found to be quite constant and uniformly low, as compared with many other pathogenic species, ranging between 40 C. and 41 C., and nearly all of the cultures failed to grow above 40.5 C. By further study it was found that twenty-two cultures of influenza did not acidify any of the carbohydrates; forty cultures acidified dextrose; and sixteen other cultures formed both gas and acid in dextrose. The toxicity of these cultures varied greatly in animals. Infections seldom developed in them. When injected into the trachea of rabbits, the cultures of the influenza bacillus and their filtrates frequently gave rise to considerable lung reaction and lesions quite as extensive as those induced by pneumococci. In some instances, the lung lesion was more marked when both pneumococci and influenza bacilli were injected. Many of the lesions found in the rabbits' lungs after injection with pure cultures of the influenza bacillus resembled very closely lesions found in the lung at necropsy in cases of human influenza. But the most toxic reactions of purely hemorrhagic pneumonitis so characteristic of the lung involvement of human influenza were not marked in these experiments in rabbits. Twenty-four hours after tracheal inoculation, the influenza bacillus was recovered from the lung lesion, but at the end of forty-eight hours no organism was obtained. Evidently the rabbit is relatively insusceptible to infection with the influenza bacillus. In our study of the practical value of the vaccine of the influenza bacillus, we made investigations in thirty-three state institutions. In twenty-eight we found that a greater number of cases of influenza developed among the vaccinated than the unvaccinated after vaccination had been started. In another institution the number of cases that developed among the vaccinated was 1.24 per cent. and 1.1 per cent. among the unvaccinated; and in another, among the vaccinated 2.48 per cent. and 4.2 per cent. among the unvaccinated. In another institution 461 inmates were vaccinated. Dr. Park's laboratory failed to find the influenza bacillus in more than three inmates. The institution was very carefully quarantined during the epidemic, and no influenza developed for three months. Then there was an outbreak of 203 cases, 166 cases developing among the vaccinated inmates and thirty-seven among the unvaccinated inmates. The cases that occurred among the unvaccinated included those that were admitted to the institution after vaccination had been started. Of thirty-eight cases examined, thirty-two had influenza bacilli in the discharges.

Dr. Anna W. Williams, New York: I wish to emphasize one point in regard to the etiology of a pandemic disease, and that is, that there is no necessity whatever for wasting any time at first on determining whether an organism suspected of being the etiologic agent of the pandemic is pathogenic or not. The important thing is to decide whether or not we have one type among the strains isolated. Until this point is settled in the affirmative we need not pay any attention to the so-called postulates of Koch. If the pandemic is a true microbal pandemic, that is, starting from one cause and spreading through that cause, we should be able to prove that there is one variety or type of microorganism that is responsible for the pandemic. Of course, we have to determine what test we must choose to prove this. Up to the present, we have decided that we will accept the agglutination test with the absorption of agglutinins for the test of type until somebody proves that this test is not the final test. We have shown that all the influenza strains we have isolated do not respond to this test; that practically each strain is a law unto itself, with the exception of strains picked from one case. Now, if it is true that that test can be accepted, and if it is true that by our methods we have not missed a pandemic strain, or that the strains do not readily change in their power to produce the same agglutinins, then the influenza bacillus has nothing whatever to do with the initiating cause of the epidemic.

Dr. Edwin R. Le Count, Chicago: Certain salient facts stand out prominently in connection with this disease. One of the most astounding is the way in which it spread. It has been compared to measles and other similar eruptive fevers, and it may be that if the human race was as susceptible and less immunized to measles than it is, and we should have measles suddenly thrown on us, measles would spread over the world in a way similar to the spread of influenza, but outside of such a conception of measles, or some other infectious disease, we have nothing to compare influenza with, in the way in which it has extended. Therefore, it does seem that its causation should be in a way quite unique also. The clinical manifestations are correspondingly fairly clear, and through the investigation of MacCallum, Goodpasteur and Wolbach we are gradually getting somewhat of a clear idea as to the changes peculiar to the disease. Among the changes that do occur, there are certain features of the lung alterations that are conspicuous. One has been noticed by all who have studied these conditions in dead bodies, and that is the exceedingly great wetness of the lungs, and the way in which the fluid of the blood runs out into the pleural cavities. In the earlier part of the treatment, a mistake probably was made in withdrawing such fluids from the pleural cavities, as it amounted to continued bleeding at intervals, which probably did harm. Later, I have understood, this treatment was somewhat abandoned.

Microscopically there are also a few features that are characteristic. One is the thin layer of fibrin in the minutest air passages. Such a limitation of fibrin to the lining of the air sacs is also rather unique in the histology of lung inflammations. About twelve or fifteen years ago an epidemic of what we called ordinary lobar pneumonia or lung fever spread over this country. Many thousands died in a few months. Since the epidemic of influenza last fall, we saw practically none of that old type of lobar pneumonia. Lobar pneumonia in an anatomic sense was observed during this epidemic of influenza; but not lobar pneumonia in the full clinical sense. The lobar pneumonia we saw is postinfluenzal and is due to secondary infection; moreover, the lobar pneumonia observed during the recent epidemic has been unlike that of twelve or fifteen years ago and of even more recent years, different anatomically in at least one noteworthy way: the absence of a heavy "shaggy" precipitate of fibrin in the pleural cavity.

Dr. Henry Albert, Iowa City, Iowa: Dr. Frost stated, I believe, that we have no evidence of immunity against influenza. I should like to cite an instance in which I believe we have very good clinical evidence of the existence of such immunity. A state institution at Mitchellville, Iowa, was investigated by our epidemiologist, Dr. Hamilton. This institution had a population of 180. The inmates were housed in six different cottages, but all received instruction in the same room. Early in October, 1918, in connection with the general epidemic, the disease gained a foothold in this institution. The administrative officials immediately isolated all the affected persons. Inmates of only three of the cottages were exposed, and the disease was entirely limited to the inmates of these three cottages. Seventy-six cases occurred at this time. As a result of very careful isolation, no further evidence of the disease appeared until two months later. At that time, one of the teachers was given permission to leave the institution for a few days. She returned with the beginning of an attack of influenza. In the course of a few days another epidemic appeared, to which every person in the institution was exposed. During the second epidemic, there were eighty-two cases of the disease, but not a single instance of a recurrence of the disease among the seventy-six who had had the disease during the previous epidemic. Of the total population there were only twenty-two, or 12 per cent., who did not contract the disease during either of the epidemics. It seems to me very significant that during these two epidemics, out of a population of 180 persons, there was not a single case of recurrence during the second epidemic and I cannot help but think that it must be due to the development of immunity.

Dr. Alexander Lambert, New York: I was interested as I heard the other speakers refer to the difference in the clinical character of the pneumonias as modified by the recent epidemic. Perhaps, the experience with the pneumonias before the epidemic of 1889, during 1889, and during subsequent years, and in this epidemic may be of some interest. When I was in the hospital in 1885, 1886, 1887 and 1888, the pneumonias were clear-cut lobar pneumonias, very few of them bronchopneumonias. In 1889, as the influenza epidemic came to New York City, there were the same unusual pneumonias as in this last epidemic, with the same sodden kind of lungs. The pathology was clearly stated and taught by Delafield afterward, that the lungs showed a maximum of congestion and a minimum of exudation, and he further pointed out at that time that these were bronchopneumonias, but they did not differentiate the bacterial flora. They believed then that the pneumococcus caused them all and the streptococcus was not differentiated. Nor was it until 1892 that the description of the influenza bacillus was brought out. In 1892, within a few days after Pfeiffer's article was published in New York, I separated out the influenza bacilli for Delafield from some of his patients. The pneumonias for four or five years remained in New York, queer and patchy as if they were mild dying out types of influenza. They later became more the pure lobar type, and that continued through quite a while. Later, in 1901, an epidemic of grip appeared, and the bronchopneumonia came back, and the lobar type seemed to disappear again. Five or six or seven years ago the type returned to the clear-cut lobar type, and again it has returned to its predominating bronchopneumonia type. The differentiation this time which is helping to solve the problem much more clearly and intelligently is the differentiation of the primary and the secondary infections, the differentiation more clearly of the influence of the various bacteria, and particularly of the serious influence of the streptococcus. In studying the various types with the roentgen rays the pathology was clear and easy to understand.

Dr. H. B. Wood, Providence, R. I.: One important factor was the hemolytic infection of the throat in army camps throughout a number of states during the summer of 1917. A house-to-house canvass in five towns in New York state showed that about 85 per cent. of the persons closely exposed to the infection contracted the disease. In other words, what we call influenza has about the same infectiousness as measles. Sex had absolutely no effect. The people contracted the disease according to their opportunity to exposure.

Dr. Solomon Solis Cohen, Philadelphia: One may agree thoroughly with Dr. Herrick's philosophic principles, yet differ with his application of them. That different remedies are advocated for one malady by no means implies that all are worthless. All may be helpful under given conditions, or even if two are useless, the third may be good. The point is, that in a matter not susceptible of experimental proof, but depending on individual observation and therefore virtually a matching of opinion against opinion, we cannot condemn, offhand. It is true that there is among the younger teachers today no general agreement on the proper method of treatment, other than serums and vaccines; but in the epidemic of thirty years ago there came to be general agreement as to what was useful, what was useless and what was harmful. Antipyrin and acetanilid were at first advocated by great authority, but their deadliness was soon recognized. Unfortunately, in Philadelphia at least, that lesson was forgotten. If I may judge from what I frequently heard in the consultation room, there was a widespread tendency to use two very harmful drugs, acetylsalicylic acid and acetphenetidin. The peak of mortality in Philadelphia shown on the charts resulted from many factors, among others, the great industrial population drawn from all over the country, the crowding and promiscuous visiting in certain quarters, the lack of doctors and nurses. But it may have been, in part, owing to this bad practice. Not that every one died who received these drugs; quite a number survived both the disease and the medicine; some, no doubt, to suffer later from weakened heart and nerve depression. But in the majority of the cases in which they were used, these drugs deprived the patient of his chance to recover. Of that, I have no doubt. Salicin and certain of its derivatives, namely, sodium salicylate and quinin salicylate and cinchonidin salicylate (not aspirin, the acetylsalicylic ester, remember—that is a dangerous cardiovascular depressant) were very useful, not as specifics, but as aids. Quinin dihydrobromid and quinin and urea hydrochlorid were also helpful, not only in cases which developed pneumonia, but in preventing pneumonia. DaCosta used to tell us that influenza is "at once the least fatal and the most fatal of all diseases." Of itself, the least fatal; in its complications and sequelas, the most fatal. If one thing has been brought out above any other in this discussion, it is that influenza is not merely a mixed infection, the term is not sufficient. Nor are the death dealing organisms merely secondary invaders. Influenza is a malignant symbiosis and must be studied from that viewpoint before we can understand its pathology and epidemiology. There is one drug that antagonizes the influenza poison, opposing this vital depressant throughout its whole range of influence. It is itself a dangerous drug if used indiscriminately; but it is helpful if used properly. That drug is coca, and its alkaloid, cocain, used with due caution and under proper indication.

Dr. Hyman I. Goldstein, Camden, N. J.: It is very fortunate for Dr. Herrick to have had the more or less unusual opportunity to treat most of his 160 patients from the very beginning and in a hospital. I would like to ask Dr. Herrick what he would do under the usual circumstances with which general practitioners are confronted. In attempting to prevent the numerous deaths which Dr. E. C. Rosenow told us resulted from the secondary complications, are we justified in using the vaccine? I think we are justified in using vaccine, even if we do not know the specific cause of influenza, as a preventive and therapeutic measure against the complications. We have not a "cure all" or "sure cure" for all cases of any one disease. But are we justified in doing away with the use of mercury and arsphenamin in syphilis because it is not a cure in all cases? Digitan (digipuratum), quinin dihydrochlorid, caffein and coden were used symptomatically with considerable benefit to my patients. Benzyl benzoate relieves the pertussis-like cough so often heard in this epidemic. We must make the best use possible of what we have and, of course, we hope that our experts will eventually give us something definite with which to work.

Dr. Frederick T. Lord, Boston: There seems to me no ground for the belief that a vaccine in the treatment of disease is of any value whatever. Vaccines may be of use in prophylaxis, but they have never been shown to be of value in treatment. Regarding the use of convalescent serum in the treatment of influenzal pneumonia, the presence of protective substances in the blood at the time of or after the crisis in lobar pneumonia has been established, but they are not constantly demonstrable. In ordinary lobar pneumonia, therefore, treatment with convalescent serum can hardly be expected to be followed by any very striking results. Stress has been laid on the favorable symptoms resulting from the use of convalescent serum. In a disease so variable in its symptoms as influenzal pneumonia one may readily fall into error in a judgment based on favorable symptoms following the administration of serum. Only a judgment based on mortality should count, and also that one must take into account in that judgment the very variable mortality existing during the epidemic. In one of our camps the figures indicate that the mortality from influenzal pneumonia was at one time 54 per cent. In the Students Army Training Corps at Cambridge the mortality was 8 per cent. Among sixty-one cases in the civilian community the mortality was as low as 3.2 per cent. the figures being gathered from civilian physicians. In view of this variability in mortality, it would be highly undesirable to base any final judgment regarding the value of the method on any other than series of serum treated cases controlled by a simultaneous series not so treated. At the Massachusetts General Hospital we had twenty-three patients who were treated with convalescent serum, and of this number we lost six. At the same time we had twenty-five controls and we lost three.

Dr. Albert E. Roussel, Philadelphia: Experience in the 1889 epidemic and the present one, from the similarity of the clinical symptoms, would lead one to appreciate the fact that we were dealing with the same disease and probably due to the same organism. The second point of appreciation in both of these experiences is the fact that uncomplicated influenza has practically no mortality. It is true that the number of cases of complications of the respiratory tract were numerous in this present pandemic, and disproportionate to the first, but uncomplicated influenza practically cures itself, and there is no question at all that the existence of large bodies of troops in and around cantonments invited probably the same combination of organisms and, on the other hand, the diminished resistance of the civil population caused by underfeeding and worry made this probably the most intense and virulent type of influenza that we have yet seen and, possibly, that we may ever see. The proportion of jaundice was rather larger than has been mentioned. Possibly 4 per cent. of the cases of pneumonia showed jaundice, and almost all the patients exhibited tenderness in the neighborhood of the gallbladder, and it is a question whether there were not many cases of catarrhal cholecystitis, and a number of other cases of a more severe type. Among 186 hospital cases of pneumonia, excluding the deaths that occurred within twenty-four hours, the mortality was a fraction of more than 25 per cent. On the other hand, I had at one hospital thirty-five cases of influenza among the interns and nurses with six cases of pneumonia, and all got well, because they were taken care of at the proper time. As regards drugs, I think bicarbonate of soda, in addition to the physiologic sodium chlorid solution, is of very considerable value. In the pneumonia cases, about 8 per cent. showed albumin urea, and about 4 per cent. distinct nephritis.

Dr. Will Walter, Chicago: My interest in this subject is from the viewpoint of prophylactic inoculation in its relation to the upper respiratory tract. I can enlighten Dr. McCoy as to the bacillus "septus," as I did a research about fifteen years ago after a visit to Wright's clinic and laboratory, where we studied *Bacillus septus*, which had been presented as a cause of acute rhinitis by Dr. Allen of London. I reported on 100 of 300 cases and analyzed the results. My research covered the bacterial flora of the upper respiratory tract and *Bacillus septus* was found in slightly more than 55 per cent. of my cases of acute rhinitis. Since that time I have not seen it, but it is still reported in English literature. It belongs to the diphtheroids. I took the liberty of changing the name of this bacillus to *Bacillus segmentosus*. It is a wedge shaped segmented organism tending to palisade formation. It is mentioned in the last edition of Jordan's textbook on bacteriology. Dr. McCoy's records, so far as they relate to preventive inoculation, show a violation of the fundamental principles laid down by Wright, who always was very emphatic and still insists on the postulate that if you are going to do preventive inoculation in the presence of an epidemic you must use very small doses—infinitesimal doses. In the cases I have seen reported by Dr. McCoy as failing to show results, enormous doses were given, and not only that, but they were repeated on the third and again on the fifth day. This would be the very method to bring about a negative phase and therefore to increase the susceptibility of the patients to the organisms against which we are inoculating. It must not be forgotten that this is done not to prevent influenza, the cause of which is unknown, but to immunize, as Dr. Rosenow says, against the known organisms which kill.

Dr. M. K. Wylder, Albuquerque, N. M.: Observations are very misleading. I use the prophylactic vaccine. I used it in a girls' boarding school in which I immunized, or at least attempted to immunize, the pupils, teachers, etc., and at the same time we established and enforced a complete quarantine. There were eighty people in that institution; not a single case of influenza developed. One mother insisted on being admitted to visit her daughter. Being refused, she took the girl home. In less than a week that girl was dead from influenza.

Dr. William C. Woodward, Boston: Reference has been made to the influence of the closing of places of public assemblage and of the wearing of masks. I think, however, we may adopt a more nearly universal preventive measure that will tend to prevent not only influenza but also pneumonia, whooping cough, measles, diphtheria and diseases of the respiratory tract generally. We must learn to look on the discharges from the nose and throat as essentially as dangerous as the discharges from the urinary tract and the digestive tract. We must take the same precautions to prevent the transfer of such discharges from person to person that we take to prevent the transfer of fecal matter and urine, not merely when persons are sick, but continually, if we are going to control or do away with diseases of the respiratory tract. We must seek not only to control these mucous discharges in public places, but also in private life, at home, in places of employment, and so on. In short, we must at all times and all places take the same precaution to prevent the interchange of mucus and other secretions from the nose and the throat that we take to prevent the interchange of urine and fecal matter.

Dr. C. C. Browning, Los Angeles: There is an element which I have not heard mentioned here that possibly may enter into some of the discrepancies which apparently characterize the statistical data in connection with this disease, the difference in the virulence of infection, or the acquired resistance of individuals of different communities. At Fort McArthur, during the earlier period of the epidemic on the Pacific coast, we received sporadic cases of influenza, about twenty-four cases from October 20 to 26, all of which came from the more or less thickly populated districts. These were of moderate severity; two cases of bronchopneumonia developed with no deaths. October 27 we received about 800 men who came from the mountainous districts and from the ranges in the West, men who were accustomed to outdoor life and had not been in crowded communities. Of these men forty were suffering with acute influenza. Within the next three days about 115 had been received into the hospital. Of these eight died within twenty-four hours of the first manifestation of symptoms; eleven died within forty-eight hours and twenty-eight died later. We learned from friends who visited the sick that the death rate was not larger among these recruits than among the families at home. Was the infection increased in virulence by reason of the persons having been accustomed to contact with the more common infectious organisms?

Dr. H. H. Coons, Los Angeles: The epidemic reached us at the base hospital at Fort Sam Houston about October first. We used all the remedies recommended without avail. Then I began using the vaccines, very carefully at first, because vaccine therapy was not recognized as a treatment by the profession generally. In certain wards we got very good results. Almost uniformly within thirty to thirty-six hours after an injection of vaccine sufficient to get an initial rise of temperature, there was a very marked decline, better respiration, lessening of cyanosis and, in most cases, an improvement in the general condition of the patient. I did not suggest it as a specific but as an adjunct. We protected our patients from draughts and we put them to bed. We gave them fresh air, but not at the temperature of outdoor air. In the wards where I used vaccine the mortality rate in pneumonia was under 7 per cent. In the wards where we did not use vaccine but used all known precautionary measures, the mortality was 18 per cent. Approximately 100 patients were treated with vaccine. A great many more than that were not treated with vaccine.

Dr. W. A. Bastedo, New York: There is no evidence whatever that more acetylsalicylic acid and acetphenetidin was employed in Philadelphia than in New York or Boston or any other city; nor was our death rate any different, except that it was worse. A large number of patients who recovered had had very large doses of these drugs; others died, as did some who had had small doses.

Dr. E. C. Rosenow, Rochester, Minn.: The vaccine which we used was made to contain as soon after isolation as possible the bacteria isolated in influenza and the accompanying pneumonia together with type pneumococci. It contained, as we found months later, a high percentage of strains of green producing streptococci which, according to their serologic reactions, appear to bear etiologic relation to this disease and with which the picture of influenza has been closely simulated in animals. The lowered death rate and even the diminished incidence of recognizable influenza and the milder attacks noted in persons inoculated over that in the uninoculated, wherever the vaccine was properly used, is thus to be expected. A degree of protection from the use of this vaccine is just as rational, in the light of the newly discovered facts, as is the protection following prophylactic vaccination with pneumococci and other vaccines. The difficulties in evaluating the results, as pointed out by Dr. McCoy, have been considered and the sources of error eliminated. The immunity appears to be of relatively short duration, there being a falling off in six week to two months. The results recorded, however, represent observation extending over a period of from three to six months. Revaccination, consisting of one injection of the middle dose every six weeks to two months, while the disease is prevalent or as new waves appear, is therefore to be recommended. Averaging all the results obtained, it appears that the incidence of influenza was about three times as common and the death rate five times as high among the uninoculated as among the vaccinated persons.

Dr. James B. Herrick, Chicago: Dr. Goldstein asked a question as to what is a general practitioner, deprived of the opportunity to put his patients into a well-managed hospital, to do. I think that what he should try to do is to get hold of his patients as early as possible, insist on the patients going to bed, make them stay there until well and not to overdrug them. I have been very much impressed by the harmfulness of many plans of treatment. That is why I have not used the vaccine or serums. I am not on principle opposed to them, but I do not think that as yet we have the proof that they are helpful. They may even be harmful. And so I say that the general practitioner should, if possible, get his patient early and give him some general line of treatment that has at least the virtue of harmlessness. The patients that came into that same hospital from the outside, into the same ward, under the care of the same doctors, with the same nurses, the same hospital assistants, the patients that came in on the second, third and fourth days of the disease, often with pneumonia, died, with a mortality which was so large that I hesitate to confess it. If those patients had been got hold of earlier, in my opinion, more of them would have recovered.

"Patent Medicines" in Venezuela.—At its session of March 27, the Academy of Medicine of Venezuela approved an opinion prepared by its permanent secretary, Dr. L. Razetti, as to which "patent medicines" should be considered as scientific preparations and which should be considered as commercial preparations. The report says: A "patent medicine" or rather "pharmaceutical specific" is a preparation the formula of which does not appear in any Pharmacopeia, and fulfills the following requisites: it is inalterable; has true merit, either on account of its form, its mode of preparation, its novelty or its composition; it is manufactured on a large scale and properly put up for sale; it has a rational name that indicates its chief components, and in no case based on its therapeutic properties; it gives on its label the name and quantity of each of the active substances contained in each dose; and it has been examined and approved by the National Office of Public Health. Those fulfilling these conditions may be considered as scientific preparations capable of answering therapeutic demands. Those that do not comply with these conditions should be considered as commercial preparations and their use should be forbidden for the benefit of the public health.

TREATMENT OF THE SEVERE VOMITINGS OF EARLY PREGNANCY *

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It is difficult to estimate the frequency either of the ordinary morning sickness or of the serious vomitings, since both occur more frequently in America, France, England and Russia than in Germany, a fact which has been emphasized by those who see only a neurotic factor for its causation. Horwitz in Petrograd (1883) reported a history of some form of nausea and vomiting in 84 per cent. of his cases (morning sickness): Giles in London (1893) found 47 per cent.; and Gerst in Paris (1903) noted it in 66 per cent. I have found similar histories in 45 per cent. of 500 of my recent clinic cases at the University of California; 123 of 249 primiparas and 103 of 251 multiparas giving a history of nausea and vomiting, while in 46 cases, or 9 per cent. of the same series, there was a history of nausea without vomiting. In 500 private cases, exclusive of those referred for treatment of vomiting, 58 per cent. gave me a history of nausea and vomiting. It is even more difficult to ascertain the frequency of the serious types.

The small percentage of serious cases in Germany is quite remarkable. Carl Braun stated that he had not seen a fatal case in a series of 150,000 pregnancies. Similar statements are made by Höhl, Lomer, Frank and Strassman, although Guéniot (1863) collected from the French literature forty-six fatalities in a series of 118 cases of pernicious vomiting and McClintock (1872) reported fifty fatal cases in England. Yet even as recently as 1914, Bondy reports only twenty-one cases of pernicious vomiting in 10,000 obstetric cases in Breslau and quotes Baisch's series of twenty cases in 20,000 cases in Munich, and von Herf's report of thirty cases in 17,000, expressing his surprise that his cases were observed in married and multiparous women since he had been of the belief that the condition was apt to occur only in illegitimate primiparas. Yet these figures may not give a correct idea of the incidence of the disease in German countries since they are drawn entirely from hospital experience, and few believe that Pick's frequency of one case in 1,000 obstetric cases in Berlin represents the true frequency, since nearly every practitioner of experience here has met with several serious cases. In this country, Williams states that he observed only two cases in 5,000 clinic cases in his service at Baltimore, although he had studied comparatively large series in private cases during the same period. In 2,750 clinic cases at the University of California Hospital, fourteen entered for the treatment of vomiting, nearly all presenting during the last three years.

ETIOLOGY

Little is known of the etiology of this condition. Many factors have been urged as causative but do not stand careful scrutiny. A careful survey of the facts in hand forces one to conclude that, under certain conditions and in some way at present unknown, the maternal organism is sensitized to vomiting by the state of pregnancy. This conclusion seems rational because, after the exclusion of chronic appendicitis, ulcer and other stomach and intestinal conditions which cause vomiting even in the nonpregnant woman and which may consequently be a factor in certain of the vomitings during pregnancy, there remains a class of cases in the great majority of which we cannot demonstrate conditions named in the texts as etiologic factors.

PATHOLOGY

The pathologic picture varies within wide limits, yet the liver is the seat of the most important changes. The milder cases of vomiting which come to accidental death present little more than cloudy swelling of the parenchymatous tissue. Yet nearly all the cases of vomiting which result fatally present structural changes in the liver ranging from the simple fatty forms to those characteristic of acute yellow atrophy. The most marked type presents degenerative changes which begin about the central vein of the lobule and gradually extend toward its periphery.

The serious vomitings of pregnancy have been classified clinically under many headings. The chronic and acute forms have been recognized for many years, the former as a slow and gradual development from the more severe type of morning sickness which rarely changes type until late in the disease, and the latter with acute onset and rapid progression soon characterized by extreme prostration and a fecal type of vomiting. Quite naturally attempts were very early made to establish a classification on etiologic grounds and the serious vomitings have been grouped accordingly as due to reflex-neurotic or toxemic causes. The chronic forms mentioned above correspond usually to the reflex-neurotic group which essentially is nontoxic in type in contradistinction to the acute forms which are frankly toxemic. Yet the whole question of clinical classification hinges largely on the pathology, which appears to countenance the clinical divisions, since patients dying from the neurotic-reflex nontoxic or chronic groupings present liver changes of the simpler types, whereas the liver changes are most marked in the cases of the toxemic group. Yet the whole question is not so simple as would first appear, because deaths in the chronic groupings are comparatively rare and are even more infrequently investigated by careful necropsy. Moreover, patients dying of the toxemic type of vomiting occasionally present only liver changes of comparatively slight forms which are in no way suggestive of the lesions of acute yellow atrophy so often encountered. So it is quite problematic whether the pathologic picture presented in the liver of those who die of any or all types of the serious vomitings represents various progressive stages of the same process.

The importance of the liver in the pathology of the disease was presented as early as 1879 by Matthews Duncan, but was lost sight of almost immediately until revived by the cases of Stone and Williams in 1901 and 1902. Many have turned their attention to study of the liver function, but thus far no one method has given assurance of accuracy.

It is a mark of wisdom of American teaching that abortion is resorted to early rather than late when the patient does not respond to the ordinary therapeusis. Yet this treatment, while safe, is undoubtedly unsatisfactory, in that, contrary to the opinion of Tarnier and

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* From the Woman's Clinic, University of California Hospital.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.
* Owing to lack of space, this paper has been abbreviated for publication in The Journal. The complete paper appears in the Transactions of the Section and in the author's reprints.

Budin, the disease tends to recur in subsequent pregnancies. It therefore follows that men who are interested in this problem nearly always have in charge patients who have aborted in the past but who are willing to endure even considerable risk of life to secure a living child.

DOCTRINE OF AMMONIA COEFFICIENT

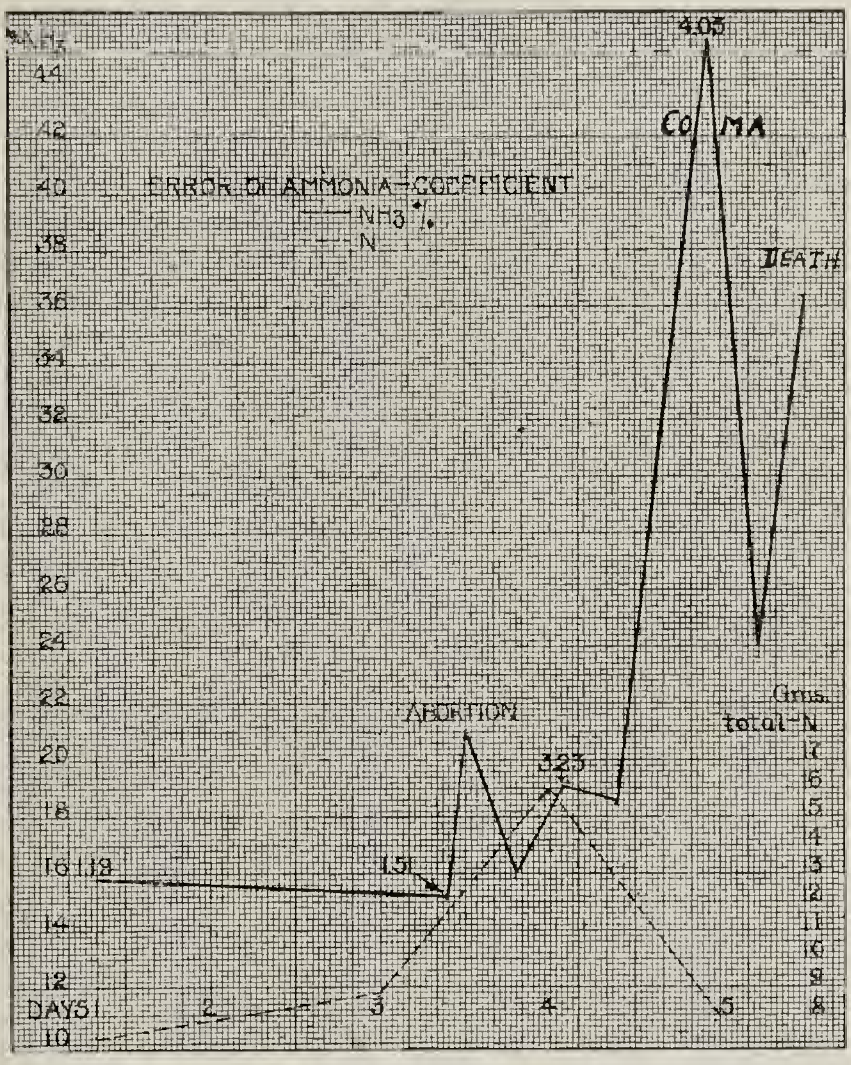
Several investigators had studied the partitions of the urinary nitrogen in the toxemias of pregnancy without convincing conclusions prior to 1905, although Whitney's observations on a small series of eclampsia cases strongly suggested that an increase of the ammonia coefficient in that disease might be a protective measure. Folin's observations on thirty normal urines and their variations following changes of diet had not been recorded when Williams undertook the investigation of the urine in a series of vomitings of pregnancy. Williams found that there was a marked difference in the ammonia coefficient in the cases of the reflex-neurotic and the toxemic types, the former remaining at normal limits whereas the latter ascended to 32, 38.5 and 46 per cent., respectively, in three of his cases. After a careful review of the literature, he confessed his inability to determine the cause since there was an absolute lack of knowledge concerning the toxic material at fault and whether it was derived from mother or fetus. Whether it was merely a manifestation of an acid intoxication or the inability of the diseased liver to effect complete oxidization, future investigation might determine. Numerous investigations by other observers have confirmed his observation in part, some, as Underhill and Rand, concluding that the increase in the urinary ammonia nitrogen was indicative merely of an acidosis of starvation, while others have controverted the theory, stating that the toxemic type may exist without such a resulting condition. Since that time, we have learned much concerning the formation of ammonia. We recognize that it is influenced profoundly by the type of diet and by medication and by other factors, that it probably is not an index of the liver functions, but that the fact remains that it is increased in the condition of acidosis, and serves the purpose of saving alkali for the body.

ERRORS OF AMMONIA COEFFICIENT

My observations, begun shortly following Williams' investigations, have convinced me of the general truth of his work; namely, that the more serious vomitings are characterized by an increase of urinary ammonia, yet because of many factors influencing the coefficient it is better to state the ammonia nitrogen in terms of absolute amounts, since without this control the ammonia coefficient occasionally may be misleading. The coefficient is the proportion of the total urinary nitrogen that presents as ammonia. If the absolute amount of ammonia remains stationary, the coefficient will decrease with an increase of total nitrogen and will increase with the fall. This is clearly shown by Folin when presenting the variations seen in health. Under a diet giving 16 gm. of total urinary nitrogen, the ammonia weighed 0.7 gm., giving an ammonia coefficient of 4.3 per cent. When the patient was given a nitrogen-free diet only 3.6 gm. of total nitrogen appeared in the urine. The ammonia nitrogen weighed 0.42 gm. yet constituted 11.3 per cent. of the total nitrogen. That is to say that the ammonia coefficient rose from 4.3 to 11.3 per cent. in spite of an actual reduction in the absolute amount of the ammonia, the change being accomplished largely by the fall of total nitrogen. Yet without all of these figures, the rise of the ammonia coefficient might be taken as an indication of a beginning acidosis. A further example of the occasional failure of the ammonia coefficient to express the true facts is shown by the accompanying chart.

If the total nitrogen remains stationary and the ammonia increases in amount, the ammonia coefficient increases, thus resembling the curve of the increase of ammonia by weight. Yet this condition is not frequently seen in the severe types of vomiting.

Because of the restriction of food, the total nitrogen in the urine comes largely from the breaking down of body tissues. Comparatively little nitrogenous tissue breaks down early in starvation since the loss in weight depends in large part on loss of fats, the fatty acids being oxidized largely by the action of the glycogen stored in the liver. We should expect, therefore, variations in the partitions of the urinary nitrogen in fat and thin subjects, dependent in turn on the relative amounts of carbohydrates stored in the body suitable for oxidization of the resulting fatty acids. The character of the last food ingested is also important, since Voit has shown that in a dog the influence of the last meals persisted for the first six days of starvation.



The absolute amounts of ammonia are printed on the curve of the ammonia coefficient. Had it been charted, the curve would have given warning of the seriousness of the case one day before the rise in the ammonia coefficient did so. After the abortion the coefficient fell (because the total nitrogen had risen) to what was considered a safe margin. In reality, the ammonia had not fallen but had increased in absolute amount from 1.51 gm. to 3.23 gm. without marked disturbance in the ammonia coefficient. The case is taken from literature.

ACIDOSIS IN NORMAL PREGNANCY

Realizing that urinary ammonia gives at best a poor record of the acidosis, I had Emge in my clinic undertake a series of investigations to determine the acidity of the blood in normal pregnancy. His work, reported in 1916, and since then confirmed by others, shows that there commonly exists in normal pregnancy an acidosis, as shown by the tension of the carbon dioxid of the blood in the method of Van Slyke, yet that the blood readings of the majority of our vomiting series fell within the same range as cases considered clinically as normal. A smaller number of cases presented readings at the other end of the scale, reading as high normal, whether as a result of medication (alkalis) or not, we do not know. Our investigation of the total nonprotein nitrogen and the urea nitrogen of the blood show normal limits for all cases.

URINARY AMMONIA IN NORMAL EARLY PREGNANCY

Some years ago, R. W. Webster and myself investigated the partition of the urinary nitrogen in four normal patients, two or three months pregnant, who had not vomited and had only very slight and infrequent nausea. Two were nulliparas and two were multiparas, one of each pair was slight and the other somewhat stout. Both multiparas could be classed as neurotic. The diet was mixed and was calculated for 10 gm. of nitrogen for the two women weighing under 120 pounds and 14 gm. for the two women weighing more than 150 pounds. The urine was followed for three successive days, yet since they present the same range we will record only one. One case in the fifth month of pregnancy was selected for observation and followed from that time throughout, with daily study during the last thirty days. The diet in this case was not controlled. We also have as other controls a urinary investigation in a woman five months pregnant who was threatening abortion, and two observations on an early pregnancy complicated by a duodenal ulcer which had long caused vomiting.

TABLE 1.—CONTROLS FOR VOMITING OF PREGNANCY, NORMAL EARLY PREGNANCY

	Case 1, Primipara, 2/12/12, 640 c.c., 1.032 Specific Gravity, 25 degrees Acidity		Case 2, Primipara, 1/31/12, 925 c c., 1.025 Specific Gravity, 32 degrees Acidity	
	Gm.	Per Cent.	Gm.	Per Cent.
Nitrogen	7.8	.....	12.184	.....
Urea	14.08	84.29	22.99	88.1
Ammonia	0.665	7.02	0.564	3.81
Uric acid	0.523	2.23	0.7314	2.0
Creatinin	1.037	4.94	1.316	4.0
Amido-acid	0.363	0.87	0.561	0.87
Undetermined	.....	0.65	.....	1.2
	Case 3, Multipara, 2/1/12, 860 c.c., 1.022 Specific Gravity, 24 degrees Acidity, Trace Indican		Case 4, Multipara, 2/7/12, 2.160 c.c., 1.012 Specific Gravity, 18 degrees Acidity, Trace Indican	
	Gm.	Per Cent.	Gm.	Per Cent.
Nitrogen	8.723	.....	11.19	.....
Urea	16.25	86.9	19.44	81.1
Ammonia	0.644	6.08	0.72	5.29
Uric acid	0.503	1.92	0.92	2.74
Creatinin	0.819	3.49	1.75	6.72
Amido-acid	0.429	0.92	0.884	1.47
Undetermined	.....	0.60	.....	2.65

RANGE OF URINARY AMMONIA IN SEVERE VOMITING OF PREGNANCY

From the foregoing it is evident that the case as presented by Williams stands or falls with the ammonia content of the fatal cases, or those aborted at the eleventh hour to avoid impending death. Personally, in more than forty examinations of cases which R. W. Webster and myself, or I myself, or my technician working with me, have made, I have never seen a patient adjudged by clinical means as in danger of life with urinary ammonia of normal limits. The fact that high ammonia is occasionally seen in cases that do not give symptoms of marked toxicity in no way impairs the truth of the general statement, since the loss of fatty tissues, the glycogen content of the liver and muscles, the character of the food retained, the type of medication employed, all constitute factors that must be considered in any given case. We have found a total nitrogen range from 3.6 gm. to 8 gm., and an ammonia variation between 1.8 and 3.1 gm. in twenty cases of the severe type of vomiting. Lower ammonia readings were found in a considerable number of patients who, although they stated that they had had constant vomiting before our study, did not vomit to any considerable extent while under our observation and treatment. One patient with a fairly severe, long protracted and stubborn type showed a rather low range of ammonia (about 1.5 gm.) and finally aborted two months after our first observations. One very severe case in which abortion was induced because of unfavorable symptoms presented 1.8 gm. of ammonia and 4.4 gm. of nitrogen just before the abortion. The history stated that she had been ill for more than two months and had retained no food for more than a week (the latter statement we consider somewhat doubtful). The urine contained much acetone and diacetic acid, a faint trace of albumin and many granular casts; leucin and tyrosin were found without effort made to concentrate the bulk. The toxic features of this case were further suggested in that, while the vomiting ceased after the abortion done under local and analgesic nitrous oxid-oxygen, death following an acute paralysis of the Landry type, complicated by Korsakoff's syndrome, occurred three weeks later.

TABLE 2.—NORMAL PREGNANCY, LAST HALF OF PREGNANCY

	6/26/11	8/4	10/10	11/9	11/29	12/12	12/27	1/4/12
Total N.	9.12	12.3	10.95	11.04	11.19	11.15	11.03	12.06
Urea	16.5	22.4	19.5	20.01	19.4	19.8	20 4	22.4
Ammonia	0.25	0.73	0.54	0.30	0.72	0.89	0.53	0.54
Uric acid	....	....	0.79	0.77	0.92	0.88	0 85	0.55
Creatinin	....	....	1.58	1.56	1.75	1.76	1.49	1.58
Amido-acids	....	....	2.17	2.73	0.89	0.27	0.57	0.43
Chlorids, NaCl	....	....	....	....	....	....	....	14.78

TABLE 3.—FIVE MONTHS' PREGNANCY THREATENING ABORTION

Day	Fluid Intake, C.c.	Urine, C.c.	Total N, Gm.	Urea N, Gm.	Ammonia N, Gm.	Creatinin, Gm.	N in Diet, Gm.
1	1,000	860	5.27	4.36	0.45	0.38	10.9
2	1,050	650	6.82	5.24	0.36	0.52	6.9
3	750	1,190	8.33	5.98	0.61	0.78	12.3
4	1,200	830	3.71	3.18	0.21	0.22	8.1
5			Aborted spontaenously				

TABLE 4.—VOMITING FROM DUODENAL ULCER WHEN THREE MONTHS PREGNANT

Nitrogen	4.18 gm.
Ammonia	0.459
After one week's interval and treatment:	
Blood carbonates	46.0
Ammonia	0.21

Subsequent Admission 2 Years Later, 3 Months Pregnant

Fluid Output	Ammonia	Urea	Creatinin	Total N.	N. Consumed
970	0.19	3.04	0.48	4.48	
2,450	0.49	3.96	0.56	5.21	
610	0.10	3.38	0.57	4.38	6.6
1,150	0.16	2.96	0.58	4.41	6.6
730	0.09	1.66	0.47	2.96*	6.6
1.000	0.16	2.97	0.54	4.76	6.6
1,110	0.15	4.20	0.48	5.96	7.6

* One specimen lost.

URINARY AMMONIA IN STARVATION

The question now arises as to whether this increased ammonia is indicative merely of the acidosis of starvation as suggested by Underhill. No student of the metabolism in cases of pernicious vomiting can doubt for a moment that starvation enters largely into the picture, but I cannot see how any can believe that it is responsible for the entire change, since the ranges of ammonia seen in actual starvation are greatly exceeded by those encountered in the vomitings. The absolute amounts of ammonia nitrogen excreted in Bonniger and Mohrs' fasting woman Schenk ranged from 0.40 gm. on the second day to a maximum of 1.84 gm. on the seventh day of the fast. Benedict's subject L. gave similar findings, 0.41 gm. on the first day with a maximum of 1.94 gm. on the seventeenth day, an amount in excess of that of Beauté in Cathcart's research and of Brugsch on Succi. The maximum ammonia coefficient in Benedict's fasting case is 21.79 per cent.; in Williams' vomiting case, 46 per cent. The rapid fall in the ammonia in Benedict's subject after taking food is of the greatest interest (from 1.24 to 0.69 gm. on breaking a fast of thirty-one days). Yet these observations are made on individuals who are about on their feet. On the other hand, you quite commonly encounter ammonia nitrogen of more than 2.4 gm. in vomiting cases in which the patients have been in bed for days and who have retained some food by mouth to say nothing of glucose by blood or by rectum. Moreover, the total nitrogen often falls below that encountered in any record in starvation, excepting only Freunds observations of Succi which are not acceptable to later workers. It is unfortunate that no professional faster has been content to present for study while on a nitrogen-free diet, which would give another angle for comparison, much needed for complete controls.

So it appears as follows: There is an acidosis in pregnancy as evidenced by the reading of the carbon dioxid tension of the blood, yet the tension of the vomiting cases does not exceed that of normal cases in which there is no vomiting. The ammonia nitrogen of our normal pregnant controls ranges around 0.5 gm. In vomiting from ulcer in pregnancy it also ranges low, whereas in vomiting cases it exceeds that noted in any series of actual fasting.

Finally, therefore, it appears that the crux of the question lies in the point as to whether in a vomiting case presenting ammonia nitrogen in excess of that seen after many days of actual fasting there is a return to normal limits with the cure of the vomiting and the preservation of pregnancy. Williams' observations show that it does so after abortion. My observations indicate that it does so return after proper treatment and with the preservation of pregnancy, as evinced by the typical case summarized in Table 5.

The simpler nausea and vomiting cases in early pregnancy correspond in large part to the clinical picture of the so-called neuroses of the stomach. We may encounter all types. The most common one suggests the hyperacidity group in that the vomiting ordinarily occurs at the height of digestion. Almost invariably they are relieved temporarily by taking food. The mouth is acid to litmus. The eructations are acid. Constipation is the rule, almost without exception.

CYCLES OF VOMITING

There are usually three periods in which the nausea is most marked. The most common period is the early morning; the second is late in the afternoon, and the third is shortly before noon. At first the patient conforms to one type alone, but later she may vomit at all three periods, and subsequently after meals as well. Gastric analysis shows increase of acids. Motor neuroses are common. The patient is worse in the morning because of the long fast during the night, although the stomach usually empties itself in a normal manner during this interval, so that the morning vomitus is chiefly acid mucus. Yet occasionally the pylorus becomes so irritated by the acid secretions during the night fast as to close in spasms with retention of larger amounts of the offending fluids, which are vomited shortly after arising. Vomiting may also occur immediately after taking food. The nausea in the late afternoon is common in patients who eat a scanty pickup luncheon, often most badly selected. The type of patient whose usual breakfast is coffee and rolls gives a wave of nausea about eleven in the morning.

TABLE 5.—PERNICIOUS VOMITING; TEN WEEKS' PREGNANCY; RETURN TO NORMAL URINARY METABOLISM AFTER TREATMENT

	Jan. 13, 1912, vomited 12 times, 580 c.c. turbid urine, 1.026 specific gravity, trace nucleo-albumin, a few hyaline casts, much acetone, considerable indican, no lactic		Jan. 16, vomited 4 times, 630 c.c. turbid urine, 1.026 specific gravity, no albumins, no casts, much acetone, considerable indican	
	Gm.	Per Cent.	Gm.	Per Cent.
Nitrogen	5.84	.....	9.83	.....
Urea	12.24	71.0	15.92	75.6
Ammonia	1.67	23.6	2.38	19.96
Uric acid	0.042	1.39	0.033	0.11
Creatinin	0.048	1.77	0.514	1.94
Amido-acids	0.434	1.38	0.848	1.61
Undetermined	.....	0.88	.....	0.73

	Jan. 17, vomited 2 times, 610 c.c. very turbid urine, sp. gr. 1.029, no albumins, no casts, large excess indican, much acetone, no lactic		Jan. 21, did not vomit, 450 c.c. very turbid urine, specific gravity 1.022, no albumins, no casts, slight excess indican, strongly + acetones	
	Gm.	Per Cent.	Gm.	Per Cent.
Nitrogen	10.63	.....	6.14	.....
Urea	16.83	73.9	10.18	77.4
Ammonia	2.47	19.15	1.25	16.75
Uric acid	0.293	0.91	0.05	0.27
Creatinin	0.617	3.81	0.607	3.67
Amido-acids	0.495	0.87	0.273	0.83
Undetermined	.....	1.33	.....	1.06

	Jan. 24, 580 c.c. turbid urine, specific gravity 1.024, no albumin nor casts, trace indican, slight acetones	
	Gm.	Per Cent.
Nitrogen	4.68	....
Urea	8.537	85.3
Ammonia	0.375	6.43
Uric acid	0.2566	1.82
Creatinin	0.552	4.38
Amido-acids	0.304	1.21
Undetermined	.....	0.91

Yet all cases do not belong to this category and the subacidity type is not uncommon. Indeed, the most troublesome cases are often in this group, which often present as primary and without an acid mouth or increased stomach acidity. Yet it would appear that cases which sometimes begin as hyperacid types may change to the subacid type after long standing.

TREATMENT

The successful treatment demands a most rigid attention to details and no item is too slight to merit attention. I cannot urge too strongly a careful study of the gastric secretions and titration of all vomitus. Nothing seems more ridiculous than to pass all patients by with the statement that a pregnant woman must expect to vomit.

It follows without question that we should search with the greatest care for any of the conditions which texts mention as causal factors. Posterior displacements should be corrected and held up by pessaries, although I have never seen relief follow such measures alone. The care of the bowels is exceedingly important and there is much opportunity for skill in the treatment of the troublesome constipation, since cathartics are not usually well borne. We should restrict medication by mouth to the few drugs later mentioned. There is, of course, no need of emphasizing the necessity of proper hygiene, well constructed clothing, proper ventilation and the avoidance of excitement.

VOMITING AS A NERVOUS HABIT

I am of the firm belief that the formation of a nervous habit of vomiting accounts for the great majority of the cases of moderate severity which develop from morning sickness, since there is nothing more easy to acquire than the habit of vomiting in the presence of nausea. We should seek, therefore, to break this habit and to treat, at the same time, the underlying cause of hyperacidity or subacidity, in part by medicine but chiefly by a type of food which, while easy to digest, is difficult to vomit. We must not expect to secure good results unless there is absolute rest and quiet. Hospital care is most advisable and a stay of more than ten days is rarely necessary. It is most difficult to treat successfully a patient surrounded by her family and with the weight of household cares even though she is in bed and under a nurse's care. A good start is necessary and it is seldom obtained while the patient is at home.

The patient is put to bed. All food and drink by mouth is stopped until there has been no vomiting for twenty-four hours. The bowels are kept open by a daily high colonic flushing. The patient is put under the influence of large doses of bromid given by rectum, beginning with 40 to 60 grains every four hours. A solution of glucose and soda is given by rectum. We have long since found that these are best given in doses of 8 to 10 ounces at fixed intervals since the drip method soon causes irritation. It is exceedingly important to assure the patient that she will retain the first meal given, to explain the plan of treatment, and to warn her against vomiting when she is nauseated. It should be explained that the vomiting habit is very easy to form, but very difficult to break.

The type of food varies within limits yet at no time should it include fruits or sweets. It is necessary that it should be given as dry as possible and the meal should be of the solid type. The hyperacidity group responds quickly to a diet of proteins, limited fats and restricted carbohydrates. The glucose by rectum supplies the deficiency of the carbohydrates, while the sodium bicarbonate is used to neutralize the acidosis. I have found nothing as useful as the diet of meats, twice toasted bread with butter, and a small amount of milk and cream, to be taken as a ration, all or none. A patient should begin with at least four such meals a day. Fluids by mouth are withheld for many days and until the diet has been extended to include vegetables. Then we may give alternatively solid and fluid meals—in small amounts and at frequent intervals.

There are many objections to this type of diet which quickly palls because of the restricted choice of meats, since broiled steak, roast beef and slightly cooked scraped beef must constitute the standby for several days. Yet a patient will usually take it until the most distressing time has passed, when other meats may be added. The diet for the subacid type is far more difficult and should be more mixed with fewer meats. The bromids are now gradually reduced and soda and magnesia are given in capsules by mouth during the period of digestion. With the exception of occasional pills, given with meals, I have found no other drug of the slightest value except ingluvin.

It seems most remarkable to me that so little attention has been paid to the diet. Nearly all texts advise milk and other fluids which are not only easy to vomit but which react occasionally in a somewhat toxic manner, a point recently emphasized by Tweedy of the Rotunda. The chief qualification is that the food shall be solid, dry and in small amounts. Years ago I was impressed by the manner in which a steward on an Atlantic liner treated seasickness in a fellow passenger. For the first meal he gave a chop. "It will stay down," he said, "one vomits liquids easily."

Patients invariably suffer from a parched mouth and demand acid drinks. They clamor for drinks of lemon and orange, yet some very sharp mouth wash helps out wonderfully. The sweeter type of mouth wash usually nauseates. I cannot emphasize too strongly the necessity for the most careful observation of details. A nurse may give a low enema instead of a colonic flushing. Some one invariably brings grapefruit which promptly causes vomiting. The patient is so thirsty that she will drink the water from the finger bowl or reject the solid food and take only the milk and cream. One must obtain the patient's confidence. Yet this treatment rarely fails when properly controlled in chronic cases. It should not be attempted with the fulminating type of case nor with one with black vomit or other signs of toxemia. These should be aborted without delay and very often one is too late. Gastric lavage is seldom helpful as an adjuvant to the treatment.

The question naturally arises as to what constitutes a safe limit of urinary ammonia. We cannot answer. Yet it seems rational to treat the acidosis as well as the actual vomiting when the ammonia runs very high and to induce abortion in the presence of unfavorable symptoms. We should constantly keep in mind the resemblance to the ammonia excretion in diabetes. Ringer's solution gives excellent results given alternately with the glucose-soda solution since it does more to quench the thirst and is most valuable in the treatment. I have had no results with injections of normal pregnant serum, as advocated by Freund and others, in any case which did not respond to our treatment. There is some doubt as to the basis for the injection of normal pregnant serum. Many claim that it depends chiefly on the blood content of calcium. Epinephrin has not proved of value in my hands nor has corpus luteum. With an acidosis not influenced by the treatment and with a continuance of severe symptoms, we should resort to abortion. More latitude may be given a case of equal clinical severity that does not present marked acidosis. We should aim in the beginning to keep on the safe side. To this extent, I believe we should rely on the study of urinary ammonia.

It may be urged that ammonia determinations are complicated procedures which in consequence must be done by a trained chemist. Yet the newer methods of Folin and Van Slyke have done much to solve this problem. Hospital interns are now taught them as a routine and even if they are not so taught a case may be controlled by titrations with formaldehyd solution, which are sufficiently accurate for clinical purposes and easy to do.

THE METHOD OF ABORTION

The method of abortion is entitled to the most serious consideration if that treatment is finally chosen, since there is little doubt that it occasionally causes death in very serious cases, partially because of the shock following ill chosen methods but largely because of the drug used for anesthesia. No one who has followed the work of Whipple, Graham and others on chloroform poisonings can conclude other than that chloroform has been responsible for many of the lesions in many of the cases of the acute yellow atrophy type, not necessarily as a primary cause but certainly as contributory. Chloroform is absolutely contraindicated in any case in which it would appear that the liver has used up most of its glycogen. It will certainly cause serious damage to a liver already the seat of a pathologic process. Ether is objectionable, partially because of the acidosis which its use entails but chiefly because it adds to the vomiting. Local anesthesia suffices for nearly all necessary procedures. It may be augmented by nitrous oxid and oxygen in analgesic doses, never given to the anesthetic degree. The greatest care should be taken to keep the patient in the twilight stage and not to permit loss of consciousness. The method of procedure is equally important and deserves the most careful consideration since the patient may have advanced so far in pregnancy that you may not remove the fetus through the dilatation obtained by Hegar catheters. Vaginal hysterotomy may then be indicated, especially if the cervix is long and high. Yet we must keep in mind the possibility of infection since the resistance of the patient is usually so low. Bags may be used, yet they, like packing, often augment the symptoms of many cases. Do everything possible to avoid catheterization, since bladder infection and pyelitis may be the source of an infection responsible for the severest type of neuritis.

Few conditions, therefore, may offer more opportunity for proper treatment. Yet, so long as both the medical profession and the laity alike believe that a pregnant woman must expect to endure nausea and vomiting, we may expect to give treatment in serious cases.

ABSTRACT OF DISCUSSION

Dr. Alfred Baker Spalding, San Francisco: It is hard to discuss this paper because we know so little about the etiology and we have so many personal opinions about treatment. We know that every woman who becomes pregnant is more or less toxic. We know that about 60 per cent. start to vomit from reverse peristalsis, beginning with constipation and ending in vomiting. Two tenths of 1 per cent. will have serious vomiting. Occasionally a woman dies. I have seen one death. It is unusual to see a woman die from this condition. Why do these women vomit, and why do they become seriously ill, and why do they die? All we know in regard to the pregnancy is that there is a foreign element developing in the ovum against which the body reacts producing symptoms in some persons but not in others. Autosuggestion has an influence, for in some cases even the husband starts to vomit. I do not believe all women are in the same condition for pregnancy. Some women are well and strong, and I believe much in the rôle of focal infections in the pregnant woman. I am convinced that the teeth form the basis of many of the abnormalities seen in pregnancy, particularly in regard to vomiting and in regard to the high blood pressure and other toxic conditions of later pregnancy. In the record of fatal cases reported by J. Whitridge Williams some years ago I saw that one patient just before death had had a severe tonsillitis. In another case the patient was found at necropsy to have had an ulcer of the vagina. A patient of my own, who in three pregnancies had vomited excessively, has had severe gonorrheal inflammation because her husband would not be cured. An interesting point in this case is that with the cautery I have cleaned up the cervix so that it looks like the cercix of a woman who never had a child. It is now about the fifth month of pregnancy and the woman has not vomited once. This leads me to believe that some of the cases are due to focal infection. As to the urinary nitrogen, in one case during the period of treatment from July 22 to August 12, the total amount of urine was a little under the normal until we aborted the patient. The nitrogen started at 6 gm. but dropped until the day before we aborted her to 2 gm. An interesting fact in this case was that the nitrogen coefficient increased from 10 to 37 per cent., while the patient clinically was very sick. This brings out Williams' idea and we based our treatment on the report of his cases. There is great need for some functional test of the liver. Unfortunately, the liver may be largely destroyed and yet functionate. In this particular case we tried the test for urobilin and urobilinogen. Two examinations were made. One of these was made early and showed only slightly increased urobilin in the urine. The day before we aborted her urobilin was present in the urine to the thirteenth dilution.

Dr. Elnora C. Folkmar, Washington, D. C.: I wish to call attention to the fact that we may sometimes make use of other means than drugs and diet or treatment by abortion to relieve the patient of these distressing symptoms. Within the past year I have had six cases of nausea of pregnancy. Three of these cases had reached the point at which I felt it was wise to place them in a hospital and have laboratory tests made, but before doing so I tried the use of body radiation with actinic rays, making approximately ten treatments on ten successive days. In each case the vomiting ceased within the ten days and the patient felt perfectly well. Just how this was brought about we did not know. The study of the effect of light on metabolism is not fully known. We do know that the application of the actinic rays in some way brought metabolism to nearly a normal condition. We know that the rays increase oxidization.

Dr. Frank W. Lynch, San Francisco: I should like to emphasize a few points concerning the use of ammonia in selecting cases for medical treatment. While we do not believe for a moment that the urinary ammonia is the best indication of the extent of the acidosis, we have found it to be a better clinical guide than the carbon dioxid tension of the blood. We have not yet studied a series of cases controlled by the study of alveolar air. The ammonia nitrogen in the urine does not appear to be so quickly influenced by treatment with soda bicarbonate as the carbon dioxid blood tension, and nearly all cases presenting for treatment have had large doses of soda. Many of our cases which have had soda treatment have had high normal (60) carbon dioxid tension and yet their urinary ammonia has been greatly in excess of that deemed the highest normal limit. The carbon dioxid blood tension quite naturally varies, depending on the condition of the body cells and the fluids which come from around them to form blood plasma. If the acidosis as expressed by the urinary ammonia appears to be controlled, we will persist longer in our treatment in spite of the vomiting than if the ammonia ran extremely high with equally bad clinical symptoms. Yet under no circumstances would we continue medical treatment if the patient had the so-called black vomit. There are no cases accepted by students of metabolism in which the total urinary nitrogen in actual fasting has fallen below 3 gm. The case of Succi investigated by the Freunds nearly twenty years ago in Vienna is not now accepted since the methods then used were not possibly so accurate as at the present. Yet in many of our cases as in that of Dr. Spalding we have found lower total urinary nitrogen than any observation in actual fasting. We are somewhat skeptic of these observations. Yet it appears that we should not expect to have as much breakdown of protein tissue when we use tissue sparing food, which nearly all vomiting cases retain by rectum, as in cases of actual fasting. We do not know, however, to what extent the condition causing vomiting may break down protein material, whether more than in actual fasting, as seems likely, or not. It is unfortunate that we have no good records as controls of partial fastings where glucose or some other carbohydrate was used for food since all fasters appear to object to such form of diet, preferring actual fasting. We no longer give glucose into the vein since we find that patients absorb it very well through the bowel.

INFECTIONS OF WOUNDS OF WAR

WITH SPECIAL REFERENCE TO GAS GANGRENE

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The work which forms the basis of this paper was done in the transportable laboratory assigned to evacuation hospital No. 8 during the St. Mihiel and Argonne-Meuse operations. An effort was made to obtain information of a clinical character, such as that relating to the time between the injury to the patient and the operation; exposure to wet and cold; influence of shock and exsanguination; character of wounds—whether produced by shell fragments or rifle bullets; removal or retention of foreign bodies; impairment of local circulation; involvement of bone; character of the soil over which the fighting occurred, and, lastly, the nature and the influence of operative interference.

Along bacteriologic lines, a special effort was made to secure the more important anaerobes, such as *B. welchii, Vibrion septique, B. oedematiens* and *B. sporogenes.* The hemolytic and nonhemolytic varieties of streptococci were studied in cases in which gangrene had developed and in those in which it developed later, and also in the cases showing no evidence of gas gangrene at any time. Familiarity with the work done in evacuation hospitals teaches that much of this information cannot be collected during periods of great activity; the rush is so great that it is impracticable to take more than a few condensed notes.

During the month of October it frequently happened that more than 200 patients were operated on under a general anesthetic within twenty-four hours. On a number of occasions, with eighteen tables in the operating theater, manned by twelve surgical teams operating in two shifts (day and night), more than 150 patients at one time awaited operation in the reception ward. Clinical data could not well be gathered, and similar difficulties were encountered in securing bacteriologic data. In a number of instances, fifty cultural examinations were made within twenty-four hours. In the majority of instances, the isolation and study of pure cultures of the various bacteria was not attempted. All cultures were made on four types of mediums under aerobic and anaerobic conditions. Examinations for morphology and motility were made in each case; and, for the purpose intended, the results are fairly exact—determining the presence of hemolytic streptococci and *B. welchii.* Other anaerobes were classified together as "unidentified anaerobes."

Between Sept. 10 and Nov. 13, 1918, 4,471 surgical cases were admitted to the hospital. Of this number 4,377 patients received wounds in action, of which 2,993 were single and 1,387 multiple. The total number of wounds in all cases was 6,207 and 4,683 were treated surgically. They were distributed as shown in Table 1.

TABLE 1.—DISTRIBUTION OF WOUNDS

Scalp	162	Abdominal wall	27
Brain	100	Abdomen	54
Face (including eyes)	207	Buttocks	229
Neck	84	Hip	82
Shoulder	60	Thighs	899
Axilla	15	Popliteal space	15
Arm	420	Knees	231
Elbow	68	Legs	609
Forearm	229	Ankles	77
Wrist	46	Foot	205
Hand	250	Heel	9
Fingers	155	Toes	48
Chest wall	132	Scrotum	31
Chest	119	Testicles	8
Flank	28	Penis	11
Back	156	Perineum	3
Total			4,683

In 206 of the 4,377 cases in which wounds were received in action, amputation was necessary, the determining factors being (*a*) severity of injury, (*b*) streptococcus infection, or (*c*) gas gangrene. Table 2 shows that most amputations of a minor nature were due to the severity of injury. Amputation of a limb was most frequently made necessary by gas gangrene.

TABLE 2.—AMPUTATIONS AND THEIR CAUSE

Part of Body	Total Number	For Severity of Injury		For Simple Infection		For Gas Gangrene	
		No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Arms	31	9	29.0	1	3.20	21	67.7
Forearms	16	11	68.7	1	6.25	4	25.0
Fingers	44	42	95.6	1	2.20	1	2.2
Thighs	60	5	8.33	10	16.60	45	75.0
Legs	38	12	31.5	4	10.6	22	57.8
Feet	6	4	66.6	0	0.0	2	33.3
Toes	11	10	90.9	0	0.0	1	9.1
Total	206	93	45.1	17	8.25	96	46.6

In the period from Sept. 10 to Nov. 13, 1918, there were 363 deaths in the hospital. The more important causes are given in Table 3. Gas gangrene was a most important cause of death. Of 4,377 patients who were wounded in action, 221 had gangrene (5 per cent.). This is a high incidence, but it is to be noted that this hospital received only those seriously wounded, and most of the cases of gangrene were received very late. Of 157 cases of gangrene in which a definite record could be obtained, there was well developed gas gangrene in 141 on admission to the hospital (90 per cent.). In sixteen cases gas gangrene developed after the patients had been operated on. A sharp contrast is noted between the incidence of gas gangrene devel-

TABLE 3.—CAUSE OF DEATH IN THREE HUNDRED AND SIXTY-THREE CASES FROM SEPT. 10 TO NOV. 13, 1918

Cause of Death	Number	Per Cent.
Gas gangrene	61	17.0
Simple infection	7	2.0
Shock and hemorrhage	88	24.2
Chest wounds	53	15.0
Abdominal wounds	47	10.2
Head injuries	50	14.0
Spinal injuries	12	3.3
Multiple wounds	30	8.3
Pneumonia	9	2.5
Poison gas	6	2.0

oping after operation (sixteen out of 157 cases) and that of gangrene well developed on admission (141 out of 157 cases).

The average length of time between injury and operation in 162 cases of gangrene was 41.8 hours. In 349 similar severely wounded, nontransportable cases, n which gas gangrene did not develop, the average ength of time between injury and operation was 24.67 hours. These figures reveal the importance of early operation in preventing gas gangrene.

Dividing the 162 patients with gangrene into groups, with the division based on the time interval between njury and operation, the number who fall in each group can be determined. The same can be done with he 349 similar cases not showing gas gangrene (Table 4). From these figures the percentage incidence of gangrene in each group can be determined: for example, of forty-six cases received between 48 and 60 hours after injury, twenty-three (or 50 per cent.) had gangrene. These figures are represented graphically in the accompanying chart. The obvious deduction from these figures is that early surgical nterference is one of the most important factors in preventing the development of gas gangrene.

TABLE 4.—TIME INTERVAL IN RELATION TO DEVELOPMENT OF GANGRENE

Time Interval between Injury and Operation	With Gangrene	Without Gangrene	Total
Received at hospital between:			
0 - 6 hours	0	0	0
6 - 12 hours	12	80	92
12 - 18 hours	15	90	105
18 - 24 hours	27	55	82
24 - 36 hours	30	56	86
36 - 48 hours	20	17	37
48 - 60 hours	23	23	46
60 - 72 hours	9	9	18
72 - 96 hours	9	10	19
96 - 120 hours	11	7	18
120 - plus	6	2	8
Totals	162	340	511

In the majority of instances, the heavily muscled parts of the body are most frequently involved. One hird of the cases in this series occurred in the leg. The distribution is indicated in Table 5.

TABLE 5.—WHERE GAS GANGRENE DEVELOPED

Site	No.	Site	No.
Scalp	0	Back	3
Brain	0	Buttocks	17
Neck	0	Thigh	54
Shoulder	10	Popliteal space	3
Axilla	1	Leg	76
Arm	35	Ankle	0
Forearm	9	Foot	7
Hand	3	Heel	0
Fingers	0	Toes	1
Chest wall	2		
Chest	?	Total	221
Flank	0		

The total number of wounds treated surgically was 4,863. The incidence of gangrene is shown in Table 6. The highest incidence is seen to be in wounds of the shoulder and of the leg and, in the order named, in he arm, buttocks and thigh.

There was impaired circulation in 174 cases in which a record concerning this point could be obtained from the operation notes. Of these cases, gas gangrene developed in thirty. In this group there was extensive destruction of important blood vessels in 17.8 per cent. Fractures of the large bones occurred in seventy-two of the 174 cases.

As transportable patients were evacuated within forty-eight hours after operation, bacteriologic examinations were restricted to cases in which the patient could not be removed. They were principally those of injuries of the head, chest and abdomen, and fractures of the long bones; also those of gangrene. Cases of this character were under observation in the hospital for from four days to two weeks. Bacteriologic examinations were made as shown in Table 7.

TABLE 6.—INCIDENCE OF GANGRENE IN THE VARIOUS PARTS OF THE BODY

Part of Body	No. of Wounds	No. of Cases of Gangrene	Percentage Incidence of Gangrene
Scalp	162	0	0
Brain	100	0	0
Face (including eyes)	207	0	0
Neck	84	0	0
Shoulder	60	10	16.7
Axilla	15	1	6.6
Arm	420	35	8.3
Elbow	68	0	0
Forearm	229	9	3.9
Wrist	46	0	0
Hand	250	3	1.2
Fingers	155	0	0
Chest wall	132	2	1.5
Chest	119	?	?
Flank	28	0	0
Back	156	3	1.9
Abdominal wall	27	0	0
Abdomen	54	0	0
Buttocks	229	17	7.4
Hips	82	0	0
Thigh	899	54	6.1
Knee (popliteal space)	246	3	1.2
Leg	609	76	12.5
Ankle	77	0	0
Foot	205	7	3.4
Heel	9	0	0
Toes	48	1	2.1
Scrotum	31	0	0
Testicle	8	0	0
Penis	11	0	0
Perineum	3	0	0
Total	4,683	221	

PROCEDURES EMPLOYED

Cotton swabs on wire rods in small test tubes were sterilized by dry heat at 170 C. for one hour. They were prepared by the laboratory and placed in the operating room and wards. Six assitants were assigned to the day and night shift in the operating room (three to each shift). Their duties were to write the clinical records of the operations, take the cultures, unless the surgeons took them themselves, and to make out the clinical portion of the bacteriologic record chart.

TABLE 7.—NUMBER AND TIME OF BACTERIOLOGIC EXAMINATIONS

Total number of wounded		684
Single	560	
Multiple	124	
Total number of wounds		890
Total number of cultures		929
Before operation	341	
During operation	324	
At completion of operation	167	
Subsequent to operation	97	

These swabs in their tubes were sent to the laboratory and planted in liver peptone water. At the end of from six to eight hours a microscopic examination was made of a fresh specimen for motility, and of a stained specimen for chains of cocci and for bacilli. Subcultures, in all instances, were made in litmus milk, Veillon agar and on blood agar slants. The cultures were examined at the end of from eighteen to twenty-four hours, as follows:

Liver peptone water.—Microscopic examination of all cultures negative on six-hour examination, and notation made of the amount and character of cloudiness, sediment, pellicle and odor.

Blood agar.—Examination to determine the presence or absence of hemolytic pinpoint colonies, and the character and extent of surface growth and odor.

Litmus milk.—Examination to determine acidity and gas production.

Veillon agar.—Examination to determine the size, number and character of colonies (naked eye, hand lens and microscopic 200 X), and the gas production.

All mediums except blood agar plates and slants were boiled and cooled immediately before use, and calcium sulphid was added to the milk and the liver peptone water just before they were employed, and to the Veillon agar immediately after it had cooled.

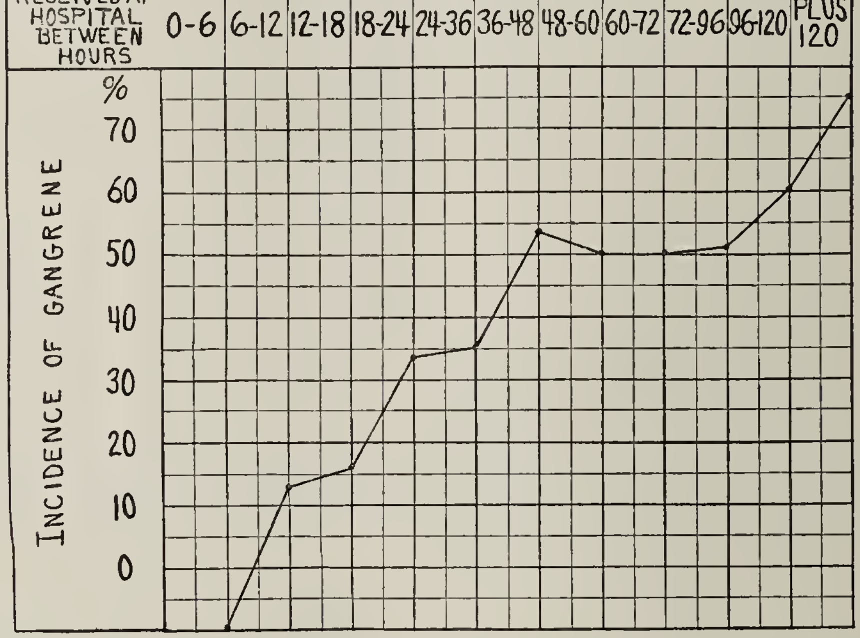
In some instances more detailed examinations of pure cultures were made, but the majority of examinations were made as outlined above.

RESULTS OF THE EXAMINATIONS

Of 890 wounds examined bacteriologically, 478, or 53 per cent., were found to contain anaerobic bacilli.

Of these 478 wounds, 321, or 67 per cent., at no time showed clinical evidence of gas infection.

Of the remainder—the gas gangrene cases—in sixteen, or 3 per cent., gas gangrene developed after operation (débridement), while in 141 cases, or 29 per cent., gas gangrene was clinically evident at the time the bacteriologic examination was made.



Incidence of gas gangrene in relation to time interval between injury and operation: total number of patients with gangrene, 162; patients without gangrene, 349. This chart demonstrates that after eighteen hours the percentage incidence of gas gangrene in the severely wounded and nontransportable patients increases markedly.

It is thus seen that, in my experience at least, more than two thirds of the wounds contaminated with anaerobes did not develop gangrene. All of these cases were under observation at least five days, and some of them more than two weeks.

In only a very small percentage of cases did gangrene develop after operation. One hundred and fifty-seven cases of gas gangrene were examined bacteriologically. In eighteen of these cases the cultures were taken at a distance from the wound, from incisions above the wound and from the amputation stump. In 139 cases in which cultures were taken directly from the wounds, the relation of *B. welchii* to the other anaerobes in cases of gas gangrene clinically determined was as follows:

B. welchii was the only anaerobe found in twenty cases, or 14 per cent.

B. welchii was absent, but other anaerobes were found on culture in thirty cases, or 21 per cent.

B. welchii and other anaerobes were found together in eighty-nine cases, or 65 per cent. A combination of *B. welchii* with other anaerobes was thus found in two thirds of the cases examined.

A statistical study of the relative frequency of the streptococcus, both hemolytic and nonhemolytic, was made in cases free from gangrene, and in cases in which gas gangrene was clinically evident.

Of all the wounds examined (890), chain forming cocci were found in 219, or 24.6 per cent.

One third of these (seventy-three strains) were of the hemolytic variety, and two thirds (146 strains) were of the nonhemolytic varieties.

In 139 cases of clinically determined gangrene, streptococci (both hemolytic and nonhemolytic varieties) were found, together with anaerobes, in forty-four cases, or 31.6 per cent.

In fourteen cases out of these forty-four, or in 32 per cent., the streptococci were of the hemolytic variety.

In 321 cases without gangrene, streptococci and anaerobes were found together in ninety-seven cases, or 30 per cent. In thirty of these ninety-seven cases, or in 31 per cent., the streptococci found together with anaerobes were of the hemolytic variety.

These results show that the streptococcus — both hemolytic and nonhemolytic—was no more frequent in gangrenous wounds than in nongangrenous wounds.

CONCLUSIONS

From the results the following deductions are warranted:

1. The most important factor in dealing with gangrene is early operation. This is a matter of transportation.
2. A majority of wounds are contaminated with anaerobic bacteria without the development of gas gangrene.
3. Many cases of gangrene are due to anaerobes other than *B. welchii*.
4. In most cases of gangrene, *B. welchii* is associated with other anaerobic bacteria.
5. The streptococcus (both hemolytic and nonhemolytic) is apparently of little importance in the production of gangrene.

Public Health Nursing.—To those who have followed the development of public health work in this country it becomes more and more evident that much of the progress is due to the introduction of public health nursing as an integral part of public health administration. Unfortunately, a very large number of communities in the United States are still without a public health nursing service. It seems not to be realized that such a service constitutes a well-paying investment. Yet nothing has been more clearly demonstrated. Progressive health administrators who have had experience with public health nursing are unanimous in praise of the results obtained. More than ever before there is great need for additional well-trained workers in this field. It is to be hoped the time is not far distant when every community throughout the United States will enjoy the benefits of a system of public health nursing, for experience has demonstrated that this is an invaluable measure for bringing the work of the health authorities to the people.—*Public Health Reports,* June 6, 1919.

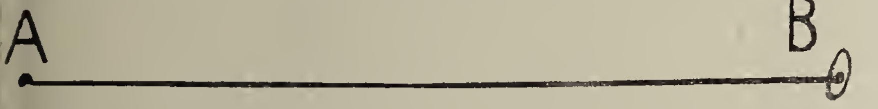
Clinical Notes, Suggestions, and New Instruments

METHOD OF REMOVING VARICOSE VEINS

John A. Tamisiea, M.D., Howell, Neb.

Varicose veins are the cause of the heaviest loss of A 1 men that we encounter in the army. I was attached to the British Expeditionary Forces and was stationed in their Base Hospital No. 25 at Hardelot, France. It was at this hospital that all the "clean" surgery for the Boulogne area was done. In the beginning of the war a soldier who would report sick with varicose veins was usually sent to the base and later transferred to England for operation. As we all know, those poor men had gone through the worst of the war and were eager to keep out of all that they could in the future. It therefore became the duties of the medical officers to find a way to shorten every man's stay in the hospital.

These varicose vein cases were the first that any material speed was shown on. We devised a wire, preferably of silver, such as was used to wire bones, and on one end we put the base of an ordinary 0.303 rifle cartridge. We first filed the sides off and then bored the cap off and ran our silver through the hole and secured it with solder. This wire had to be quite pliable, but not too much so. The other end we beaded over a Bunsen burner. The wire in all was 40 inches long. We would put a tourniquet on the affected thigh and pick up the internal or external saphenous as the case happened to be, and then would make incision over it about 1 inch long, pick up the vein with hemostats, and tie off the lower end of it (distal end). Then we would pick up the vein in the thigh by the same incision and tie off the upper end (proximal end). To open the vein up well we applied the hemostats to the edges and held them open while we inserted our wire. We then gently pushed the wire up and followed its course with our hand on the leg. This was usually done from the bottom, as in the pulling up on the wire we would take all the minor tributaries as well as the main vein. When the bead appeared at the higher incision we would grasp it well and have an assistant hold the foot firmly, and pull hard until our wire was entirely out and then we would have the vein gathered up on the wire in its entirety.



Wire with one end (*A*) beaded and the other (*B*) fitted with base of cartridge.

Very little if any hemorrhage resulted. We then put a stitch in each incision and an alcohol dressing over it. When our patients awaked they would be moving their legs around and would be greatly disappointed to find that they had no large bandages, no pain, and really no reason for asking to get to "Blighty." These patients were usually sent back to the lines in from ten to fourteen days.

A SIMPLE AND EASY METHOD OF BLOOD TRANSFUSION

Addison G. Brenizer, M.D., Charlotte, N. C.

I have taken my idea of the main piece of my apparatus for blood transfusion from a 10 c.c. ampule, containing sodium citrate in salt solution, issued with a transfusion set to the American Expeditionary Forces in France.

This ampule I have enlarged fifty times, bringing it up to a capacity of 500 c.c. Such an ampule I found commonly used in France for preserving and administering prepared sterile salt solution. I have modified this ampule somewhat, and have added two rubber tubes about 6 inches long, with a glass mouth-piece in one tube and a needle in the other. The apparatus is then complete.

The ampule is made of thick glass, and both ends are drawn out into tubes. One end is left straight and the other is bent into a U curve. The extreme ends are flared slightly, and half an inch from the ends are apparently constricted (Fig. 1 *A*), or the straight lower end may be bent into a right angle curve or even tapered at the extreme end.

One of the rubber tubes is fitted with a short glass tube, blown out in the middle portion to hold a bit of sterile cotton. This serves as a mouth-piece (Fig. 1 *B*).

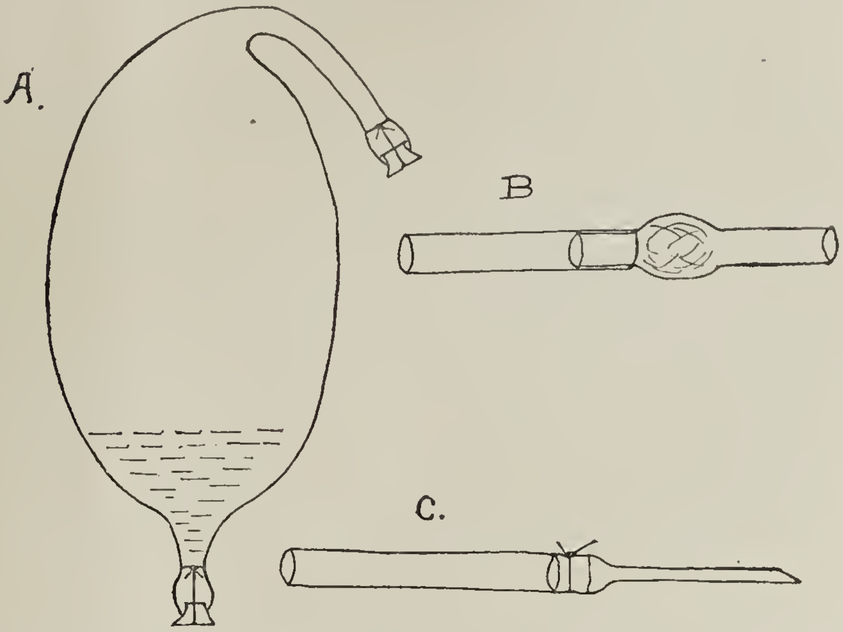


Fig. 1.—*A*, the 500 c.c. ampule containing from 2 to 3.5 gm. of sodium citrate in 50 c.c. of salt solution. The upper end is curved; the lower end is straight; both ends are stoppered with small rubber stoppers, tied in place. *B*, glass mouth-piece filled with sterile cotton in the bulbous portion and fitted into a short piece of rubber tubing. *C*, a short needle of large caliber fitted into a short rubber tube and tied fast.

The other rubber tube is fitted with a short needle of large caliber. The needle is tied in the tube with linen, and a wire is kept in it (Fig. 1 *C*).

Thus equipped, 50 c.c. of salt solution with from 2 to 3.5 gm. of sodium citrate in solution are sucked up into the ampule and the ends stoppered with small rubber corks, tied in (Fig. 1 *A*).

The ampule, along with the rubber tubes with glass mouth-piece and needle, respectively, are rolled in a cloth and sterilized in a constant pressure autoclave, or the different parts of the apparatus, including the salt solution and citrate, may all be simply boiled at the time of the operation, if time is not a factor and it is not desired to keep the apparatus ready sterile on hand or if an autoclave is not available.

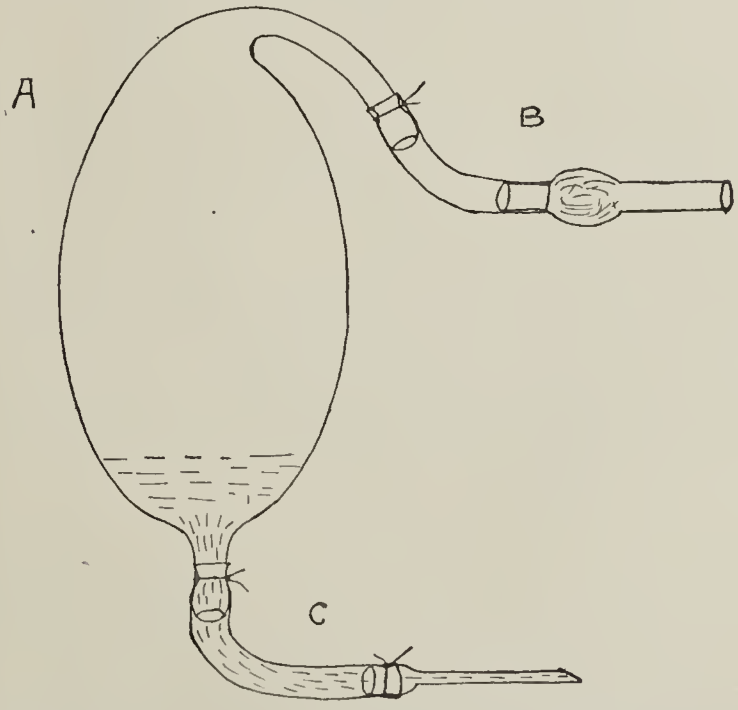


Fig. 2.—The parts *A*, *B*, and *C* assembled and ready for use. The citrate is let down to meet the blood. With the end *B* in the mouth and the end *C* in the vein, there is ample stretch between the two fixed points for shaking the ampule.

By hanging the ampule by its bent upper end on a bandage around the neck, the operator will be given free use of both hands.

The lower straight or even curved lower end is unstoppered, the rubber with needle fitted on and, with the free use of both hands, the donor's vein is needled. The blood begins to flow into the ampule on removing the stopper at the upper end, and may be markedly hastened by putting on the tube with mouth-piece and sucking. As the blood runs into the ampule, it is shaken with the citrate. When filled, the rubber tube at the bottom is pinched and the needle withdrawn from the vein (Fig. 2).

If the rubber tube is clamped at the top, opposite the needle tube, no blood will run out the needle, and the whole apparatus may be left suspended on the bandage around the neck of the operator, thus allowing free use of the hands again to needle the vein of the recipient.

The recipient's vein is needled, the clamp removed from the tube at the top, and the blood is allowed to begin to run into the vein of the recipient. The flow is hastened by blowing through the tube at the upper end. The rate of flow may be controlled by blowing or sucking on the mouth-piece. Any droplet infection or infection by saliva is prevented by the intermediary of a little sterile cotton stuffed into the ampulated middle portion of the mouth-piece. When the ampule is emptied, the lower rubber tube is pinched and the needle withdrawn from the recipient's vein.

The recipient's vein may be needled subcutaneously or when it is collapsed, cut down on and needled; or, finally, the vein may be cut down on, incised, held wide open with two metal crochet needles, and the end of the ampule itself inserted and tied in. (This is the only phase or step of the operation in which an assistant is needed.)

The donor's vein should be needled against the blood stream, that is, toward the hand, and the recipient's vein in the direction of the blood stream, that is, toward the head.

The above described manipulation can be done very quickly; in fact, so quickly that the ampule may be used paraffined or paraffined and washed over with citrate for whole blood. So used, the lower end is not only bent in a right angle curve, but is also tapered. The recipient's vein is then prepared for the reception of the ampule before needling the donor's vein.

609 North College Street.

A SIMPLE AND EFFICIENT METHOD OF COATING BLOOD TRANSFUSION TUBES WITH PARAFFIN

B. H. Alton, M.D., Worcester, Mass.

During the past two years the citrate method of giving blood transfusions has been coming more and more into general use. Many surgeons who formerly employed the paraffin-coated tubes for transfusion have given up this method for the citrated blood.

The principal objection to the use of the paraffin-coated tube is the difficulty of obtaining a thin, even coating of paraffin. Coating tubes with melted paraffin is a long, tedious process, and good results are obtained only in the hands of those who are experienced in the method.

The advantages of the method I am about to describe are simplicity, rapidity, and the assurance of always obtaining a thin even coating of paraffin.

METHOD

The sterilized tubes are rinsed with a small amount of alcohol followed by a small amount of ether. About 1 ounce of a paraffin-ether solution (paraffin, 1 part, 53 C. melting point, and 80 parts of ether) is poured into the tube.

The tube is shaken and rolled so that the solution bathes the entire inner surface. A small amount is allowed to pass through the cannula to insure a coating of the walls of its lumen. The remaining solution is quickly emptied through the top of the tube. The ether which remains on the surface quickly evaporates, leaving a thin, even coating of paraffin.

A rubber cork should be used with this method. It is prepared by pouring some paraffin-ether solution over it and the ether is allowed to evaporate. The cork and tube are now wrapped in a sterile towel.

I have found that a tube coated by this method gives better results if it is not used for several hours after it has been prepared, as it allows a more complete drying of the paraffin.

The foregoing procedure is carried out under aseptic conditions. The paraffin used in the solution should be sterilized in an autoclave before being mixed with the ether.

I have used this method for the past two years in the British casualty clearing stations in France, and I have found it as satisfactory as paraffin applied by heat.

72 Pearl Street.

ANOTHER DIAGRAM FOR BLOOD GROUPING

M. W. Lyon, Jr., M.D., South Bend, Ind.

Several diagrams have been published[1] showing the interrelations of the human isohemagglutination groups, and the manner of determining the group to which any person belongs by the use of serum obtained from persons of Groups II and III. By using both cells and serum of a person of Group II (or III) and those of an unknown person it is nearly as easy to determine the group to which the unknown person belongs as it is with serum of known II and III groups. While this fact has been long appreciated, so far as I am aware it has never been expressed diagrammatically. The diagram herewith is an attempt to do so.

In case the determination is to be made with a known III person, III should be substituted for II in the diagram, and II for III.

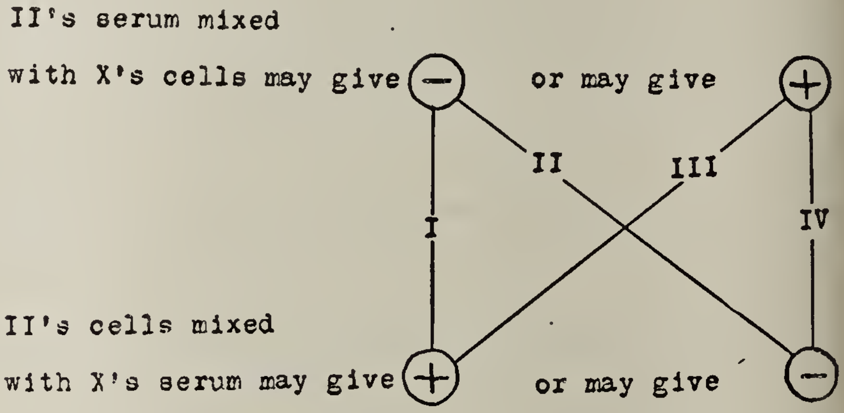


Diagram indicating the blood group of an unknown person, X, by interagglutination of X's serum and cells with those of an individual of known Group II: + indicates agglutination of cells; —, absence of agglutination. The possible combinations are indicated by connecting lines and the blood group of X by the Roman numerals inserted in the connecting lines.

As about half of all persons fall into either Group II or Group III, it is obvious that about half of all persons interested in blood grouping carry with them several hundred cubic centimeters of essential reagents for determining the blood groups of unknown persons.

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[1] Sanford, A. H.: Iso-Agglutination Groups, J. A. M. A. **67**: 808, 809 (Sept.) 1916; A Modification of the Moss Method of Determining Isohemagglutination Groups, ibid. **70**: 1221 (April 27) 1918.

Influenza Among Indians.—In *Public Health Reports* of May 9, 1919, there appeared data furnished by the Office of Indian affairs in regard to the prevalence of influenza among the Indians. The mortality rates show that the epidemic was extremely severe among the American Indians. During the six months' period from Oct. 1, 1918, to March 31, 1919, over 2 per cent. of the Indian population died of influenza. The mortality among Indians in the mountain states, especially in Colorado, Utah and New Mexico, was very high. For the Indian population as a whole, the annual mortality rate from influenza alone during the six months' period was 41.2 per thousand, which is far above that for the general population—roughly about four times as high as that for the larger cities in the United States during the same epidemic period. It was pointed out by the Office of Indian Affairs that a second epidemic invasion occurred in certain localities after April 1, 1919, but the statistics of this second epidemic were not yet available.

IEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1919 BY THE COUNCIL ON MEDICAL EDUCATION

The tabulated statistics herewith presented are for year ending June 30, 1919, and are based on orts received from the medical colleges or from er reliable sources. We take pleasure in acknowl- ging here the courtesy and cooperation of the offi- s of the colleges who have made the compilation of se complete statistics possible.

STATISTICS OF COLLEGES

Table 1, on pages 500-502, gives the colleges in ses- n during 1918-1919; the population of the city; the ing given to the college in the latest classification the Council on Medical Education; the number of idents, men and women, registered during the year; number of 1919 graduates, men and women; the mber of graduates holding collegiate degrees; the mber of teachers for each college; the number of eks of actual work in the college year; the total es for each year, the executive officer of the college, d the dates of beginning and ending of the next ssion. The figures in heavy-faced type show the als by states. Beginning on page 523 are given sential facts concerning all medical colleges arranged states.

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 504, 505, shows from what state the idents came who were in attendance at each medical llege during the session of 1918-1919. The influence the proximity of the medical school is seen in the ct that states having medical colleges contribute more idents in proportion to the population than those ich have no colleges. This is shown by the dark ne of figures running diagonally down the page. A mparison of this table with the large tables based state board examinations,[1] which show the distri- ition of the alumni of each college, is interesting. ie college that has widely distributed alumni usually s a student body from an equally large number of ites.

The state furnishing the largest number of students is year was New York with 2,003. Pennsylvania ntributed 1,001 and Illinois 931. The next states, the order of the number of students contributed, are: assachusetts, 667; Ohio, 653; California, 523; Mis- uri, 469, and Texas, 428. Four states had less than each, these being Arizona, 8; New Mexico, 7; evada, 6, and Wyoming, 8. There were 105 stu- nts from Hawaii, Porto Rico and the Philippine lands, and 314 students from foreign countries.

NUMBERS OF STUDENTS BY CLASSES

In Table 3, on page 506, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year was 3,104 as compared with 4,283 last year and 4,107 in 1917. This reduction in the number of freshman students was largely due to the volunteering or drafting of premedical and freshman students during the war. The second year attendance was 3,587, as compared with 3,521 last year, and 3,117 in 1917. The third year attendance was 3,272, as compared with 2,893 last year, and 2,866 in 1917. The enrolment of the fourth and fifth (intern) years, combined this year, is 3,089, as compared with 2,933 last year, and 3,674 in 1917. The sophomore, junior and senior class enrolments, therefore, show increases, respectively, of 66, 379 and 741 over the enrolments in those classes last year. This indicates that the college enrolments have largely been readjusted under the higher entrance requirements and, had it not been for the war, the total enrolment in the medical schools would also have shown an increase.

TABLE 5.—Medical College Attendance

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880.........	9,776	1,220	830	...	...	11,826
1890.........	13,521	1,164	719	...	...	15,404
1900.........	22,710	1,909	522	...	...	25,171
1901.........	23,846	1,683	664	80	144	26,417
1902.........	24,878	1,617	765	91	150	27,501
1903.........	24,930	1,498	848	149	190	27,615
1904.........	23,662	1,309	1,014	123	234	28,142
1905.........	24,119	1,104	578	114	232	26,147
1906.........	23,116	1,085	644	110	249	25,204
1907.........	22,303	1,039	545	97	292	24,276
1908.........	20,936	891	479	90	206	22,602
1909.........	20,554	899	413	52	227	22,145
1910.........	20,136	867	455	49	19	21,526
1911.........	18.414	890	433	49	...	19,786
1912.........	17,277	827	308	...	...	18,412
1913.........	15,919	850	256	...	...	17.015
1914.........	15,438	794	270	...	...	16,502
1915.........	13.914	736	241	...	...	14,891
1916.........	13,121	638	263	...	...	14,022
1917.........	12,925	580	250	...	...	13,764
1918.........	12,727	540	138	...	225	13,630
1919.........	12,259	397	86	...	310	13,052

EXISTING AND EXTINCT MEDICAL COLLEGES

Table 4, on pages 507 to 512, gives (*a*) the different names under which each existing college has been known, the years when the institution was so known, the years when it had (or did not have) graduates under that title and a reference to any previous or subsequent names under which it existed; (*b*) similar

(Continued on page 502)

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[1] The Journal A. M. A., State Board Number, April 19, 1919, ges 1138 to 1145 inclusive.

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1916)	Classification by Council on Medical Education	No. of Students Registered 1918-19		Graduates 1919		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1919-20		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1919	Ends 1920	
	ALABAMA			**56**	...	**4**	...	**2**										
1	University of Alabama School of Medicine, Mobile	58,221	A	56	...	4	...	2	45	32	165	160	160	185	T. H. Frazer, M.D., Dean	Oct. 3	June 4	1
	ARKANSAS			**43**	...	**7**	...	**1**										
2	University of Arkansas Medical Department, Little Rock* [1]	57,343	A	43	...	7	...	1	61	34	50	50	50	50	Morgan Smith, M.D., Dean	Sept. 22	June 9	2
	CALIFORNIA			**433**	**61**	**69**	**8**	**46**										
3	College of Medical Evangelists, Loma Linda	125	B	71	13	5	...	4	97	35	181	181	176	186	Newton Evans, M.D., President	Sept. 7	June 3	3
4	College of Physicians and Surgeons, Los Angeles	503,812	B	70	11	26	2	6	99	38	222	217	202	227	C. W. Bryson, M.D., Dean	Sept. 2	June 17	4
5	Oakland College of Medicine and Surgery, Oakland[2]	198,604	C	5	2	1	1	...	...	...	...	...	...	...	....	....	....	5
6	College of Physicians and Surgeons of San Francisco[2]	463,516	C	22	3	4	...	...	...	...	...	...	...	...	....	....	....	6
7	Leland Stanford Junior Univ. School of Med., San Francisco	463,516	A	95	14	15	1	16	95	34	159	159	159	159	William Ophüls, M.D., Dean	Oct. 1	June 16	7
8	University of California Medical School, San Francisco	463,516	A	170	18	18	4	20	140	35	200	155	150	150	Herbert C. Moffitt, M.D., Dean	Aug. 19	May 12	8
	COLORADO			**72**	**3**	**18**	**1**	**6**										
9	University of Colorado School of Medicine, Denver[3]	260,800	A	72	3	18	1	6	61	34	100	100	90	90	Charles N. Meader, M.D., Dean	Sept. 29	June 11	9
	CONNECTICUT			**66**	**3**	**12**	...	**9**										
10	Yale University School of Medicine, New Haven	149,685	A	66	3	12	...	9	91	36	205	200	200	210	George Blumer, M.D., Dean	Sept. 25	June 23	10
	DISTRICT OF COLUMBIA			**277**	**5**	**44**	**1**	**23**										
11	Georgetown University School of Medicine, Washington	363.980	A	73	...	8	..	7	92	34	190	175	175	175	George M. Kober, M.D., Dean	Sept. 26	June 11	11
12	George Washington University Medical School, Washington	363.980	A	98	3	16	...	...	93	33	175	175	175	175	W. C. Borden, M.D., Dean	Sept. 24	June 2	12
13	Howard University School of Medicine, Washington	363,980	A	106	2	20	1	16	40	34	165	155	155	162	Edward A. Balloch, M.D., Dean	Oct. 1	June 11	13
	GEORGIA			**210**	...	**33**	...	**10**										
14	Emory University School of Medicine, Atlanta	190,558	A	147	...	25	...	6	106	33	172	160	155	180	W. S. Elkin, M.D., Dean	Sept. 30	June 8	14
15	University of Georgia Medical Department, Augusta[3]	50,245	A	63	...	8	...	4	48	34	65	60	60	50	William H. Doughty, Jr., M.D., Dean	Sept. 12	May 29	15
	ILLINOIS			**1464**	**94**	**241**	**6**	**132**										
16	Chicago Hospital College of Medicine, Chicago	2,497,722	C	54	...	12	...	...	...	...	160	150	150	180	....	....	....	16
17	Hahnemann Medical College and Hospital of Chicago.—H.	2,497,722	B	40	2	19	1	3	86	34	176	162	177	192	Joseph P. Cobb, M.D., Dean	Sept. 29	June 10	17
18	Loyola University School of Medicine, Chicago	2,497,722	B	254	17	70	2	5	134	34	166	166	166	211	Rev. P. J. Mahan, Regent	Oct. 1	June 12	18
19	Northwestern University Medical School, Chicago	2,497,722	A	294	...	19	...	13	156	33	205	200	195	210	Arthur I. Kendall, M.D., Dean	Oct. 7	June 13	19
20	Rush Medical College (University of Chicago)	2,497,722	A	573	60	75	1	73	309	34	195	190	180	195	John M. Dodson, M.D., Dean	Oct. 1	June 19	20
21	University of Illinois College of Medicine, Chicago	2,497,722	A	249	15	46	2	38	115	33	165	160	150	165	Albert C. Eycleshymer, M.D., Dean	Oct. 1	June 9	21
	INDIANA			**194**	**6**	**32**	...	**27**										
22	Indiana University School of Medicine, Indianapolis	271,708	A	194	6	32	...	27	156	35	100	100	130	130	Charles P. Emerson, M.D., Dean	Sept. 15	June 9	22
	IOWA			**226**	**6**	**44**	**1**	**22**										
23	State University of Iowa College of Medicine, Iowa City[3]	12,033	A	222	6	43	1	21	41	34	85	85	85	85	Lee Wallace Dean, M.D., Dean	Sept. 29	June 11	23
24	State University of Iowa Coll. of Homeo. Med., Iowa City.—H.[4]	12,033	A	4	...	1	...	1	20	...	...	...	...	...	....	....	....	24
	KANSAS			**128**	**8**	**20**	...	**13**										
25	University of Kansas School of Medicine, Rosedale-Kansas City	404,782	A	128	8	20	...	13	70	35	100	100	100	100	M. T. Sudler, M.D., Assoc. Dean	Sept. 15	June 9	25
	KENTUCKY			**95**	**4**	**18**	...	**2**										
26	University of Louisville Medical Department, Louisville	238,910	A	95	4	18	...	2	109	34	175	176	180	183	Henry Enos Tuley, M.D., Dean	Sept. 23	June 5	26
	LOUISIANA			**265**	**10**	**71**	**2**	**33**										
27	Tulane University of Louisiana School of Medicine, New Orleans	371,747	A	265	10	71	2	33	139	34	200	200	205	235	Isadore Dyer, M.D., Dean	Sept. 22	June 9	27
	MAINE			**45**	...	**16**	...	**9**										
28	Bowdoin Medical School, Brunswick-Portland	68,867	A	45	...	16	...	9	58	34	130	126	110	105	Addison S. Thayer, M.D., Dean	Oct. 9	June 21	28
	MARYLAND			**544**	**65**	**128**	**15**	**101**										
29	Johns Hopkins University Medical Department, Baltimore	589,621	A	310	64	78	15	93	171	34	267	267	267	267	J. Whitridge Williams, M.D., Dean	Sept. 30	June 15	29
30	Univ. of Maryland Sch. of Med. and Coll. of P. and S., Baltimore.	589,621	A	234	1	50	...	8	173	32	205	205	205	205	J. M. H. Rowland, M.D., Dean	Oct. 1	June 1	30
	MASSACHUSETTS			**884**	**45**	**206**	**12**	**104**										
31	Boston University School of Medicine, Boston	756,476	A	49	11	2	10	4	79	32	183	170	168	190	John P. Sutherland, M.D., Dean	Oct. 2	June 2	31
32	College of Physicians and Surgeons, Boston[5]	756,476	C	35	...	6	...	...	...	...	115	140	120	125	....	....	....	32
33	Medical School of Harvard University, Boston	756,476	A	399	...	98	...	89	269	33	230	225	225	225	David L. Edsall, M.D., Dean	Sept. 22	May 29	33
34	Tufts College Medical School, Boston	756,476	A	324	34	90	2	11	103	35	178	169	155	155	Charles F. Painter, M.D., Dean	Sept. 22	June 15	34
35	Middlesex College of Medicine and Surgery, Cambridge.—N.[5]	112,981	C	77	...	10	...	...	...	...	150	150	150	150	....	....	....	35
	MICHIGAN			**494**	**30**	**92**	**2**	**50**										
36	University of Michigan Medical School, Ann Arbor[3]	14,979	A	335	26	52	2	38	106	35	105	105	105	105	Victor C. Vaughan, M.D., Dean	Sept. 30	June 24	36
37	University of Michigan Homeo. Medical School, Ann Arbor.—H.[3]	14,979	A	30	1	11	...	5	17	35	105	105	105	105	W. B. Hinsdale, M.D., Dean	Sept. 30	June 24	37
38	Detroit College of Medicine and Surgery, Detroit	571,784	A	129	3	29	...	7	150	35	155	150	150	180	W. H. McCraken, M.D., Dean	Oct. 6	June 26	38
	MINNESOTA			**270**	**16**	**54**	...	**44**										
39	University of Minnesota Medical School, Minneapolis	363,454	A	270	16	54	...	44	183	34	150	150	150	150	E. P. Lyon, M.D., Dean	Oct. 1	June 17	39
	MISSISSIPPI			**46**	**2**	...	...	...										
40	University of Mississippi School of Medicine, Oxford*	2,014	A	46	2	...	...	...	18	34	122	122	...	...	W. S. Leathers, M.D., Dean	Sept. 17	June 1	40

															Officer			
	MISSOURI			**722**	**36**	**215**	**14**	**63**										
41	University of Missouri School of Medicine, Columbia*	12,103	A	62	3	...	...	...	25	31	80	51	...	...	Guy L. Noyes, M.D., Dean	Aug. 29	April 22	41
42	Kansas City College of Medicine and Surgery, Kansas City.—N.[6]	297,847	[6]	88	9	28	3	...	...	...	200	200	200	200	D. R. Alexander, M.D., Secretary	....	....	42
43	Kansas City Univ. of Physicians and Surgeons, Kansas City.—N.[7]	297,847	C	116	20	65	10	...	24	35	150	150	150	165	A. L. McKenzie, D.O., President	Sept. 8	May 27	43
44	St. Louis College of Physicians and Surgeons, St. Louis[5]	757,309	C	48	3	23	1	...	...	...	145	140	140	140	Waldo Briggs, M.D., Dean	....	....	44
45	St. Louis University School of Medicine, St. Louis	757,309	A	253	...	49	...	23	127	32	175	175	175	175	Hanau W. Loeb, M.D., Dean	Oct. 1	May 31	45
46	Washington University Medical School, St. Louis	757,309	A	155	1	50	...	40	114	34	205	200	200	205	G. Canby Robinson, M.D., Dean	Sept. 25	June 10	46
	NEBRASKA			**247**	**7**	**52**	**1**	**32**										
47	John A. Creighton Medical College, Omaha	165,470	A	92	...	19	...	5	58	34	166	156	156	161	H. von W. Schulte, M.D., Dean	Sept. 22	June 5	47
48	University of Nebraska College of Medicine, Omaha	165,470	A	155	7	33	1	27	68	34	135	130	120	120	Irving S. Cutter, M.D., Dean	Sept. 22	June 10	48
	NEW HAMPSHIRE			**34**	...	...	...	...										
49	Dartmouth Medical School, Hanover*	2,075	A	34	...	...	...	...	12	36	180	180	...	...	John M. Gile, M.D., Dean	Sept. 25	June 23	49
	NEW YORK			**2154**	**118**	**435**	**21**	**175**										
50	Albany Medical College, Albany	110,199	A	65	1	12	...	3	63	34	195	180	165	165	Thomas Ordway, M.D., Dean	Sept. 22	June 10	50
51	University of Buffalo Medical Department, Buffalo	468,558	A	169	14	34	3	4	114	34	205	200	200	200	C. Sumner Jones, M.D., Dean	Sept. 29	June 11	51
52	Columbia University Coll. of Phys. and Surgs., New York City	5,602 841	A	506	20	138	...	106	250	33	265	251	250	275	Samuel W. Lambert, M.D., Dean	Sept. 24	June 2	52
53	Cornell University Medical College, New York City	5,602,841	A	162	44	23	6	29	134	33	240	235	235	250	Walter L. Niles, M.D., Acting Dean	Sept. 29	June 10	53
54	Fordham University School of Medicine, New York City[8]	5,602,841	A	243	...	63	...	...	...	...	...	...	...	...	....	....	....	54
55	Long Island College Hospital, Brooklyn	1,928,734	A	356	14	52	1	8	128	34	255	250	250	275	Otto V. Huffman, M.D., Dean	Sept. 22	June 2	55
56	New York Homeopathic Med. Coll. and Flower Hospital.—H.	5,602,841	B	123	20	12	11	2	60	33	220	210	200	230	Thomas J. Preston, Jr., Ph.D., Dean	Sept. 25	June 5	56
57	University and Bellevue Hospital Medical College, New York City	5,602,841	A	403	...	79	...	9	160	35	225	225	215	240	Samuel A. Brown, M.D. Dean	Sept. 16	June 10	57
58	Syracuse University College of Medicine, Syracuse	155,624	A	127	5	22	...	14	91	35	210	210	210	220	John L. Heffron, M.D., Dean	Sept. 16	June 9	58
	NORTH CAROLINA			**85**	**1**	...	...	...										
59	University of North Carolina School of Medicine, Chapel Hill*	1,149	A	50	1	...	...	...	24	34	150	150	...	...	Isaac Hall Manning, M.D., Dean	Sept. 30	June 11	59
60	Wake Forest College School of Medicine, Wake Forest*	1,443	A	35	...	...	...	...	11	35	115	115	...	...	F. B. Earnshaw, Secretary	Sept. 2	May 28	60
	NORTH DAKOTA			**19**	**2**	...	...	...										
61	Univ. of North Dakota School of Med., University (Grand Forks)*	15,332	A	19	2	...	...	...	15	35	50	50	...	...	Harley E. French, M.D., Dean	Sept. 22	June 15	61
	OHIO			**564**	**17**	**116**	**5**	**75**										
62	Eclectic Medical College, Cincinnati.—E.	410,476	B	82	4	26	2	2	36	32	130	120	120	130	John K. Scudder, M.D., Secretary	Sept. 11	May 11	62
63	University of Cincinnati College of Medicine	410,476	A	100	8	25	2	22	166	34	200	200	150	170	Christian R. Holmes, M.D., Dean	Sept. 30	June 11	63
64	Western Reserve University School of Medicine, Cleveland	674 073	A	180	...	41	...	41	110	34	175	160	154	155	Carl A. Hamann, M.D., Dean	Oct. 2	June 17	64
65	Ohio State University College of Medicine, Columbus	214,878	A	108	3	16	...	10	94	36	152	152	152	152	E. F. McCampbell, M.D., Dean	Sept. 16	June 15	65
66	Ohio State University College of Homeo. Med., Columbus.—H.	214,878	B	34	2	8	1	...	13	36	150	150	150	150	Claude A. Burrett, M.D., Dean	Sept. 16	June 15	66
	OKLAHOMA			**69**	**4**	**12**	...	**3**										
67	University of Oklahoma School of Med., Norman-Oklahoma City	92,943	B	69	4	12	...	3	64	35	61	40	23	23	Leroy Long, M.D., Dean	Sept. 11	June 8	67
	OREGON			**58**	**8**	**15**	...	**4**										
68	University of Oregon Medical School, Portland	295,463	A	58	8	15	...	4	112	32	170	166	162	160	K. A. J. Mackenzie, M.D., Dean	Oct. 1	May 31	68
	PENNSYLVANIA			**1272**	**92**	**345**	**13**	**114**										
69	Hahnemann Medical College and Hospital of Philadelphia.—H.	1,709,518	A	138	...	25	...	5	84	32	205	202	202	217	William A. Pearson, M.D., Dean	Sept. 29	May 31	69
70	Jefferson Medical College of Philadelphia	1,709,518	A	451	...	142	...	25	163	34	215	210	210	210	Ross V. Patterson, M.D., Dean	Sept. 22	June 5	70
71	Temple University Department of Medicine, Philadelphia	1,709 518	B	95	...	30	...	2	97	33	175	170	160	160	Frank C. Hammond, M.D., Dean	Sept. 22	June 1	71
72	University of Pennsylvania School of Medicine, Philadelphia	1,709 518	A	448	19	121	4	60	194	35	233	210	210	214	William Pepper, M.D., Dean	Sept. 26	June 16	72
73	Woman's Medical College of Pennsylvania, Philadelphia	1,709,518	A	....	66	...	7	4	59	34	198	202	184	180	Martha Tracy, M.D., Dean	Oct. 1	June 16	73
74	University of Pittsburgh School of Medicine, Pittsburgh	579,090	A	140	7	27	2	18	130	33	265	250	250	250	Thomas S. Arbuthnot, M.D., Dean	Sept. 29	June 4	74
	SOUTH CAROLINA			**66**	...	**14**	...	**4**										
75	Medical College of the State of South Carolina, Charleston	60,734	A	66	...	14	...	4	61	33	150	150	145	145	Robert Wilson, Jr., M.D., Dean	Sept. 26	June 3	75
	SOUTH DAKOTA			**17**	**2**	...	...	...										
76	University of South Dakota College of Medicine, Vermilion*	2,376	A	17	2	...	...	...	10	35	60	60	...	...	Christian P. Lommen, B.S., Dean	Sept. 29	June 21	76
	TENNESSEE			**368**	**2**	**90**	...	**28**										
77	University of Tennessee College of Medicine, Memphis[3]	148,995	A	62	1	20	...	4	105	34	107	102	102	127	A. H. Wittenborg, M.D., Dean	Sept. 20	June 2	77
78	University of West Tennessee Medical Department, Memphis[9]	148,995	C	18	...	4	...	2	20	32	80	80	80	90	M. V. Lynk, M.D., Dean	Sept. 22	May 23	78
79	Meharry Medical College, Nashville	117,057	B	174	1	41	...	19	24	30	87	87	87	97	G. W. Hubbard, M.D., President	Oct. 7	May 20	79
80	Vanderbilt University School of Medicine, Nashville	117,057	A	114	...	25	...	3	81	33	150	150	150	175	Lucius E. Burch, M.D., Dean	Sept. 29	June 9	80
	TEXAS			**314**	**21**	**68**	**5**	**16**										
81	Baylor University College of Medicine, Dallas	124,527	A	122	4	20	2	1	49	32	160	155	155	150	Edward H. Cary, M.D., Dean	Sept. 29	May 27	81
82	University of Texas Department of Medicine, Galveston	41,863	A	192	17	48	3	15	38	32	78	48	31	18	W. S. Carter, M.D., Dean	Oct. 1	May 31	82
	UTAH			**27**	**1**	...	...	...										
83	University of Utah School of Medicine, Salt Lake City*	117,399	A	27	1	...	...	...	24	33	95	95	...	...	Perry G. Snow, M.D., Dean	Sept. 29	June 6	83
	VERMONT			**90**	...	**20**	...	**2**										
84	University of Vermont College of Medicine, Burlington	21,432	A	90	...	20	...	2	43	36	145	145	145	170	Henry C. Tinkham, M.D., Dean	Sept. 24	June 30	84

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Gives only the first two years of the medical course.

1. The University of Arkansas Medical Department has temporarily suspended clinical teaching anticipating a complete reorganization of the clinical departments.

2. The College of Physicians and Surgeons of San Francisco and the Oakland College of Medicine and Surgery discontinued medical teaching in 1918. They will retain a nominal existence until 1921 in order to grant degrees to the students of the three remaining classes who are finishing their instruction elsewhere — mostly at the College of Physicians and Surgeons, Los Angeles.

3. Fees given are for residents of the state. For nonresidents amounts should be added for each year in the several states as follows: Colorado, $30; Georgia, $100; Iowa, $15; Michigan, $20 (and $25 extra the first year for matriculation); Tennessee, $50 and Wisconsin, $124.

4. The State University of Iowa College of Homeopathic Medicine has been abolished by the Iowa legislature and an elective chair in homeopathic materia medica and therapeutics has been established in the College of Medicine.

5. No report received direct. From the announcement and other sources the total attendance, graduates and fees are estimated.

6. The Kansas City College of Medicine and Surgery is an offshoot of the Eclectic Medical University of Kansas City, a Class C institution now extinct. The former institution, according to an official statement, is not recognized by the licensing board of Missouri — its home state — and thirty-two other states. With this record it could not be rated higher than Class C.

7. This was formerly the Central College of Osteopathy, in 1917 it changed its name to the Central College Medical Department and in 1918 took its present title. It is reported not recognized as a medical school by the medical licensing boards of Missouri — its home state — and thirty-three other states.

8. This college was ordered closed by the trustees of Fordham University on the grounds that sufficient funds were not available to maintain it in a satisfactory manner.

9. According to official statements this college is not recognized by the licensing boards of Tennessee — its home state — or of thirty-eight other states.

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(Concluded)

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1916)	Classification by Council on Medical Education	No. of Students Registered 1918-19		Graduates 1919		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1919-20		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1919	Ends 1920	
	VIRGINIA			**231**	**4**	**45**	...	**17**										
85	Medical College of Virginia, Richmond	156,687	A	119	4	20	...	4	132	34	199	200	200	230	A. L. Gray, M.D., Dean	Sept. 17	June 3	85
86	University of Virginia Department of Medicine, Charlottesville	12,500	A	112	...	25	...	13	33	36	140	140	140	110	Theodore Hough, M.D., Dean	Sept. 18	June 16	86
	WEST VIRGINIA			**36**	**3**	...	...	...										
87	West Virginia University School of Medicine, Morgantown*	12,974	A	36	3	...	...	...	10	35	40	25	...	...	John N. Simpson, M.D., Dean	Sept. 22	June 15	87
	WISCONSIN			**181**	**10**	**13**	...	**13**										
88	University of Wisconsin Medical School, Madison*[3]	30,699	A	110	8	...	...	...	37	34	75	75	...	...	C. R. Bardeen, M.D., Dean	Sept. 29	June 16	88
89	Marquette University School of Medicine, Milwaukee	436,535	A	71	2	13	...	13	87	34	220	220	220	230	L. F. Jermain, M.D., Dean	Oct. 1	June 17	89
	CANADA			**2109**	**127**	**284**	**12**	**44**										
90	University of Alberta Faculty of Medicine, Edmonton, Alta.[10]	5,579	[10]	78	10	...	...	...	12	30	88	88	...	...	Cecil E. Race, A.B., Registrar	Sept. 30	May 13	90
91	Dalhousie University Faculty of Medicine, Halifax, N. S.	46,619	B	98	15	9	1	3	35	32	115	125	125	125	D. Fraser Harris, M.D., Secretary	Oct. 1	May 27	91
92	Queen's University Faculty of Medicine, Kingston, Ont.	18,874	B	228	...	61	...	10	46	34	125	125	125	125	J. C. Connell, M.D., Dean	Sept. 22	June 9	92
93	University of Toronto Faculty of Medicine, Toronto, Ont.	376,538	A	619	79	47	9	7	216	32	150	150	150	150	C. K. Clarke, M.D., Dean	Sept. 30	May 31	93
94	Western University Faculty of Medicine, London, Ont.	46,300	B	93	...	16	...	...	53	32	120	128	120	145	Paul S. McKibben, M.D., Acting Dean	Oct. 1	May 30	94
95	McGill University Faculty of Medicine, Montreal, Que.	470,480	A	463	8	78	...	23	138	32	174	174	174	204	John W. Seane, M.D., Registrar	Oct. 1	May 30	95
96	Montreal School of Medicine and Surgery, Montreal, Que.	470,480	B	241	...	23	...	...	80	36	118	126	126	138	L. D. Mignault, M.D., Secretary	Oct. 3	June 30	96
97	Laval University Faculty of Medicine, Quebec, Que.	* 78,190	B	148	...	22	...	...	35	34	90	90	90	90	Edwin Turcot, M.D., Dean	Sept.	June	97
98	University of Manitoba, Manitoba Medical College, Winnipeg	136,035	B	141	15	28	2	1	60	30	175	165	170	160	S. Willis Prowse, M.D., Dean	Sept. 15	May 1	98

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Gives only the first two years of the medical course.

[10] The University of Alberta at Edmonton, besides the premedical year, gives only the first two years of the medical course as measured by that of the medical schools of the United States. It has not been inspected.

(Continued from page 499)

information regarding medical colleges which have ceased to exist; (*c*) the years when each institution began to require for admission, respectively, one year and two years or more of collegiate work; (*d*) the classification given to the college named by the Council on Medical Education and, if it had more than one rating, the years when each rating was held, and (*e*) the key number by which a full description of each institution can be found in the American Medical Directory. Names of colleges now existing are in heavy faced type.

This table is important since claims of graduation from a medical school during other than the dates given should be held in doubt and subjected to special investigation.

The names of a few hundred medical schools which were reported fraudulent, or not recognized by the licensing boards in their respective states, or in regard to which there is doubt as to whether any classes were ever held, have been omitted from the above list. Reference to such institutions can be obtained in the American Medical Directory.

TABLE 6.—Medical College Graduates

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880	2,673	380	188	..	..	3.241
1890	3.853	380	221	..	..	4.454
1900	4,715	413	86	..	..	5,214
1901	4,879	387	148	18	12	5.444
1902	4,508	336	138	16	11	5.009
1903	5,088	420	149	24	17	5,698
1904	5,190	371	146	20	20	5,747
1905	5,126	276	153	22	23	5,600
1906	4,841	286	186	22	29	5,364
1907	4,591	225	121	11	32	4,980
1908	4,370	215	116	12	28	4,741
1909	4,163	209	84	15	44	4,515
1910	4,113	183	114	16	14	4.440
1911	4,006	152	110	5	..	4,273
1912	4,206	185	92	..	..	4.483
1913	3,679	209	93	..	..	3,981
1914	3,370	154	70	..	..	3,594
1915	3,286	195	55	..	..	3,536
1916	3,274	166	78	..	..	3,518
1917	3,134	180	65	..	..	3,379
1918	2,454	114	42	..	60	2,670
1919	2,423	89	28	..	116	2,656

NUMBER OF MEDICAL STUDENTS

The total number of medical students (Table 5) in the United States for the year ending June 30, 1919, excluding premedical, special and postgraduate students, was 13,052, a decrease of 578 below last year. It is noteworthy (Table 13, page 513) that in the high grade (Class A) medical colleges the percentage of all students has increased. Of the total number of students, 12,259 (93.9 per cent.) were in attendance at the nonsectarian (regular) colleges, 397 (3.0 per cent.) at the homeopathic, 86 (0.7 per cent.) at the eclectic, and 310 (2.4 per cent.) were enrolled in three nondescript colleges. These three colleges consist of two semi-osteopathic and one nominally lectic affair. Two of them are outlawed in their ome state—Missouri—and one is in Massachusetts, hich has a feeble medical practice law. None of em, therefore, is subject to rigid laws or regulations. ne of them, the Kansas City College of Medicine and urgery, exists only by the enjoyment of special privileges obtained through a sectarian licensing board in adjoining state, the Eclectic Board of Arkansas!

TABLE 7.—Medical Graduates with Liberal Arts Degrees

Year	Nonsectarian			Homeopathic			Eclectic			Totals		
	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.
910.......	4,113	664	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
911.......	4,006	683	17.0	152	18	11.8	110	4	3.6	4.273	705	16.5
912.......	4,206	744	17.7	185	15	8.1	92	4	4.3	4,483	763	17.0
913.......	3,679	732	19.9	209	20	9.6	93	1	1.1	3,981	753	18.9
914.......	3,370	794	23.5	154	7	4.5	70	6	8.6	3,594	807	22.5
915.......	3,286	839	25.5	195	16	8.2	55	3	5.5	3,536	858	24.3
916.......	3,274	928	28.3	166	20	12.0	78	...	.....	3,518	948	26.9
917.......	3,134	1078	34.4	180	19	10.5	65	2	3.1	3,379	1099	32.5
918*......	2,454	1007	41 0	114	15	13.2	60	...	.....	2.670	1024	38.4
919*......	2,423	1162	48.0	89	16	18.0	28	2	7.1	2,656	1180	44.4

* None of the graduates of nondescript colleges during the last two ears was reported to have a collegiate degree.

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending une 30, 1919, was 2,656, a decrease of 14 below 1918. he number of graduates from the nonsectarian coleges was 2,423 or 31 less than last year. The numer from the homeopathic colleges was 89 or 25 less an last year, and from the eclectic colleges there were 8 graduates, or 14 less than last year. The three nonescript colleges had 116 graduates.

TABLE 8.—Women in Medicine

Year	Total Women Students	Percentage of All Students, Both Sexes	Total Women Graduates	Percentage of Graduates, Both Sexes	Women's Colleges	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates	Co-ed. Schools	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates
904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5
1913	640	3.8	154	3.8	2	138	21.6	33	21.4	55	502	78.6	121	78.6
1914	631	3.8	121	3.4	2	135	21.4	25	20.7	54	496	78.6	96	79.3
1915	592	4.0	130	3.7	2	116	19.6	38	29.2	53	462	80.4	92	70.8
1916	566	4.0	134	3.8	2	102	18.0	28	20.0	51	464	82.0	106	80.0
1917	610	4.5	153	4.5	2	81	13.3	29	18.9	56	529	86.7	124	81.1
1918	581	4.3	106	4.0	2	70	12.0	12	11.3	60	511	87.9	94	88.7
1919	686	5.2	107	4.0	1	66	10.0	7	6.5	59	620	90.4	100	93.4

GRADUATES HOLDING DEGREES IN ARTS

Of the 2,656 medical graduates, 1,180 (see Table 2) held also degrees in arts or science. This total ncludes those taking the combined courses in arts or science and medicine. This year 44.4 per cent. of all graduates held collegiate degrees, as compared with 38.4 last year, 32.5 per cent. in 1917, and 26.9 per cent. in 1916. This increase is what was expected under the general adoption by medical schools of the entrance requirement of two years of college work. In 1910 it is noteworthy that only 15.3 per cent. of the graduates show this evidence of higher preliminary qualifications. Of the 2,423 nonsectarian school graduates, 1,162, or 48.0 per cent., were reported to have baccalaureate degrees; of the homeopathic graduates 16, or 18.0 per cent., were so reported, and of the eclectic graduates this year 2, or 7.1 per cent., held such degrees. Of the 116 graduates of the nondescript colleges not one was reported as holding a bachelor's degree in arts or science. As will be noted by referring to Table 12, of the 1,180 graduates holding baccalaureate degrees, 175—the largest number—came as last

TABLE 9.—Medical Colleges

Year	Nonsectarian	Homeopathic	Eclectic	Physio-Med.	Nondescript	Total
1850........	44	3	4	1	..	52
1860........	53	6	4	2	..	65
1870........	60	8	5	2	..	75
1880........	76	14	8	2	..	100
1890........	106	16	9	2	..	133
1900........	126	22	9	2	1	160
1901........	125	22	10	2	1	160
1902........	126	20	9	3	2	160
1903........	126	20	9	3	2	160
1904........	127	19	9	3	2	160
1905........	125	19	9	3	2	158
1906........	130	19	8	3	2	162
1907........	127	18	9	3	2	159
1908........	120	18	9	2	2	151
1909........	115	15	8	1	1	140
1910........	109	12	8	1	1	131
1911........	103	12	7	..	..	122
1912........	101	11	6	..	..	118
1913........	92	10	5	..	..	107
1914........	87	10	5	..	..	102
1915........	83	9	4	..	..	96
1916........	82	10	3	..	..	95
1917........	83	9	4	.	..	96
1918........	79	6	2	..	3	90
1919........	76	5	1	..	3	85

TABLE 10.—College Terms

Year	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
1906	14	8.7	35	21.7	26	16 1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	....	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9
1913	..	....	3	2.8	5	4.7	29	27.4	41	38.7	27	25.5	1	0.9
1914	..	....	2	2.0	4	4.0	25	24.8	41	40.5	28	27.7	1	1.0
1915	..	....	1	1.0	5	5.3	22	23.2	36	37.9	30	31.6	1	1.0
1916	..	....	..	....	4	4.2	17	17.9	43	45.3	28	29.5	..	...
1917	..	....	..	....	1	1.0	15	15.6	46	47.9	31	32.3	..	...
1918*	..	....	..	....	2	2.2	23	25.6	37	41.1	22	24.4	..	...
1919*	..	....	..	....	1	1.2	11	12.9	44	51.8	23	27.1	1	1.2

* Information not furnished by six Class C colleges in 1918 and five in 1919.

(Continued on page 506)

Marginal Number	NAME OF COLLEGE	1 Alabama......157	2 Arizona........8	3 Arkansas......81	4 California.....523	5 Colorado......127	6 Connecticut....215	7 Delaware.......18	8 Dist. of Col.....96	9 Florida........44	10 Georgia.......258	11 Idaho.........29	12 Illinois........931	13 Indiana........333	14 Iowa.........374	15 Kansas........269	16 Kentucky......111	17 Louisiana......140	18 Maine..........72	19 Maryland......175	20 Massachusetts..667	Marginal Number
1	University of Alabama School of Medicine	53	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1
2	University of Arkansas Medical Department	2	....	28	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2
3	College of Medical Evangelists	....	2	....	32	5	....	....	....	....	....	1	3	....	....	3	....	....	....	3	....	3
4	College of Physicians and Surgeons, Los Angeles	1	....	....	74	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	4
5	Oakland College of Medicine and Surgery	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5
6	College of Physicians and Surgeons of San Francisco.	....	....	....	23	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6
7	Leland Stanford Junior Univ., School of Medicine	....	1	....	81	1	....	....	....	....	....	1	....	1	1	....	....	1	....	....	....	7
8	University of California Medical School	....	....	....	173	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	8
9	University of Colorado School of Medicine	....	....	....	....	64	....	....	....	....	....	1	....	....	2	2	....	....	....	....	....	9
10	Yale University School of Medicine	....	....	....	....	....	55	....	....	....	....	....	....	....	....	....	....	....	....	....	1	10
11	Georgetown University School of Medicine	....	....	....	....	....	2	....	20	....	....	....	....	1	1	....	....	....	2	4	4	11
12	George Washington University Medical School	1	....	....	1	....	2	....	45	....	....	....	2	....	....	....	....	....	....	5	1	12
13	Howard University School of Medicine	4	....	1	....	....	....	1	13	4	1	....	1	....	....	....	3	1	....	6	....	13
14	Emory University School of Medicine	11	....	1	....	....	....	....	....	4	106	....	1	....	1	....	2	1	....	....	....	14
15	University of Georgia Medical Department	....	....	....	....	....	....	....	....	....	59	....	....	....	....	....	....	....	....	....	....	15
16	Chicago Hospital College of Medicine	....	....	....	....	....	....	....	....	....	....	....	54	....	....	....	....	....	....	....	....	16
17	Hahnemann Medical College and Hospital of Chicago	....	....	....	....	....	1	....	....	....	....	....	13	2	5	1	1	....	....	....	....	17
18	Loyola University School of Medicine	....	....	....	....	2	3	....	....	....	1	....	161	6	5	1	3	....	....	....	2	18
19	Northwestern University Medical School	2	....	2	2	5	....	....	....	2	1	1	132	12	11	8	1	1	....	....	....	19
20	Rush Medical College (University of Chicago)	....	....	2	9	4	....	....	1	....	....	4	270	27	36	33	5	1	....	....	....	20
21	University of Illinois College of Medicine	....	....	....	4	3	....	....	....	....	1	....	171	4	16	3	1	....	....	....	....	21
22	Indiana University School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	195	....	....	....	....	....	....	....	22
23	State University of Iowa College of Medicine	....	....	....	1	1	....	....	....	....	....	2	2	....	205	1	....	....	....	....	....	23
24	State University of Iowa College of Homeo. Med.—H.	....	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	24
25	University of Kansas School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	123	....	....	....	....	....	25
26	University of Louisville Medical Department	1	....	4	....	1	....	....	....	2	1	....	5	11	1	....	34	1	....	....	1	26
27	Tulane University of Louisiana School of Medicine	42	1	11	1	....	....	....	2	8	8	....	....	....	1	1	....	107	....	....	....	27
28	Bowdoin Medical School	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	32	....	4	28
29	Johns Hopkins University Medical Department	3	....	3	7	8	11	1	3	2	15	....	5	6	4	....	8	2	4	60	12	29
30	Univ. of Maryland School of Med. & Coll. of P. & S.	2	....	....	....	....	5	4	1	2	1	....	....	....	1	....	3	....	....	80	5	30
31	Boston University School of Medicine	....	....	....	....	....	3	1	....	....	....	....	....	....	....	....	....	1	2	....	24	31
32	College of Physicians and Surgeons, Boston	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	35	32
33	Medical School of Harvard University	4	....	1	4	8	18	....	2	1	10	2	8	4	3	1	....	....	14	....	164	33
34	Tufts College Medical School	....	....	....	....	....	12	....	1	....	1	....	....	....	....	....	....	....	6	....	268	34
35	Middlesex College of Medicine and Surgery.—N.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	77	35
36	University of Michigan Medical School	1	1	1	1	4	....	....	1	1	1	1	18	12	2	1	1	....	....	1	....	36
37	University of Michigan Homeo. Medical School.—H.	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	37
38	Detroit College of Medicine and Surgery	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	38
39	University of Minnesota Medical School	....	....	....	4	....	....	....	....	....	....	1	4	....	9	....	....	....	....	....	....	39
40	University of Mississippi School of Medicine	3	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	40
41	University of Missouri School of Medicine	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	41
42	Kansas City College of Medicine and Surgery.—N.	....	....	6	....	....	....	....	....	....	....	....	....	....	....	28	....	....	....	....	....	42
43	Kansas City Univ. of Physicians and Surgeons.—N.	1	2	....	7	6	....	....	....	....	....	3	5	2	4	20	1	....	....	....	....	43
44	St. Louis College of Physicians and Surgeons	....	....	....	....	....	....	....	....	....	....	....	13	....	....	....	....	....	....	....	....	44
45	St. Louis University School of Medicine	....	....	....	12	2	....	....	....	....	1	....	47	6	18	10	2	2	....	....	....	45
46	Washington University Medical School	....	....	1	2	3	....	....	....	....	....	....	19	2	2	11	....	....	....	....	....	46
47	John A. Creighton Medical College	....	....	....	....	2	....	....	....	....	....	1	....	....	16	4	....	....	....	....	....	47
48	University of Nebraska College of Medicine	....	....	....	....	1	....	....	....	....	....	1	....	....	11	2	....	....	....	....	....	48
49	Dartmouth Medical School	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	7	49
50	Albany Medical College	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	2	50
51	University of Buffalo Medical Department	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....	....	51
52	Columbia University College of Phys. and Surgs.	....	....	1	1	1	26	....	....	1	3	2	1	1	....	....	1	....	2	....	12	52
53	Cornell University Medical College	....	....	....	3	....	4	....	1	....	2	....	1	1	1	....	....	....	2	....	4	53
54	Fordham University School of Medicine	....	....	....	....	....	19	....	....	....	....	....	....	....	....	....	....	....	....	....	4	54
55	Long Island College Hospital	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	....	1	55
56	New York Homeo. Medical Coll. and Flower Hosp.—H.	....	....	....	....	....	2	....	....	....	....	....	....	....	1	....	....	....	....	....	4	56
57	University and Bellevue Hospital Medical College	....	1	....	1	....	8	....	....	1	2	....	2	....	1	....	....	....	....	....	2	57
58	Syracuse University College of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	58
59	University of North Carolina School of Medicine	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	59
60	Wake Forest College School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	60
61	University of North Dakota School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	61
62	Eclectic Medical College, Cincinnati.—E.	....	....	....	....	....	....	....	....	....	1	....	4	7	1	1	4	....	1	1	....	62
63	University of Cincinnati College of Medicine	....	....	....	....	....	....	....	....	....	....	....	3	11	....	1	19	....	....	....	....	63
64	Western Reserve University School of Medicine	1	....	....	....	1	....	....	1	1	....	....	2	3	2	1	1	....	....	....	....	64
65	Ohio State University College of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	4	....	1	1	....	....	....	....	65
66	Ohio State University College of Homeo. Med.—H.	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	2	....	....	....	....	66
67	University of Oklahoma School of Medicine	....	....	2	....	....	....	....	....	1	....	....	....	1	....	....	....	1	....	....	....	67
68	University of Oregon Medical School	....	....	....	1	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	68
69	Hahnemann Med. Coll. and Hosp. of Philadelphia.—H.	....	....	....	....	....	....	1	....	....	....	....	....	4	....	2	....	....	....	5	3	69
70	Jefferson Medical College of Philadelphia	1	....	....	2	1	14	7	....	1	2	3	1	1	2	1	....	....	2	2	10	70
71	Temple University Department of Medicine	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	2	1	71
72	University of Pennsylvania School of Medicine	2	....	....	4	2	4	3	1	1	....	1	3	2	4	2	2	....	4	4	3	72
73	Woman's Medical College of Pennsylvania	1	....	....	2	....	3	....	....	1	....	....	1	....	1	3	1	....	....	....	1	73
74	University of Pittsburgh School of Medicine	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	74
75	Medical College of the State of South Carolina	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	75
76	University of South Dakota College of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	1	76
77	University of Tennessee College of Medicine	....	....	1	....	....	....	....	....	2	....	1	....	....	....	1	1	1	....	....	1	77
78	University of West Tennessee Medical Department	1	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	1	....	....	....	78
79	Meharry Medical College	10	....	7	....	....	....	....	2	3	25	....	10	1	....	....	3	10	....	....	....	79
80	Vanderbilt University School of Medicine	7	....	7	2	1	....	....	....	2	1	....	2	1	....	....	5	5	....	....	....	80
81	Baylor University College of Medicine	....	....	2	1	....	1	....	....	....	2	....	....	....	....	1	2	2	....	....	1	81
82	University of Texas Department of Medicine	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	82
83	University of Utah School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	83
84	University of Vermont College of Medicine	....	....	....	....	....	10	....	....	....	....	....	....	....	....	....	....	....	1	....	10	84
85	Medical College of Virginia	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	85
86	University of Virginia Department of Medicine	1	....	....	2	....	1	....	2	2	6	....	....	1	....	....	3	1	....	2	....	86
87	West Virginia University School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	87
88	University of Wisconsin Medical School	....	....	....	1	....	....	....	....	....	....	1	15	....	1	....	....	....	....	....	....	88
89	Marquette University School of Medicine	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	89
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		
Marginal Number	Michigan......358	Minnesota......309	Mississippi......136	Missouri......469	Montana......39	Nebraska......234	Nevada......6	New Hampshire..48	New Jersey......342	New Mexico......7	New York......2003	North Carolina.247	North Dakota...73	Ohio......653	Oklahoma......111	Oregon......98	Pennsylvania..1001	Rhode Island....78	South Carolina.122	South Dakota...89	Tennessee......178	Texas......428	Utah......101	Vermont......59	Virginia......258	Washington......92	West Virginia...138	Wisconsin......320	Wyoming......8	Philippines, etc. 105	Foreign......314	Totals......13,052	Marginal Number
1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	56	1
2	....	....	2	1	....	....	....	....	....	....	....	....	....	1	2	....	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	43	2
3	4	2	....	....	2	1	....	....	....	....	1	....	1	....	....	4	....	....	....	2	3	1	....	....	....	1	....	3	1	1	8	84	3
4	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	1	1	....	....	....	81	4
5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	7	5
6	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	25	6
7	....	....	....	1	....	....	3	....	....	....	1	....	....	....	....	1	....	....	....	....	....	....	2	1	....	8	....	....	....	....	5	109	7
8	....	1	....	....	....	....	1	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	3	1	....	2	....	....	....	....	4	188	8
9	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	2	1	....	75	9
10	....	....	....	....	....	....	....	1	....	....	7	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....	1	2	69	10
11	....	2	....	1	....	....	....	....	4	....	8	....	....	2	1	....	15	....	....	....	....	1	....	....	3	....	....	....	....	1	1	73	11
12	2	....	....	....	....	....	....	....	....	....	6	3	....	2	....	....	8	....	2	....	....	2	2	1	8	....	....	....	....	6	2	101	12
13	....	....	....	2	....	....	....	....	5	....	6	5	....	....	1	....	8	1	6	....	2	3	....	....	13	....	3	....	....	....	18	108	13
14	....	....	1	2	....	....	....	....	....	....	1	5	....	....	....	....	....	....	5	....	2	....	....	....	1	....	....	....	....	1	2	147	14
15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	1	63	15
16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	54	16
17	2	2	....	....	....	....	....	....	....	....	1	....	....	2	....	....	2	....	....	....	....	1	....	....	1	....	....	3	....	....	5	42	17
18	10	7	....	3	1	1	....	....	....	....	7	1	....	5	....	....	10	1	....	1	3	....	2	....	1	2	4	6	....	16	6	271	18
19	9	9	2	13	1	10	....	1	1	1	....	....	11	8	3	1	....	....	....	6	....	1	1	....	....	10	....	19	1	1	5	294	19
20	19	20	1	14	5	12	2	....	....	....	5	....	14	19	3	14	4	....	....	25	2	7	12	....	....	6	....	44	1	4	8	633	20
21	4	10	....	4	....	3	....	....	....	1	4	....	4	3	1	....	2	....	....	2	....	1	3	....	....	3	....	9	....	3	4	264	21
22	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	1	2	200	22
23	....	4	....	1	2	....	....	....	....	....	....	....	....	....	1	....	....	....	....	2	....	....	....	....	....	2	....	1	....	....	3	228	23
24	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	24
25	....	....	....	10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	2	....	136	25
26	1	1	1	4	2	....	....	....	1	....	2	....	....	4	1	....	1	....	1	....	2	5	....	....	2	1	7	1	....	....	....	99	26
27	....	....	38	3	....	....	....	....	....	....	....	4	....	1	1	....	1	....	1	1	2	32	....	....	1	....	....	1	....	7	....	275	27
28	....	....	....	....	....	....	....	3	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	45	28
29	5	....	....	8	2	3	....	....	9	1	35	13	5	26	....	1	26	6	6	1	12	14	....	....	24	3	5	6	1	1	7	374	29
30	1	....	....	1	....	....	....	1	9	....	14	20	....	3	....	....	14	2	5	....	....	....	3	....	13	....	23	....	....	15	7	235	30
31	....	....	....	....	1	....	....	1	....	....	7	2	....	....	1	....	3	2	1	....	....	....	....	....	....	....	....	....	....	2	9	60	31
32	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	35	32
33	2	6	....	5	....	5	....	6	7	....	20	4	....	11	3	3	14	22	1	....	....	4	4	4	4	3	....	7	1	1	18	399	33
34	1	....	....	....	....	....	....	17	1	1	4	....	....	1	....	....	3	32	....	....	....	....	....	1	....	....	....	....	....	3	6	358	34
35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	77	35
36	140	5	....	8	1	2	....	....	3	....	34	1	1	47	2	....	35	....	2	2	1	3	1	1	....	9	....	6	....	....	10	361	36
37	20	....	....	....	....	....	....	....	....	....	1	....	1	3	....	1	....	....	1	....	....	....	....	....	....	....	1	1	....	....	....	31	37
38	112	....	....	....	....	....	....	....	....	....	2	....	....	4	1	....	3	....	....	1	....	....	....	....	....	....	....	1	....	....	7	132	38
39	2	204	....	5	6	1	....	....	....	....	2	....	11	2	....	2	....	....	....	7	....	....	....	....	1	7	....	15	....	....	3	286	39
40	....	....	41	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	1	48	40
41	....	1	....	48	....	....	....	....	....	....	6	....	....	2	1	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	3	65	41
42	....	....	....	52	....	1	....	....	....	....	....	....	....	....	8	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	97	42
43	2	7	....	43	....	4	....	....	2	1	....	....	....	2	....	4	3	....	1	2	1	3	....	....	....	5	....	1	....	....	4	136	43
44	....	....	....	38	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	38	44
45	5	5	....	85	3	2	....	....	....	....	2	....	1	28	....	....	1	....	....	2	....	4	1	....	....	1	....	8	....	1	4	253	45
46	....	1	3	85	....	....	....	....	....	....	1	....	3	1	4	1	....	....	....	3	....	1	1	....	....	....	1	8	....	....	3	156	46
47	....	5	....	....	9	41	....	....	....	....	....	....	....	....	....	1	....	....	....	9	....	....	1	....	....	1	....	1	....	1	....	92	47
48	....	1	....	2	....	133	....	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	1	3	3	162	48
49	....	....	....	....	1	....	....	7	3	....	9	....	....	....	....	....	1	....	....	....	....	....	....	3	....	....	....	....	....	....	....	34	49
50	....	....	....	....	....	....	....	....	1	....	61	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	66	50
51	1	....	....	....	....	....	....	....	....	....	174	....	....	1	....	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	183	51
52	2	....	....	3	....	....	....	7	68	1	338	3	....	2	....	2	1	1	1	....	3	5	12	1	3	2	1	9	....	1	8	526	52
53	....	....	....	....	....	....	....	....	22	....	147	....	....	3	....	....	5	2	....	....	....	....	....	3	2	....	....	....	....	1	2	206	53
54	....	....	....	....	....	....	....	....	29	....	187	....	....	....	....	....	2	1	....	....	....	....	....	1	....	....	....	....	....	....	....	243	54
55	....	....	....	....	....	....	....	....	20	....	336	....	....	....	....	....	3	....	....	....	....	....	1	1	....	....	....	....	....	....	4	370	55
56	....	....	....	....	....	....	....	....	9	....	73	....	....	1	....	....	2	1	....	....	....	2	....	....	....	....	....	....	....	....	48	143	56
57	....	....	1	1	....	....	....	....	56	....	311	2	....	....	....	1	2	2	....	....	2	....	1	....	1	....	....	1	....	1	3	403	57
58	....	....	....	....	....	....	....	....	2	....	119	....	....	....	....	....	3	....	....	....	....	....	....	....	1	....	....	....	....	....	7	132	58
59	....	....	....	....	....	....	....	....	....	....	....	47	....	....	....	....	....	....	1	....	....	....	....	....	2	....	....	....	....	....	....	51	59
60	....	....	....	....	....	....	....	....	....	....	....	31	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	35	60
61	....	....	....	....	....	....	....	....	....	....	....	....	19	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	21	61
62	1	....	....	....	....	4	....	....	....	....	2	....	....	51	1	....	3	....	....	....	....	....	....	....	....	....	4	....	....	....	....	86	62
63	3	1	....	1	....	....	....	....	....	....	1	....	....	106	1	....	3	....	....	....	....	....	....	....	2	....	13	....	....	2	1	168	63
64	....	....	1	....	....	....	....	....	....	....	2	....	....	136	....	....	11	....	....	1	....	....	7	....	....	....	5	1	....	....	3	180	64
65	....	....	....	....	....	....	....	....	....	....	....	....	....	101	....	....	1	....	....	....	....	....	....	....	....	....	2	1	....	....	....	111	65
66	....	....	....	....	....	....	....	....	....	....	....	....	....	28	....	....	1	....	....	....	1	....	....	....	....	....	1	....	....	....	2	36	66
67	....	....	....	....	....	....	....	....	....	....	1	....	....	....	63	....	....	....	....	....	....	2	....	....	....	....	....	....	....	1	1	73	67
68	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	55	....	....	....	....	....	....	....	....	....	7	....	....	....	....	1	66	68
69	....	2	....	1	....	....	....	....	14	....	5	....	....	12	....	2	80	....	....	....	....	....	....	....	2	....	2	2	....	....	1	138	69
70	....	4	4	9	2	5	....	....	25	....	16	41	1	14	....	1	212	3	5	1	3	4	7	....	3	7	10	4	....	....	20	451	70
71	....	....	....	....	....	....	....	....	7	....	5	1	....	....	....	1	66	....	....	....	....	....	....	....	2	....	....	....	....	5	4	95	71
72	2	2	3	7	1	3	....	1	29	....	8	22	....	2	....	1	275	....	3	1	8	4	8	....	7	10	10	4	....	3	11	467	72
73	....	....	....	....	....	....	....	....	6	....	6	4	....	2	....	....	26	....	....	....	2	....	....	....	3	....	....	1	....	....	2	66	73
74	....	....	....	....	....	....	....	....	....	....	1	....	....	9	....	....	135	....	....	....	....	....	....	....	....	....	....	....	....	....	....	147	74
75	....	....	....	....	....	....	....	....	....	....	2	3	....	1	....	....	....	....	56	....	....	....	....	....	1	....	....	....	....	....	1	66	75
76	2	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	12	....	....	....	....	....	....	....	....	....	....	....	19	76
77	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	44	3	1	....	....	....	2	....	....	1	....	63	77
78	....	....	2	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	1	....	5	....	....	....	....	....	....	....	....	2	1	18	78
79	1	....	18	5	....	2	....	....	....	....	2	6	....	3	4	....	....	....	12	....	16	18	....	....	5	....	....	....	....	....	12	175	79
80	....	....	2	1	....	....	....	....	....	....	....	1	....	....	1	....	....	....	3	....	56	13	....	....	1	....	....	....	....	1	2	114	80
81	1	....	....	1	....	....	....	....	....	....	3	1	....	....	3	....	1	....	....	....	....	92	....	....	....	....	....	....	....	9	3	126	81
82	....	....	....	1	....	....	....	....	....	....	....	1	....	....	1	....	1	....	....	....	....	198	....	....	....	....	....	1	....	1	3	209	82
83	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	26	....	....	....	....	....	....	....	2	28	83
84	....	....	....	....	....	....	....	2	7	....	11	....	....	1	....	....	2	2	....	....	1	....	....	41	....	....	....	....	....	1	1	90	84
85	....	....	....	....	....	....	....	....	1	....	3	22	....	1	....	....	1	....	1	....	1	....	....	....	85	....	4	....	....	1	2	123	85
86	....	....	11	....	....	....	....	....	....	....	1	4	....	....	....	....	....	....	3	....	5	1	....	....	63	....	2	....	....	....	1	112	86
87	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	36	....	....	1	....	39	87
88	2	....	....	....	....	....	....	1	....	....	1	....	1	1	....	....	1	....	....	....	....	....	....	....	....	....	....	91	....	1	1	118	88
89	2	5	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	62	....	....	....	73	89
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

Name of College	Enrolled During 1918–19					
	1st year	2d year	3d year	4th year	5th year	Total
University of Alabama School of Medicine	26	19	7	4	...	56
University of Arkansas Medical Dept.	7	19	9	8	...	43
College of Medical Evangelists...........	43	19	17	5	...	84
College of Phys. and Surgs., Los Angeles	22	21	7	31	...	81
Oakland College of Med. and Surg.	...	1	4	2	...	7
Coll. of Phys. & Surgs. of San Francisco	1	4	16	4	...	25
Leland Stanford Junior Univ. Sch. of Med.	26	31	15	16	21	109
University of California Medical School...	65	52	29	20	22	188
University of Colorado School of Med. ...	15	17	22	21	...	75
Yale University School of Medicine........	21	16	20	12	...	69
Georgetown University School of Med.	22	23	16	12	...	73
George Washington Univ. Med. School....	27	28	33	13	...	101
Howard University School of Medicine....	23	28	33	24	...	108
Emory University School of Medicine.....	41	53	28	25	...	147
University of Georgia Medical Dept.	19	21	15	8	...	63
Chicago Hospital College of Medicine.....	17	11	13	13	...	54
Hahnemann Medical College and Hospital of Chicago.—H.	8	6	9	19	...	42
Loyola University School of Medicine.....	9	112	80	70	...	271
Northwestern University Medical School...	74	48	83	89	...	294
Rush Medical College (Univ. of Chicago)..	116	116	148	174	79	633
University of Illinois College of Medicine..	55	71	88	50	...	264
Indiana University School of Medicine....	43	66	57	34	...	200
State University of Iowa College of Med.	69	57	58	44	...	228
State University of Iowa College of Homeopathic Medicine.—H.	...	1	2	1	...	4
University of Kansas School of Medicine..	35	53	27	21	...	136
University of Louisville Medical Dept.	8	48	25	18	...	99
Tulane Univ. of Louisiana Sch. of Med. ..	55	61	86	73	...	275
Bowdoin Medical School...................	7	10	11	17	...	45
Johns Hospkins Univ. Medical Dept.	90	86	104	94	...	374
University of Maryland School of Medicine and College of Phys. and Surgs. ...	32	79	71	53	...	235
Boston University School of Medicine.....	26	11	11	12	...	60
College of Phys. and Surgs., Boston*.....	8	10	11	6	...	35
Medical School of Harvard University....	109	90	100	100	...	399
Tufts College Medical School..............	87	98	84	89	...	358
Middlesex College of Med. and Surg.—N.*.	18	27	21	11	...	77
University of Michigan Medical School....	122	102	81	56	...	361
Univ. of Michigan Homeo. Med. Sch.—H.	14	2	4	11	...	31
Detroit College of Medicine and Surgery..	11	51	41	29	...	132
University of Minnesota Medical School...	82	75	64	65	...	286
University of Mississippi School of Med. ..	28	20	...	...	...	48
University of Missouri School of Med.	26	39	...	...	...	65
Kansas City Coll. of Med. & Surg.—N.*...	18	19	28	32	...	97
Kansas City Univ. of Phys. and Surgs.—N.	6	13	13	104	...	136
St. Louis College of Phys. and Surgs.*....	13	6	8	24	...	51
St. Louis University School of Medicine...	46	82	66	59	...	253
Washington University Medical School....	37	22	47	50	...	156
John A. Creighton Medical College........	26	25	21	20	...	92
University of Nebraska College of Med. ..	32	53	43	34	...	162
Dartmouth Medical School.................	16	18	...	...	...	34
Albany Medical College....................	14	18	21	13	...	66
University of Buffalo Medical Dept.	19	64	59	41	...	183
Columbia Univ. Coll. of Phys. & Surgs. ..	101	162	125	138	...	526
Cornell University Medical College.........	73	53	51	29	...	206
Fordham University School of Medicine...	51	72	57	63	...	243
Long Island College Hospital..............	77	118	108	67	...	370
New York Homeopathic Medical College and Flower Hospital.—H.	10	54	36	43	...	143
University and Bellevue Hosp. Med. Coll.	86	118	115	84	...	403
Syracuse University College of Medicine...	41	33	36	22	...	132
University of North Carolina Sch. of Med.	22	29	...	...	...	51
Wake Forest College School of Medicine..	16	19	...	...	...	35
University of North Dakota Sch. of Med.	8	13	...	...	...	21
Eclectic Medical College, Cincinnati.—E. ..	18	18	22	28	...	86
University of Cincinnati College of Med. ..	48	48	43	29	...	168
Western Reserve Univ. School of Med.	43	39	54	44	...	180
Ohio State University College of Med.	36	33	25	17	...	111
Ohio State Univ. Coll. of Homeo. Med.—H.	17	8	2	9	...	36
University of Oklahoma School of Med. ..	24	20	17	12	...	73
University of Oregon Medical School......	20	17	14	15	...	66
Hahnemann Medical College and Hospital of Philadelphia.—H.	18	55	40	25	...	138
Jefferson Medical College of Philadelphia..	75	63	171	142	...	451
Temple University Department of Med. ...	6	26	23	40	...	95
University of Pennsylvania Sch. of Med. .	111	99	132	125	...	467
Woman's Med. College of Pennsylvania..	31	16	12	7	...	66
University of Pittsburgh School of Med. ..	43	39	36	29	...	147
Medical Coll. of the State of So. Carolina	22	16	14	14	...	66
University of South Dakota Coll. of Med.	8	11	...	...	...	19
University of Tennessee College of Med. ..	5	19	18	21	...	63
University of West Tennessee Med. Dept. .	6	5	2	5	...	18
Meharry Medical College..................	42	47	41	45	...	175
Vanderbilt University School of Medicine..	18	43	28	25	...	114
Baylor University College of Medicine....	32	38	34	22	...	126
University of Texas Dept. of Medicine....	54	39	65	51	...	209
University of Utah School of Medicine....	10	18	...	...	...	28
University of Vermont College of Med. ...	12	35	23	20	...	90
Medical College of Virginia................	42	30	27	24	...	123
University of Virginia Dept. of Medicine..	26	30	29	27	...	112
West Virginia University School of Med. .	26	13	...	...	...	39
University of Wisconsin Medical School....	68	50	...	...	...	118
Marquette University School of Medicine..	24	19	16	14	...	73
Totals for 1919.........................	3104	3587	3272	2967	122	13052
Totals for 1918.........................	4283	3521	2893	2933	...	13630
Totals for 1917.........................	4107	3117	2866	3674	...	13764

* Figures approximate.

H, Homeopathic; E, Eclectic; N, Nondescript.

(Continued from page 503)

year from the New York colleges. In 1915 and previous years the Illinois colleges were in the lead. Illinois had 132 graduates this year holding baccalaureate degrees, followed by Pennsylvania with 114, Massachusetts with 104, and Maryland with 101. The percentage of graduates holding collegiate degrees is rapidly increasing and will continue to increase, since all the better medical schools are now requiring two years of college work for admission, which brings more students in reach of the combined course for the B.S. and M.D. degrees.

WOMEN IN MEDICINE

During the past year there were 686 women studying medicine, or 105 more than last year, and 76 more than in 1917. This increase is probably due to the war emergency and the resulting demand for physicians. The percentage of women to all medical students this year is 5.2, a larger percentage than that of any previous year. There were 107 women graduates this year, one more than last year, but 46 less than in 1917. Of all the women matriculants, 66 were in attendance at the one medical college for women, while 620 (90.4 per cent.) were matriculated in the fifty-nine coeducational colleges. From the one women's college there were 7 graduates, while 100 (93.4 per cent.) secured their degrees from coeducational colleges. This increase of women students in coeducational colleges is not surprising, since in recent years some of the largest and oldest medical schools, as Columbia, Tulane, the University of Pennsylvania, Harvard and Western Reserve University (and McGill University in Canada), have thrown open their doors to women.

NUMBER OF COLLEGES

Since June 30, 1918, five colleges (mentioned on page 514) were closed, leaving 85 still existing, of which 76 are nonsectarian (regular), 5 are homeopathic, 1 is eclectic and 3 are nondescript. Two of the nondescript colleges are not recognized by the licensing board of Missouri, the state in which they are located.

LENGTH OF TERMS

During the last nineteen years there has been a decided lengthening of college terms. This has reference to the weeks of actual work exclusive of holidays.

(Continued on page 512)

Names of existing colleges are in heavy faced type

Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory
						1 Yr. College	2 Yrs. College		
1. Alabama, Medical College of, Mobile	1859	1860	1862-68[1]	1907	2	....	....	....	Ala.2
2. **Alabama, University of, School of Medicine,** Mobile	1907	1908	....	....	1	1914	1915	A,'07-'19	Ala.2
3. **Albany Medical College,** Albany, N. Y.	1838	1839	....	....	....	1914	1918	A,'07-'19	N.Y.3
4. American College of Medicine and Surgery, Eclectic,[2] Chicago	1901	1903	....	1907	43	....	....	B,'07	Ill 22
5. American College of Medicine in Pennsylvania, Philadelphia[3]	1853	....	....	1880	300	....	....	....	Pa.14
6. American Medical College, Eclectic, St. Louis[4]	1873	1874	....	1912	264	....	....	C,'07-'12	Mo. 10
7. American Medical College, Eclectic, Cincinnati	1839	....	....	1857	....	....	....	....	Ohio 30
8. American Medical Missionary College, Chicago	1895	1899	....	1910	....	....	....	B,'07-'10	Ill.19
9. Arkansas Industrial University, Medical Department, Little Rock	1879	1880	....	1899	10	....	....	....	Ark.1
0. **Arkansas, University of, Medical Department,** Little Rock	1899	1890	....	....	9	1915	1918	B,'07-'18; A,'19	Ark.1
1. Atlanta College of Physicians and Surgeons, Atlanta[5]	1898	1899	....	1913	12	....	....	A,'07-'09; B,'10-'13	Ga.11
2. Atlanta Medical College, Atlanta	1854	1855	1862-64	1898	11	....	....	....	Ga.5
Atlanta Medical College, reestablished	1913	1914	....	1917	118	1914	1918	A,'14-'17	Ga.5
3. Atlanta School of Medicine, Atlanta[5]	1905	1906	....	1913	12	....	....	A,'07-'09; B,'10-'13	Ga.12
4. Atlantic Medical College, Baltimore	1907	1908	....	1910	323	....	....	C,'09-'10	Md.8
5. Baltimore Medical College, Baltimore	1881	1882	....	1913	....	....	....	A,'07-'13	Md.4
6. Baltimore University School of Medicine, Baltimore	1884	1885	....	1907	....	....	....	C,'07	Md.6
7. Barnes Medical College, St. Louis	1892	1893	....	1911	264	....	....	B,'07-'11	Mo.28
8. **Baylor University School of Medicine,** Dallas, Tex.	1903	1903	....	....	369	1913	1918	B,'07-'15; A,'16-'19	Tex.4
9. Beach Medical Institute, Indianapolis	1884	1885	....	1886	164	....	....	....	Ind.15
0. Beaumont Hospital Medical College, St. Louis	1886	1887	....	1901	212	....	....	....	Mo.24
1. Bell Medical College, Dallas, Tex	1903	1904	....	1905	82	....	....	....	Tex.8
2. Bellevue Hospital Medical College, New York City	1861	1862	....	1898	360	....	....	....	N.Y.10
3. Bennett College of Eclectic Medicine and Surgery, Chicago	1868	1870	....	1908	24-211	....	....	B,'07-'08	Ill.8
4. Bennett Medical College, Chicago	1908	1909	....	1915	23-211	1915	....	B,'09-'15	Ill.8
5. Berkshire Medical College, Pittsfield, Mass.	1823	1824	....	1867	....	....	....	....	Mass.2
6. Birmingham Medical College, Birmingham, Ala.	1894	1895	....	1915	....	....	....	A,'07-'09; B,'10-'15	Ala.4
7. **Boston University School of Medicine,** Boston[6]	1873	1874	....	....	....	1914	1916	A,'07-'19	Mass.5
8. **Bowdoin Medical School,** Portland, Me.	1915	1915	....	....	232	1912	1916	A,'15-'19	Me.1
9. Brown University, Medical Department, Providence, R. I.	1811	1814	....	1827	....	....	....	....	R.I.1
0. **Buffalo, University of, Department of Medicine,** Buffalo, N. Y.	1846	1847	....	....	....	1914	1918	A,'07-'19	N.Y.6
1. California Eclectic Medical College, Los Angeles	1907	1908	....	1915	32	....	....	C,'07-'15	Cal.4
2. California Medical College, San Francisco[7]	1879	1880	....	1906	31	....	....	....	Cal.4
3. California, University of, Medical School, San Francisco	1872	1873	....	....	353	....	1905	A,'07-'19	Cal.2
4. Castleton Medical Academy, Castleton, Vt.	1818	....	....	1821	412-35	....	....	....	Vt.1
5. Castleton Medical College, Castleton, Vt.	1841	....	....	1861	34-412	....	....	....	Vt.1
6. Central College of Physicians and Surgeons, Indianapolis	1879	1880	....	1905	167	....	....	....	Ind.9
7. Central Medical College of St. Joseph (Mo.)	1894	1895	....	1905	119	....	....	....	Mo.29
8. Chaddock School of Medicine, Quincy, Ill.	1888	1888	....	1890	308	....	....	....	Ill.12
9. Charity Hospital Medical College, Cleveland	1864	1865	....	1869	408	....	....	....	O.11
0. Charity Hospital Medical College, New Orleans	1873	....	....	1877	....	....	....	....	La.3
1. Chattanooga Medical College, Chattanooga, Tenn.[8]	1889	1890	....	1910	....	....	....	B,'07-'08; C,'09-'10	Tenn.9
2. Chattanooga National Medical College, Tenn. (colored)	1899	....	[1901-02]	1908	....	....	....	C,'07-'08	Tenn.18
3. Chicago College of Medicine and Surgery, Chicago	1907	1908	....	1917	4-211	1915	1918	B,'07-'17	Ill.22
4. Chicago Homeopathic Medical College, Chicago	1876	1877	....	1904	....	....	....	....	Ill.10
5. **Chicago Hospital College of Medicine, Chicago**[9]	1911	1915	....	....	....	....	....	C,'11-'19	Ill.42
6. Chicago Medical College, Chicago	1864	1865	....	1891	202-284	....	....	....	Ill.6
7. Chicago Physio-Medical College, Chicago	1891	1892	....	1899	48-62	....	....	....	Ill.5
8. Chicago Physio-Medical Institute, Chicago	1885	1886	....	1891	47-62	....	....	....	Ill.5
9. Cincinnati College of Medicine and Surgery Cincinnati	1849	1852	....	1902	....	....	....	....	Ohio 8
0. Cincinnati Medical College, Cincinnati	1834	....	....	1846	224	....	....	....	Ohio 27
1. **Cincinnati, University of, College of Medicine**	1911	1912	....	....	224-289	1910	1913	A,'12-'19	Ohio 41
2. Cleveland College of Physicians and Surgeons, Cleveland[10]	1896	1896	....	1913	408	....	....	A,'07-'13	Ohio 12
3. Cleveland Homeopathic Medical College	1898	1899	....	1910	55-56	....	....	B,'07-'10	Ohio 26
4. Cleveland Medical College, Cleveland[11]	1843	1844	....	1881	422	....	....	....	Ohio 6
5. Cleveland Medical College, Homeopathic	1890	1891	....	1898	53	....	....	....	Ohio 23
6. Cleveland-Pulte Medical College, Cleveland	1910	1911	....	1914	53-307	....	....	B,'10-'11; C,'12-'14	Ohio 25
7. Cleveland University of Medicine and Surgery, Cleveland.—H.	1894	1895	....	1898	53-149-418	....	....	....	Ohio 7
8. Clinical School of Medicine, Woodstock, Vt.	1827	....	....	1835	411	....	....	....	Vt.3
9. College of American Medicine and Surgery, Macon, Ga.	1874	1875	1877-81	1884	310-321	....	....	....	Ga.8
0. Coll. of Homeo. M. & S. of Kansas City Univ., Kansas City, Mo.	1896	1897	....	1900	224	....	....	....	Mo.31
1. **College of Medical Evangelists,** Loma Linda, Calif.	1909	1914	....	....	....	1914	1915	C,'10-'17; B,'18-'19	Cal.12
2. College of Medicine and Surgery, Physio-Medical, Chicago	1899	1900	....	1911	48-47	....	....	C,'07-'11	Ill 5
3. College of Medicine of Maryland, Baltimore	1807	1810	....	1812	376	....	....	....	Md.1
4. College of Philadelphia, Department of Medicine (Pa.)	1765	1768	1772-79	1791	298	....	....	....	Pa.1
5. College of Physicians and Surgeons, Little Rock, Ark.	1906	1907	....	1911	....	....	....	B,'07-'11	Ark.2
6. **College of Physicians and Surgeons,** Los Angeles[12]	1903	1905	....	....	....	1914	1916	B,'07-'19	Cal 9
7. College of Physicians and Surgeons of San Francisco (Calif.)	1896	1897	....	‡	....	....	....	B,'07; C,'08-'19	Cal.7
8. College of Physicians and Surgeons, Chicago	1882	1883	....	1911	371	....	....	A,'07-'11	Ill.11
9. Coll. of Phys. & Surgs. of the Upper Mississippi, Rock Island, Ill.	1848	1849	....	1849	....	....	....	....	Ill.24
0. College of Physicians and Surgeons of Indiana, Indianapolis	1873	1874	....	1878	221	....	....	....	Ind.6
1. College of Physicians and Surgeons, Keokuk, Ia.[13]	1849	1850	....	1899	69-372	....	....	....	Ia.1
2. College of Physicians and Surgeons, Kansas City, Kan.	1894	1895	....	1905	373	....	....	....	Kan.4
3. College of Physicians and Surgeons of Baltimore (Md.)	1872	1873	....	1915	376	1914	....	A,'07-'11; B,'12; A,'13-'15	Md.3
4. **College of Physicians and Surgeons,** Boston	1880	1882	....	....	....	....	....	C,'07-'19	Mass.6
5. College of Physicians and Surgeons of Kansas City (Mo.)	1869	1870	....	1880	184	....	....	....	Mo.8

NOTE AND REFERENCES

The above colleges are known to have had a bona fide existence in cordance with the dates shown. Information regarding other institu- ns to which there is some question or which were reported as fraudu- nt or not in good standing in the states in which they existed may be tained in the American Medical Directory.

The purpose of this list is to give the dates when each institution isted under the name given; the years when there were no graduates; e years when the institution required for admission, respectively, one ar and two years of collegiate work, and the rating of the college by e Council on Medical Education. Full information in regard to each stitution under its various names may be found in the American edical Directory, key number of which is given in the last column.

‡ Ceased medical teaching in 1918 but retains a nominal existence ntil 1921 in order to grant degrees to the three remaining classes which e completing their medical instruction elsewhere.

[1] Dates separated by a hyphen indicate that the intervening years e included among the years when there were no graduates; not so if parated by a comma. Figures in brackets indicate the only years for hich the records show there were graduates.

[2] Eclecticism dropped in 1905. In 1907 changed its name to the icago College of Medicine and Surgery and became by affiliation the edical department of Valparaiso (Ind.) University.

[3] Was organized under this title and was also known as the Eclectic Medical College of Philadelphia. Former title dropped in 1856. Name changed in 1865 to the Philadelphia University of Medicine and Surgery. Under this title, according to report, it became a fraudulent institution during the last few years of its existence. Extinct in 1880.

[4] Two classes graduated each year 1874 to 1883 inclusive; since then one class each year.

[5] In 1913 the Atlanta College of Physicians and Surgeons merged with the Atlanta School of Medicine and reassumed the name of Atlanta Medical College.

[6] This was a homeopathic medical school until 1918 when it became nonsectarian.

[7] Was located in Oakland, California, 1879 to 1887.

[8] Was the medical department of Grant University, which in 1908 changed its name to the University of Chattanooga.

[9] Has advertised under the title "Fort Dearborn Hospital Medical School" and, more recently, as the "Chicago Medical School."

[10] This was the medical department of the Ohio Wesleyan University.

[11] Sometimes referred to as the Hudson Medical College.

[12] In 1909, became the Medical Department of the University of Southern California.

[13] Went under the name "Medical Department of the University of Iowa" from 1854 to 1870 inclusive.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory
							1 Yr. College	2 Yrs. College		
76.	College of Physicians and Surgeons of St. Joseph (Mo.)	1878	1879	....	1882	331	....	....	....	Mo.15
77.	College of Physicians and Surgeons of St. Louis (Mo.)	1869	1870	....	1873	333	....	....	....	Mo.7
78.	College of Physicians and Surgeons in the City of New York	1807	1811	....	1896	85–86–194	....	....	....	N.Y.1
79.	Coll. of P. & S. of the Western Dist. of N. Y., Fairfield, N. Y.[14]	1812	1816	....	1840	....	....	....	....	N.Y.2
80.	College of Phys. and Surgs., Homeopathic, Buffalo, N. Y.[15]	1879	1880	....	1884	....	....	....	....	N.Y.17
81.	College of Physicians and Surgeons, Memphis, Tenn.	1906	1907	....	1911	....	....	....	B,'07-'11	Tenn.8
82.	College of Physicians and Surgeons, Dallas, Tex.	1905	1905	....	1910	21	....	....	C,'07-'10	Tex.8
83.	Colorado School of Medicine, Boulder	1883	1885	1899	1907	84	....	....	A,'07	Colo.2
84.	**Colorado, University of, School of Medicine,** Denver	1907	1908	....	....	83	....	1910	A,'07-'19	Colo.2
85.	Columbia College, Medical Faculty, New York City	1792	1793	1798-1801, 1808,'9, '11,'14	1814	78–194	....	....	....	N.Y.1
86.	**Columbia University College of Phys. and Surgs.,** New York City	1896	1897	....	....	78–85–194	....	1910	A,'07-'19	N.Y.1
87.	Columbian College, Medical Department, Washington, D. C.	1825	1826	1834,'38, '61-'63	1873	89–130	....	....	....	D.C.1
88.	Columbian Medical College, Kansas City, Mo.	1898	1899	....	1901	....	....	....	....	Mo.41
89.	Columbian University Medical Department, Washington, D. C.	1873	1874	....	1904	87–130	....	....	....	D.C.1
90.	Columbus Medical College, Columbus, Ohio	1875	1876	....	1892	340	....	....	....	Ohio 14
91.	Cooper Medical College, San Francisco	1882	1883	....	1912	401–226	....	....	A,'07-'12	Cal.1
92.	**Cornell University Medical College,** New York City	1898	1899	....	....	....	....	1908	A,'07-'19	N.Y.20
93.	**Creighton (John A.) Medical College,** Omaha, Neb.	1892	1893	....	.....	176	1914	1918	A,'07-'11;B,'12-'16; A,'17-'19	Neb.6
94.	Curtis Physio-Medical Institute, Marion-Indianapolis, Ind.	1881	1882	....	1900	....	....	....	....	Ind.12
95.	Dallas Medical College, Dallas, Tex.	1900	1901	....	1904	18	....	....	....	Tex.10
96.	**Dartmouth Medical School,** Hanover, N. H.*[16]	1797	1798	[16]	....	....	....	1910	A,'07-'19	N.H.1
97.	Dayton Medical University, Dayton, Ohio	1886	1887	....	1889	....	....	....	....	Ohio 37
98.	Dearborn Medical College, Chicago	1903	1904	....	1907	....	....	....	C,'07	Ill.23
99.	Denver and Gross College of Medicine, Denver	1902	1903	....	1911	84	....	....	A,'07-'11	Colo.5
100.	Denver College of Medicine, Denver	1881	1882	....	1902	99	....	....	....	Colo.1
101.	Denver College of Physicians and Surgeons, Denver	1908	1909	....	1909	102–422	....	....	C,'08-'09	Colo.4
102.	Denver Homeopathic College, Denver	1894	1895	....	1907	101–422	....	....	C,'07	Colo.4
103.	Detroit College of Medicine, Detroit	1885	1886	....	1913	104	....	....	A,'07-'11; B,'12-'13	Mich.7
104.	**Detroit College of Medicine and Surgery,** Detroit	1913	1914	....	....	103	1914	1918	A,'13-'19	Mich.7
105.	Detroit Homeopathic College, Detroit	1899	1900	....	1912	....	....	....	C,'07-'12	Mich.11
106.	Detroit Homeopathic Medical College, Detroit	1871	....	....	1876	....	....	....	....	Mich.3
107.	Detroit Medical College, Detroit	1868	1869	....	1885	103	....	....	....	Mich.2
108.	Drake University, College of Medicine, Des Moines, Iowa	1903	1904	....	1913	170–171	....	....	A,'07-'13	Ia.6
109.	Dunham Medical College, Chicago	1895	1896	....	1902	148	....	....	....	Ill.18
110.	Eclectic College of Medicine and Surgery, Cincinnati	1856	1857	....	1859	115	....	....	....	Ohio 31
111.	Eclectic College of Physicians and Surgeons, Indianapolis	1890	1891	....	1894	....	....	....	....	Ind.16
112.	Eclectic Medical College of Indiana, Indianapolis	1900	1903	....	1908	....	....	....	C,'07-'08	Ind.17
113.	**Eclectic Medical College,** Cincinnati	1910	1910	....	....	115	1915	1918	B,'10-'19	Ohio 2
114.	Eclectic Medical College of the City of New York	1866	1867	....	1913	....	....	....	C,'07-'13	N.Y.13
115.	Eclectic Medical Institute, Cincinnati	1845	1846	....	1910	113–437	....	....	B,'07-'10	Ohio 2
116.	Eclectic Medical University, Kansas City, Kan	1907	1907	....	1908	117–418	....	....	C,'07-'08	Kan.7
117.	Eclectic Medical University, Kansas City, Mo.†[17]	1898	1900	1907-09	1918	116–418	....	....	C,'09-'18	Mo.33
118.	**Emory University School of Medicine,** Atlanta, Ga.	1917	1918	....	....	12	1914	1918	A,'17-'19	Ga.5
119.	Ensworth-Central Medical College, St. Joseph, Mo	1905	1905	....	1907	120	....	....	B,'07	Mo.22
120	Ensworth Medical College, St. Joseph, Mo.[18]	1888	1889	1892	1905	119				
	Reestablished	1907	1908	....	1914	119	....	....	B,'07-'09; C,'10-'14	Mo.22
121.	Epworth College of Medicine, Oklahoma City	1904	1907	....	1910	390	....	....	C,'07-'10	Okla.2
122.	Flint Medical College of New Orleans University, New Orleans	1901	1902	1911	1911	272	....	....	B,'07-'08; C,'09-'11	La.4
123.	Fordham University School of Medicine, New York City	1907	1909	....	1919	....	1911	1918	B,'08-'09;A,'10-'12; B,'13;A,'14-'19	N.Y.43
124.	Fort Wayne College of Medicine, Fort Wayne, Ind.	1879	1880	1899	1905	167	....	....	....	Ind.10
125.	Fort Worth School of Medicine, Fort Worth Tex.[19]	1894	1895	....	1918	....	1916	....	A,'07-'09;B,'10-'11; C,'12-'13;B,'14-'18	Tex.3
126.	Franklin Medical College, Philadelphia	1847	....	....	1852	....	....	....	....	Pa.5
127.	Galveston Medical College, Galveston, Tex.	1864	...	....	1873	352	....	....	....	Tex.2
128.	Gate City Medical College, Texarkana, Tex.†	1902	1904	1909-10	1911	....	....	....	C,'07-'11	Tex.7
129.	Geneva Medical College, Geneva, N. Y.	1861	1862	....	1872	229	....	....	....	N.Y.4
130.	**George Washington University Medical School,** Washington, D. C.	1904	1905	....	....	87–89	1914	1918	A,'07-'19	D.C.1
131.	**Georgetown University School of Medicine,** Washington, D. C.	1851	1852	....	....	....	....	1912	A,'07-'11; B,'12; A,'13-'19	D.C.2
132.	Georgia College of Eclectic Medicine and Surgery, Atlanta	1886	1887	....	1916	133	....	....	C,'07-'16	Ga.9
133.	Georgia Eclectic Medical College, Atlanta	1877	1878	....	1886	132	....	....	....	Ga.9
134.	**Georgia, University of, Medical Department,** Augusta	1873	1874	....	....	220	1914	1918	A,'07-'09;B,'10-'12; A,'13-'19	Ga.1
135.	Graffenburg Institute, Dadeville, Ala.	1852	1856	....	1862	....	....	....	....	Ala.1
136.	Grand Rapids Medical College, Grand Rapids, Mich.	1897	1898	....	1907	....	....	....	B,'07	Mich.10
137.	Gross Medical College, Denver	1887	1888	....	1902	99	....	....	....	Colo.3
138.	Hahnemann Hospital College of San Francisco	1888	1889	....	1902	139–144	....	....	....	Cal 5
139.	Hahnemann Medical College, San Francisco	1881	1884	....	1888	138–144	....	....	....	Cal.5
140.	**Hahnemann Medical College and Hospital,** Chicago	1859	1861	....	....	....	1914	1916	A,'07-'11; B,'12-'19	Ill.4
141.	**Hahnemann Medical College and Hospital of Philadelphia**	1885	1886	....	....	142–151	1914	1917	A,'07-'19	Pa.9
142.	Hahnemann Medical College of Philadelphia	1869	1870	....	1885	141–151	....	....	....	Pa.9,18
143.	Hahnemann Medical College of the Kansas City University (Mo.)	1900	1901	....	1902	60–181	....	....	....	Mo.31
144.	Hahnemann Medical College of the Pacific, San Francisco	1902	1903	....	1918	139–138	1915	....	A,'07-'09; B,'10-'18	Cal.5
145.	Hampden Sydney College Medical Department, Richmond, Va.	1838	1839	....	1854	228	....	....	....	Va.4
146.	**Harvard University, Medical School of,** Boston	1782	1788	....	....	....	....	1900	A,'07-'19	Mass.1
147.	Harvey Medical College, Chicago	1891	1895	....	1905	....	....	....	....	Ill.13
148.	Hering Medical College, Chicago	1892	1893	....	1913	....	....	....	C,'07-'13	Ill.15
149.	Homeopathic Hospital College, Cleveland	1870	1871	....	1894	57–417–419	....	....	....	Ohio 7
150.	Homeopathic Medical College of Missouri, St. Louis	1859	1860	1862-64	1909	....	....	....	C,'07-'09	Mo.5
151.	Homeopathic Medical College of Pennsylvania, Philadelphia	1848	1849	....	1869	142–141	....	....	....	Pa.9
152.	Homeopathic Med. Coll. of the State of New York, New York City	1858	1861	....	1869	274	....	....	....	N.Y.9
153.	Homeopathic Medical College for Women, Cleveland	1868	....	....	1870	149	....	....	....	Ohio 33
154.	Hospital College of Medicine, Louisville[20]	1874	1875	....	1907	....	....	....	B,'07	Ky.5
155.	Hospital Medical College, Eclectic, Atlanta	1908	1909	....	1911	....	....	....	C,'08-'11	Ga.18
156.	Hospital Medical College of Evansville (Ind.)	1882	1883	....	1886	....	....	....	....	Ind.13
157.	**Howard University School of Medicine,** Washington, D. C.	1869	1871	....	....	....	1910	1914	B,'07-'09; A,'10-'19	D.C.3

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* Offers only the first two years of the medical course.

† Reported fraudulent or not in good standing in the state in which the college is located.

[14] Sometimes referred to as the "Fairfield Medical School."

[15] For the first year (1879-80) this college bore the title: "Homeopathic College of Physicians and Surgeons."

[16] Graduated its last class in 1914 when clinical teaching was abandoned.

[17] Removed to Kansas City, Kansas, in 1907, changed its name in 1908 to the Western Eclectic College of Medicine and Surgery; returned to Kansas City, Mo. in 1909 and resumed its former title. Was reported not recognized by the Missouri State Board of Health. Extinct 1918.

[18] This school in 1905 was merged with the Central Medical College, St. Joseph, Missouri, taking the name of the Ensworth-Central Medical College. In 1907, however, the college reassumed the name of the Ensworth Medical College. It became extinct in 1914.

[19] This was the medical department of Fort Worth University 1894 to 1911; of the Texas Christian University 1911 to 1918.

[20] This was the medical department of the Central University of Kentucky.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory
							1 Yr. College	2 Yrs. College		
58.	Humboldt Medical College, St. Louis[21]	1859	....	....	1869	332	....	....	....	Mo.4
60.	Hygeia Medical College, Cincinnati†	1893	1895	1897	1899	....	..	....	....	Ohio 39
61.	Illinois College Medical Department, Jacksonville	1843	....	....	1848	....	....	....	....	Ill.2
62.	Illinois Medical College, Chicago	1894	1895	....	1910	....	....	....	B,'07; C,'08-'10	Ill.17
63.	**Illinois, University of, College of Medicine,** Chicago	1911	1912	....	....	73	1913	1914	A,'07-'19	Ill.11
64.	Indiana Eclectic Medical College, Indianapolis	1880	1881	....	1890	....	....	....	....	Ind.11
65.	Indiana Medical College, Indianapolis	1869	1870	....	1878	221	....	....	....	Ind.4
66.	Indiana Medical College, La Porte, Ind.[22]	1844	....	....	1849	....	....	....	....	Ind.1
67.	Indiana Med. Coll., School of Med. of Purdue Univ., Indianapolis	1905	1906	1908	1908	168	....	....	A,'07-'08	Ind.18
68.	**Indiana University School of Medicine,** Indianapolis	1903	1908	....	....	....	1909	1910	A,'07-'19	Ind.20
69.	International Medical Missionary College, Atlanta	1904	1906	....	1908	....	....	....	C,'07-'08	Ga.17
70.	Iowa College of Physicians and Surgeons, Des Moines[23]	1882	1883	....	1903	108-171	....	....	....	Ia.6
71.	Iowa Medical College, Eclectic, Des Moines	1881	1882	....	1887	170	....	....	....	Ia.6
72.	Iowa, State University of, College of Homeo. Med., Iowa City	1877	1878	1914	1919	....	....	1910	A,'07-'19	Ia.4
73.	**Iowa, State University of, College of Medicine,** Iowa City	1869	1871	....	....	....	....	1909	A,'07-'19	Ia.3
74.	**Jefferson Medical College of Philadelphia**	1825	1826	....	....	....	1914	1917	A,'07-'19	Pa.2
75.	Jenner Medical College, Chicago	1892	1896	....	1918	....	....	....	C,'07-'18	Ill.16
76.	**John A. Creighton Medical College,** Omaha, Neb.	1892	1893	....	....	93	1914	1918	A,'07-'11; B,'12-'16; A,'17-'19	Nebr.6
77.	**Johns Hopkins University Medical Department,** Baltimore	1887	1897	....	....	....	....	1893	A,'07-'19	Md.7
78.	Joplin College of Physicians and Surgeons, Joplin, Mo.	1880	1881	....	1884	....	....	....	....	Mo 17
79.	Kansas City College of Med. and Surg., Kansas City, Kan.	1897	1898	....	1898	234	....	....	....	Kan.6
80.	**Kansas City College of Med. and Surg., Kansas City, Mo.**†[24]	1915	1916	....	....	....	....	....	[24]	Mo.43
81.	Kansas City Hahnemann Medical College (Mo.)	1902	1903	....	1915	327	....	....	C,'07-'09; B,'10-'11; C,'12-'15	Mo.35
82.	Kansas City Homeopathic Medical College (Mo.)	1888	1889	....	1902	181	....	....	....	Mo.26
83.	Kansas City Hospital College of Medicine (Mo.)	1882	1883	....	1888	....	....	....	....	Mo.21
84.	Kansas City Medical College (Mo.)	1880	1881	....	1905	75	....	....	....	Mo.8
85.	Kansas Medical College, Independence	1872	1874	....	1875	....	....	....	....	Kan.1
86.	Kansas Medical College, Topeka[25]	1890	1892	1901	1913	....	....	....	B.'07-'13	Kan.3
87.	**Kansas, University of, School of Medicine,** Lawrence	1880	1906	....	....	....	....	1909	A,'07-'11; B,'12; A,'13-'19	Kan.2
88.	Kemper College Medical Department, St. Louis	1840	1841	....	1845	382-253	....	....	....	Mo.1
89.	Kentucky School of Medicine, Louisville	1850	1851	....	1908	356	....	....	B,'07-'08	Ky.1
90.	Kentucky University Medical Department, Louisville	1898	1899	1907	1907	356	....	....	B,'07	Ky.9
91.	Keokuk Medical College, Keokuk, Iowa	1890	1891	....	1899	192	....	....	....	Ia.9
92.	Keokuk Medical College, Coll. of Phys. & Surgs., Keokuk, Ia.	1899	1900	....	1908	191	....	....	B,'07-'08	Ia.10
93.	King Eclectic Medical College, Des Moines	1883	1884	....	1889	....	....	....	....	Ia.7
94.	King's College Medical Faculty, New York City	1767	1769	1770	1774	78-85-86	....	....	....	N.Y.1
95.	Knoxville College Medical Department (colored), Knoxville, Tenn.	1895	....	....	1900	196	....	....	....	Tenn.12
96.	Knoxville Medical College (colored), Knoxville, Tenn.	1900	1900	1906,'07	1910	195	....	....	C,'07-'10	Tenn.13
97.	Laura Memorial Woman's Medical College, Cincinnati	1895	1896	....	1903	306	....	....	....	Ohio 21
98.	**Leland Stanford Junior University School of Med.,** San Francisco	1908	1913	....	....	91	....	1909	A.'08-'19	Cal.11
99.	Leonard Medical College, Raleigh, N. C.[26]	1882	1886	1887, 1915-'18	1918	....	....	1914	C.'07-'09; B,'10-'11; C,'12-'13; B,'14-'18	N.C.3
00.	Lincoln Medical College, Eclectic, Lincoln, Neb.[27]	1890	1891	....	1918	....	....	....	C.'07-'19	Nebr.4
01.	Lincoln Memorial University Medical Dept., Knoxville, Tenn.	1909	1910	....	1917	350	....	....	B,'07-'09; C,'10-'14; B,'15-'17	Tenn.10
02.	Lind University, Medical Department of, Chicago	1859	1860	....	1864	46-284	....	....	....	Ill.6
03.	**Long Island College Hospital,** Brooklyn	1858	1860	....	....	....	1914	1918	A,'07-'11; B.'12-'14; A,'15-'19	N.Y.8
04.	Louisiana, Medical College of, New Orleans	1834	1835	....	1847	205-358	....	....	....	La.1
05.	Louisiana, University of, Medical Department, New Orleans	1847	1848	1863-65	1884	204-358	....	....	....	La.1
06.	Louisville and Hospital Medical College, Louisville	1907	1908	....	1908	....	....	....	B.'07-'08	Ky.11
07.	Louisville Medical College Louisville	1869	1870	....	1907	206	....	....	B,'07	Ky.4
08.	Louisville Medical Institute, Louisville	1837	1838	....	1846	210-375	....	....	....	Ky.2
09.	Louisville National Medical College, Louisville	1888	1889	....	1912	....	....	....	B.'07-'08; C.'09-'12	Ky.7
10.	**Louisville, University of, Medical Department,** Louisville	1846	1847	1863	....	208	1914	1918	B,'07-'09; A '10-'19	Ky.2
11.	**Loyola University School of Medicine,** Chicago	1915	1916	....	....	23-24-43	1915	1918	B,'15-'19	Ill.8
12.	Marion Sims-Beaumont Medical College, St. Louis	1901	1902	....	1903	20-213-337	....	....	....	Mo.34
13.	Marion Sims College of Medicine, St. Louis	1890	1891	....	1901	212	....	....	....	Mo.27
14.	**Marquette University School of Medicine,** Milwaukee	1912	1913	....	....	245	1913	1915	B,'13-'14; A,'15-'19	Wis.6
15.	Maryland Medical College, Baltimore	1898	1899	....	1913	....	....	....	....	Md.9
16.	**Maryland, Univ. of, Sch. of Med. and Coll. of P. & S.,** Baltimore	1812	1813	....	....	....	1914	1918	A,'07-'11; B,'12; A,'13-'19	Md.1
17.	Medical College of Alabama, Mobile	1859	1860	1862-68	1907	2	....	....	A,'07	Ala.2
18.	Medical College of Evansville (Ind.)	1849	1850	1854-71	1884	....	....	....	....	Ind.2
19.	Medical College of Fort Wayne (Ind.)	1876	1877	....	1883	....	....	....	....	Ind.7
20.	Medical College of Georgia, Augusta	1829	1883	1862-63	1873	134-370	....	....	....	Ga.1
21.	Medical College of Indiana, Indianapolis[28]	1878	1879	....	1905	167-165	....	....	....	Ind.8
22.	Medical College of Kansas City (Mo.)	1869	1870	....	1873	....	....	....	....	Mo.11
23.	Medical College of Louisiana, New Orleans	1834	1835	....	1847	205-358	....	....	....	La.1
24.	Medical College of Ohio, Cincinnati[29]	1819	1821	....	1909	51	....	....	A,'07-'09	Ohio 1
25.	Medical College of South Carolina, Charleston	1823	1825	....	1838	227	....	....	....	S.C.1
26.	Medical College of the Pacific, San Francisco	1873	1874	....	1882	91-401	....	....	....	Cal.1
27.	**Medical College of the State of South Carolina,** Charleston[30]	1832	1833	1862-65	....	225	1914	1916	A.'07-'09; B.'10-'11; C,'12; B '13-'15; A,'16-'19	S.C.1
28.	**Medical College of Virgina,** Richmond	1854	1855	....	....	145-361	1914	1915	A,'07-'19	Va.4
29.	Medical Institution of Geneva, Geneva, N. Y.	1834	1835	1854	1861	129	....	....	....	N.Y.4
30.	Medical Institution of Yale College, New Haven, Conn.	1812	1814	....	1879	438	....	....	....	Conn.1
31.	**Medical School of Harvard University,** Boston	1782	1788	....	....	....	....	1900	A,'07-'19	Mass.1
32.	Medical School of Maine, Brunswick-Portland	1820	1821	....	1915	28	....	....	A,'07-'15	Me.1
33.	Medical School of the Valley of Virginia, Winchester	1826	....	....	1861	....	....	....	....	Va.2

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* Offers only the first two years of the medical course.

† Reported fraudulent or not in good standing in the state in which the college is located.

21. Was known as St. Louis College of Medical and Natural Sciences from 1855 to 1859; as Humboldt Institute from 1859 to 1866, and as Humboldt Medical College 1866 to 1869.

22. From 1844 to 1845 was known as the Medical Department of La Porte University.

23. In 1887 this college became the medical department of Drake University with the title the Iowa Medical College, Eclectic — also known as the Iowa Eclectic Medical College. Name changed to Drake University College of Medicine in 1903.

24. Kansas City College of Medicine and Surgery claims to be an eclectic medical college, but is reported not recognized as such by the National Eclectic Medical Association. It is an offshoot of the Eclectic Medical University, an institution which during its existence was rated in Class C by the Council on Medical Education. The new college has refused inspections by the Council on Medical Education and is reported not recognized by the licensing board of Missouri — its home state — and thirty-two other states.

25. This became the Medical Department of Washburn College in 1903.

26. This was the medical department of Shaw University. The last class graduated in 1914 when it discontinued clinical teaching. It was closed in 1918.

27. This was the medical department of Cotner University from 1911 to 1915 when the relationship was cancelled. Extinct in 1918.

28. This was the medical department of Butler University from 1879-1883 and of the University of Indianapolis from 1895 to 1905.

29. Became the medical department of the University of Cincinnati in 1896 but retained its former name till 1909 when it merged with the Miami Medical College to form the Ohio-Miami Medical College of the University of Cincinnati.

30. This institution and the Medical College of South Carolina were conducted as separate institutions from 1832 to 1838 when they were merged.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory
							1 Yr. College	2 Yrs. College		
234.	Medico-Chirurgical College of Kansas City (Mo.)	1898	1899	....	1905	179	....	....	....	Mo.32
235.	Medico-Chirurgical College of Philadelphia	1881	1882	....	1916	....	1914	....	A,'07-'16	Pa.11
236.	**Meharry Medical College** (colored), Nashville[31]	1876	1877	....	....	....	1915	1918	B,'07-'09; A,'10-'13; B,'14-'19	Tenn.7
237.	Memphis Hospital Medical College	1880	1881	....	1913	....	....	....	B,'07-'13	Tenn.8
238.	Memphis Medical College	1854	....	1861-68	1873	....	....	....	....	Tenn.2
239.	Miami Medical College, Cincinnati	1852	1853	1858-65	1909	51	....	....	A,'07-'09	Ohio 9
240.	Michigan College of Medicine, Detroit	1880	1881	....	1885	103	....	....	....	Mich.6
241.	Michigan College of Medicine and Surgery, Detroit	1888	1889	....	1907	....	....	....	C,'07	Mich.8
242.	**Michigan, University of, Medical School,** Ann Arbor	1850	1851	....	....	....	....	1909	A,'07-'19	Mich.1
243.	**Michigan, University of, Homeopathic Med. School,** Ann Arbor	1875	1877	....	....	....	1912	1916	A,'07-'19	Mich.5
244.	**Middlesex College of Medicine and Surgery,** Cambridge, Mass.[32]	1914	1915	....	....	....	....	....	C,'15-'19	Mass.15
245.	Milwaukee Medical College, Milwaukee	1894	1895	....	1913	214	....	....	B,'07-'11; C,'12-'13	Wis.3
246.	Minneapolis College of Physicians and Surgeons, Minneapolis[33]	1883	1884	....	1911	....	....	....	B,'07-'11	Minn.5
247.	Minnesota College Hospital, Minneapolis	1881	1882	....	1885	248	....	....	....	Minn.3
248.	Minnesota Hospital College, Minneapolis	1885	1886	....	1888	247-250	....	....	....	Minn.3
249.	Minnesota, University of., Coll. of Homeo. Med., Minneapolis	1888	1889	....	1909	250	....	....	A,'07-'09	Minn.6
250.	**Minnesota, University of, Medical School,** Minneapolis[34]	1883	1889	....	....	....	....	1907	A,'07-'19	Minn.4
251.	Mississippi Medical College, Meridian	1906	1907	....	1912	....	....	....	C,'07-'12	Miss.2
252.	**Mississippi, University of, School of Medicine,** University*[35]	1903	1910	[1910]	....	....	1914	1918	A,'07-'19	Miss.1
253.	Missouri Medical College, St. Louis[36]	1855	1856	1862-65[37]	1899	188-417	....	....	....	Mo.1
254.	**Missouri, University of, School of Medicine,** Columbia	1845	1846		....	....	1906	1910	A,'07-'19	Mo.3
255.	Montezuma University Medical College, Besemer, Ala.	1896	1897	....	1898	....	....	....	....	Ala.5
256.	Nashville Medical College	1876	1877	....	1879	351	....	....	....	Tenn 6
257.	Nashville, University of, Medical Department[38]	1850	1852	....	1909	351	....	....	B,'07-'09	Tenn.1
258.	National Homeopathic Medical College, Washington, D. C.	1893	1894	....	1896	414	....	....	....	D.C.5
259.	National Homeopathic Medical College, Chicago	1891	1892	....	1895	260	....	....	....	Ill.14
260.	National Medical College, Chicago	1895	1896	....	1900	259-261	....	....	....	Ill.14
261.	National Medical University, Chicago	1900	1901	....	1909	259-260	....	....	C,'07-'09	Ill.14
262.	National Normal University, College of Medicine, Lebanon, Ohio	1889	1889	....	1896	....	....	....	....	Ohio 22
263.	National University Medical Department, Washington, D. C.	1884	1885	....	1903	89	....	....	....	D.C.4
264.	National University of Arts and Sciences, Med. Dept., St. Louis	1912	1913	....	1918	6	....	....	C,'12-'18	Mo.10
265.	Nebraska College of Medicine, Lincoln	1907	1907	....	1909	....	....	....	C,'07-'09	Nebr.7
266.	Nebraska, University of, College of Medicine, Eclectic, Lincoln	1883	1884	....	1885	....	....	....	....	Nebr.2
267.	Nebraska, University of, College of Medicine, Homeo., Lincoln	1883	1884	....	1887	....	....	....	....	Nebr.3
268.	**Nebraska, University of, College of Medicine,** Omaha	1902	1903	....	....	294	1908	1909	A,'07-'19	Nebr.5
269.	Nebraska, University of, College of Medicine, Regular, Lincoln	1870	1884	[1884-87]	1887	....	....	....	....	Nebr.1
270.	New England Female Medical College, Homeopathic, Boston	1848	1849	....	1874	27	....	....	....	Mass.3
271.	New Orleans School of Medicine, New Orleans	1856	....	....	1870	....	....	....	....	La.2
272.	New Orleans University Medical College, New Orleans	1889	1892	1896	1901	122	....	....	....	La.4
273.	New York Free Medical College for Women, New York City	1871	1873	[1873-75]	1876	....	....	....	....	N.Y.35
274.	**New York Homeo. Med. Coll. and Flower Hospital,** New York City	1869	1870	....	....	152	1915	1919	A,'07-'14; B,'15-'19	N.Y.9
275.	New York Medical College, New York City	1850	1851	....	1864	....	....	....	....	N.Y.7
276.	New York Medical College and Hosp. for Women, New York City	1863	1864	....	1918	....	1916	1918	B,'07-'11; C,'12-'18	N.Y.11
277.	New York University Medical College, New York City	1896	1897	....	1898	360	....	....	....	N.Y.5
278.	Niagara University Medical Department, Buffalo	1883	1886	....	1898	30	....	....	....	N.Y.18
279.	North Carolina Medical College, Charlotte	1893	1893	....	1918	....	....	....	B,'07; C.'08-'14; B,'15-'18	N.C.4
280.	**North Carolina, University of, School of Medicine,** Chapel Hill*	1879	1903	[1903-1909]	....	....	1910	1917	A,'07-'19	N.C.1
281.	**North Dakota, University of, School of Medicine,** University*	1905	....	....	....	....	....	1907	A,'07-'19	N.D.1
282.	Northwestern Medical College, St. Joseph, Mo.	1879	1881	....	1894	....	....	....	....	Mo.18
283.	Northwestern Ohio Medical College, Toledo	1883	1884	....	1891	....	....	....	....	Ohio 18
284.	**Northwestern University Medical School,** Chicago	1891	1891	....	....	46-202	1908	1911	A,'07-'19	Ill.6
285.	Northwestern University Woman's Medical School, Chicago	1892	1893	....	1902	429-430	....	....	....	Ill.9
286.	Oakland College of Medicine and Surgery, Oakland, Calif.	1900	1906	....	‡	....	1915	....	A,'07-'09; B,'10-'17; C,'18	Cal.8
287.	Oglethorpe Medical College, Savannah, Ga.	1856	....	....	1861	....	....	....	....	Ga.6
288.	Ohio Medical University, Columbus	1890	1893	....	1907	341	....	....	A,'07	Ohio 25
289.	Ohio-Miami Medical College, Cincinnati	1909	1910	....	1911	51	....	....	A,'09-'11	Ohio 41
290.	**Ohio State University College of Homeo. Medicine,** Columbus	1914	1915	....	....	56	1915	1916	C,'14-'16; B,'17-'19	Ohio 42
291.	**Ohio State University College of Medicine,** Columbus	1914	1915	....	....	341	1914	1915	A,'14-'19	Ohio 40
292.	Oklahoma Medical College, Oklahoma City	1907	....	....	1909	....	....	....	C,'07-'09	Okla.4
293.	**Oklahoma, University of, School of Medicine,** Oklahoma City[39]	1900	1911	....	....	....	1914	1917	A,'07-'11; B,'12-'19	Okla.1
294.	Omaha Medical College, Omaha, Neb.[40]	1881	1882	....	1902	267	....	....	....	Nebr.5
295.	**Oregon, University of, Medical School,** Portland	1887	1888	1898	....	....	1910	1915	A,'07-'19	Ore.2
296.	Penn. Medical University, Philadelphia	1855	....	1867-74	1881	....	....	....	....	Pa 8
297.	Pennsylvania Medical College, Philadelphia	1839	....	....	1861	....	....	....	....	Pa.3
298.	**Pennsylvania, University of, School of Medicine,** Philadelphia	1791	1792	....	....	64	1909	1910	A,'07-'19	Pa.1
299.	Philadelphia College of Medicine and Surgery	1846	....	....	1859	296	....	....	....	Pa.4
300.	Philadelphia University of Medicine and Surgery[41]	1865	....	....	1880	5	....	....	....	Pa.14
301.	Physio-Medical College, Cincinnati	1836	1837	....	1880	....	....	....	....	Ohio 4
302.	Physio-Medical College of Indiana, Indianapolis	1873	1874	....	1909	....	....	....	C,'07-'09	Ind.5
303.	Physio-Medical College of Texas, Dallas	1902	1902	....	1908	....	....	....	C,'07-'08	Tex.5
304.	Physio-Medical Institute, Cincinnati	1859	....	....	1885	....	....	....	....	Ohio 10

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* Offers only the first two years of the medical course.

‡Ceased medical teaching in 1918 but retains a nominal existence until 1921 in order to grant degrees to the three remaining classes which are completing their medical instruction elsewhere.

31. This was the medical department of Central Tennessee College which in 1900 became Walden University. The relationship was canceled in 1916.

32. The Middlesex College of Medicine and Surgery is a nondescript institution which for several years has occupied the same building with the Massachusetts College of Osteopathy and, on inspection, the two were found to be almost indistinguishable. It has granted liberal advanced standing for courses taken in osteopathic institutions. It secured the old uncanceled charter of the Worcester Medical College of Boston, otherwise, it could hardly have obtained a charter under the strict laws now regulating the chartering of educational institutions in Massachusetts. Its predecessor was an eclectic, botanico-medical affair chartered in 1848 which had a rather precarious existence. It underwent a reorganization in 1852; moved to Boston in 1857; returned to Worcester in 1858, and became extinct in 1859. The new medical school has affiliated itself with schools of dentistry, pharmacy, chiropody, optometry, etc., under the high sounding title of the "University of Massachusetts." According to report, the latter has not secured authority from the state to grant degrees in arts or sciences and its name has not been found on the list of colleges or universities approved by any recognized standardizing agency. The medical school is rated in Class C by the Council on Medical Education and is reported as not recognized by the medical licensing boards of thirty-six states.

33. Degrees from 1884 to 1887 inclusive were granted by the University of Minnesota. It was the medical department of Hamline University from 1895 to 1911. It ceased to conduct classes in 1908 and the three remaining classes completed their instruction in the University of Minnesota Medical School with which it was merged, but Hamline University granted the degrees.

34. Was an examining body only until 1888 when it absorbed the consolidation of the Saint Paul Medical College and the Minneapolis Hospital College.

35. Offers only first two years of the medical course. Taught clinical courses at Vicksburg during the session of 1909-10 and in 1910 graduated its one class. Clinical teaching was then abandoned.

36. Sometimes known as the McDowell Medical College.

37. No classes were graduated in 1857, 1858, 1860 to 1873 inclusive, 1887 to 1890 inclusive, 1892 and 1902. From 1845 to 1855 was located in St. Louis. Reorganized at Columbia in 1872. Last class was graduated in 1909 when clinical teaching was discontinued.

38. The University of Nashville Medical Department and Vanderbilt University Medical Department united in 1874, each school granting degrees each year to a portion of the class. Relationship dissolved in 1895. Similar union with the University of Tennessee Medical Department 1909 to 1911.

39. Taught only the subjects of the first two years of the medical course until 1910 when the clinical department was established.

40. From 1891 to 1902 this was the medical department of Omaha University.

41. In the last few years of its existence this college is reported to have been fraudulent.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements		Classification by the Council on Medical Education	Key No. in American Medical Directory
							1 Yr. College	2 Yrs. College		
305.	**Pittsburgh, University of, School of Medicine**	1908	1909	....	....	420	1911	1913	B,'07-'09; A,'10-'19	Pa.12
306.	Presbyterian Hospital and Woman's Med. Coll., Cincinnati	1891	1892	....	1895	197	....	....	....	Ohio 24
307.	Pulte Medical College, Cincinnati	1872	1873	....	1910	56	....	....	B,'07-'09; C,'10	Ohio 13
308.	Quincy College of Medicine, Quincy Ill.	1882	1883	....	1888	38	....	....	....	Ill.12
309.	Randolph Macon Coll. Med. Dept., Prince Edward Ct. House, Va.	1840	....	....	1855	....	....	....	....	Va.5
310.	Reform Medical College of Georgia, Macon	1854	1855	1861-67	1874	59-321	....	....	....	Ga.2
311.	Reliance Medical College, Chicago	1907	1909	....	1911	....	....	....	C,'07-'11	Ill.39
312.	**Rush Medical College**, Chicago	1843	1844	....	....	....	1902	1904	A,'07-'19	Ill.1
313.	Saginaw Valley Medical College, Saginaw, Mich.	1896	1897	....	1903	241	....	....	....	Mich.9
314.	Savannah Medical College, Savannah, Ga.	1853	1854	1862-66, 1876-80	1880	....	....	....	....	Ga.4
315.	Sewanee Medical College, Sewanee, Tenn.	1892	1893	....	1909	....	....	....	C,'07-'09	Tenn.11
316.	Shelby Medical College, Nashville	1858	....	....	1862	....	....	....	....	Tenn.4
317.	Sioux City College of Medicine, Sioux City, Iowa	1890	1893	....	1909	....	....	....	B,'07-'08; C,'09	Ia.8
318.	**South Carolina, Medical College of the State of**, Charleston[30]	1832	1833	1862-65	....	225–227	1914	1916	A,'07-'09; B,'10-'11; C,'12; B,'13-'15; A,'16-'19	S.C.1
319.	South Carolina, University of, Medical Department, Charleston	1866	....	....	1876	....	....	....	....	S.C.2
320.	**South Dakota, University of, College of Medicine**, Vermilion*	1907	....	....	....	....	1908	1909	A,'07-'19	S.D.1
321.	Southern Botanico-Medical College, Macon, Ga.	1839	1841	....	1854	310-59	....	....	....	Ga.2
322.	Southern College of Medicine and Surgery, Atlanta[42]	1911	1912	....	1914	....	....	....	C,'11-'14	Ga.19
323.	Southern Homeopathic Medical College, Baltimore	1890	1892	....	1907	14	....	....	B,'07	Md.8
324.	Southern Medical College, Atlanta	1878	1880	....	1898	11	....	....	....	Ga.10
325.	Southern Methodist University Medical Department, Dallas, Tex.	1911	1912	....	1915	329	1914	....	B,'11; C,'12-'13; B,'14-'15	Tex.6
326.	Southern University Medical Department, Greensboro, Ala.	1872	....	....	1880	....	....	....	....	Ala.3
327.	Southwest School of Medicine and Hospital, Kansas City, Mo.	1915	1916	....	1916	181	....	....	C,'15-'16	Mo.35
328.	Southwestern Homeo. Medical College and Hospital, Louisville	1892	1894	....	1910	....	....	....	C,'07-'10	Ky.8
329.	Southwestern University Medical College, Dallas, Tex.	1903	1904	....	1911	325	....	....	B,'07-'11	Tex.6
330.	St. Joseph Hospital Medical College, St. Joseph, Mo.	1876	1878	....	1882	331	....	....	....	Mo.14
331.	St. Joseph Medical College, St. Joseph, Mo.	1882	1883	....	1888	120	....	....	....	Mo.22
332.	St. Louis College of Medical and Natural Sciences, St. Louis	1855	....	....	1859	158	....	....	....	Mo.4
333.	**St. Louis College of Physicians and Surgeons**, St. Louis	1879	1880	1916	....	77	....	....	B,'07-'08; C,'09-'19	Mo.7
334.	St. Louis Hahnemann Medical College, St. Louis[43]	1873	1874	....	1874	....	....	....	....	Mo.12
335.	St. Louis Medical College, St. Louis[44]	1855	1856	....	1891	415	....	....	....	Mo.2
336.	St. Louis University Medical Department, St. Louis	1842	1843	....	1855	335	....	....	....	Mo.2
337.	**St. Louis University School of Medicine**, St. Louis	1903	1904	....	....	212	1910	1918	A,'07-'19	Mo.34
338.	St. Louis Woman's Medical College, St. Louis	1894	1895	....	1896	....	....	....	....	Mo.37
339.	St. Paul Medical College, St. Paul[45]	1885	1886	....	1888	380	....	....	....	Minn.2
340.	Starling Medical College, Columbus, Ohio	1847	1848	....	1907	341	....	....	A,'07	Ohio 3
341.	Starling-Ohio Medical College, Columbus, Ohio	1907	1908	....	1914	291	....	....	A,'07-'14	Ohio 40
342.	State College of Physicians and Surgeons, Indianapolis[46]	1906	1907	....	1907	168	....	....	A,'07	Ind.21
343.	State University of Iowa Coll. of Homeo. Medicine, Iowa City	1877	1878	1914	1919	....	....	1910	A,'07-'19	Ia.4
344.	**State University of Iowa College of Medicine**, Iowa City	1869	1871	....	....	....	1909	1910	A,'07-'19	Ia.3
345.	State University Medical Department (colored), Louisville	1899	....	....	1903	209	....	....	....	Ky.10
346.	**Syracuse University College of Medicine**, Syracuse, N. Y.	1875	1876	....	....	347	1909	1910	A,'07-'19	N.Y.15
347.	Syracuse University College of Phys. and Surgs., Syracuse, N. Y.	1872	1873	....	1875	129–346	....	....	....	N.Y.15
348.	Tallahassee College of Med. and Surg., Jacksonville, Fla.	1883	1884	[1884]	1886	....	....	....	....	Fla.1
349.	**Temple University Department of Medicine**, Philadelphia	1901	1904	....	....	....	1914	1918	C,'07-'09; B,'10-'19	Pa.13
350.	Tennessee Medical College, Knoxville	1889	1890	....	1909	201	....	....	B,'07-'09	Tenn.10
351.	**Tennessee, University of, College of Medicine**, Memphis	1879	1880	....	....	256	1914	1918	B,'07-'11; C,'12; B,'13; A,'14-'19	Tenn.6
352.	Texas Medical College and Hospital, Galveston	1873	1874	[1874-81, '90, '91]	1891	127	....	....	....	Tex.1
353.	**Texas, University of, Department of Medicine**, Galveston	1891	1892	....	....	....	1910	1917	A,'07-'19	Tex.2
354.	Toland Medical College, San Francisco	1863	1864	....	1872	33	....	....	....	Cal.2
355.	Toledo Medical College, Toledo, Ohio	1883	1883	....	1914	....	....	....	B,'07-'11; C,'12-'14	Ohio 19
356.	Transylvania University Medical Department, Lexington, Ky.	1817	1817	....	1850	189	....	....	....	Ky.1
357.	**Tufts College Medical School**, Boston	1893	1894	....	....	....	1914	1918	A,'07-'19	Mass.7
358.	**Tulane University of Louisiana School of Medicine**, New Orleans	1884	1885	....	....	204–205	1910	1918	A,'07-'19	La.1
359.	United States Medical College, New York City	1878	1881	[1881-82]	1884	....	....	....	....	N.Y.16
360.	**University and Bellevue Hospital Medical College**, New York City	1898	1899	....	....	22–277	1912	1918	A,'07-'19	N.Y.19
361.	University College of Medicine, Richmond, Va.[47]	1893	1894	....	1913	228	....	....	A,'07-'13	Va.6
362.	University Medical College, Kansas City, Mo.	1888	1889	....	1913	374	1910	....	A,'07-'13	Mo.20
363.	**University of Alabama School of Medicine**, Mobile	1907	1908	....	....	217	1914	1915	A,'07-'19	Ala.2
364.	**University of Arkansas Medical Department**, Little Rock	1899	1900	....	....	9	1915	1918	B,'07-'18; A,'19	Ark.1
365.	**University of Buffalo Department of Medicine**, Buffalo, N. Y.	1846	1847	....	....	....	1914	1918	A,'07-'19	N.Y.6
366.	**University of California Medical School**, San Francisco	1872	1873	....	....	353	....	1905	A,'07-'19	Cal.2
367.	**University of Cincinnati College of Medicine**, Cincinnati	1911	1912	....	....	224–289	1910	1913	A,'11-'19	Ohio 41
368.	**University of Colorado School of Medicine**, Denver	1907	1908	....	....	83	....	1910	A,'07-'19	Colo.2
369.	University of Dallas Medical Department, Dallas, Tex.	1900	1901	....	1903	18	....	....	....	Tex.4
370.	**University of Georgia Medical Department**, Augusta	1873	1874	....	....	220	1914	1918	A,'07-'09; B,'10-'12; A,'13-'19	Ga.1
371.	**University of Illinois College of Medicine**, Chicago	1911	1912	....	....	68	1913	1914	A,'11-'19	Ill.11
372.	University (State) of Iowa Medical Department, Keokuk	1854	1855	....	1870	71-344	....	....	....	Ia.1
373.	**University of Kansas School of Medicine**, Lawrence	1880	1906	....	....	....	....	1909	A,'07-'11; B,'12; A,'13-'19	Kan.2
374.	University of Kansas City Medical Dept., Kansas City, Mo.	1881	1882	....	1888	362	....	....	....	Mo.20
375.	**University of Louisville Medical Department**, Louisville	1846	1847	1863	....	208	1914	1918	B,'07-'09; A,'10-'19	Ky.2
376.	**Univ. of Maryland Sch. of Med. & Coll. of P. & S.**, Baltimore	1812	1813	....	....	63	1914	1918	A,'07-'11; B,'12; A,'13-'19	Md.1
377.	**University of Michigan Homeopathic Medical School**, Ann Arbor	1875	1877	....	....	....	1912	1916	A,'07-'19	Mich.5
378.	**University of Michigan Medical School**, Ann Arbor	1850	1851	....	....	....	....	1909	A,'07-'19	Mich.1
379.	University of Minnesota College of Homeo. Med., Minneapolis	1888	1889	....	1909	250	....	....	A,'07-'09	Minn.6
380.	**University of Minnesota Medical School**, Minneapolis[34]	1883	1889	....	....	....	....	1907	A,'07-'19	Minn.4
381.	**University of Mississippi School of Medicine**, University*[35]	1903	1910	[1910][37]	....	....	1914	1918	A,'07-'19	Miss.1
382.	**University of Missouri School of Medicine**, Columbia*	1845	1846	....	....	....	1906	1910	A,'07-'19	Mo.3
383.	University of Nashville Medical Department, Nashville, Tenn.[38]	1850	1852	....	1909	351	....	....	B,'07-'09	Tenn.1
384.	**University of Nebraska College of Medicine**, Omaha	1902	1903	....	....	294	1908	1909	A,'07-'19	Nebr.5
385.	University of Nebraska College of Med., Eclectic Dept Lincoln	1883	1884	....	1885	....	....	....	....	Nebr.2
386.	University of Nebraska College of Med., Homeo. Dept., Lincoln	1883	1884	....	1887	....	....	....	....	Nebr.3
387.	University of Nebraska College of Med., Regular Dept., Lincoln	1870	1884	[1884-87]	1887	....	....	....	....	Nebr.1
388.	**University of North Carolina School of Medicine**, Chapel Hill*	1879	1903	[1903-09]	....	....	1910	1917	A,'07-'19	N.C.1
389.	**University of North Dakota School of Medicine**, University*	1905	....	....	....	....	....	1907	A,'07-'19	N.D.1
390.	**University of Oklahoma School of Medicine**, Oklahoma City[39]	1900	1911	....	....	....	1914	1917	A,'07-'11; B,'12-'19	Okla.1
391.	**University of Oregon Medical School**, Portland	1887	1888	1898	....	....	1910	1915	A,'07-'19	Ore.2

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* Offers only the first two years of the medical course.

42. The charter of this institution passed into the hands of individuals who sold, or offered for sale its diplomas for a year or two after the college had ceased to exist. Most of such diplomas which were discovered were dated as of 1914.

43. Graduated one class of four students.

44. Known sometimes as "Pope's Medical College."

45. Was conducted as a preparatory school from 1871 to 1879.

46. Taught work of third and fourth years of the medical course supplementary to the two year course given by the Indiana University School of Medicine with which it was affiliated.

Number	Name and Address	Organized or Name Assumed	First Class Graduated	Years[1] when No Classes Graduated	Closed or Changed Title	For Subsequent or Previous Title see Line	Admission Requirements: 1 Yr. College	Admission Requirements: 2 Yrs. College	Classification by the Council on Medical Education	Key No. in American Medical Directory
392.	**University of Pennsylvania School of Medicine**, Philadelphia	1791	1792	....	....	64	1909	1910	A,'07-'19	Pa.1
393.	**University of Pittsburgh School of Medicine**	1908	1909	....	....	420	1911	1913	B,'07-'09; A,'10-'19	Pa.12
394.	University of South Carolina Medical Department, Charleston	1866	....	....	1876	....	....	....	....	S.C.2
395.	**University of South Dakota College of Medicine**, Vermilion*	1907	....	....	....	....	1908	1909	A,'07-'19	S.D.1
396.	University of Southern California College of Med., Los Angeles	1885	1888	....	1909	33	....	....	A,'07-'09	Cal 6
397.	**Univ. of Southern Calif. Coll. of Phys. & Surgs.**, Los Angeles[12]	1903	1905	....	....	66	1914	1916	B,'07-'19	Cal.9
398.	**University of Tennessee College of Medicine**, Memphis[38]	1879	1880	....	...	256	1914	1918	B,'07-'11; C,'12; B,'13; A,'14-'19	Tenn.6
399.	**University of Texas Department of Medicine**, Galveston	1891	1892	....	....	....	1910	1917	A,'07-'19	Tex.2
400.	University of the City of New York Medical Department	1841	1842	....	1896	277	....	....	....	N.Y.5
401.	University of the Pacific Medical Department, San Francisco	1858	1860	1865-69	1873	226	....	....	....	Cal.1
402.	University of the South Medical Department, Sewanee, Tenn.	1892	1893	....	1909	315	....	....	C,'07-'09	Tenn.11
403.	**University of Utah School of Medicine**, Salt Lake City*	1906	....	....	....	....	1909	1910	A,'07-'19	Utah 1
404.	**University of Vermont College of Medicine**, Burlington	1822	1823	1836-53	....	....	1912	1918	A,'07-'19	Vt.2
405.	**University of Virginia Department of Medicine**, Charlottesville	1827	1828	1865	....	....	1910	1917	A,'07-'19	Va.1
406.	**University of West Tennessee Coll. of Med. and Surg.**, Memphis	1900	1904	....	....	....	....	....	C,'07-'19	Tenn.14
407.	**University of Wisconsin Medical School**, Madison*	1907	....	....	....	....	....	1907	A,'07-'19	Wis.5
408.	University of Wooster Medical Department, Cleveland	1869	1869	....	1896	39-421	....	....	....	O.11,12
409.	Valparaiso University Medical Department, Valparaiso, Ind.*[48]	1907	....	....	1918	....	1915	....	B,'09-'18	Ill.22
410.	**Vanderbilt University Medical Department**, Nashville	1874	1875	....	....	....	1914	1918	A,'07-'19	Tenn.5
411.	Vermont Medical College, Woodstock	1835	....	....	1856	58	....	....	....	Vt.3
412.	Vermont Academy of Medicine, Castleton, Vt.	1821	....	....	1838	34-35	....	....	....	Vt.1
413.	**Wake Forest College School of Medicine**, Wake Forest, N. C.*	1902	....	....	....	....	....	1908	A,'07-'19	N.C.5
414.	Washington College Medical Department, Baltimore	1827	1828	....	1840	416	....	....	....	Md.2
415.	Washington Homeopathic Medical College, Washington, D. C.	1896	1896	....	1896	259	....	....	....	D.C.5
416.	**Washington University Medical School**, St. Louis	1891	1892	....	....	336-335	1910	1912	A,'07-'19	Mo.2
417.	Washington University School of Medicine, Baltimore	1840	1841	1851-1867	1877	413	....	....	....	Md.2
418.	Western College of Homeopathic Medicine, Cleveland	1849	1851	....	1857	419-149-57	....	....	....	Ohio 7
419.	Western Eclectic College of Med. and Surg., Kansas City, Kan.	1908	1908	....	1909	116-117	....	....	C,'08-'09	Kan.7
420.	Western Homeopathic College, Cleveland	1857	1858	....	1870	417-149-57	....	....	....	Ohio 7
421.	Western Pennsylvania Medical College, Pittsburgh	1886	1887	....	1908	393	....	....	B,'07-'08	Pa.12
422.	**Western Reserve University School of Medicine**, Cleveland	1881	1882	....	....	39-408	....	1901	A,'07-'19	Ohio 6
423.	Westminster University College of Medicine, Denver	1907	1908	....	1908	101-102	....	....	C,'07-'08	Colo.4
424.	**West Virginia University School of Medicine**, Morgantown*	1902	....	....	....	....	1911	1917	A,'07-'11;B,'12-'16; A,'17-'19	W.Va.1
425.	Willamette University Medical Department, Salem, Ore.	1865	1867	1896	1913	....	....	....	B,'07-'08; C,'09-'13	Ore.1
426.	Willoughby University Medical Department, Willoughby, Ohio	1835	....	....	1847	....	....	....	....	Ohio 28
427.	Wisconsin College of Physicians and Surgeons, Milwaukee	1893	1894	....	1913	214	....	....	B,'07-'11; C,'12-'13	Wis.2
428.	**Wisconsin, University of, Medical School**, Madison*	1907	....	....	....	....	....	1907	A,'07-'19	Wis.5
429.	Woman's Hospital Medical College, Chicago	1870	1871	1872	1879	430-285	....	....	....	Ill.9
430.	Woman's Medical College, Chicago	1879	1880	....	1892	429-285	....	....	....	Ill.9
431.	Woman's Medical College of Baltimore	1882	1883	1898	1910	....	....	....	B,'07-'10	Md.5
432.	Woman's Medical College of Cincinnati	1887	1888	....	1895	197	....	....	....	Ohio 20
433.	Woman's Medical College, Kansas City, Mo.	1895	1896	....	1903	....	....	....	....	Mo.30
434.	**Woman's Medical College of Pennsylvania**, Philadelphia	1850	1852	1862	....	....	1914	1915	A,'07-'19	Pa.7
435.	Woman's Medical College of the New York Infirmary for Women and Children, New York City	1868	1870	....	1899	....	....	....	....	N.Y.14
436.	Woman's Medical College of Northwestern University, Chicago	1892	1893	....	1902	429-428	....	....	....	Ill.9
437.	Worthington Medical College, Eclectic, Worthington, Ohio	1833	1833	1839-43	1845	115-113	....	....	....	Ohio 2
438.	Yale College, Medical Institution of, New Haven, Conn.	1812	1814	....	1879	439	....	....	....	Conn.1
439.	**Yale University School of Medicine**, New Haven, Conn.	1879	1880	....	....	437	....	1909	A,'07-'19	Conn.1

47. This school was organized as the College of Physicians and Surgeons but before a year had passed assumed the title, **University** College of Medicine.

48. Taught only the first two years of the medical course operating under the charter of the Chicago College of Medicine and Surgery.

* Offers only the first two years of the medical course.

(Continued from page 506)

Prior to 1904 the majority of colleges had sessions of twenty-eight weeks or less. For four years no colleges have had sessions shorter than twenty-nine weeks, and this year only one college reported a session as short as thirty weeks. Sessions of from thirty-three to thirty-six weeks were reported by 67, or 78.9 per cent., of all colleges.

TUITION AND OTHER FEES

Attention is called to Table 1, on pages 500-502, to the amount charged by the various medical colleges per annum for tuition, matriculation, laboratory and graduation fees for each student. In Table 11, the eighty-five colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B and C. Fourteen colleges charge fees of $100 or less per year; thirty-six between $100 and $175, and thirty-five charge above $175. Of the fourteen colleges charging $100 or less, eleven (75 per cent.) are listed among Class A (acceptable) colleges[2] by the Council on Medical Education; two are Class B colleges and one is rated in Class C. The eleven Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Kansas, Michigan, Missouri, North Dakota, South Dakota, Texas, Utah, West Virginia and Wisconsin. On the other hand, five colleges listed by the Council in Class C charge fees of from $100 to $175 per year for each student, and one exacts fees of $200. Diplomas from Class C colleges are reported as not recognized by thirty-three to thirty-nine state licensing boards.[3] No intelligent student would knowingly spend his time and money in a low-grade college, the diplomas of which are not recognized by many states, when in the same time, and for even less money, he could attend one of the best-equipped colleges, the diplomas of which are recognized everywhere. Although forty-six colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student for the year in these colleges amounts to three or several times the fee charged. In fact, accurate data secured from eighty-two medical colleges show that the average amount received each year from the individual student was $150, while the average amount actually expended in the training of that student for a year was $419. This larger expenditure is possible because the colleges receive either state aid or private endowment. This shows that no medical college can properly teach medicine on the income received from fees alone.

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[2] See Classification of Medical Colleges, page 521.

[3] See The Journal A. M. A., April 19, 1919, p. 1148, Table D, which shows in what state diplomas granted by various colleges are not recognized as an acceptable qualification for the license to practice.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois formerly had the largest number of medical colleges (Table 12), but for the last three years the first place has been held by New York, where there are still eight colleges. Illinois, Missouri and Pennsylvania have six colleges each; Massachusetts and Ohio have five each, and California and Tennessee have four each. Of Class C colleges, however, Missouri has three, Massachusetts has two, and there is one each in Illinois and Tennessee. In Missouri the Class C colleges are not recognized by the local state licensing board and exist because that board does not have or does not exert the power to have their charters revoked.

TABLE 11.—COLLEGE FEES

Total Fees	Number of Colleges			
	Class A	Class B	Class C	Total
$ 50 or less	4	1	..	5
50 to $ 75	3	..	..	3
75 to 100	4	1	1	6
100 to 125	8	..	..	8
125 to 150	3	1	2	6
150 to 175	17	2	3	22
175 to 200	10	3	..	13
200 or above	19	2	1	22
Totals	68	10	7	85

TABLE 12.—MEDICAL COLLEGES, STUDENTS AND GRADUATES BY STATES

State	Colleges		Students		Graduates		Graduates with B.S. or A.B.
	Total	Class C	Men	Women	Men	Women	
Alabama	1	....	56	....	4	....	2
Arkansas	1	....	43	....	7	....	1
California	4	....	433	61	69	8	46
Colorado	1	....	72	3	18	1	6
Connecticut	1	....	66	3	12	....	9
Dist. of Columbia	3	....	277	5	44	1	23
Georgia	2	....	210	....	33	....	10
Illinois	6	1	1,464	94	241	6	132
Indiana	1	....	194	6	32	....	27
Iowa	1	....	226	6	44	1	22
Kansas	1	....	128	8	20	....	13
Kentucky	1	....	95	4	18	....	2
Louisiana	1	....	265	10	75	2	33
Maine	1	....	45	....	16	....	9
Maryland	2	....	544	65	128	15	101
Massachusetts	5	2	884	45	206	12	104
Michigan	3	....	494	30	92	2	50
Minnesota	1	....	270	16	54	....	44
Mississippi	1	....	46	2	....	....	....
Missouri	6	3	722	36	215	14	63
Nebraska	2	....	247	7	52	1	32
New Hampshire	1	....	34	....	....	....	....
New York	8	....	2,154	118	435	21	175
North Carolina	2	....	85	1	....	....	....
North Dakota	1	....	19	2	....	....	....
Ohio	5	....	564	17	116	5	75
Oklahoma	1	....	69	4	12	....	3
Oregon	1	....	58	8	15	....	4
Pennsylvania	6	....	1,272	92	345	13	114
South Carolina	1	....	66	....	14	....	4
South Dakota	1	....	17	2	....	....	....
Tennessee	4	1	368	2	90	....	28
Texas	2	....	314	21	68	5	16
Utah	1	....	27	1	....	....	....
Vermont	1	....	90	....	20	....	2
Virginia	2	....	231	4	45	....	17
West Virginia	1	....	36	3	....	....	....
Wisconsin	2	....	181	10	13	....	13
Totals	85	7	12,366	686	2,549	107	1,180

TABLE 13.—STUDENTS AND GRADUATES ACCORDING TO CLASSIFICATION

Year	Students						Graduates					
	Colleges Rated in Class						Colleges Rated in Class					
	A	%	B	%	C	%	A	%	B	%	C	%
1913	11,122	65.4	4,158	24.4	1,735	10.2	2,539	63.8	1,050	26.4	392	9.8
1914	12,336	74.7	2,838	17.2	1,328	8.1	2,626	73.1	686	19.1	282	7.8
1915	11,314	76.0	2,668	17.9	909	6.1	2,629	74.4	688	19.4	219	6.2
1916	11,162	79.6	2,087	14.9	773	5.5	2,630	74.7	695	19.8	193	5.5
1917	11,317	82.2	1,761	12.8	686	5.0	2,577	76.3	648	19.2	154	4.5
1918	11,522	84.5	1,488	10.9	620	4.5	2,024	75.8	399	14.9	247	9.2
1919	11,466	87.9	1,086	8.3	500	3.8	2,220	83.6	268	10.1	168	6.3

TABLE 14.—PHYSICIANS IN PROPORTION TO POPULATION

State	Physicians	Population	1 Physician to
Alabama	2,530	2,395,270	942
Arizona	333	272,034	816
Arkansas	2,587	1,792,965	693
California	5,929	3,119,412	526
Colorado	1,713	1,014,581	592
Connecticut	1,701	1,286,268	756
Delaware	264	216,941	821
District of Columbia	1,237	374,584	302
Florida	1,296	938,877	724
Georgia	3,442	2,935,617	852
Idaho	458	461,766	1,008
Illinois	11,095	6,317,734	560
Indiana	4,765	2,854,167	598
Iowa	4,004	2,224,771	555
Kansas	2,668	1,874.195	702
Kentucky	3,483	2,408,547	691
Louisiana	2,060	1,884,778	914
Maine	1,179	782,191	663
Maryland	2,268	1,384,539	610
Massachusetts	5,926	3,832,790	646
Michigan	4.598	3,133,678	681
Minnesota	2,566	2,345,287	913
Mississippi	1,975	2,001,466	1,013
Missouri	6,063	3,448,498	568
Montana	661	486,376	675
Nebraska	1,960	1,296,877	661
Nevada	159	114,742	721
New Hampshire	666	446.352	670
New Jersey	3,153	3,080.371	976
New Mexico	456	437,015	958
New York	15,877	10,646.989	670
North Carolina	2,257	2,466,025	1,092
North Dakota	604	791,437	1,310
Ohio	8,089	5,273.814	651
Oklahoma	2,672	2,377,629	889
Oregon	1,157	888,243	767
Pennsylvania	11,495	8,798.067	765
Rhode Island	752	637.415	847
South Carolina	1,433	1,660 934	1,159
South Dakota	695	735,434	1,058
Tennessee	3,481	2,321,253	666
Texas	6,246	4,601,279	736
Utah	488	453,648	929
Vermont	653	366,192	560
Virginia	2,552	2,234,030	875
Washington	1,698	1,660,578	977
West Virginia	1,759	1,439,165	818
Wisconsin	2,817	2,553,983	906
Wyoming	254	190,380	749
Totals	146,174	105,253,300	720

For the last three years New York has had the largest number of students enrolled, this year having 2,272, followed by Illinois with 1,558 and Pennsylvania with 1,364. New York leads also in the number of graduates, having reported 456, followed by Pennsylvania with 358, Illinois with 247, Missouri with 229, and Massachusetts with 218.

QUALIFICATIONS OF STUDENTS AND GRADUATES

Table 13 shows the students and graduates of the last six years grouped according to the rank of the colleges in the classification of the Council on Medical Education. Note that during the seven years the percentage of students enrolled in Class A colleges has increased from 65.4 to 87.9 and that for the last three years also the total numbers of students in attendance at these schools has increased from 11,317 to 11,466. Note, on the other hand, both the percentages and the totals of students enrolled in Class B and Class C colleges have been reduced. The percentage of students in Class B colleges has been reduced from 24.4 to 8.3 and in Class C colleges from 10.2 to 3.8. Of graduates, also, the percentage in Class A colleges shows an increase, while in Class B and Class C colleges there has been a decrease. The reduction in the total number of students and graduates, therefore, has been largely at the expense of the lower grade colleges, while the numbers of students and graduates in the higher grade colleges are actually increasing.

COLLEGE NOTES

Colleges Closed.—Five medical schools have been closed during the year. The College of Physicians and Surgeons, San Francisco, has discontinued the teaching of medicine but will retain a nominal existence for three years so as to grant degrees to the students of the three remaining classes who are completing their medical education in other schools. The College of Homeopathic Medicine of the State University of Iowa has been abolished by the Iowa legislature and in its stead an elective chair in homeopathic materia medica and therapeutics has been established in the State University of Iowa College of Medicine. Lincoln Medical College, Eclectic, Lincoln, Neb., has been reported closed. The Fordham University School of Medicine, New York City, was closed recently by the board of trustees of Fordham University on the plea that funds for the proper maintenance of the school were lacking. Leonard Medical School, the medical department of Shaw University, an institution for colored students located at Raleigh, N. C., has been closed.

Special Items Concerning Medical Education

Arkansas.—The University of Arkansas Medical Department, Little Rock, has discontinued the teaching of the clinical years and as a consequence the Council on Medical Education has rated the institution in Class A. The lower rating heretofore held by the school was due largely to the serious conditions in clinical teaching.

California.—The trustees of the University of Southern California have voted to set aside $250,000 for the medical department to be used for new buildings and equipment.

Colorado.—The University of Colorado School of Medicine: The Phipps Loan Fund of $5,000 was established in 1918 by Mr. L. C. Phipps and Mr. L. C. Phipps, Jr. Several loans are available from it each year for the benefit of promising students of the second, third or fourth years of the school of medicine who are in need of such assistance to enable them to continue their medical education.

Connecticut.—Yale University School of Medicine has enlarged its medical library, providing more space for books and for the reading room. There are now 26,000 volumes in the library, including 14,000 bound volumes of medical journals and society transactions. There are over 250 medical periodicals, including both American and European journals. The library contains the "Index Medicus," the "Surgeon-General's Catalogue," and the "Quarterly Cumulative Index." A part of the library was donated to the medical school by the New Haven Medical Society.

——A special gift of $50,000 was received from the family of the late Anthony N. Brady, for the equipment of the Brady Laboratory.

——A fund of $80,000 to be known as the physiologic laboratory building fund, to be used ultimately for the construction of a physiologic laboratory and pending this the income to be used for the benefit of the department of physiology, has been donated by Mr. and Mrs. Howard H. Spaulding, Jr., Chicago, who gave $50,000; Mr. Benjamin H. Throop, who gave $25,000, and Mr. J. Ogden Armour, Chicago, who donated $5,000.

——In memory of Capt. Chauncey B. Keep, and to be used as an endowment for an infirmary for Yale University, a donation of $54,000 in securities was made by Mr. and Mrs. Chauncey Keep and Mrs. Katherine Keep of Chicago.

Illinois.—Plans for the resumption of the preliminary work for the new medical college and hospital buildings for the University of Chicago have again been taken up. The new medical school will be constructed on the property owned by the university on the south side of the midway, and the first building to be erected will be a hospital and dispensary to cost $1,000,000. The school for practitioners will be located near Rush Medical College, and the hospital will be known as the Albert Merritte Billings Hospital. The buildings planned will cost $17,000,000.

Indiana.—The new medical school building of Indiana University at Indianapolis will, it is announced, be completed and ready for occupancy by the opening of the school year in September. The reports that the entire medical course will be taught at Indianapolis are denied and the premedical courses will be given in Bloomington as before.

Kentucky.—The Medical Department of the University of Louisville received from one of its faculty members a gift of $5,000, payable $500 annually. The first instalment will be expended in the equipment of a research laboratory in which diagnostic problems of medical and surgical cases will be worked out.

Massachusetts.—The Medical School of Harvard University received an anonymous donation of $50,000 for the establishment of the James C. Melvin fund for tropical medicine, the income to be used for research in medicine. The medical school has also received the income on the residuary estate of Horace Fletcher, to be used to "foster knowledge of healthful nutrition." By the will of J. Ewing Mears $100,000 was received for the study of methods to reform and cure criminals and mental defectives by surgery.

Michigan.—The legislature appropriated $1,000,000 with which to start a new 800 bed hospital to be connected with the University of Michigan Medical School. It is expected that the building and equipment will cost between $2,000,000 and $3,000,000. It will be so constructed that building operations can be stopped at any story and the part that has already been completed can be used while the upper stories are being finished.

Missouri.—The Washington University School of Medicine, in addition to several smaller gifts for special investigations and similar purposes, has received a fund of $300,000, one half from the general education board and one half from a friend of the university, for the endowment of the department of pharmacology. With this fund this department also will be established on the whole time university basis from the opening of the next session. Other departments of the school which have been placed on the university basis are medicine, surgery, pediatrics, pathology and bacteriology, physiology, biological chemistry and anatomy.

Nebraska.—A new laboratory building is being completed on the campus of the University of Nebraska College of Medicine. This building will house the departments of physiology, pharmacology and biochemistry. The general animal house for all three departments as well as for experimental surgery occupies a fifth floor, and includes a large operating room for animals. The cost is approximately $150,000.

——Through the will of Clementine C. Conkling, property in the city of Omaha valued at $25,000 has been bequeathed to the University of Nebraska College of Medicine. The income from this property will probably be devoted to the support of a research fellowship in surgery. The state appropriations for the medical college and hospital maintenance and equipment for the biennium ending April, 1921, totals $380,000.

New York.—At the meeting of the trustees of Columbia University, Nov. 4, 1918, it was announced that the New York Polyclinic Hospital had offered to transfer its property to Columbia University, to be maintained and perpetuated for the public service and for advanced research in medicine and surgery. The trustees of Columbia University adopted resolutions, receiving the proposal and appointing a subcommittee to arrange the detailed terms and conditions of accepting the gift.

——Columbia University College of Physicians and Surgeons has received $9,000 from the trustees of the East River Homes Foundation, to be applied toward work in tuberculosis; $5,000 from an anonymous donor to be used in surgical research; $1,000 each, to the funds to provide for the admission of women to the medical school, William H. Moore, Arthur Curtiss James, Elizabeth Waterbury, Forrest S. Bryden, J. M. Wallace, D. G. Reid, and F. L. Hines. A donation of $1,000 was also received from Mrs. V. Everett Macy for additions to the medical school buildings.

——The Long Island College Hospital has been given a farm for keeping animals used in research, by an anonymous benefactor. Experimental work has already been begun on fowl influenza, diphtheria and chickenpox.

——The New York Post-Graduate Medical School and Hospital received $25,000 by the will of Frederick Mead.

——The University of Buffalo has set aside $100,000 and purchased property at a cost of $17,500 with the intention of erecting new laboratories for the medical department. Construction will be begun at the earliest possible date. The new City Hospital on Grider Street is now available for teaching. Another unit is to be added to this hospital, which, when completed, will provide altogether about 1,200 beds.

——The New York Homeopathic Medical College and Flower Hospital received during the last year a gift of $110,000 and also a new hospital building of 100 beds; value $150,000. Furthermore, the alumni of the college have pledged to contribute $30,000 yearly for the next five years for the maintenance of the college, in addition to the regular sums received from the students and from the trustees.

Ohio.—Two years ago a plot of land consisting of about 15 acres was purchased as a site for the new buildings of the School of Medicine of Western Reserve University; for a new Lakeside Hospital, and for a babies' and maternity hospital. It was planned to create a group of hospital and medical school buildings to make an ideal plant for the teaching of medicine. This tract is situated next to the literary departments of Western Reserve University and the Case School of Applied Science. Although the war has postponed the erection of these buildings, Lakeside Hospital lately received some contributions and bequests which will hasten the buildings. By the will of the late Col. Oliver Payne a gift of $1,000,000 came to Lakeside to be used at the discretion of the trustees. By the will of the late Mr. W. S. Tyler, Cleveland, a trustee of Lakeside, a bequest of $200,000 was provided for the erection and endowment of a maternity ward on the new site. Mr. Samuel Mather, president of Lakeside, opened the new building fund of the hospital by a gift of $350,000. There is also a fund held by the trustees of Lakeside for the benefit of the children's and maternity wards amounting to over $150,000.

——The faculty of the Western Reserve University School of Medicine voted to admit women at its session, beginning Oct. 2, 1919.

——The University of Cincinnati has established in its college of medicine a department in industrial medicine and public health. Under the plans submitted, $100,000 is to be raised by the citizens' committee on finance, for the support of this department for five years. The training which will be received in this department will make the students competent social and medical engineers and will also enable them to educate the general public as to the value of good health. The course in the new department will be started in October and will be open to graduates in medicine. A portion of the instruction will be given at the college and part at various industrial establishments along the lines now practiced in the cooperative course.

Oklahoma.—The appropriation of a $200,000 building for the hospital provided in 1917, for the University of Oklahoma School of Medicine, was supplemented by an appropriation in January, 1919, of $56,929.87 which is to complete the building and provide furnishings. The hospital will be opened by the beginning of the next session in October.

Oregon.—The first unit of the University of Oregon Medical School, consisting of a reinforced concrete structure, 200 feet by 65 feet, has been completed and occupied. Ground has been deeded the county which will provide ample space to construct an affiliated hospital on the 20 acre campus. The construction of this hospital was begun in July.

Pennsylvania.—The Hahnemann Medical College of Philadelphia has received $40,000 from Mr. Walter E. Hering to be known as "The Constantine Hering Fund"; the income of which is to be used for financially assisting deserving students to obtain their medical education. The college also received from the same donor $200,000 for research work in the fight again influenza.

——The Jefferson Medical College received $5,000 for the endowment of a free scholarship, and $10,000 by the will of Harriet Blanchard.

Tennessee.—The board of trustees of the University of Tennessee voted $100,000 to the medical school to be used for a new laboratory building to be erected in the rear of the Memphis City Hospital. The new building will have laboratories for pathology, bacteriology, chemistry and physiology.

——The General Education Board and the Carnegie Foundation for the Advancement of Teaching have each given $150,000 for the endowment of Meharry Medical College, Nashville, after the Methodist Episcopal Church had raised $200,000, which makes a total of $500,000.

Vermont.—The General Assembly of the State has provided fifty scholarships of $100 each, available to regular resident students of the University of Vermont College of Medicine whose work is satisfactory and who are in need of financial assistance.

Virginia.—The University of Virginia Department of Medicine will be closely affiliated with the tuberculosis sanatorium established at Charlottesville by the State Board of Health. The fourth year students will take part of their clinical work at this sanatorium.

——The Memorial Hospital No. 2 for colored patients and the Dooley Hospital for contagious diseases, both owned and controlled by the Medical College of Virginia, will be opened early in the fall. The buildings cost respectively $225,000 and $65,000, and were built by subscriptions of the citizens of Richmond and by Major James H. Dooley.

Washington.—A plan to build a hospital on the campus of the University of Washington, Seattle, to cost a million dollars and which is to form the nucleus for a medical department of the university, was proposed and endorsed at the meeting of the Kings County Medical Society.

Wisconsin.—The Marquette University of Milwaukee has succeeded in raising its medical school endowment fund of $1,000,000, one-third of which was donated by the Carnegie Foundation for the Advancement of Teaching. The income from this fund is to go for the salaries of teachers and maintenance and cannot be used for buildings, additional funds for which are now being sought.

General Items.—The General Education Board of the Rockefeller Foundation reports appropriations aggregating $1,108,525 during 1918-19 to various educational institutions throughout the United States. Of this sum the largest amounts were given for medical education, $400,000 being given to Johns Hopkins University Medical School for the endowment of a department of obstetrics, and $150,000 to the Meharry Medical College at Nashville, Tenn.

Canada.—The University of Toronto has received a bequest of $50,000 by the will of the late Dr. Julius Mickle, London, England, a former graduate of the university. This amount will be divided into two fellowships, one in honor of the donor's father and mother. The former will consist of the income from $25,000, to be awarded to the person who, during the preceding ten years, has done most to promote the sound practice of medicine, and this will be open to all the world. The other fellowship will be awarded to the student of the University of Toronto who passes highest in his or her third and fourth years.——An unnamed donor has given the University of Toronto $10,000 through Mrs. McCrae Kilgour, Brandon, Man., in memory of her brother, the late Col. John McCrae, who was an alumnus of the university. This will be used for two scholarships to be given in alternate years to students from Guelph Collegiate Institute; failing one, then from any other institute in Canada.——The residue of the estate of the late Dr. Richard A. Reeve, Toronto, goes to the University of Toronto, but the amount is not definitely known as yet.——The president of the University of Toronto has asked all members of the clinical medical department to place their resignations in the hands of the newly appointed professor of medicine, Dr. Duncan A. L. Graham, preparatory to reorganization of the faculty. Dr. Graham will strive to bring about the more intimate correlation of laboratory and clinical methods for diagnosis and treatment of disease.——The department of medicine of the University of Toronto is to be the recipient of a gift of $25,000 a year for a period of twenty-five years from Sir John and Lady Eaton. This is to provide for a full-time clinician in the department of medicine and a half-time clinician in pediatrics.——A recent endowment to the University of Toronto provides a sum of between $500,000 and $750,000 for the establishment of four special chairs to be held by full-time professors. These chairs are, respectively, pediatrics, gynecology, orthopedic surgery, and a fourth to be determined.

——The Faculty of Medicine of Western University, London, Ont., is planning the erection of a new medical college building at an estimated cost of $100,000.

——Queen's University, Kingston, Ontario, reports that an additional endowment of $1,000,000 has been received for the general purposes of the university. Of this sum, the Carnegie Foundation gave $250,000 on condition that $750,000 be obtained from other sources. The medical faculty will benefit from this fund in proportion to its requirements, and it is proposed that several more full-time professors will be secured, and the departments of physiology, bacteriology and public health will be developed. A fund of $200,000 is also available to be expended in the reconstruction of the hospital.

——A tablet was recently unveiled in the New Medical Building, McGill University, to the memory of nine medical students who lost their lives in France. Dr. George E. Armstrong, acting dean of the medical faculty, delivered an address as the tablet was unveiled.——Prof. J. George Adami, McGill University, is to leave that institution to accept the vice chancellorship of Manchester University, England.

Scotland.—The University of Glasgow has received from Mr. William Guthrie Gardiner and Mr. F. C. Gardiner an endowment for three chairs in the university, these being the chairs of bacteriology, organic chemistry and physiologic chemistry. The endowment amounts to £20,000, or $100,000, for each chair, making a total of £60,000, or $300,000.

South America.—New pavilions for the study of anatomy, histology and pathologic anatomy have been erected for the school of medicine in the University of Bogota, Colombia.

Egypt.—The Gordon Memorial College, now in its seventeenth year at Khartoum, Egypt, is proposing to found a medical school as a memorial to Lord Kitchener. About $45,000 has already been collected for the purpose, mainly by subscriptions from natives in the Sudan.

GRADUATE COURSES IN PUBLIC HEALTH

Graduate courses in public health have been established in connection with eleven medical schools, the first of which was at the University of Pennsylvania in 1909, the latest is that in connection with the medical department of the Johns Hopkins University which began its course in 1918. Two institutions, the University of Colorado and Tulane University, have suspended their courses, at least for the present. Three others report no students during the past year, giving the war as a reason. Five of the schools have courses leading to the degree of Doctor of Public Health (Dr. P. H.); three after a two-year course and two after a one-year course. The University of California offers the degree of Graduate in Public Health (Gr. P. H.) after a two-year course instead of the degree of Dr. P. H. The degree of Certified Sanitarian (C. S.) after a one-year course is offered by the University of Pennsylvania to graduates of colleges of arts and sciences. The degree of Master of Public Health (M. P. H.) is offered after a one-year course by the Detroit College of Medicine and Surgery and the University of Wisconsin Medical School. The Master in Arts in Public Health [M. A. (P. H.)] is offered by the University of California Medical School, and the Master in Science in Public Health [M. S. (P. H.)] by the University of Michigan. The courses offered by the eleven medical schools are as follows:

The University of California: Courses began in 1915; number of instructors, 20; three courses leading to degree of Gr. P. H.: (a) a four year course covering three years in the college of letters and science and one year in the medical school; (b) a two year course covering one year in the college of letters and science and one year in the medical school for graduates of the college of civil engineering who have completed the work in sanitary engineering, and (c) a course of one and a half years, including one year in the college of letters and science, and a half year in the medical school for students who have completed three and a half years of the medical course. Completion of this third course gives the degrees of M.D. and Gr. P.H. The University of California also offers a one year course to graduates in arts or sciences for the degree of Master in Arts in Public Health [M.A., (P.H.)]. Fees are $150 each year. A thesis is required for the degree; students enrolled 1918-19, 15; no graduates. The course extends from August to May.

Johns Hopkins Medical School: The School of Hygiene and Public Health was opened in October, 1918. There are 34 instructors. Four courses are offered: (a) A two year course leading to the degree of Dr. P. H., requiring for admissioin a bachelor's degree and a degree in medicine. The degree of M.D. and the degree of Dr. P. H. may be obtained in a combined course of five years. A thesis is required for graduation.

(b) A three year course leading to the degree of Doctor of Science in Hygiene requiring for admission a bachelor's degree and adequate training in physics, chemistry, biology and the medical sciences, anatomy, physiology and pathology. A written and oral examination and a dissertation embodying the results of an independent investigation are required for graduation.

(c) A two year course leading to the degree of Bachelor of Science in Hygiene, the course consisting of combined work in the medical school and the School of Hygiene and Public Health. For admission the applicant must have completed at least two years of work in an approved college and have studied courses in physics, biology, inorganic and organic chemistry.

(d) A one year course leading to a certificate in public health is also offered to graduates of approved medical schools or graduates in arts or sciences who present evidence of satisfactory training in the physical and medical sciences.

The fees charged are $250 per year. Altogether 16 students were enrolled during 1918-1919; no graduates. The course extends from September 30 to June 15.

Medical School of Harvard University: The School of Public Health was opened in 1910; there are 40 instructors. A one year course is offered leading to a certificate in public health. For admission the applicant must have completed two years of work in a recognized medical school, or have received a bachelor's degree from an approved college or technical school, or have had special experience in public health work. In any instance he must show evidence of having completed satisfactory courses in physics, chemistry and biology and modern languages and the fundamental medical sciences. Although not a prerequisite, all candidates are advised to obtain a medical degree before specializing in public health work. Fees are $250 per year; 70 students were enrolled during 1918-19; one graduate. Course runs from October to June.

Detroit College of Medicine and Surgery: The course began in 1913 with ten instructors. A one year course leading to the degree of Master of Public Health (M.P.H.) is offered to graduates of approved medical schools. Fees are $130 per year. No thesis required. No students enrolled during the past session. The course runs from September to June.

The University of Michigan Medical School: The graduate courses in public health were established in the University of Michigan in 1913. The number of instructors is approximately 10. Two courses are offered,—one to graduates in arts and sciences or medicine extending from one to two years, leading to the degree of Master in Science and Public Health; the other a course of from two to three years in length for graduates in arts or sciences and medicine, leading to the degree of Doctor of Public Health. For residents of Michigan the fees consist of $10 matriculation and $49 for men students and $45 for women; for non-residents of Michigan, matriculation $25 and an annual fee of $69 for men and $65 for women. A thesis is required for the degree of Dr. P. H. There is a summer session but the regular session extends from October 1 to July 1. No students were enrolled during the last session owing to war conditions.

University and Bellevue Hospital Medical College: The graduate course in public health began in 1916 with approximately 30 teachers. Two courses are offered,—a one year course leading to the degree of Doctor of Public Health for graduates of approved medical schools, and a correspondence course of indefinite length, especially adapted for physicians who are health officers, leading to a certificate in public health. The tuition for the Dr. P. H. course is $200 per year and for the certificate course, $50. For the certificate course the last week must be spent in residence. There were 74 health officers reported as taking the correspondence course during the year. Four degrees of Dr. P. H. were granted during the year and 25 candidates completed the correspondence course. The courses run from October to June.

The University of Pennsylvania: The graduate courses in public health began in 1906; there are 13 instructors; two courses are offered, —a one year course for graduates in medicine, leading to the degree of Dr. P. H. and a one year course for graduates of arts or science leading to the degree of Certified Sanitarian. A thesis is required for graduation. The fees are $150 per year. There were two students during 1918; one graduate. The course extends from October to June.

The University of Wisconsin: Graduate courses in public health began in 1910. There are eight teachers. Two courses are offered,—a one year course for graduates in medicine, leading to the degree of Master of Public Health (M. P. H.); the other a two year course for physicians, leading to the degree of Doctor of Public Health. Fees are $50 per year for residents of Wisconsin and $170 for non-residents. A thesis is required for graduation. There were no students and no graduates during the last year owing to war conditions.

Uniform Requirements in 1920-21

On February 28, 1919, a conference of representatives from a number of universities in the country was held at New Haven, Conn. The object of the conference was to reach an agreement on the matters of curriculum, degrees and certificates in connection with teaching and awards in Public Hygiene. As a result of certain recommendations at this conference the following changes will probably be made to take effect with the Session 1920-21:

1. That the degree of Doctor of Public Hygiene (for which the abbreviation shall be Dr. P. H.) for graduates in medicine shall be awarded after two years of work done under academic direction, of which one year at least shall be in residence, and that the requirements for the degree shall include class work, practical field work, and an essay based on individual study of a particular problem.

2. That the degree Doctor of Philosophy or Doctor of Science in Public Hygiene shall be conferred on students who hold the bachelor's degree from a college or technical school of recognized standing, and have satisfactorily completed not less than three years of graduate study. It is understood that this degree is based on a knowledge of physics, chemistry, biology, anatomy, physiology, physiological chemistry, pathology and bacteriology.

3. That the Certificate in Public Hygiene shall be granted for not less than one academic year of work to those who have satisfactorily completed two years of work in a recognized medical school or who have received a bachelor's degree from a recognized college or technical school, provided they have pursued satisfactory courses in physics, chemistry, biology and general bacteriology.

4. That the degree of Bachelor of Science in Public Hygiene shall be given for the completion of a four years' course, the last two years of which shall be devoted to the fundamental sciences associated with hygiene.

5. That the fee for the course shall be advanced to $250 for the course leading to a degree or certificate and to $35 for instruction in any single branch of the course.

GRADUATE MEDICAL SCHOOLS

There are now eighteen graduate medical schools in the United States. These are commonly referred to as postgraduate medical schools. Of these institutions, seven are connected with universities in which the graduate teaching is, or will be, as thoroughly and scientifically given as are the courses of the undergraduate medical school. The universities having graduate schools are the Universities of Alabama, California, Tulane, Harvard, Minnesota, Columbia and Pennsylvania.

The University of Chicago has received a generous endowment preparatory to the establishing of a large graduate school. Active steps toward this end have been delayed by the war.

Several of the undergraduate medical schools give graduate courses to a greater or less extent. Following is the complete list of the graduate medical schools:

ALABAMA

Graduate School of Medicine of the University of Alabama, Ave. F and 20th St., Birmingham. Organized 1915. Formerly the Birmingham Medical College. The dean is Dr. Lewis C. Morris, Empire Bldg.

CALIFORNIA

San Francisco Polyclinic and Post-Graduate School, 1535 Jackson St., San Francisco. The dean is Dr. H. D'Arcy Power.

Graduate School of Medicine of the University of California, Buena Vista and Alpine Sts., Los Angeles. Organized 1914. Formerly the University of Southern California College of Medicine. The dean is Dr. George H. Kress.

ILLINOIS

Chicago Policlinic, 219-221 W. Chicago Ave., Chicago. The secretary is Dr. Malcolm L. Harris, 32 N. State St.

Illinois Post-Graduate Medical School, 1844 W. Harrison St., Chicago. The secretary is Dr. James A. Clark.

Post-Graduate Medical School, 2400 Dearborn St., Chicago. The secretary is Dr. Emil Ries, 77 E. Washington St.

Chicago Eye, Ear, Nose and Throat College, 235 W. Washington St., Chicago. The secretary is Dr. John R. Hoffman, 31 N. State St.

Provident Hospital Post-Graduate School, 16 West 36th St., Chicago. For colored physicians. The dean is Dr. George C. Hall.

LOUISIANA

New Orleans Polyclinic. Post-Graduate School of Medicine of the Tulane University of Louisiana, Tulane Ave. and Liberty St., New Orleans. The dean is Dr. Chas. L. Chassaignac.

New Orleans Post-Graduate School of Medicine, 135 South Rampart St., New Orleans. The secretary is Dr. Joseph A. Danna.

MASSACHUSETTS

Harvard Graduate School of Medicine, 240 Longwood Ave., Boston. Organized 1912. Instructors in charge of the various departments of the medical school. Teaching as thorough and scientific as in the undergraduate school. Instruction throughout the year. The dean is Dr. Alexander S. Begg.

MINNESOTA

University of Minnesota Graduate School of Medicine, Minneapolis. Organized 1914. In 1915, the resources and facilities of the Mayo Foundation were added, with the staff, clinics, laboratories, library and records at Rochester, Minn. Instruction throughout the year. The dean is Guy Stanton Ford, Ph.D., Minneapolis.

NEW YORK

New York Post-Graduate Medical School, 2d Ave. and 20th St., New York City. The secretary is Dr. J. Bentley Squier.

New York Polyclinic Medical School, 341-51 W. 50th St., New York City. Is to be taken over and the work developed by Columbia University. The president is Dr. John A. Wyeth, 341 W. 50th St.

Manhattan Eye, Ear and Throat Hospital and Medical School, 210 E. 64th St., New York City. The secretary is Dr. Samuel J. Kopetzky.

School of Ophthalmology and Otology, 13th St. and 2d Ave., New York City. The secretary is Dr. Geo. S. Rixon, 40 E. 41st St.

College of the New York Ophthalmic Hospital, 23d St. and Third Ave., New York City. The secretary is Dr. W. C. McKnight, 13 Central Park West.

PENNSYLVANIA

Graduate School of Medicine of the University of Pennsylvania, Philadelphia. Organized 1916 by taking over the Medico-Chirurgical College of Philadelphia. The Philadelphia Polyclinic was merged in 1918. The dean is Dr. George H. Meeker.

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

SCHEDULE FOR THE GRADING OF MEDICAL SCHOOLS

Schools are rated on a civil service basis on a scale of 1,000 points. The data relating to each school are grouped under ten general heads in such a manner that the groups have as nearly equal weight as possible, each group allowing a possible 100 points (10 per cent.) out of a possible 1,000 points (100 per cent.). The revised schedule showing the general heads under which the data are arranged is as follows:

1. Character of curriculum, grading of course, sequence of subjects, supervision, administration, etc.
2. Medical school buildings; adaptability, light, heat, ventilation, cleanliness, etc.
3. Laboratory facilities and instruction.
4. Dispensary facilities and instruction.
5. Hospital facilities and instruction in medicine, surgery, obstetrics, and gynecology.
6. Hospital facilities for instruction in medical specialties and provision for clinical clerkships, necropsies, etc.
7. Full-time instructors and assistants with special reference to their special qualifications and evidences of their work, including research.
8. Faculty, number, qualifications and organization of, including the staff of teaching hospitals.
9. Library, museum, charts and special apparatus and evidences of the use made of them.
10. Showing of graduates at state board and other examinations and other evidences by which the training received is indicated.

It will be noted that financial income is not referred to in the ten heads outlined. It is quite evident, however, that no college can secure an adequate number of expert full-time teachers, provide well equipped laboratories, library and museum, and be conducted in accordance with present-day medical knowledge without a liberal income in addition to students' fees.

Meaning of Classes A, B, and C

Class A Colleges will, as heretofore, be those which are acceptable; Class B, those which, under their present organization, give promise of being made acceptable by general improvements, and Class C those

(*a*) Which require a complete reorganization to make them acceptable.

(*b*) Which do not keep satisfactory records of their students in regard to entrance requirements, attendance, grades in courses, division into classes and reasons for promotion.

(*c*) Which do not enforce their requirements in regard to admission (including those admitted to advanced standing), promotion and graduation.

(*d*) Which give the major portion of their instruction after 4 o'clock in the afternoon.

(*e*) Which are privately owned and conducted for profit.

(*f*) Which for other specific reasons are not eligible for inclusion in Class B.

ESSENTIALS OF AN ACCEPTABLE MEDICAL COLLEGE

(Revised to June 15, 1919)

The following outline of the essentials of an acceptable medical college was issued by the Council an Medical Education of the American Medical Association for its suggestive value in the rapid development in progress in the medical colleges of the United States. It also represents the standard by which medical colleges are measured in the Council's classifications.

Requirements for Admission

1. The minimum requirement for admission to an acceptable medical college is a four-year high school education or its full equivalent and two years of work in a college of arts and sciences approved by the Council, as follows:

I. High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fourteen units (fifteen after Jan. 1, 1920) in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. Unless all the entrance units are obtained by examination, a detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

(*b*) Credits for admission to the premedical college course may be granted for the subjects shown in the following list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V:

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE

Subjects	Units*	Required
Group I, English—		
Literature and composition	3-4	3
Group II, Foreign Languages—		
Latin	1-4	2†
Greek	1-3	
French or German	1-4	
Other foreign languages	1-4	
Group III, Mathematics—		
Elementary algebra	1	1
Advanced algebra	½-1	..
Plane geometry	1	1
Solid geometry	½	..
Trigonometry	½	..
Group IV, History—		
Ancient history	½-1	1
Medieval and modern history	½-1	
English history	½-1	
American history	½-1	
Civil government	½ 1	
Group V, Science—		
Botany	½-1	..
Zoology	½-1	..
Chemistry	1	..
Physics	1	..
Physiography	½-1	..
Physiology	½-1	..
Astronomy	½	..
Geology	½-1	..
Group VI, Miscellaneous—		
Agriculture	1-2	..
Bookkeeping	½-1	..
Business law	½	..
Commercial geography	½-1	..
Domestic science	1-2	..
Drawing, freehand and mechanical	½-2	..
Economics and economic history	½-1	..
Manual training	1-2	..
Music: Appreciation or harmony	1-2	..

* A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words, a unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fourteen units of high school work (fifteen after Jan. 1, 1920), eight units are required, as indicated in the foregoing schedule; the balance may be made up from any of the other subjects in the schedule.

II. Premedical College Course

(*c*) Beginning Jan. 1, 1918, the minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, will be sixty semester hours of collegiate work in a college approved[1] by the Council on Medical Education. The subjects included in the two years of college work should be in accordance with the following schedule:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours* Required

	Semester Hours
Required Subjects:	
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d)	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	
A modern foreign language (f)	6-12
Advanced botany or advanced zoology	3 -6
Psychology	3 -6
Advanced mathematics, including algebra and trigonometry	3 -6
Additional courses in chemistry	3 -6

Other Suggested Electives:

English (additional), economics, history, sociology, political science, logic, mathematics, Latin, Greek, drawing.

* A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry.*—Twelve semester hours required (eight until Jan. 1, 1920), of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work. In the interpretation of this rule work in qualitative analysis may be counted as general inorganic chemistry. The remaining four semester hours (required after Jan. 1, 1920) may consist of additional work in general chemistry or of work in analytic or organic chemistry. After Jan. 1, 1922, organic chemistry will be required.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry. This requirement may be satisfied by six semester hours of college physics, of which two must be laboratory work, if preceded by a year (one unit) of high school physics with laboratory work.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. The requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone. This requirement may also be satisfied by six semester hours of college biology, including three semester hours of laboratory work, if preceded by a year (one unit) of high school biology or zoology with laboratory work.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *Foreign Language.*—A reading knowledge of a modern foreign language is strongly urged. French and German have the closest bearing on modern medical literature. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages.

III. Approved Colleges of Arts and Sciences

A tentative list of colleges of arts and sciences approved by the Council on Medical Education has been prepared, and revisions of this list will be published from time to time. By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence. To be recognized a college must have sufficient scientific equipment and maintain laboratories in the premedical sciences. It must have ample endowment to maintain a sufficient corps of teachers. Membership in some national organization or association of colleges will be favorably regarded by the Council and, in the absence of such membership, careful investigation will be made of the causes of exclusion. It must also maintain national standards for admission to its freshman class. Students must be required to complete a four-year high school course, and the requirements for admission to the premedical course must be no less than the requirements for admission to the regular B. S. course of the college.

Particular attention will be given to the character of high schools from which certificates are received. Colleges should recognize only certificates from high schools approved by commissions or boards of associations of colleges and secondary schools or other agencies approved by the Council. When such endorsement is lacking the college should be slow in accepting certificates without the support of entrance examinations. Undue liberality in the acceptance of certificates from secondary schools unendorsed by approved standardizing agencies will be registered by the Council as a failure to comply with its requirements and the college will be dropped from the approved list.

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[1] A tentative list of approved colleges may be received on application.

PREMEDICAL COURSES IN MEDICAL COLLEGES—JUNIOR COLLEGES

1. Premedical college courses given in or by medical schools, or advance years taken in high schools, will not be considered as acceptable unless they have been investigated and approved by some association of colleges and secondary schools or other approved agency having to do with the standardizing of liberal arts colleges.

ADMINISTRATION OF ENTRANCE REQUIREMENTS

2. The admission of students to the medical school must be in the hands of a responsible committee or examiner whose records shall always be open for inspection.[2] Documentary evidence of the students' preliminary education should be obtained and kept on file. When the medical school is an integral part of a university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file documentary evidence of each student's preliminary education, including both high school and collegiate work. It is particularly important that the records show that the required amount of work in the premedical sciences, including laboratory exercises, has been completed.

Other Medical School Requirements

3. The college should require that students be in actual attendance in the college *within the first week* of each annual session and thereafter.

4. Actual attendance at classes should be insisted on except for good cause, such as for sickness, and no credit should be given for any course where the attendance has been less than 80 per cent. of the full time.

5. (*a*) Full advanced standing may be granted to students only for work done in other acceptable medical schools, and in granting advanced standing there should be no discrimination against the college's full-course students. Official verification of the student's previous medical work should be obtained by direct correspondence with the college previously attended, and his preliminary qualifications should also be verified and recorded the same as for freshman students. (*b*) In *exceptional cases* students from Class B medical schools may be given advanced standing but not higher than *entrance* to the third year (junior) class, and no credit should be given in any subject except on recommendation of the head of the department teaching that subject. (*c*) in *exceptional cases* students from Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class, and then only after thorough examinations in all first year subjects have been passed.

SUPERVISION, EQUIPMENT, TEACHERS

6. There should be careful and intelligent supervision of the entire school by the dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as determined by the present day knowledge of medicine.

7. There should be a good system of records[2] showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Records should also be kept showing readily the attendance of patients at the teaching hospitals and dispensaries; the maternity cases attended by students, and the postmortem cases used in teaching.

8. The college curriculum should be fully graded and should cover four sessions of at least thirty-two weeks each, exclusive of time required for matriculation and holidays, and at least thirty hours per week of actual work. The courses offered in the various subjects should be set forth by departments (anatomy, physiology, etc.) in the annual announcement, showing for each course its number, subject content, character (lecture, recitation, laboratory or clinic), length of time, when, where, and by whom given, and the amount of credit allowed. The courses for each class should also be clearly set forth in a printed class schedule, for the guidance of the students.

(*a*) The college should give two years of work consisting largely of laboratory work in well equipped laboratories of anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis. Present-day medical knowledge makes it essential that these subjects be in charge of full-time, well-trained teachers.

(*b*) Two years of clinical work, largely in hospitals and dispensaries, with courses in medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence. With the higher entrance requirements time is now available in the latter part of the second year for beginning courses in physical diagnosis and the principles of surgery.

(*c*) As soon as conditions warrant, relations should be established with a number of approved hospitals so that a fifth undergraduate year may be required to be spent by the student as an intern under the continued supervision of the medical school.

FACULTY

9. (*a*) The college should provide at least *eight expert thoroughly trained professors in the laboratory branches,* salaried so that they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects.[3] There should also be a sufficient number of assistants in each department to look after the less important details. For colleges having *sixty students or less* in each class, there should be *at least one full-time salaried assistant each in the departments* of (1) anatomy, (2) physiology, (3) pathology and bacteriology, and (4) physiologic chemistry and pharmacology, and *one additional assistant in each of these departments should be provided for each additional thirty students enrolled.* This represents a low average of the full-time assistants already employed by the acceptable medical colleges.

(*b*) The faculty should be made up of graduates of institutions recognized as medical colleges and who have had a training in all departments of medicine. Nonmedical men should be selected as teachers in medical schools only under exceptional circumstances and only when medical men of equal special capacity are not available. The faculty should be organized, each department having its head professor, its associate professor, assistant professor, instructor, etc., each having his particular subjects for the teaching of which he is responsible to the head of the department.

CLINICAL FACILITIES

10. (*a*) The college should own or entirely control a hospital, in order that students may come into close and extended contact with patients under the supervision of the attending staff. This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students *or less*) of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the students to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties. In the use of this material *bedside and ward clinics* should be developed for sections of from five to ten students, and for the seniors, a certain number of patients in medicine, surgery and the specialities should be assigned to each student. A well supervised clinical clerk system should also be installed. The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, or the attending staff of the hospital.[4]

(*b*) The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

(*c*) The college should own or control a dispensary, or outpatient department, the attendance to be a daily average of 100 patients (visits) (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used. The attending staff should be made up of good teachers, should be well organized and be regular in attendance.

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[2] See "Meaning of Classes A, B and C," paragraph (*c*), on page 517.

[3] These professors should have a definite responsibility in the conduct of the college, and their first and chief interest should be the training of medical students. It is suggested that four of these professors be placed at the head of the departments of (*a*) anatomy, (*b*) physiology and physiologic chemistry, (*c*) pathology and bacteriology, and (*d*) pharmacology and therapeutics. The other four may be assigned, one each, to (*e*) histology and embryology, under the department of anatomy, and to the departments of pathology and bacteriology, physiology and pharmacology, and to the departments of internal medicine and surgery.

[4] Suggestions more in detail may be found in the "Report of the Committee on the Reorganization of Clinical Teaching."—The Journal A. M. A., March 6, 1915. Reprint sent on application.

(*d*) At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician. Careful records of each case should be handed in by the student.

(*e*) Facilities should be provided for at least thirty necropsies (for senior classes of 100 students *or less*) during each college session which are attended and participated in by senior students.

OTHER TEACHING FACILITIES AND FINANCES

11. The college should have a working medical library, to include the more modern text and reference books with the *Index Medicus* and thirty or more leading medical periodicals, the current numbers of which should be in racks or on tables easily accessible to the students; the library room should be properly lighted and heated, and open during all or the greater part of the day; it should be equipped with suitable indexes as well as with tables and chairs, and have a competent librarian in charge.

12. There should be a working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from postmortems there also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen. The museum furnishes an excellent means of correlating the work of the department of pathology with that of the clinical departments.

13. There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver, to provide cross-sections and other demonstration material and to allow of a thorough course for each senior in operative surgery on the cadaver.

14. For modern experimental laboratory work in physiology, pharmacology and bacteriology as well as for medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential. Proper provision, also, is necessary for the housing and care of such animals. In any use made of animals every precaution should be taken to prevent needless suffering, and work by students should be carefully supervised.

15. Each college should have a supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embrologic or other models, manikins, dummies for use in bandaging, a roentgen-ray and other apparatus now so generally used in medical teaching.

16. The college should show evidences of thorough organization and of reasonably modern methods in all departments, and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

17. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

18. Statistics show[5] that modern medicine cannot be acceptably taught by a medical school depending solely on the income from students' fees. No medical school should expect to secure admission to, or be retained in Class A, therefore, which does not have an annual income of at least $25,000 in addition to the amount obtained from students' fees.

NOTE.—Correspondence from medical colleges regarding the above requirements is invited, and further suggestions or information available will be gladly furnished.

Entrance Requirements of Medical Colleges

Seventy-eight medical schools are now requiring, as a minimum for entrance, *two years* or more of work in a college of liberal arts in addition to a four-year high-school education. The years, respectively, when for each college the one-year and the two-year requirements became effective, and the rating of each college, are as follows:

College	One Year	Two Years	College Rating
ALABAMA			
University of Alabama School of Medicine	1914	1915	A
ARKANSAS			
University of Arkansas Medical Department	1915	1918	A
CALIFORNIA			
College of Medical Evangelists	1914	1915	B
University of Southern California Med. Dept.	1914	1916	B
Leland Stanford Junior University School of Med.	....	1909	A
University of California Medical School	....	1905	A
COLORADO			
University of Colorado School of Medicine	....	1910	A
CONNECTICUT			
Yale University School of Medicine	....	1909	A
DISTRICT OF COLUMBIA			
Georgetown University School of Medicine	....	1912	A
George Washington University Medical School	1914	1918	A
Howard University School of Medicine	1910	1914	A
GEORGIA			
Emory University School of Medicine, Atlanta	1914	1918	A
University of Georgia Medical Department	1914	1918	A
ILLINOIS			
Loyola University School of Medicine	1915	1918	B
Hahnemann Medical College and Hospital	1914	1916	B
Northwestern University Medical School	1908	1911	A
Rush Medical College (University of Chicago)	....	1904	A
University of Illinois College of Medicine	1913	1914	A
INDIANA			
Indiana University School of Medicine	1909	1910	A
IOWA			
State University of Iowa College of Medicine	1909	1910	A
KANSAS			
University of Kansas School of Medicine	....	1909	A
KENTUCKY			
University of Louisville Medical Department	1914	1918	A
LOUISIANA			
Tulane University of Louisiana School of Medicine	1910	1918	A
MAINE			
Bowdoin Medical School	1912	1916	A
MARYLAND			
Johns Hopkins University Medical Department	....	1893	A
University of Maryland School of Medicine and College of Physicians and Surgeons	1914	1918	A
MASSACHUSETTS			
Boston University School of Medicine	1914	1916	A
Medical School of Harvard University	....	1900	A
Tufts College Medical School	1914	1918	A
MICHIGAN			
Detroit College of Medicine and Surgery	1914	1918	A
University of Michigan Medical School	....	1909	A
University of Michigan Homeopathic Medical School	1912	1916	A
MINNESOTA			
University of Minnesota Medical School	....	1907	A
MISSISSIPPI			
University of Mississippi School of Medicine	1914	1918	A
MISSOURI			
St. Louis University School of Medicine	1910	1918	A
University of Missouri School of Medicine	1906	1910	A
Washington University Medical School	1910	1912	A
NEBRASKA			
John A. Creighton Medical College	1914	1918	A
University of Nebraska College of Medicine	1908	1909	A
NEW HAMPSHIRE			
Dartmouth Medical School	....	1910	A
NEW YORK			
Albany Medical College	1914	1918	A
Columbia University College of Phys. and Surg.	....	1910	A
Cornell University Medical College	....	1908	A
Long Island College Hospital	1914	1918	A
New York Homeo. Med. Coll. and Flower Hospital	1915	1919	B
Syracuse University College of Medicine	1909	1910	A
University and Bellevue Hospital Medical College	1912	1918	A
University of Buffalo Department of Medicine	1914	1918	A
NORTH CAROLINA			
Wake Forest College School of Medicine	....	1908	A
University of North Carolina School of Medicine	1910	1917	A
NORTH DAKOTA			
University of North Dakota School of Medicine	....	1907	A
OHIO			
Eclectic Medical College	1915	1918	B
Ohio State University College of Medicine	1914	1915	A
Ohio State Univ. Coll. of Homeopathic Medicine	1915	1916	B
University of Cincinnati College of Medicine	1910	1913	A
Western Reserve University School of Medicine	....	1901	A
OKLAHOMA			
University of Oklahoma School of Medicine	1914	1917	B
OREGON			
University of Oregon Department of Medicine	1910	1915	A
PENNSYLVANIA			
Hahnemann Medical College and Hospital	1914	1917	A
Jefferson Medical College	1914	1917	A

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[5] See "Medical College Finances," The Journal A. M. A., April 8, 1916, p. 1115.

College	One Year	Two Years	College Rating
Temple University Department of Medicine	1914	1918	B
University of Pennsylvania School of Medicine	1909	1910	A
University of Pittsburgh School of Medicine	1911	1913	A
Woman's Medical College of Pennsylvania	1914	1915	A
SOUTH CAROLINA			
Medical College of the State of South Carolina	1914	1916	A
SOUTH DAKOTA			
University of South Dakota College of Medicine	1908	1909	A
TENNESSEE			
Meharry Medical College	1914	1918	B
Vanderbilt University Medical Department	1914	1918	A
University of Tennessee College of Medicine	1914	1918	A
TEXAS			
Baylor University College of Medicine	1913	1918	A
University of Texas Department of Medicine	1910	1917	A
UTAH			
University of Utah School of Medicine	1909	1910	A
VERMONT			
University of Vermont College of Medicine	1912	1918	A
VIRGINIA			
Medical College of Virginia	1914	1915	A
University of Virginia Department of Medicine	1910	1917	A
WEST VIRGINIA			
West Virginia University School of Medicine	1911	1917	A
WISCONSIN			
Marquette University School of Medicine	1913	1915	A
University of Wisconsin Medical School	....	1907	A
Total, 78.			

The seven following medical colleges[6] either have not announced the higher entrance requirements or evidence has not been received to show they are in effect for all students enrolled:

	Rating
Chicago Hospital College of Medicine	C
College of Physicians and Surgeons, Boston	C
Middlesex College of Medicine and Surgery, Cambridge, Mass.	C
Kansas City College of Medicine and Surgery	[7]
Kansas City University of Physicians and Surgeons	C[8]
St. Louis College of Physicians and Surgeons	C
University of West Tenn. Coll. of Med. and Surg., Memphis	C

Scholarships in Medical Schools

As evidence that provision is being made for worthy students, regardless of their financial status, 334 scholarships are reported this year in the following thirty-eight medical schools:

University of Alabama School of Medicine, Mobile	67
Leland Stanford Junior University Medical School*	3
University of California Medical School,* San Francisco	3
University of Colorado School of Medicine,* Boulder	1
Yale University School of Medicine, New Haven, Conn.*	2
Hahnemann Medical College and Hospital of Chicago*	6
Loyola University School of Medicine, Chicago	3
Rush Medical College, Chicago	7
University of Illinois College of Medicine, Chicago*	7
Indiana University School of Medicine, Indianapolis	12
State University of Iowa College of Medicine	1
University of Kansas School of Medicine*	17
Johns Hopkins University Medical Department, Baltimore	6
University of Maryland School of Medicine,* Baltimore	6
Harvard Medical School,* Boston	30
Boston University School of Medicine*	50
Detroit College of Medicine and Surgery	8
Washington University Medical School, St. Louis	4
Dartmouth Medical School,* Hanover, N. H	2
University of Buffalo Department of Medicine*	1
University of Cincinnati College of Medicine*	12
Western Reserve University School of Medicine, Cleveland	1
University of Oregon Department of Medicine,* Portland	3
Hahnemann Medical College and Hospital of Philadelphia*	12
Jefferson Medical College of Philadelphia	1
Temple University Department of Medicine, Philadelphia	3
University of Pennsylvania School of Medicine,* Philadelphia	3
Woman's Medical College of Pennsylvania,* Philadelphia	15
Medical College of the State of South Carolina, Charleston	8
University of Tennessee College of Medicine, Memphis	6
Vanderbilt University Medical Department, Nashville, Tenn.	4
Baylor University College of Medicine, Dallas, Tex.	5
University of Texas Department of Medicine,* Galveston	1
University of Wisconsin Medical School*	6
University of Vermont College of Medicine*	1
Medical College of Virginia, Richmond	15
University of Virginia Department of Medicine, Charlottesville*	2
Total in 37 medical schools	334

*Have loan funds also.

Loan Funds

Besides the twenty-one colleges marked by an asterisk (*) in the above list which have loan funds for deserving but needy students, such funds are available also at the five following medical schools:

College of Medical Evangelists, Loma Linda, Calif.
Tulane University of Louisiana School of Medicine, New Orleans, La.
University of Missouri School of Medicine, Columbia, Mo.
University of Nebraska College of Medicine, Omaha, Neb.
Wake Forest College School of Medicine, Wake Forest, N. C.
University of North Dakota, School of Medicine, University, N. D.

Hospital Intern Year

Eight medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the years when the requirement became effective for matriculants and graduates are as follows:

	Affects Matriculants	Affects Graduates
University of Minnesota Medical School	1910-11	1915
Leland Stanford Junior Univ. School of Med.	1914-15	1919
Rush Medical College (University of Chicago)	1914-15	1919
University of California Medical School	1914-15	1919
Northwestern University Medical School	1915-16	1920
University of Vermont College of Medicine	1915-16	1920
Coll. of Phys. and Surgs., Los Angeles	1918-19	1923
Columbia Univ. Coll. of Phys. & Surgs., New York	1918-19	1923

The hospital intern year has been adopted as an essential qualification for the license to practice in nine states, becoming effective in different years, as follows:

State Board of	Affects Student Matriculants	Affects All Applicants
Pennsylvania	1909-10	1914
New Jersey	1911-12	1916
Alaska	1912-13	1917
Rhode Island	1913-14	1917
North Dakota	1913-14	1918
Washington	1914-15	1919
Illinois	1917-18	1922
Michigan	1917-18	1922
Iowa	1918-19	1923

CLASSIFICATION OF MEDICAL COLLEGES

Revised to June 15, 1919

CLASS A—ACCEPTABLE MEDICAL COLLEGES

Alabama	
University of Alabama School of Medicine	Mobile
Arkansas	
University of Arkansas Medical Department*	Little Rock
California	
Leland Stanford Junior Univ. School of Med.	San Francisco
University of California Medical School	San Francisco
Colorado	
University of Colorado School of Med.	Boulder-Denver
Connecticut	
Yale University School of Medicine	New Haven
District of Columbia	
Georgetown University School of Medicine	Washington
George Washington University Medical School	Washington
Howard University School of Medicine[1]	Washington
Georgia	
Emory University School of Medicine[2]	Atlanta
University of Georgia Medical Department[3]	Augusta
Illinois	
Northwestern University Medical School	Chicago
Rush Medical College (University of Chicago)	Chicago
University of Illinois College of Medicine	Chicago
Indiana	
Indiana Univ. School of Med.	Bloomington-Indianapolis
Iowa	
State University of Iowa College of Medicine	Iowa City
Kansas	
University of Kansas School of Med.	Lawrence-Rosedale

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[6] For the standing of these and other medical colleges before state licensing boards, see Table D, The Journal A. M. A., April 19, 1919, p. 1148.

[7] This college is an offshoot of the Eclectic Medical University; it has refused to have an inspection made. It is reported not recognized by the Missouri State Board of Health and by the licensing boards of 32 other states.

[8] This college was formerly the Central College of Osteopathy; in 1916 it assumed the title Central College Medical Department, and took its present name in 1918.

* Since 1919, gives only the first two years of the medical course. Raised to Class A, June 9, 1919.

[1] Rating raised to Class A June 6, 1910.

[2] Rating raised to Class A Feb. 24, 1914; formerly the Atlanta Medical College.

[3] Class A rating restored Feb. 24, 1913.

Kentucky

University of Louisville Medical Department[4].....Louisville

Louisiana

Tulane Univ. of Louisiana School of Med.....New Orleans

Maine

Bowdoin Medical School................Brunswick-Portland

Maryland

Johns Hopkins University Medical Department....Baltimore
University of Maryland School of Medicine and the College of Physicians and Surgeons......Baltimore

Massachusetts

Boston University School of Medicine...............Boston
Medical School of Harvard University...............Boston
Tufts College Medical School.......................Boston

Michigan

Detroit College of Medicine and Surgery[5]...........Detroit
University of Michigan Medical School..........Ann Arbor
University of Mich. Homeopathic Med. School....Ann Arbor

Minnesota

University of Minnesota Medical School........Minneapolis

Mississippi

University of Mississippi School of Medicine*.......Oxford

Missouri

St. Louis University School of Medicine...........St. Louis
University of Missouri School of Medicine*.......Columbia
Washington University Medical School............St. Louis

Nebraska

John A. Crighton Medical College[6]..................Omaha
University of Nebraska College of Medicine..........Omaha

New Hampshire

Dartmouth Medical School*........................Hanover

New York

Albany Medical College.............................Albany
Columbia Univ. Coll. of Phys. and Surgs....New York City
Cornell University Medical College.........New York City
Fordham University School of Medicine[7]....New York City
Long Island College Hospital[8]....................Brooklyn
Syracuse University College of Medicine...........Syracuse
University and Bellevue Hospital Med. Coll..New York City
University of Buffalo Department of Medicine.......Buffalo

North Carolina

University of North Carolina School of Med.*...Chapel Hill
Wake Forest College School of Medicine*.....Wake Forest

North Dakota

University of North Dakota School of Medicine*..University

Ohio

Ohio State University College of Medicine........Columbus
University of Cincinnati College of Medicine.....Cincinnati
Western Reserve Unversity School of Medicine....Cleveland

Oregon

University of Oregon Medical School...............Portland

Pennsylvania

Hahnemann Medical College and Hospital......Philadelphia
Jefferson Medical College of Philadelphia......Philadelphia
University of Pennsylvania School of Med.....Philadelphia
University of Pittsburgh School of Medicine[9].....Pittsburgh
Woman's Medical College of Pennsylvania......Philadelphia

South Carolina

Medical College of the State of South Carolina[10]..Charleston

South Dakota

University of South Dakota College of Medicine*..Vermilion

Tennessee

University of Tennessee College of Medicine[11]......Memphis
Vanderbilt University Medical Department........Nashville

Texas

Baylor University College of Medicine[12].............Dallas
University of Texas Department of Medicine......Galveston

Utah

University of Utah School of Medicine*......Salt Lake City

Vermont

University of Vermont College of Medicine......Burlington

Virginia

Medical College of Virginia......................Richmond
University of Virginia Department of Med...Charlottesville

West Virginia

West Virginia Univ. School of Medicine*[13].....Morgantown

Wisconsin

Marquette University School of Medicine[14].......Milwaukee
University of Wisconsin Medical School*...........Madison

Total, 69.

CLASS B—COLLEGES NEEDING GENERAL IMPROVEMENTS TO BE MADE ACCEPTABLE

California

College of Medical Evangelists[15]...Loma Linda-Los Angeles
University of Southern California Medical Department (College of Physicians and Surgeons)..........Los Angeles

Illinois

Loyola University School of Medicine[16].............Chicago
Hahnemann Medical College and Hospital[17].........Chicago

New York

New York Homeopathic Medical College and Flower Hospital[18] ....New York City

Ohio

Eclectic Medical College........................Cincinnati
Ohio State Univ. Coll. of Homeopathic Med.[19].....Columbus

Oklahoma

Univ. of Oklahoma School of Med.[20]..Norman-Oklahoma City

Pennsylvania

Temple University Department of Medicine[21]....Philadelphia

Tennessee

Meharry Medical College[22].........................Nashville

Total, 10.

CLASS C—COLLEGES REQUIRING A COMPLETE REORGANIZATION TO MAKE THEM ACCEPTABLE

California

College of Physicians and Surgeons†.........San Francisco
Oakland College of Medicine and Surgery[23]†........Oakland

Illinois

Chicago Hospital College of Medicine..............Chicago

Massachussetts

College of Physicians and Surgeons..................Boston
Middlesex College of Medicine and Surgery[24]......Cambridge

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* Gives only the first two years of the medical course.

[4] Rating raised to Class A June 6, 1910.

[5] Class A rating restored June 21, 1914.

[6] Class A rating restored Feb. 4, 1917.

[7] Class A rating restored Feb. 24, 1914. College closed in 1919.

[8] Class A rating restored June 21, 1914.

[9] Rating raised to Class A June 6, 1910.

[10] Class A rating restored Feb. 6, 1916.

[11] Rating raised to Class A June 21, 1914.

* Gives only the first two years of the medical course.

† College suspended in 1918.

[12] Rating raised to Class A June 12, 1916.

[13] Class A rating restored Feb. 4, 1917.

[14] Rating raised to Class A Feb. 15, 1915.

[15] Rating raised to Class B Feb. 3, 1918.

[16] The Chicago College of Medicine and Surgery was merged with the Bennett Medical College, School of Medicine of Loyola University, in September, 1917. The words "Chicago College of Medicine and Surgery" were retained in the title until 1919.

[17] Rating dropped to Class B June 3, 1912.

[18] Rating dropped to Class B Feb. 15, 1915.

[19] Rating raised to Class B Feb. 4, 1917.

[20] Rating dropped to Class B June 3, 1912.

[21] Rating raised to Class B June 6, 1910.

[22] Rating dropped to Class B Feb. 24, 1914.

[23] Rated in Class B June 6, 1910; rating dropped to Class C Feb. 3, 1918.

[24] This is the medical department of the so-called "University of Massachusetts." It was rated in Class C Feb. 4, 1918.

MISSOURI

Kansas City University of Phys. and Surgs.[25]....Kansas City
Eclectic Medical University[26]†....................Kansas City
St. Louis College of Physicians and Surgeons[27].....St. Louis

NEBRASKA

Lincoln Medical College[28]..........................Lincoln

TENNESSEE

University of West Tenn. Coll. of Med. and Surg..Memphis
Total, 10.

CLASSIFICATION OF CANADIAN MEDICAL COLLEGES

CLASS A

University of Toronto Faculty of Medicine....Toronto, Ont.
McGill University Faculty of Medicine.......Montreal, Que.

CLASS B

Univ. of Manitoba, Manitoba Med. College..Winnipeg, Man.
Dalhousie University Faculty of Medicine....Halifax, N. S.
Queen's University Faculty of Medicine[29].....Kingston, Ont.
Western University Faculty of Medicine[30]......London, Ont.
Montreal School of Medicine and Surgery....Montreal, Que.
Laval University Faculty of Medicine..........Quebec, Que.

The University of Alberta at Edmonton, besides the premedical year, gives only the first two years of the medical course as measured by that of the medical schools of the United States. It has not been inspected.

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances in which such reports were not received, the information published is from other reliable sources. Figures for graduates include all who graduated since July 1, 1918. Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's estimate for 1916. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work. Nine states, Alaska (Ter.), Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania, Rhode Island and Washington, require a year's hospital internship before a license will be granted.

ALABAMA

Alabama, population 2,348,273, has one medical college, the School of Medicine of the University of Alabama, located in Mobile, a city with a population of 58,221.

In order to secure licenses to practice medicine in Alabama, students matriculating in the session of 1915-16 and thereafter must have completed two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language, prior to entering on the study of medicine. This applies to all graduates of 1919 and thereafter.

Mobile

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, 550 St. Anthony Street.—Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868 inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907 when the present title was assumed. Two years of college work are required for admission. The faculty consists of 20 professors and 25 lecturers and assistants, a total of 45. The course of study covers four years of thirty-two weeks each. The total fees for each of the four years, respectively, are $165, $160, $160 and $185. The Dean is Dr. T. H. Frazer. The total registration for 1918-1919 was 56; graduates, 4. The fifty-fourth session begins Oct. 3, 1919, and ends June 4, 1920.

ARKANSAS

Arkansas, population 1,753,033, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 57,343. Hereafter it offers only the courses of the first two years of the medical course.

To secure licenses to practice medicine in Arkansas, students matriculating in the session of 1918-19 and thereafter must have completed two years of collegiate work, including college courses in physics, chemistry, biology and a modern language before beginning the study of medicine. This applies to all graduates of 1922 and thereafter.

Little Rock

UNIVERSITY OF ARKANSAS MEDICAL DEPARTMENT, Markham and Center Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class was graduated in 1880. The faculty consists of 20 professors and 36 lecturers and assistants, total 56. Entrance requirements are two years of collegiate work beyond a four-year high school course. The course of study covers two years of thirty-two weeks each. The fees are $50 each year. The Dean is Dr. Morgan Smith. Total registration 1918-1919 was 43; graduates, 7. The forty-first session begins Sept. 22, 1919, and ends June 9, 1920.

CALIFORNIA

California, population 2,983,843, has four medical colleges. Two are located in San Francisco, a city of 463,516 inhabitants. They are Leland Stanford Junior University School of Medicine and the College of Medicine of the University of California. The College of Physicians and Surgeons, Medical Department of the University of Southern California is situated in Los Angeles, population 503,812. The College of Medical Evangelists is located at Loma Linda and Los Angeles.

To secure licenses to practice medicine in California under the "physician's and surgeon's" certificate, students matriculating in medical colleges in and after the session of 1915-16, prior to such matriculation, must have completed at least one year of recognized collegiate work including college courses in physics, chemistry, biology and a modern language. This applies to all graduates of 1919 and thereafter.

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley; Second and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909 the College of Medicine of the University of Southern California, at Los Angeles, by legislative enactment, became a clinical department. This Los Angeles portion was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica and therapeutics were provided for. Two years of collegiate work are required for admission. The work of the first year and a half is given at Berkeley and the work of the last two and a half years at San Francisco. The faculty is composed of 12 professors and 128 associates and assistants, a total of 140. The course covers five years of nine months each, the fifth year to consist of an internship or of special work in a department of the medical school. Fees for the four years, respectively, are $200, $155, $150 and $150. The Dean is Dr. Herbert C. Moffit, San Francisco. Total registration for 1918-1919 was 188; graduates, 22. The forty-seventh session begins Aug. 19, 1919, and ends May 12, 1920.

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[25] Formerly the Central College of Osteopathy; in 1917 under an amended charter took the name of Central College Medical Department; assumed present title in 1918. Rated in Class C March 15, 1918.

[26] An offshoot of this institution—the Kansas City College of Medicine and Surgery—was organized in 1915. It is reported not recognized by the Missouri State Board of Health. Since it is an offshoot of a Class C institution reported not recognized by the Missouri State Board of Health, no higher rating could be granted it pending an inspection which it has refused.

[27] Rating dropped to Class C July 1, 1909. In 1915 it merged with the Medical Department of the National University of Arts and Sciences, but in 1917 was reestablished. In 1918 reported not recognized by the Missouri State Board of Health.

[28] Formerly known as the Cotner University Medical College. Reported suspended in 1918.

[29] Rating dropped to Class C Feb. 6, 1916; restored to Class B Feb. 3, 1918.

[30] Rating raised to Class B Feb. 4, 1917.

Loma Linda-Los Angeles

College of Medical Evangelists.—Organized in 1909. The faculty numbers 87. The first class graduated in 1914. The laboratory departments are at Loma Linda; the clinical departments at Los Angeles. The course extends over four years of nine months each. Two years of college work are required for admission. The total fees for the four years, respectively, are $181, $181, $176, and $186. The Dean is Dr. P. T. Magan. The total registration for 1918-1919 was 84; graduates, 5. The eleventh session begins Sept. 7, 1919, and ends June 3, 1920.

Los Angeles

College of Physicians and Surgeons, Medical Department of the University of Southern California, 516 East Washington Street.—Organized in 1903, first class graduated in 1905; became Medical Department, University of Southern California, Aug. 11, 1909. The course covers four years of nine months each. Two years of collegiate work are required for admission. The faculty consists of 22 professors and 77 associate professors, lecturers and instructors, a total of 99. The fees for the four years, respectively, are $222, $217, $202 and $227. The Dean is Dr. Charles W. Bryson. The registration for 1918-1919 was 81; graduates, 28. The next session begins Sept. 2, 1919, and ends June 17, 1920.

San Francisco-Palo Alto

Leland Stanford Junior University School of Medicine, University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated in 1913. The faculty consists of 43 professors and 52 lecturers, assistants, etc., a total of 95. Three years of collegiate work are required for admission. The school has the quarter system and the completion of any three quarters constitutes a college year. The course covers five years of nine months each, including a year of practical or intern work. The total fees for each of the first four years is $159. The Dean is Dr. W. Ophüls, San Francisco. The total registration for 1918-1919 was 109; graduates, 16. The tenth session begins Oct. 1, 1919, and ends June 16, 1920.

COLORADO

Colorado, with a population of 975,190, has one medical college, the University of Colorado School of Medicine. The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 260,800.

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination by any other licensing board. The law permits any one, graduate or nongraduate, to try the board's written examination. No graduate of 1914 or thereafter is eligible to obtain a license in Colorado, or indorsement of his credentials, unless he graduated from a medical college which, at the time he matriculated, required at least two years' study, without conditions, in an accredited college of liberal arts, and this work must have included courses in physics, chemistry, biology and one modern language.

Boulder-Denver

University of Colorado School of Medicine.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. The faculty embraces 12 professors, 18 associate and assistant professors, and 31 lecturers, instructors and assistants, a total of 61. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The tuition is $90 per year for residents of Colorado, $120 for nonresidents. Laboratory fees are $10 for each of the first two years. The Dean is Dr. Charles N. Meader. The total registration for 1918-1919 was 75; graduates, 19. The thirty-eighth session begins Sept. 29, 1919, and ends June 11, 1920.

CONNECTICUT

Connecticut, with a population of 1,254,926, has one medical college, Yale University, School of Medicine, located in New Haven, population 149,685.

Candidates for license to practice medicine in Connecticut who graduate in 1914 or thereafter are not eligible unless, prior to entering on the study of medicine, they had completed, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

New Haven

Yale University School of Medicine, 150 York Street and Congress Avenue and Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. The faculty consists of 23 professors and 68 lecturers and assistants, a total of 91. The requirements for admission are two years of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, general biology, organic chemistry and physical chemistry or laboratory physics, all reasonably equivalent to the courses in these subjects in Yale University. The student also must have a reading knowledge of German. The course covers four years of nine months each. The fees for the four years, respectively, are approximately $205, $200, $200 and $210. The Dean is Dr. George Blumer. The total registration for 1918-1919 was 69; graduates, 12. The one hundred and seventh session begins Sept. 5, 1919, and ends June 23, 1920.

DISTRICT OF COLUMBIA

The District of Columbia, population 366,631, has three medical colleges; George Washington University Medical School, Georgetown University, School of Medicine and Howard University, School of Medicine.

Washington

George Washington University Medical School, 1335 H Street, N.-W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. The faculty is composed of 38 professors and 55 instructors, demonstrators and assistants, a total of 93. Two years of collegiate work are required for admission. The course covers four years of thirty-two weeks each. The total fees are $175 each year. The Dean is Dr. William C. Borden. The total registration for 1918-1919 was 101; graduates, 16. The ninety-eighth session begins Sept. 24, 1919, and ends June 2, 1920.

Georgetown University School of Medicine, 920 H Street, N.-W.—Organized in 1851. The first class graduated in 1852. The faculty contains 25 professors, 67 instructors and assistants; total, 92. Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one-half months each. The fees for the first year are $190, and for each of the other three years, $175. The Dean is Dr. George M. Kober. The registration for 1918-1919 was 73; graduates, 8. The sixty-ninth session begins Sept. 26, 1919, and ends June 11, 1920.

Howard University School of Medicine, Fifth and W Streets, N.-W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 16 professors and 24 lecturers and assistants, 40 in all. The admission requirements are two years of collegiate work, including physics, chemistry, botany and zoology, English and two years of French or German. The course covers four years of thirty-two weeks each. The fees of each of the four sessions, respectively, are $165, $155, $155 and $162. The Dean is Dr. Edward A. Balloch. Registration for 1918-1919 was 108; graduates, 21. The fifty-second session begins Oct. 1, 1919, and ends June 11, 1920.

GEORGIA

Georgia, population 2,875,953, has two medical colleges, University of Georgia, Medical Department, located in Augusta, population 50,245, and the Emory University School of Medicine in Atlanta, a city of 190,558.

In order to secure a license to practice medicine in Georgia, students matriculating in the session of 1918-19 and thereafter must have completed two years of work in an approved college of liberal arts and sciences, including courses in physics, chemistry and biology, prior to entering on the study of medicine. This applies to all graduates of 1922 and thereafter.

Atlanta

Emory University School of Medicine, 94 N. Butler Street.—Organized in 1854. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of collegiate work are required for entrance. The faculty numbers 106. The course of study is four years of thirty-two weeks each. The fees for each of the four years, respectively, are $172, $160, $155 and $180. The Dean is Dr. W. S. Elkin. Total registration for 1918-1919 was 147; graduates, 25. The next session begins Sept. 30, 1919, and ends June 8, 1920.

Augusta

University of Georgia, Medical Department, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the university in 1911. Classes were graduated in 1833 and in all subsequent years except 1862 and 1863. The faculty includes 19 professors and 30 assistants, 48 in all. Two years of collegiate work are required for entrance. The course is four years of thirty-four weeks each. Fees are $5 for matriculation and $60 each year for residents of Georgia and $150 each year for nonresidents. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1918-1919 was 63; graduates, 8. The eighty-eighth session begins Sept. 12, 1919, and ends May 29, 1920.

ILLINOIS

Illinois, population 6,193,626, has six medical colleges, two of which give instruction at night, all located in Chicago, a city of 2,497,722 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College and Hospital, Loyola University School of Medicine and the Chicago Hospital College of Medicine.

To be eligible for license to practice medicine in Illinois, students matriculating in the sessions of 1915-16 and of 1918-19, in addition to an accredited four-year high school education, must have completed, respectively, one year and two years of collegiate work including courses in physics, chemistry, biology and a modern language, to be taken either in a preliminary year given by a recognized medical college, or in an approved college of liberal arts. Graduates of 1923 and thereafter must have completed also a year's internship in a hospital.

Chicago

Rush Medical College.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 112 professors, 197 associates, instructors, etc., a total of 309. The requirements for admission are two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. Classes are limited to 100 students in each of the freshman and sophomore classes, and to 120 students in each of the clinical years. No application for admission is accepted after September 1. The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The course covers four years of eight and a half months each, and a fifth year, consisting of a hospital internship or of a fellowship in one of the departments. All freshman and sophomore studies are given at the University of Chicago. The clinical years are given in the building at the corner of Wood and Harrison streets. The tuition fees for each of the first four years, respectively, are $195, $190, $180 and $195. A matriculation fee of $5 is paid but once, and there are incidentals amounting to from $5 to $7 annually. The Deans are Dr. Frank Billings and Dr. John M. Dodson. Total registration 1918-1919 633; graduates, 76. One hundred and twenty-five other students completed the work of the fourth year but will not receive their degrees till the hospital internship has been completed. The seventy-sixth session begins Oct. 1, 1919, and ends June 19, 1920.

Northwestern University Medical School, 2421 South Dearborn Street.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. Became an integral part of Northwestern University in 1905. The faculty comprises 62 professors and 94 lecturers and assistants, a total of 156. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus two years of college work, including courses in physics, chemistry, biology and a modern language. The course covers four years of eight months each. The fees for the four years, respectively, are $205, $200, $195 and $210. The Dean is Dr. Arthur I. Kendall. The total registration for 1918-1919 was 294; graduates, 19. The sixtieth session begins Oct. 7, 1919, and ends June 13, 1920.

University of Illinois College of Medicine, Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910. The relationship with the university was canceled in June, 1912, but restored in March, 1913, when the present title was assumed. Two years of collegiate work are required for admission. The year is divided into three divisions of four months each, the completion of the work of any two divisions counting as a college year. The faculty is composed of 42 professors, 73 assistants and instructors, a total of 115. The total fees for the four years, respectively, are $165, $160, $150 and $165. The Dean is Dr. Albert C. Eycleshymer. The total registration for 1918-1919 was 264; graduates, 48. The thirty-eighth session begins Oct. 1, 1919, and ends June 9, 1920.

Loyola University School of Medicine, 706 S. Lincoln St., Chicago. —Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917. Two years of college work are required for admission. The faculty is composed of 72 professors, 62 assistants and instructors, a total of 134. The total fees for the four years are, respectively, $166, $166, $166 and $211. The Dean is Dr. Lawrence Ryan. The total enrolment for 1918-1919 was 271; graduates, 72. The next session begins Oct. 1, 1919, and ends June 12, 1920.

Hahnemann Medical College and Hospital of Chicago, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. Absorbed the Chicago Homeopathic Medical College in 1904. The faculty includes 59 professors and 27 lecturers, assistants, etc., a total of 86. Two years of collegiate work are required for admission. The course extends over four years of eight months each. The tuition fees for the four years, respectively, are $176, $161.50, $176.50 and $191.50. The Dean is Dr. Joseph P. Cobb. The total registration for 1918-1919 was 42; graduates, 20. The sixtieth session begins Sept. 29, 1919, and ends June 10, 1920.

Chicago Hospital College of Medicine, an afternoon and night school, located at 3832 Rhodes Avenue.—Organized in 1911; chartered in 1912. In December, 1917, the classes of the Jenner Medical College were transferred to it. Total registration for 1918-1919 was 54; graduates, about 12. *Official reports indicate that the diplomas from this college are not recognized by the licensing boards of thirty-seven states.*

INDIANA

Indiana, population 2,826,154, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 271,708 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Candidates for license to practice medicine in Indiana who matriculated between Jan. 11, 1910, and Jan. 1, 1911, must have completed one year of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine. Those matriculating subsequent to Jan. 1, 1911, must have completed two years of work in a recognized college of liberal arts.

Bloomington and Indianapolis

Indiana University School of Medicine.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879), merged into it. The first class was graduated in 1908. The faculty consists of 71 professors and 85 lecturers, associates and assistants, a total of 156. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees for the four years, respectively, are $100, $100, $130 and $130. A fifth optional intern year leading to the "M.D. cum laude" has been added. The Secretary at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1918-1919 was 200; graduates, 32. The next session begins Sept. 15, 1919, and ends June 9, 1920.

IOWA

Iowa, population 2,224,771, has one medical college, the College of Medicine of the State University of Iowa, located in Iowa City, population 12,033.

Candidates for license to practice medicine in Iowa who graduated subsequent to Jan. 1, 1915, must have completed two years of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and a foreign language.

Iowa City

State University of Iowa College of Medicine, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. The faculty is made up of 25 professors, 16 lecturers, demonstrators and assistants, a total of 41. Two years of collegiate work, including courses in physics, chemistry, biology and French or German, are required for admission. The course of study covers four years of thirty-six weeks each. The tuition fee for residents of Iowa is $85 per year and for nonresidents $100, plus a matriculation fee of $10 and a graduation fee of $10. The Dean is Dr. Lee Wallace Dean, Iowa City. Total registration for 1918-1919 was 228; graduates, 44. The fiftieth session begins Sept. 29, 1919, and ends June 11, 1920.

KANSAS

Kansas, population 1,840,707, has one medical college. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 397,284.

Candidates for license to practice medicine in Kansas who matriculated in the session of 1910-11 and thereafter must present credentials showing that they matriculated in and graduated from a medical college which required for admission at least one year of collegiate work including college courses in physics, chemistry and biology in addition to an accredited four-year high school course. This applies to graduates of 1914 and thereafter. Students matriculating in 1918-19 (graduates of 1922) and thereafter will be required to have completed two years of premedical college work.

Lawrence and Rosedale

University of Kansas School of Medicine.—Organized in 1880. It offered only the first two years of the medical course until in 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. First class graduated in 1906. The clinical courses are given at Rosedale. Absorbed Kansas Medical College in 1913. The faculty, including lecturers and clinical assistants, numbers 70. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees are, $100 for each year. The Dean is Dr. S. J. Crumbine; Associate Dean, Dr. M. T. Sudler. The total registration for 1918-1919 was 136; graduates, 20. The fortieth session begins Sept. 15, 1919, and ends June 9, 1920.

KENTUCKY

Kentucky, population 2,386,866, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 238,910 inhabitants.

To be eligible for license to practice medicine in Kentucky, all students matriculating in and after the session of 1914-15 and 1918-19, in addition to an accredited four-year high school course, must have completed, respectively, one year and two years of college work, including college courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Louisville

University of Louisville Medical Department, First and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. One year of collegiate work is required for admission. It has a faculty of 29 professors and 80 lecturers and assistants, a total of 109. The course covers four years of thirty-two weeks each. The fees for each of the four years, respectively, are $175, $176, $179.25 and $182.35. The Dean is Dr. Henry Enos Tuley. The total registration for 1918-1919 was 99; graduates, 18. The next session begins Sept. 23, 1919, and ends June 5, 1920.

LOUISIANA

Louisiana, having a population of 1,843,042, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 371,747.

Candidates for license to practice medicine in Louisiana who graduate in 1919 and 1922 must present evidence that they have successfully completed, at an approved college or university, respectively, one year and two years of college work including biology, physics, chemistry and a modern language, before entering on the study of medicine. These requirements apply to all students who matriculated, respectively, in 1915 and 1918.

New Orleans

Tulane University of Louisiana School of Medicine, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-65, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana. The faculty has 53 professors and 86 assistant professors, instructors, demonstrators, etc., a total of 139. The course covers four years of thirty-two weeks each. Two years of collegiate work are required for admission. Total fees for each of the four years, respectively, are $200, $200, $205 and $235. The Dean is Dr. Isadore Dyer. The total registration for 1918-1919 was 275; graduates, 73. The eighty-fifth session begins Sept. 22, 1919, and ends June 9, 1920.

MAINE

Maine, population 774,914, has one medical college, the Bowdoin Medical School, located in Brunswick and Portland, the latter having a population of 68,867.

To secure a license to practice in Maine, students matriculating in and after the session of 1915-16 must have completed one year of work in an approved college of arts and sciences before entering on the study of medicine. This applies to graduates of 1919 and thereafter.

Brunswick-Portland

Bowdoin Medical School. The Medical Department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820 as the Medical School of Maine. The first class graduated in 1821. Present title assumed in 1915. The faculty numbers 58. Two years of collegiate work, including courses in physics, chemistry and biology are required for admission. The course covers four years of eight months each. The total fees for each of the four years, respectively, are $130, $126, $110 and $105. The Dean is Dr. Addison S. Thayer, 10 Deering Street, Portland. The total number of students in 1918-1919 was 45; graduates, 16. The ninety-ninth session begins Oct. 9, 1919, and ends June 21, 1920.

MARYLAND

Maryland, with a population of 1,368,240, contains two medical colleges, located in Baltimore, a city with 589,621 inhabitants. They are as follows: Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons, the last two having been merged.

To be eligbile to practice medicine in Maryland, all students matriculating in the session of 1914-15 and 1918-19, in addition to a four-year high school education, must have completed, respectively, one year and two years of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 50 professors and 131 clinical professors, etc., a total of 181. The requirements for admission demand that the applicant either has (*a*) completed the chemical-biologic course which leads to the A.B. degree in the university, or (*b*) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The total fees are $267 each year. The Dean is Dr. J. Whitridge Williams. Total registration for 1918-1919 was 374; graduates, 93. The twenty-seventh session begins Sept. 30, 1919, and ends June 15, 1920.

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Green Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons was merged and the present name assumed. The combined faculty numbers 173. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees are $205 each year; The Dean is Dr. J. M. H. Rowland. Total registration for 1918-1919 was 235; graduates, 50. The thirteenth session begins Oct. 1, 1919, and ends June 1, 1920.

MASSACHUSETTS

Massachusetts, population 3,747,564, has five medical colleges: Medical School of Harvard University, Boston University School of Medicine, Tufts College Medical School, College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery. They are all situated in Boston, a city of 756,476, except the last named which is in Cambridge.

Boston

Medical School of Harvard University, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 63 professors and 206 instructors and assistants, a total of 269. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fees for each of the four years are $230, $225, $225 and $225. The Dean is Dr. David L. Edsall. The total registration for 1918-1919 was 399; graduates 98. The one hundred and thirty-eighth session begins Sept. 22, 1919, and ends May 29, 1920.

Boston University School of Medicine, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. Became nonsectarian in 1918. Two years of collegiate work are required for admission. The faculty includes 25 professors, 54 associates, etc., making a total of 79. The course covers four years of eight months each. Total fees for each of the four years, respectively, are $182.50, $169.50, $167.50, $190. The Dean is Dr. John P. Sutherland. Total registration for 1918-1919 was 60; graduates, 12. The forty-seventh session begins Oct. 2, 1919, and ends June 2, 1920.

Tufts College Medical School, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 42 professors and 61 assistants, lecturers, etc., a total of 103. Two years of collegiate work is required for admission. The course covers four years of eight months each. The total fees for each of the four years are $177.50, $169, $155 and $155. The Dean is Dr. Charles F. Painter. Total registration for 1918-1919 was 358; graduates, 92. The twenty-fourth session begins Sept. 22, 1919, and ends June 15, 1920.

College of Physicians and Surgeons, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. Total attendance of medical students during 1918-1919 was about 35. There were 6 graduates. *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of thirty states.*

Cambridge

Middlesex College of Medicine and Surgery, Cambridge.—Organized in 1914 under the charter of the Worcester Medical College, which became extinct in 1859. A class was graduated in 1915 and each subsequent year. Was closely related in its interests with an osteopathic college and granted a liberal advanced standing for work done in that and other osteopathic colleges. During 1918-1919 it had a total enrolment of about 77; graduates, 10. *This college has been reported as not recognized by the licensing boards of thirty-six states.*

MICHIGAN

Michigan, population 3,074,560, has three medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan, are located at Ann Arbor, a city of 14,979 people. The Detroit College of Medicine and Surgery is located at Detroit, a city of 571,784 inhabitants.

To be eligible for license to practice medicine in Michigan, all students matriculating in and after the sessions of 1914-15 and 1918-19, in addition to an accredited four-year high school education, must have completed, respectively, one year and two years of work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Ann Arbor

University of Michigan Medical School.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. It has a faculty composed of 18 professors and 88 associates, instructors, etc., a total of 106. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students are $105 each year and $125 for nonresidents. The Dean is Dr. Victor C. Vaughan. The total registration for 1918-1919 was 361; graduates, 54. The seventieth session begins Sept. 30, 1919, and ends June 24, 1920.

University of Michigan Homeopathic Medical School.—Organized in 1875. The first class graduated in 1877. The work of the first two years is taken under the same teachers and in the same classes with the Medical School of the University of Michigan, and the fees charged are the same. The faculty for the last two years composes 6 professors and 11 associates, instructors, etc. The entrance requirements are two years of collegiate work. The Dean is Dr. W. B. Hinsdale. The total registration for 1918-1919 was 31; graduates, 11. The next session begins Sept. 30, 1919, and ends June 24, 1920.

Detroit

Detroit College of Medicine and Surgery, 250 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Entrance requirements are two years of collegiate work. The faculty embraces 27 professors, 123 lecturers, etc., a total of 150. The course covers four years of eight months each. The fees for the four years, respectively, are $155, $150, $150 and $180. The dean is Dr. W. H. MacCraken. The total registration for 1918-1919 was 132; graduates, 29. The thirty-fifth session begins Oct. 6, 1919, and ends June 26, 1920.

MINNESOTA

Minnesota, population 2,296,024, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis, a city of 363,454 inhabitants.

Candidates for license to practice medicine in Minnesota who graduated subsequent to June 1, 1912, in addition to an accredited four-year high school education, must have completed two years of work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

University of Minnesota Medical School.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. The faculty includes 76 professors and 107 instructors and assistants, a total of 183. The curriculum covers four years of nine months each and a year's internship in an approved hospital. The entrance requirements are two years of university work, which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and French or German, all in addition to a four-year high school course, including two years of Latin. Students entering hereafter will be required to secure a degree of B.S. or A.B. before the M.D. is granted. Total fees are $150 each year. The Dean is Dr. E. P. Lyon. The total registration for 1918-1919 was 286; graduates, 54. The thirty-first session begins Oct. 1, 1919, and ends June 17, 1920.

MISSISSIPPI

Mississippi, population 1,964,122, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 2,014 inhabitants.

Candidates for license to practice medicine in Mississippi who matriculate in the sessions of 1915-16 and of 1919-20 and thereafter, in addition to a standard four-year high school education, must have completed, respectively, one year and two years of work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine.

Oxford

University of Mississippi School of Medicine.—Organized in 1903. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg, but was discontinued in 1910 after graduating one class. The session extends over eight and a half months. Entrance requirements are two years of collegiate work. The total fees each year are $122. The faculty numbers 18. The Dean is Dr. W. S. Leathers. The total registration for 1918-1919 was 48. The seventeenth session begins Sept. 17, 1919, and ends June 1, 1920.

MISSOURI

Missouri, population 3,420,143, has six medical colleges. St. Louis, population 757,309, contains three of these, viz., the School of Medicine of St. Louis University, Washington University Medical School, and the St. Louis College of Physicians and Surgeons. Kansas City, with a population of 297,847, has two colleges, the Kansas City College of Medicine and Surgery and the Kansas City University of Physicians and Surgeons. The School of Medicine of the University of Missouri is at Columbia, a town of 12,103 people.

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1855, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 9 professors and 16 assistant professors, lecturers, etc., a total of 25. The course covers two years of nine months each. The entrance requirements are two years of college work including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours, and general bacteriology, 3 hours. Total fees are $80 for the first and $51 for the second year. The Dean is Dr. Guy L. Noyes. Total registration for 1918-1919 was 65. The next session begins Aug. 29, 1919, and ends April 22, 1920.

Kansas City

Kansas City College of Medicine and Surgery, Eclectic, Twenty-Third and Holmes Streets.—Organized in 1915 as an offshoot of the Eclectic Medical University, a Class C medical school, now extinct. Total registration for 1918-1919 was about 97; graduates, 31. Since this school is an offshoot of a Class C medical college and is *reported not recognized by the Missouri State Board of Health and by the licensing boards of thirty-two other states,* no higher rating can be granted to it, pending an inspection which it has refused.

Kansas City University of Physicians and Surgeons, 729 Troost Street.—Originally chartered in 1903 as the Central College of Osteopathy; charter amended in 1917, by which it obtained the right to grant degrees in medicine, and the name was changed to the Central College Medical Department. Present title in 1918. Very liberal advanced standing allowed for work done in osteopathic colleges. There were 136 medical students enrolled in 1918-1919, of whom 75 graduated. Rated in Class C by the Council on Medical Education. *Reported not recognized by the licensing boards of Missouri and of thirty-three other states.*

St. Louis

Washington University Medical School, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. In 1835 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 31 professors and 83 lecturers, instructors, etc., a total of 114. Two full years of college work are required for admission, including courses in English, physics, chemistry and biology and a reading knowledge of German. The course is four years of eight months each. The total fees for the four years are, respectively, $205, $200, $200 and $205. The Dean is Dr. G. Canby Robinson. The total registration for 1918-1919 was 156; graduates, 50. The next session begins Sept. 25, 1919, and ends June 10, 1920.

St. Louis University School of Medicine, 1402 South Grand Avenue.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 47 professors, 80 lecturers and assistants, a total of 127. One year of college subjects preliminary to the four years of medical subjects is given in the medical school. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each. Summer semester optional. The total fees are $175 each year. The Dean is Dr. Hanau W. Loeb. The total registration for 1918-1919 was 253; graduates, 49. The next session begins Oct. 1, 1919, and ends May 31, 1920.

St. Louis College of Physicians and Surgeons, Jefferson and Gamble Streets.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. Reorganized in 1879. Classes graduated in 1880 and subsequent years until 1915, when it merged with the Medical Department of the National University of Arts and Sciences. Reestablished in 1916. The Dean is Dr. Waldo Briggs. Registration during 1918-1919, 52; graduates, 24. The next session begins Oct. 1, 1919, and ends June 3, 1920. *This college is reported as not recognized by the licensing boards of Missouri and thirty-seven other states.*

NEBRASKA

Nebraska, population 1,277,750, has two medical colleges. The University of Nebraska College of Medicine and the John A. Creighton Medical College of Omaha, population 165,470.

Omaha

John A. Creighton Medical College, Fourteenth and Davenport Streets.—It is the Medical Department of Creighton University. Organized in 1892. The first class graduated in 1893. It has a faculty of 18 professors and 40 associates, lecturers and assistants, a total of 58. Two years of collegiate work are required for admission. The course of study embraces four years of eight months each. Continuous session adopted for seniors only. The total fees each year for the four years are, respectively, $166, $156, $156, and $161. The Dean is Dr. Herman von W. Schulte. Total registration for 1918-1919 was 92; graduates, 19. The thirty-eighth session begins Sept. 22, 1919, and ends June 5, 1920.

University of Nebraska College of Medicine, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913, when all four years were transferred to Omaha. The faculty is composed of 22 professors and 46 lecturers and instructors, total 68. Two years of collegiate work are required for admission, including courses in physics, chemistry, zoology and a modern language. The fees for each of the four years, respectively, are $135, $130, $120 and $120. The Dean is Dr. Irving S. Cutter. Total registration for 1918-1919 was 162; graduates, 34. The next session begins Sept. 22, 1919, and ends June 10, 1920.

NEW HAMPSHIRE

New Hampshire, population 443,467, has one medical college, located at Hanover, population 2,075.

To be eligible for license to practice medicine in New Hampshire, all students matriculating in and after the session of 1915-16, in addition to a four-year high school education, must have completed at least two years of work in an approved college of liberal arts, prior to beginning the study of medicine.

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 11 professors and 1 instructor, a total of 12. Two years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the B.S. degree in Dartmouth College may substitute the work of the first two years in medicine for that of the junior and senior years in the academic department. Candidates for the A.B. degree may make a similar saving of one year. The fees for each year are $180. Dean, Dr. John M. Gile; Secretary, Colin C. Stewart. The total registration for 1918-1919 was 34. The next session opens Sept. 25 1919, and ends June 23, 1920.

NEW YORK

New York State, population 10,366,778, has eight medical colleges. Five of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Flower Hospital, Cornell University Medical College and the University and Bellevue Hospital Medical College are located in New York City, population 5,602,841. Albany Medical College is located in Albany, a city of 110,199 people. The University of Buffalo Medical Department is situated in Buffalo, population 468,558. The College of Medicine, Syracuse University, is in Syracuse, a city of 155,624 inhabitants.

To be eligible to receive a license to practice in New York, students matriculating in 1918-19 and thereafter must have completed two years of college work before entering on the study of medicine. This applies to graduates of 1922 and thereafter.

Albany

Albany Medical College, 58-64 Eagle Street.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed full control. The faculty is composed of 22 professors and 41 instructors, assistants, etc., a total of 63. One year of collegiate work, including college courses in physics, chemistry, biology, English, and French or German, is required for admission. Two years of college work are required for admission. The curriculum covers four years of eight months each. The fees for the four years, respectively, are $195, $180, $165 and $165. The Dean is Dr. Thomas Ordway. The total registration for 1918-1919 was 66; graduates, 12. The eighty-ninth session begins Sept. 22, 1919, and ends June 9, 1920.

Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 30 professors and 77 lecturers, assistants etc., a total of 107. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $200, matriculation fee $5. The Dean is Dr. C. Sumner Jones. Total registration for 1918-1919 was 183; graduates, 37. The seventy-fourth session begins Sept. 29, 1919, and ends June 11, 1920.

New York

Columbia University College of Physicians and Surgeons, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. In 1860 it became, by affiliation, the Medical Department of Columbia College. It was made a permanent part of Columbia College by legislative enactment in 1891. That institution became Columbia University in 1896. The faculty is composed of 93 professors and 157 instructors, demonstrators, etc. a total of 250. Two years of collegiate work, including courses in physics, chemistry, biology, English and either French or German are required for admission. The work covers four years of eight months each. Continuous sessions adopted for seniors only. The Dean is Dr. Samuel W. Lambert. The total fees for the four years, respectively, are $265, $251, $250 and $275. Total registration for 1918-1919 was 526; graduates, 138. The one hundred and twelfth session begins Sept. 24, 1919, and ends June 2, 1920.

Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 47 professors and 87 assistants, lecturers, instructors, etc., a total of 134. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. The fees for each of the four years are, respectively, $240, $235, $235 and $250. The Acting Dean is Dr. Walter L. Niles Total registration for 1918-1919 was 206; graduates, 29. The twenty-second session begins Sept. 29, 1919, and ends June 10, 1920.

Long Island College Hospital, Henry and Amity Streets, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 20 professors and 108 assistants, instructors, etc., a total of 128. Two years of collegiate work, including college courses in physics, chemistry and biology, are required for admission. The course covers four years of eight months each. Fees: first year, $255; second year, $250; third,

$250. and $275 for the fourth year. The secretary is Dr. Otto V. Huffman. Total registration for 1918-1919 was 370; graduates, 53. The sixty-second session begins Sept. 22, 1919, and ends June 2, 1920.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND FLOWER HOSPITAL, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title, New York Homeopathic Medical College, was assumed in 1869. Present title assumed in 1908. The first class graduated in 1861. The course covers four years of eight months each. It has a faculty of 40 professors and 20 lecturers and assistants. The total fees for the four years, respectively, are $220, $210, $200 and $230. Total registration for 1918-1919 was 143; graduates, 23. The sixtieth session begins Sept. 25, 1919, and ends June 5, 1920.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, 338 East Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. The faculty is composed of 71 professors and 89 instructors, etc., in all 160. The course covers four years of eight months each. Entrance requirements are two years of collegiate work, in addition to a standard four-year high school course, including college courses in physics, chemistry and biology. The fees for each of the four years are, respectively, $225, $225, $215, and $240. The Dean is Dr. Samuel A. Brown. Total registration for 1918-1919 was 403; graduates 79. The next session begins Sept. 16, 1919, and ends June 10, 1920.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Two years of a recognized college course are required for admission. The course covers four years of thirty-five weeks each. The fees are $210 annually; graduation fee, $10. The faculty is composed of 34 professors and 57 associate and assistant professors, lecturers and instructors. The Dean is Dr. John L. Heffron. The total enrolment for 1918-1919 was 132; graduates, 22. The forty-ninth session begins Sept. 16, 1919, and ends June 9, 1920.

NORTH CAROLINA

North Carolina, population 2,418,559, has two medical schools, each of which gives only the first two years of the medical course. The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,149. Wake Forest College School of Medicine is at Wake Forest, population 1,443.

To be eligible for a license to practice medicine in North Carolina, graduates of 1918 and 1922 must have completed, respectively, one year and two years of college work including courses in physics, chemistry and biology in addition to 4 units of high school work before beginning the study of medicine.

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE.—Organized in 890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Two years of collegiate work are required for admission. The faculty is composed of 12 professors and 12 lecturers, assistants, etc., a total of 24. The fees for each year are $150. The Dean is Dr. I. H. Manning. The total registration for 1918-1919 was 51. The thirty-fourth session begins Sept. 30, 1919, and ends June 11, 1920.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty, including the professors of chemistry, physics and biology, numbers 11. Only the first two years of the medical course are offered after the completion of freshman and sophomore college work, and on this combined course the B.S. degree is conferred. Each annual course extends over nine months. The fees for each year aggregate $115. The Secretary is E. B. Earnshaw. The total registration for 1918-1919 was 65. The eighteenth session begins Sept. 2, 1919, and ends May 28, 1920.

NORTH DAKOTA

North Dakota, population 752,260, has one medical college, the School of Medicine of the University of North Dakota, which is situated at University, a suburb of Grand Forks, a city of 15,332 people. It gives only the first two years of the medical course.

Candidates for license to practice medicine in North Dakota who graduated in 1912 and thereafter, in addition to a four-year high school education, must have completed two years of work in an approved college of liberal arts including courses in Latin, physics, chemistry, botany and zoology, prior to beginning the study of medicine. Beginning in 1918, every applicant for a license must show evidence of having spent at least one year as an intern in a hospital.

University

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Two years' work in a college of liberal arts is required for admission. The fees are $50 each year. The faculty consists of 6 professors and 9 instructors, a total of 15. The Dean is Dr. Harley E. French. The total registration for 1918-1919 was 21. The fourteenth session begins Sept. 22, 1919, and ends June 15, 1920.

OHIO

Ohio, population 5,181,220, has five medical colleges. Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 410,476 inhabitants. Cleveland, population 674,073, contains one medical school, Western Reserve University School of Medicine. Columbus, population 214,878, contains the two departments of the Ohio State University, the College of Medicine and the College of Homeopathic Medicine.

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden Avenue, Cincinnati General Hospital.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Two years of college work are required for admission. The faculty consists of 57 professors, 109 associates, assistants, etc., a total of 166. The course covers four years of eight months each. The fees for each of the first three years are $150 and for the fourth year, $170. The Dean is Dr. Christian R. Holmes. The total registration for 1918-19 was 168; graduates, 27. The next session begins Sept. 30, 1919, and ends June 11, 1920.

ECLECTIC MEDICAL COLLEGE, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, was merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 26 professors and 10 lecturers and assistants, a total of 36. Two years of college work are required for admission. The course covers four years of eight months each. The total fees for the four years, respectively, are $130, $120, $120 and $130. The Secretary is Dr. John K. Scudder. Total registration for 1918-1919 was 86; graduates, 28. The next session begins Sept. 11, 1919, and ends May 11, 1920.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 1353 East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. The faculty includes 17 professors and 93 lecturers, assistants, etc., a total of 110. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission. The total fees for each of the four years are, respectively, $175, $160, $154 and $155. The Dean is Dr. C. A. Hamann. The total registration for 1918-1919 was 180; graduates, 41. The seventy-seventh session begins Oct. 2, 1919, and ends June 17, 1920.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, 710 North Park Street.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. The faculty consists of 34 professors and 59 lecturers, demonstrators, etc., a total of 93. Two years of collegiate work are required for admission. The course covers four years of eight months each. Tuition fees are $152 each year. The Dean is Dr. Eugene F. McCampbell. The total registration for 1918-1919 was 111; graduates, 16. The next session begins Sept. 16, 1919, and ends June 15, 1920.

OHIO STATE UNIVERSITY COLLEGE OF HOMEOPATHIC MEDICINE.—Organized in 1914, when the property of the Cleveland-Pulte Medical College of Cleveland was transferred to the Ohio State University. The faculty numbers 13. Two years of college work are required for admission. The students are taught largely in the same classes and by the same teachers as students of the College of Medicine during the first two years. Tuition fees are $152 each year. The Dean is Dr. Claude A. Burrett. The total registration for 1918-1919 was 36; graduates, 9. The fifth session begins Sept. 16, 1919, and ends June 15, 1920.

OKLAHOMA

Oklahoma, population 2,245,968, has one medical college, the School of Medicine of the University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 3,724 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 92,943 and which is eighteen miles north of Norman.

To be eligible for license to practice medicine in Oklahoma, all students matriculating in 1914-15 and in 1917-18, in addition to a four-year high school education, must have completed, respectively, one year and two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Norman and Oklahoma City

University of Oklahoma School of Medicine.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 50 professors and 14 instructors, a total of 64. Two years of collegiate work are required for admission. The course is four years of nine months each. An optional course of six years is offered for the degree of B.S. and M.D. The total fees for the four years are, respectively, $61. $40, $23 and $23. The Dean is Dr. Leroy Long, 325 East Fourth Street, Oklahoma City. The total registration for 1918-1919 was 73; graduates, 12. The session begins Sept. 11, 1919, and ends June 8, 1920.

OREGON

Oregon, population 848,866, has one medical college, the University of Oregon Medical School, located in Portland, a city of 295,463 population.

Portland

University of Oregon Medical School, Lovejoy and Twenty-Third Streets.—Organized in 1887. The first class graduated in 1888. A class graduated each subsequent year except 1898. Became an integral part of the University of Oregon in 1910. The Willamette University Medical Department was merged in 1913. It has a faculty of 17 professors and 95 lecturers, assistants, etc., a total of 112. Entrance requirements are two years of college work or its equivalent. The course is four years of eight months each. The total fees for the four years are, respectively, $170, $166, $161.75 and $160. The Dean is Dr. K. A. J. Mackenzie. The total registration for 1918-1919 was 66; graduates, 15. The thirty-third session begins Oct. 1, 1919, and ends May 31, 1920.

PENNSYLVANIA

Pennsylvania, population 8,591,029, has six medical colleges. Of these, Philadelphia, having a population of 1,709,518, contains five, as follows: University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania and Temple University Department of Medicine. The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 579,090.

To be eligible for license to practice medicine in Pennsylvania, students matriculating in the session 1914-15 and thereafter, in addition to a four-year high school education, must have completed a year's work either in an approved college of liberal arts or a preliminary year in the medical college, including college courses in physics, chemistry and biology, before beginning the study of medicine. He must also have completed an internship of at least one year in an approved hospital.

Philadelphia

University of Pennsylvania School of Medicine, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title, School of Medicine of the University of Pennsylvania, was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. The faculty consists of 51 professors, associate, adjunct and assistant professors, and 143 lecturers, associates, instructors, etc., a total of 194. The minimum requirements for admission are a standard four-year high school course or its equivalent, plus two years of work in an approved college of arts and science, including courses in French or German, and in physics, chemistry and general biology or zoology, with appropriate laboratory exercises. The course embraces four years of study of thirty-four weeks each. The total fees for each of the four years are, respectively, $233, $210, $210 and $214. The Dean is Dr. William Pepper. Total registration for 1918-1919 was 467; graduates, 125. The one hundred and fifty-fourth session begins Sept. 26, 1919, and ends June 16, 1920.

Jefferson Medical College, Tenth and Walnut Streets.—Organized in 1825 with its present title as the Medical Department of Jefferson College, Cannonsburg, Pa. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 26 professors, associate and assistant professors, and 137 associates, lecturers, demonstrators and instructors, a total of 163. Entrance requirements are a completed standard four-year high school or college preparatory course, or the equivalent, and in addition two years of work in an approved college of arts and science amounting to at least 60 semester hours, including specified courses in physics, chemistry and biology, with laboratory work amounting to 8 semester hours each. The course of study covers graded work of four years of eight and a half months each. The tuition is $210 a year with a matriculation fee of $5 paid on admission. The Dean is Dr. Ross V. Patterson. The total registration for 1918-1919 was 451; graduates, 142. The ninety-fifth session begins Sept. 22, 1919, and ends June 5, 1920.

Woman's Medical College of Pennsylvania, Twenty-First and N. College Avenue.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 14 professors and 45 assistants, lecturers, etc., in all 59. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology and two foreign languages, one of which must be French or German. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, $198, $202, $184 and $179.50. The Dean is Dr. Martha Tracy. The total registration for 1918-1919 was 66; graduates, 7. The eightieth session begins Oct. 1, 1919, and ends June 16, 1920.

Hahnemann Medical College and Hospital of Philadelphia, 220-24 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course, including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 36 professors and 48 lecturers, instructors, etc., in all 84. The work covers four years of eight and a half months each. Total fees for each of the four years, respectively, are $205, $202, $202 and $217. The Dean is Dr. William A. Pearson. The total registration for the college year 1918-1919 was 138; graduates, 25. The seventy-second session begins Sept. 29, 1919, and ends May 31, 1920.

The Temple University Department of Medicine, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 97. Two years of college work are required for admission. The fees for each of the four years, respectively, are $175, $170, $160 and $160. The Dean is Dr. Frank C. Hammond. The total registration for 1918-1919 was 95; graduates, 30. The nineteenth session begins Sept. 22, 1919, and ends June 1, 1920.

Pittsburgh

University of Pittsburgh School of Medicine, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. The faculty is composed of 16 professors and 114 associates, assistants, etc., 130 in all. Entrance requirements are two years of recognized college work, to have included essentially courses in English, chemistry (inorganic and organic), physics, biology and a reading knowledge of French or German, Italian or Spanish. It is possible for students to get the degree of B.S. and M.D. in six years. The course of study for medicine alone is four years of eight and a half months each. The tuition fee is $250 a year; matriculation fee, $15; diploma fee, $5. The Dean is Dr. Thomas S. Arbuthnot. The total registration for 1918-1919 was 147; graduates, 29. The thirty-fourth session begins Sept. 29, 1919, and ends June 4, 1920.

SOUTH CAROLINA

South Carolina, population 1,634,340, has one medical college, situated in Charleston, a city of 60,734 people.

Graduates of 1922 (matriculants of 1918-19) and thereafter, to be eligible for license to practice medicine in South Carolina must have completed, in addition to 14 units of high school work, two years in an approved college, including courses in English, physics, chemistry and biology.

Charleston

The Medical College of the State of South Carolina, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. It has a faculty of 37 professors and 24 lecturers, instructors, etc., a total of 61. The course covers four years of eight months each. Two years of collegiate work including courses in physics, chemistry, biology and a modern foreign language are required for admission, in addition to a standard high school preparation. The total fees are $150 for each of the first two years and $145 for the last two. The Dean is Dr. Robert Wilson, Jr. Total enrolment for 1918-1919 was 66; graduates, 14. The ninety-first session begins Sept. 26, 1919, and ends June 3, 1920.

SOUTH DAKOTA

South Dakota, population 707,740, has one medical college, e University of South Dakota College of Medicine, located Vermilion, a town of 2,376 people.

To be eligible for license to practice medicine in South akota, graduates of 1915 and thereafter must show that they atriculated in and graduated from medical colleges which quired at least two years of collegiate work for admission, cluding courses in physics, chemistry, biology and a mod-n language. This affects all students who matriculated in e session of 1911-1912 and thereafter.

Vermilion

University of South Dakota College of Medicine.—Organized in 907. Offers only the first two years of the medical course. Two years' ork in a college of liberal arts are required for admission. The fees are 50 each year. The faculty numbers 10. The Dean is Christian P. ommen, B.S. The total registration for 1918-1919 was 19. The thir-eenth session begins Sept. 29, 1919, and ends June 21, 1920.

TENNESSEE

Tennessee, population 2,296,316, has four medical colleges. f these, Vanderbilt University Medical Department and eharry Medical College are situated in Nashville, a city ith a population of 117,057. The College of Medicine of e University of Tennessee and the University of West ennessee College of Medicine and Surgery are located in emphis, population 148,995.

To be eligible for a license to practice medicine in Tennes-ee, students matriculating in the session of 1914-1915 and of 918-1919 must have completed, respectively, one year of col-giate work, including courses in physics, chemistry, biology nd a modern language, in addition to a four-year high school ourse before entering on the study of medicine.

Memphis

University of Tennessee College of Medicine, three buildings, 879 adison Avenue.—Organized in 1876 at Nashville as Nashville Med-al College. First class graduated 1877, and a class graduated each ubsequent year. Became Medical Department of University of Ten-essee 1879. In 1909 it united with the Medical Department of the niversity of Nashville to form the joint Medical Department of the niversities of Nashville and Tennessee. This union was dissolved in 911. The trustees of the University of Nashville by formal action of hat board named the University of Tennessee College of Medicine as s legal successor. In 1911 it moved to Memphis, where it united ith the College of Physicians and Surgeons. The Memphis Hospital edical College was merged in 1913. Lincoln Memorial University edical Department was merged in 1914. The faculty includes 36 rofessors and 69 assistants, instructors, etc., a total of 105. Entrance equirements are a completed secondary education plus two years of ollegiate work. Students taking the two-year premedical course in noxville may secure the B.S. and M.D. degrees. The total fees for he four years, respectively, are $107, $102, $102 and $127 for bona fide esidents of the state, and $50 more each year for nonresidents. The ean is Dr. A. H. Wittenborg. Total registration for 1918-1919 was 3; graduates, 20. The next session begins Sept. 20, 1919, and ends une 2, 1920.

University of West Tennessee Medical Department, Colored. 190 South Phillips Place.—Organized in 1900. The first class gradu-ted in 1904, and a class graduated each subsequent year. It has a aculty of 20. The course covers four years. Two years of college ork are required for admission. The fees are $80 per year; gradua-ion, $10 extra. The Dean is Dr. M. V. Lynk. Registration for 1918-1919 was 18; graduates, 4. The twentieth session begins Sept. 22, 1919, and ends about May 23, 1920. *Official reports indicate that the iplomas of this college are not recognized by the licensing boards of ennessee and thirty-eight other states.*

Nashville

Vanderbilt University School of Medicine.—This school was ounded in 1874. The first class graduated in 1875. The faculty consists of 39 professors and 42 lecturers, a total of 81. One year of ollegiate work is required for admission. The course covers four years f nearly eight and a half months each. The total fees for the four years, respectively, are $150, $150, $150 and $175. The Dean is Dr. Lucius E. Burch. The total registration for 1918-1919 was 114; graduates, 25. The forty-sixth session begins Sept. 29, 1919, and ends June 9, 1920.

Meharry Medical College. Colored. 1118 First Avenue, South. —This school was organized in 1876 as the Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1916. The faculty is made up of 12 professors and 12 instructors, demonstrators, etc., 24 in all. The work embraces four years of thirty weeks each. The total fees for each of the first three years are $87 and for the fourth years $97. The President is Dr. G. W. Hubbard. Total registration for 1918-1919 was 175; graduates, 41. The forty-fourth session begins Oct. 7, 1919, and ends May 20, 1920.

TEXAS

Texas, population 4,472,494, has two medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 41,863 inhabitants. The Baylor University College of Medicine is located in Dallas, population 124,527.

To be eligible for a license to practice medicine in Texas, students matriculating in the session of 1914-1915 and thereafter must have completed a year of collegiate work, including courses in physics, chemistry, biology and modern language, in addition to a standard four-year high school course, before entering on the study of medicine.

Dallas

Baylor University College of Medicine, 720 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 49. Entrance requirement is one year of college work in addition to a four-year high school education. For the session of 1918-19 and thereafter two years of collegiate work will be required for admission. The course is four years of eight months each. The fees for each of the four years, respectively, are $160, $155, $155 and $150. The Dean is Dr. E. H. Cary. Total registration for 1918-1919 was 126; graduates, 22. The twentieth session begins Sept. 29, 1919, and ends May 27, 1920.

Galveston

University of Texas Department of Medicine, Avenue B, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 20 professors and 18 lecturers and instructors, a total of 38. The curriculum embraces four years of eight months each. The entrance requirement is two years of collegiate work in addition to a four year high school education. The total fees for the four years, respectively, are $78, $48, $30.50 and $18. The Dean is Dr. William S. Carter. Total registration for 1918-1919 was 209; graduates, 51. The twenty-ninth session begins Oct. 1, 1919, and ends May 31, 1920.

UTAH

Utah, population 438,974, has one medical college, the School of Medicine of the University of Utah, situated at Salt Lake City, which has 117,399 people.

To be eligible to secure licenses to practice medicine in Utah, students matriculating in and after the session of 1912-1913, in addition to a four-year high school education, must have completed at least one year of collegiate work prior to beginning the study of medicine, this preliminary college work to have included college courses in physics, chemistry and biology.

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Gives only first two years of medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 10 professors and 14 lecturers and assistants, a total of 24. The fees are $95 each year. The Dean is Dr. Perry G. Snow. Total registration for 1918-1919 was 28. The thirteenth session begins Sept. 29, 1919, and ends June 6, 1920.

VERMONT

Vermont, population 364,322, has one medical school, located at Burlington, a town of 21,432 people.

Students matriculating in and after the sessions 1912-1913 and of 1918-1919 who desire to practice medicine in Vermont must have obtained a preliminary training, respectively, of one year and of two years of collegiate work, in addition to a standard four-year high school education, this additional years's work to include college courses in physics, chemistry and biology.

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 43. Two years of college work in addition to a four-year high school education are required for admission. The course of study covers four years of nine months each. Continuous session for seniors only. The total fees for each of the first three years are $145, and $170 for the fourth year. The Dean is Dr. H. C. Tinkham. The total registration for 1918-1919 was 90; graduates, 20. The next session begins Sept. 24, 1919, and ends June 30, 1920.

VIRGINIA

Virginia, population 2,202,522, has two medical colleges, one, the Department of Medicine of the University of Virginia, situated in Charlottesville, population 12,500, and the

Medical College of Virginia at Richmond, population 156,687. Only graduates of medical colleges registered by the Virginia State Board of Medical Examiners are eligible to obtain licenses to practice medicine in this state. Medical colleges to be so registered must require of all students admitted in the session of 1914-1915, completion of at least one year, and in the session of 1917-1918 and thereafter two years of collegiate work, including courses in physics, chemistry, biology and a modern language, preferably German, in addition to a four-year high school education.

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 20 professors and 13 lecturers, instructors, assistants, etc., a total of 33. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology, and French or German. Continuous session adopted for seniors only. Total fees for each year are $140, matriculation fee, $10. The Dean is Dr. Theodore Hough. The total registration for 1918-1919 was 112; graduates, 25. The ninety-first session begins Sept. 18, 1919, and ends June 16, 1920.

Richmond

Medical College of Virginia, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 42 professors and 90 lecturers, instructors, etc., a total of 132. The requirement for admission is a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The course embraces four years of eight months each. The total fees for the four years, respectively, are $199, $200, $200 and $230. The Dean is Dr. Alfred L. Gray. The total registration for 1918-1919 was 123; graduates, 20, including 3 students of the North Carolina Medical College, who were granted degrees by the latter. The ninety-first session begins Sept. 17, 1919, and ends June 3, 1920.

WEST VIRGINIA

West Virginia, population 1,399,320, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 12,974 population.

Graduates of 1921 (matriculants of 1917-1918) and thereafter, in order to secure licenses to practice medicine in West Virginia, must have completed, in addition to a high school education, one year of collegiate work, including courses in physics, chemistry and biology, before entering on the study of medicine.

Morgantown

West Virginia University School of Medicine.—Organized in 1902, and gives only the first two years of the medical course. Two years of college work are required for admission and the Bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 10. Fees: For residents of the state, tuition $25 each year, matriculation, $5; for nonresidents, tuition, $40; matriculation fee, $10. The Dean is Dr. John N. Simpson. The total registration for 1918-1919 was 39. The next session begins Sept. 22, 1919, and ends June 15, 1920.

WISCONSIN

Wisconsin, population 2,513,758, has two medical colleges, the Medical School of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 30,699 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 436,535 people.

To be eligible for licenses to practice medicine in Wisconsin, students matriculating in the session of 1915-1916 (graduates of 1919) and thereafter, prior to entering a medical school, must have completed, besides a four-year high school course, two years of collegiate work, including courses in physics, chemistry, biology and a modern language.

Madison

University of Wisconsin Medical School.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 16 professors and 21 lecturers, instructors, etc., a total of 37. Tuition fees: For residents of the state, $75 each year; for nonresidents, $199. The Dean is Dr. Charles R. Bardeen. The registration for 1918-1919 was 118. The twelfth session begins Sept. 29, 1919, and ends June 16, 1920.

Milwaukee

Marquette University School of Medicine, Fourth Street and Reservoir Avenue.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. It has a faculty of 51 professors and 36 assistants, instructors, etc., a total of 87. The entrance requirements include, in addition to a four-year high school education, two years of college work, including courses in physics, chemistry, biology and a modern language. The curriculum is for four years of thirty-four weeks each. The total fees for the four years, respectively, are $220, $220, $220 and $230. The Dean is Dr. Louis F. Jermain. The registration for 1918-1919 was 73; graduates, 13. The eighth session begins Oct. 1, 1919, and ends June 17, 1920.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population (estimated 1917) of 8,879,999, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the Medical Faculty of the University of St. Thomas. They are located in the city of Manila, which in 1910 had a population of 234,409.

Manila

University of the Philippines College of Medicine and Surgery, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty includes 34 professors and 40 lecturers, assistants, etc., a total of 74. Two years of collegiate work leading to the degree of Bachelor of Arts are required for admission. The course extends over five years of nine months each with an additional sixth year of intern service. The Dean is Dr. Fernando Calderon. The total registration for 1918-1919 was 155; graduates, 24. The thirteenth session began July 1, 1919, and ends April 4, 1920.

CANADA

The Dominion of Canada has nine medical colleges, all but one of which require a five-year course, including in the first year courses in physics, chemistry and biology. This course is practically equal to that in the colleges of the United States which require one year of college work for admission, including the science courses named. None of the Canadian colleges has a minimum requirement of two years of collegiate work, or its equivalent, preliminary to or as a part of the medical course. The medical school at Edmonton, Alberta, gives only the first two years of the medical course, or three years, including the preliminary science year.

Alberta

University of Alberta, Faculty of Medicine, Edmonton.—Organized in 1913. Offers only the first three years of the five-year medical course, including the preliminary science year. The faculty numbers 12. Fees for the first year are $63; for the second and third years, each $88. The registrar is Cecil E. Race, B.A. The registration for 1918-1919 was 89. The seventh session begins Sept. 30, 1919, and ends May 13, 1920.

Manitoba

Manitoba Medical College, Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 60. The total fees for the five years, respectively, are $175, $165, $170, $160 and $160. The entire course covers five years, the first year including premedical courses in physics, chemistry and biology. The Dean is Dr. S. Willis Prowse. Total registration for 1918-1919 was 156; graduates, 30. The next session begins Sept. 15, 1919, and ends May 7, 1920.

Nova Scotia

Dalhousie University, Faculty of Medicine, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College in 1855. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. It has a faculty of 35 professors, lecturers and demonstrators. Requires matriculation examination and a graded course of five years, including premedical courses in physics, chemistry and biology. The fees are $115 for each of the first two years and $125 for each of the other three. The total registration for 1918-1919 was 113; graduates, 10. The Secretary is Prof. D. Fraser Harris. The next session begins Oct. 1, 1919, and ends May 27, 1920.

Ontario

UNIVERSITY OF TORONTO, FACULTY OF MEDICINE, Toronto.—Organized n 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 absorbed Trinity Medical College. The course of study covers five years of eight months each, the first year including premedical courses in physics, chemistry and biology. It has a faculty of 53 professors and 163 lecturers, associates, etc., a total of 216. The fees are $150 each year; graduation fee, $20. The Dean is Dr. C. K. Clarke. The total registration for 1918-1919 was 698; graduates, 56. The next session begins Sept. 30, 1919, and ends May 31, 1920.

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under he charter of the Royal College of Physicians and Surgeons at Kingson. In 1892 the school again became an integral part of Queen's University. The faculty includes 26 professors and 20 assistants, instructors, etc., a total of 46. The fees amount to $125 each year; fee for M.D., C.M. degrees, $30. The course covers five years of thirty eaching weeks each, the first year including courses in physics, chemistry and biology. The total registration in 1918-1919 was 228; graduates, 61. The Dean is Dr. J. C. Connell. The next session begins Sept. 22, 1919, and ends June 9, 1920.

WESTERN UNIVERSITY, FACULTY OF MEDICINE, London.—Organized in 1881, first class graduated in 1883, and a class graduated each year subsequently. The Faculty of Medicine became an integral part of Western University in 1913. The faculty numbers 53. The course is five years of eight months each, the first year including premedical courses in physics, chemistry and biology. The total fees for the five years, respectively, are $125, $120, $128, $120 and $145. The Acting Dean is Dr. Paul S. McKibben. Total registration for 1918-1919 was 93; graduates, 16. The next session begins Oct. 1, 1919, and ends May 30, 1920.

Montreal

MCGILL UNIVERSITY, FACULTY OF MEDICINE.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each, including the preliminary year devoted largely to physics, chemistry and biology. The faculty numbers 138. The total fees for the five years, respectively, are $174, $174, $174, $174 and $204. The total registration for 1918-1919 was 471; graduates, 78. The Registrar is Dr. John W. Scane. The next session begins Oct. 1, 1919, and ends May 30, 1920.

MONTREAL SCHOOL OF MEDICINE AND SURGERY, Montreal.—Organized in 1843, incorporated in 1845. In 1891, by act of parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name assumed in 1911. A class was graduated in 1843 and in each subsequent year. The faculty numbers 80. The course extends over five years, including premedical courses in physics, chemistry and biology. The total fees for the five years, respectively, are $110, $118, $126, $126 and $138. The Dean is Dr. E. P. Lachapelle. The total registration for 1918-1919 was 241; graduates, 23. The next session begins Oct. 3, 1919, and ends June 30, 1920.

Quebec

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 35. The fees are $90 each year. The course extends over five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. Edwin Turcot, Quebec. Total registration for 1918-1919 was 148; graduates, 22.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 14 units (15 units after Jan. 1, 1920) of high school work and two years (60 semester hours) of college work.

CURRICULUM: The entire course of four years shall consist of not less than 3,600 hours, and shall be grouped in divisions and subdivided into subjects, each division and each subject to be allotted approximately the number of hours and percentages of the whole shown in the following schedule:

DIVISION I.

ANATOMY, 684 HOURS (19%).

	Minimum % of 3,600 Hours.
1. Gross anatomy, including clinical or applied anatomy 2. Microscopic anatomy 3. Embryology	19%

DIVISION II.

PHYSIOLOGY AND CHEMISTRY, 468 HOURS (13%).

1. Physiology	8%
2. Biochemistry	5%

DIVISION III.

PATHOLOGY AND BACTERIOLOGY, 468 HOURS (13%).

1. Pathology, including necropsies	8 %
2. Bacteriology, including serology and immunology	3½%
3. Preventive medicine and public health	1½%

DIVISION IV.

PHARMACOLOGY, 216 HOURS (6%).

1. Materia medica and pharmacy 2. Pharmacology	6%

DIVISION V.

MEDICINE AND MEDICAL SPECIALTIES, 900 HOURS (25%).

1. General medicine, including laboratory diagnosis	15 %
2. Pediatrics	4 %
3. Nervous and mental diseases	3½%
4. Dermatology and syphilis	2 %
5. Medical jurisprudence	½%

DIVISION VI.

SURGERY AND SURGICAL SPECIALTIES, 648 HOURS (18%).

1. Surgery	11 %
2. Orthopedic surgery	2 %
3. Urology	1 %
4. Ophthalmology	1½%
5. Otology, rhinology and laryngology	1½%
6. Roentgenology	1 %

DIVISION VII.

OBSTETRICS AND GYNECOLOGY, 216 HOURS (6%).

1. Obstetrics, including obstetric surgery	4 %
2. Gynecology	2 %

When teaching conditions demand it, a subject may be transferred from one division to another.

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University of Pittsburgh School of Medicine.
Woman's Medical College.
University of the Philippines College of Medicine and Surgery.
Medical College of the State of South Carolina.
Meharry Medical College (Affiliated Member).
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Vanderbilt University Medical Department.
Baylor University School of Medicine.
University of Texas Medical Department.
University of Vermont College of Medicine.
Medical College of Virginia.
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University of West Virginia School of Medicine.
Marquette University School of Medicine.
University of Wisconsin Medical School.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

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MEDICAL EDUCATION IN THE UNITED STATES

For the nineteenth consecutive year we publish this week statistics dealing with medical education in the United States. The statistics this year show a continuation of the steady improvement since the publishing of the statistics was begun in 1901.

CHANGES OF THE YEAR

The figures show a total enrolment of 13,052 medical students, or 578 less than a year ago. Divided by classes, the total enrolment in the second, third and fourth year classes showed an increase of 601 over the previous year, but this was more than offset by the decrease of 1,179 students in the first year class due largely, if not entirely, to the volunteering or drafting of premedical and freshmen students during 1918. The medical schools had already passed the low ebb in the enrolments resulting from the enforcement of higher entrance requirements, and an increase was expected. The indications are that had it not been for the war, there would have been an increase this year instead of a decrease, in the total enrolment of medical students. The total percentage of students in Class A medical schools was increased during the year from 84.5 to 87.9, whereas, in the Class B schools the percentage was decreased from 10.9 to 8.3, and the percentage in Class C schools was reduced from 4.5 to 3.8.

The total number of graduates this year was 2,656, or only fourteen less than in 1918. The number of graduates from Class A schools, however, increased from 2,024 to 2,220, while the numbers of those graduating from Class B schools decreased from 399 to 268, and from Class C schools from 247 to 168. It is also noteworthy that the number of graduates holding degrees from colleges of arts and sciences increased from 1,024 to 1,180.

The number of medical colleges decreased from ninety to eighty-five, resulting from the closing of two Class A medical schools (one of which was by merger), one Class B institution and two which were rated in Class C. It is encouraging, therefore, that the reductions of the year have been in the number of students and graduates of the inferior medical colleges, and that the numbers enrolled in the better institutions have been increased.

CHANGES IN FIFTEEN YEARS

The improvements in medical education during the last fifteen years have been remarkable. At the beginning of the campaign for improvement, the United States had more medical schools than all the rest of the world combined, the supply far exceeding the needs of the country. While the number of colleges has been reduced from 162 to eighty-five during the fifteen years, on the other hand, the number enforcing an entrance requirement of two years or more of collegiate work increased from four, or 2.5 per cent. of all colleges, in 1904 to seventy-eight, or 92.9 per cent. of all colleges, in 1919. The number of medical students was decreased from 28,142 to 13,052, but at the same time the number who had higher preliminary qualifications was increased from 1,761, or 6.2 per cent. of all students, in 1904 to 12,570, or 96.3 per cent. of all students, in 1919. While the number of graduates was reduced from 5,747 to 2,656, at the same time the number of graduates who had the better preliminary qualifications was increased from 369, or 6.4 per cent. of all graduates, in 1904 to 2,492, or 94.9 per cent. of all graduates, in 1919. While the annual totals of colleges, students and graduates have been decreased by about 50 per cent., the number of better colleges has been multiplied by eighteen, and the number of better qualified students and graduates has been multiplied by seven.

OTHER IMPROVEMENTS IN MEDICAL EDUCATION

The improvement in regard to admission requirements, however, is merely an index of changes for the better in other respects. Formerly, the majority of schools were of the independent type; now, almost all are integral parts of high grade universities. Formerly, a large majority of the medical schools were dependent solely on students' fees for maintenance; now, practically all are enjoying larger incomes either from state appropriations or from private endowment. In addition, many of the schools have erected new college buildings, have established additional and better equipped laboratories, and have employed a larger number of better trained teachers who devote all their time to teaching and research. Almost all of the colleges have established more intimate relationships with hospitals by which more abundant clinical facilities are provided and better clinical teaching is made possible. Also, in all the schools the courses of instruction are better graded, and better methods of teaching are employed.

COST OF MEDICAL EDUCATION

These improvements have added largely to the cost of medical education. Actual statistics show that the cost of teaching in eighty-two medical schools in 1916 exceeds by about three times the sum obtained from students' fees. At the same time the cost to the medical students in tuition fees has been only moderately advanced. A number of the high grade state university medical schools charge very low fees for residents of the respective states. During the last fifteen years also there have been made available more than 300 scholarships and generous loan funds in thirty-seven of the better medical schools, so that needy but deserving medical students still have abundant opportunities to study medicine. There is certainly no excuse for continuing a low quality of medical education for the sake of "the poor boy" who, by the way, is usually sufficiently acquainted with values to seek the better and not the poorer medical schools.

PROPORTION OF PHYSICIANS TO POPULATION

While there has been a decided reduction in the total numbers of medical students and graduates, we are still far from experiencing a dearth of physicians. That there should be a special demand for physicians during the war was to be expected, and was merely a parallel to the demand for those engaged in other professions or skilled occupations. The temporary scarcity is rapidly disappearing with the return of medical officers to civilian life. That the number of physicians is still fully ample to meet the needs of the country is shown by the fact that there is one physician to every 720 people throughout the United States (compare Table 14, p. 513). That there is a need of physicians in certain rural districts is a problem which will not be met by lowering the standards of medical education—this need has always existed and always will, unless physicians under government employ are assigned to those districts. There is also need of better health officers and better medical skill and advice, but to meet these needs, not greater numbers but better qualified physicians are required.

FURTHER IMPROVEMENTS NEEDED IN MEDICAL EDUCATION

Notwithstanding the great progress in medical education, the world war has emphasized the need of still further improvement. In the immediate future, medical colleges should establish closer relations with teaching hospitals, should secure greater abundance of teaching material and, more particularly, should reorganize their clinical faculties and adopt greatly improved methods of clinical instruction. It is the clinical side which needs most consideration.

The achievements of the past fifteen years seem insignificant when one considers the possibilities for further development in both undergraduate and graduate medical instruction, and the great advances possible in medical research and in public health and disease prevention. The next decade holds promise of great progress in medical education.

BLOOD REGENERATION AND BONE MARROW ACTIVITY

Although the length of life of the red cells of the blood is still unknown, there is no doubt that they undergo disintegration sooner or later. Sometimes their destruction is hastened by disease; sometimes the erythrocytes are lost to the body through hemorrhage. It becomes important at times, therefore, to learn to what extent reparative processes are taking place and whether red cells are being returned to the circulation. Microscopic examination of the blood during rapid regeneration of the erythrocytes reveals the presence of nucleated forms. Nucleated red cells have therefore been taken as "an inevitable feature of rapid blood regeneration." As Macleod[1] has pointed out, however, changes in the mode of red blood cell formation may be responsible for the nucleated forms.

Some time ago Warburg[2] demonstrated that whereas normal human blood consumes very little oxygen, blood such as that of birds, which contains nucleated erythrocytes, may evince a high oxygen absorption. Morawitz[3] has observed, however, that even in mammals blood obtained during the regeneration following an anemia may show an absorption of oxygen that cannot be accounted for by nucleated cells or by substances possibly dissolved in the plasma. The explanation seems now to have been furnished by Harrop[4] of the Medical Clinic at the Johns Hopkins Hospital, Baltimore. Starting with the assumption that the red cells in the blood which appear reticulated after certain methods of histologic staining are "youthful erythrocytes," Harrop has found that blood which contains abnormal numbers of them has an oxygen absorption proportional to the percentage of reticulated cells present. These two factors are interdependent; according to Harrop, both are due to the presence of abnormal numbers of youthful cells and both are probably rather accurate indicators of functional regeneration in the bone marrow and of the amount of blood regeneration. According to this latest American research, normal mature human erythrocytes have no oxygen consumption measurable by present methods. Furthermore, when it is measurably increased in the blood of individuals with anemia, the oxygen consumption has no direct relation to the severity of this symptom, and no constant relation to histologic abnormalities in the erythrocytes other than increases in the number of reticulated cells. A large proportion of all the nonnucleated red blood cells in the bone marrow are reticulated. Accordingly, the increase in the number of these forms, along with increase in the hemoglobin of the blood and a greater oxygen consumption thereby, is indicative of increased activity of the bone marrow.

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[1] Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicinie, St. Louis, C. V. Mosby Company, 1918, p. 93.

[2] Warburg, O.: Ztschr. f. physiol. Chem. **59**: 112, 1909.

[3] Morawitz, P.: Arch. f. exper. Path. u. Pharmakol. **60**: 298, 1909; Ergebn. d. inn. Med. u. Kinderh. **11**: 277, 1913

[4] Harrop, G. A., Jr.: The Oxygen Consumption of Human Erythrocytes, Arch. Int. Med. **23**: 745 (June) 1919.

EMIL FISCHER

In his biographic study of "Great Men," Ostwald divides scientists into the classical and the romantic types. To the former belong such men as Helmholtz and Faraday, who were characterized in their work by steadily advancing from one firm base to another in logical, systematic manner. Pasteur may perhaps be regarded as a most striking representative of the romantic type, which advances suddenly at the call of visions to brilliant success or, more often, except in the case of the most gifted, to dismal failure. Emil Fischer, whose death we recorded two weeks ago, was distinctly of the classical type. His achievements, while exceedingly brilliant, were in every instance the outcome of work systematically planned and developed, following step by step logical processes to an anticipated conclusion. Rarely, if ever, has any scientist accomplished a series of great tasks with so few deviations from the straight road toward each goal sought. Starting out early in his career (for he became a professor in the University of Munich at the early age of 27) on a campaign against three of the most difficult and most important problems of organic chemistry, he lived to succeed in solving each of them in a manner that leaves no doubt of the permanence of his achievements. Fortunately for medicine, each of these problems was of fundamental importance for biologic chemistry. They were: first, the structure of the purins; second, the structure of the carbohydrates, and third, the nature of the protein molecule. The accomplishment of any one of these tasks would have made Emil Fischer one of the greatest living chemists; but alone he solved all three.

There was nothing sensational or spectacular about these advances, as each came in logical order, built up step by step by rational development of existing knowledge and by sound reasoning. Skill in devising methods was the foundation stone of Fischer's success, coupled with a sound logic and great capacity for analytic reasoning. Working first with the hydrazins and related compounds, he developed methods that later were the key to his work with the sugars, and some features of his work on the compounds of phenylhydrazin with sugar are now familiar to every medical student, and are in daily use in biologic laboratories. This work, done chiefly in 1875 to 1877, was followed by brilliant studies on the rosanilin dyes, after which he turned to the purin work, the results of which were published especially between 1881 and 1895. Not only did these studies explain the structure of the purins, but they led to the development of methods for their synthesis, a matter of much practical importance in the case of such extensively used substances as caffein and theobromin. The work on the structure of carbohydrates was published mainly between 1883 and 1894, and resulted in explaining the composition and behavior of this vitally important group of substances, as well as furnishing methods of great practical value for their study and determination. As the producer of barbital and numerous other commonly used compounds, Emil Fischer's work came into especially close relation with medicine; but to physicians he is perhaps best known by his service in establishing the character of the protein molecule as nothing more mysterious or complex than a large aggregation of amino-acids united in a simple and uniform way. This work filled up most of the last twenty years of his life, and crowned his career in a gratifying manner. He was the recipient of about every honor possible for a great scientist, including the Nobel prize in 1902. In his laboratory many American students have worked, and he had always a keen interest in America and American affairs. Although he was one of the numerous German professors who signed the famous declaration, after the armistice he admitted to an American chemist that he had been deceived as to the statements on which this document was based, through his relying on the positive statements made by the German chancellor — statements afterward proved to be false.

THE MEDICAL STUDENT AND THE DEPARTMENT OF THERAPEUTICS

Times have changed since the day when two hundred students perched in an amphitheater to listen to a series of lectures on the uses of calomel or on the intricacies of incompatibles, both therapeutic and chemical, demanded by a complex polypharmacy. Pharmacology and physiology have demonstrated the absurdity of many of the products of ancient pharmacy, and have substituted reason and experiment for empiricism. Undoubtedly the teaching of today is better than that of two decades ago; but when we take stock of just how the system of today operates, and what its results are, the possibility of improvement is evident.

Elsewhere in this issue, Bastedo[1] points out some of the aims of the ideal course in therapeutics, and rightly lays stress on the selection of teachers from among the practicing physicians of the faculty who can think pharmacologically and physiologically; in other words, those detailed to teach should have acquired a knowledge of the physiologic processes which they propose to modify by therapy. It is equally important, however, that those who teach pharmacology in the pretherapeutic years should have as a background some knowledge of medicine as the prospective student will meet it in the clinical years of study which he is now preparing to enter. The recoil in methods of teaching therapeutics from ancient empiricism to the newer and better methods of demonstration in the pharmacologic laboratory has perhaps led in some schools to an undeirable detachment of thought of the pharmacologist rom medicine as a whole. The students, unable to iscriminate between essentials and nonessentials, are ften sidetracked on lines of thought which, though of cientific interest, are given undue prominence to the xclusion of other more important pharmacologic subects. The ideal teacher of pharmacology should have ot only a medical degree but also a hospital internhip or its equivalent in clinical experience. He will hen be able to add the living clinical word to his demonstration of the action of digitalis on the frog's heart, which will fix the instruction in the mind of the student more permanently than hours of reading.

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[1] Bastedo, W. A.: Suggestions for an Ideal Course in Therapeutics, The Journal, this issue, p. 463.

As Bastedo remarks, the teachers of physiology and pharmacology have a right to expect that the material of their teaching shall be utilized in the later years. But to be later utilized, this material must be so preented that it will be retained in the memory of the student. His thought is toward the coming clinical years; and a brief, well selected reference here and here which shows the relation of present theory to the future practice will help to fix the subject in his memory and to establish points of contact which, when ouched later on in the clinical years, will recall to him he principles of function and therapy of the pharmacologic laboratory.

The plea of physiology and pharmacology for more of the student's time will no doubt meet resistance from other departments whose claims are perhaps as urgent; but there seems to be no question that the time now available can be more effectively utilized by those who have had personal experience in the problems the student will meet.

The betterment of therapeutic teaching of the clinical years will come largely as a part of the general improvement of clinical teaching. The ward walk, and instruction of small groups of students in ward clinics, afford opportunities for the teaching of therapeutics in conjunction with symptomatology and diagnosis; and on successive days the student sees the results of therapy on the patient. Necessarily much of this type of teaching is done by men who have graduated within ten years, and who are likely to have had the advantage of good physiologic and pharmacologic training. Their efforts, however, will fall short of ideal teaching without continued supervision. The small clinic and ward walk have added much to medical teaching, but at the same time have introduced individuality to a degree which sometimes borders on confusion. The machinery of a medical school, no matter how well devised, will not run unattended after being set going at the beginning of the year. Constant supervision by heads of departments, with frequent conferences with all instructors at which the subject matter of teaching, including therapeutics, is discussed, will aid in affording the student the type of instruction to which he is entitled.

Current Comment

PYLORIC SECRETION

Many years ago the Breslau physiologist Heidenhain devised an experimental method of securing specimens of uncontaminated secretion from various parts of the stomach while digestive processes were actually in progress. The technic consisted in isolating portions of the stomach wall as pouches opening through fistulas to the exterior where the juice could be collected. The classic observations made by the aid of this procedure have often been criticized on the ground that they are not strictly comparable with what goes on in the intact stomach, because Heidenhain's surgical method necessitated severance of the nervous connections of the isolated gastric pouches. The most striking finding of the earlier investigations[1] was that, in contrast with the acid juice secreted by the fundic portions of the stomach, the pyloric secretion is alkaline in character. Ivy[2] has reinvestigated this with the aid of animals having gastric pyloric pouches in which the nerves were still intact. The reported results show the pyloric secretion to be thick and viscid, clear in appearance, and very slightly alkaline in reaction. It has a small content of pepsin. According to Ivy's observations, further, the secretion is more or less continuous, showing no change in rate of flow after meals or the administration of secretory stimulants which are known to act on the peptic and pancreatic glands.

PLANS FOR GRADUATE MEDICAL INSTRUCTION IN THE UNITED STATES

The next great advance in medical education in the United States will be in connection with graduate medical instruction. This will require and mean a closer cooperation of hospitals, medical teaching institutions, laboratories, and public health and charity bureaus in each of our large cities. It means that the material available will be organized, skilled teachers selected and listed, courses arranged, ample finances secured and—most important—a central administrative office provided so that students can obtain the courses they want with the least difficulty and without waste of time. The statement in regard to the New York Association for Medical Education referred to on another page[3] will be of interest to all who are concerned in graduate medical work in this country. This association has a board of trustees on which there are representatives of hospitals, laboratories, and medical and postgraduate schools of that city. The commissioners of health and charity and the president of the Bellevue and allied hospitals are ex officio members of that board. Through this organization, all institutions useful in connection with medical education are to be united. A central administrative office has been established, the object being to develop and utilize to the utmost the clinical resources of that city for graduate medical teaching. A committee on finance is raising funds for immediate needs and planning for larger resources—fifty million dollars is the goal—for the further advancement of the work. A committee on education has in charge educational standards, qualifications of teachers, and the character of courses offered. The employment of a full-time executive secretary adds to the permanence of the movement. Instead of the many agencies acting individually as heretofore, the object sought is to have all cooperate toward securing the best possible results. The plan also contemplates a cordial and extensive cooperation with similar organizations in other countries. Such movements as this should result not only in the improvement of medical education but also in a material benefit to the public. A greater study will be given to the etiology, diagnosis and treatment of individual patients; a greater enthusiasm will result from cooperation; an increased interest in investigation will be developed in all hospitals and on the part of both teachers and students; a greater opportunity for graduate medical study will be within easy reach of American physicians, and the greater knowledge and skill which they obtain will result in a better care of their patients. Furthermore, and not of the least importance, is the very definite fact that, instead of American physicians going to Europe for their postgraduate work, Europeans and South Americans will be coming to the United States.

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[1] Heidenhain, R.: Arch. f. d. ges. Physiol. **18**, 1878.

[2] Ivy, A. C.: Studies on the Secretion of the Pyloric end of the Stomach, Am. J. Physiol. **49**: 142 (June 1) 1919.

[3] New York Association for Medical Education, Department of Medical Education and State Boards of Registration, this issue, p. 551.

ILLINOIS' COMMENDABLE CONSOLIDATION OF MEDICAL CHARITIES WITH MEDICAL EDUCATION

When the Illinois Consolidation Law was passed, two years ago, it placed the work of 125 state commissions under nine administrative departments. Under one of the nine, the Department of Public Welfare, were placed the hospitals, charitable and penal institutions of the state, and the department was instructed to conduct research into the causes and treatment of insanity, feeblemindedness, delinquency, dependency and crime as well as to train physicians, nurses and others for the special work of the department. Its duties, however, were administrative and not educational. To carry out its function, therefore, it was necessary for the department to establish a relationship with some medical teaching institution. As noted on another page,[1] a perpetual agreement was established with another creature of the state, the University of Illinois and its college of medicine. Under this agreement the Department of Public Welfare will secure land and construct buildings for a psychiatric institute, a surgical institute for children, a new eye and ear infirmary, a clinical laboratory, a reconstruction hospital, a contagious disease hospital, a medical school, and other buildings as may be needed. By its approval of this agreement, the Illinois legislature has committed itself to a plan requiring eventually the expenditure of several million dollars. Already it is stated that $1,500,000 has been appropriated. The old Cubs' ball park just south of the Cook County Hospital has been secured, and the erection of buildings will be begun at the earliest opportune time. It is intended that these buildings shall be educational in character rather than of the institutional type. This agreement with the University of Illinois College of Medicine will unite with the latter a group of teaching institutions providing almost every kind of clinical material and in any quantity. It will have, therefore, exceptional facilities for medical teaching and research. At the same time the Department of Public Welfare will be fulfilling its obligations to the public by securing through the medical school a corps of trained specialists for the various hospitals and institutions which are, or will be, under its administration.

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[1] This issue, p. 549.

THE PRESERVATION OF ANTISCORBUTIC FRUIT JUICES

The sensitiveness of the antiscorbutic property of fresh fruits and vegetables toward heat and such methods of food conservation as depend on the use of this agency has been referred to in some detail in The Journal.[1] It was pointed out that experiments conducted in London give some promise of success in the preservation of the highly valued antiscorbutic fruit juices which have been relied on more than any other food product in the past to prevent scurvy in infants fed on heated milk or special foods, and also in the members of ships' crews or others likely to be kept out of reach of fresh foods for considerable periods. Further substantiation of the development of satisfactory methods of preservation of orange juice has just been recorded in this country by Givens and McClugage[2] at the University of Rochester. If the process of drying is not conducted at an unduly high temperature and the duration of drying is very short, the desiccated orange juice retains a significant amount of antiscorbutic potency. The latter is diminished as soon as the temperature is raised and the heating prolonged; thus, a temperature of from 55 to 60 C. (131 to 140 F.) for forty hours or more is destructive to the antiscorbutic property. Givens and McClugage, recognizing the need of an antiscorbutic that shall be within the reach of the poorer classes, point out that by desiccation of orange juice it should be possible to save a large amount of fruit product hitherto wasted through the inability to market and sell oranges at the moment that they are ready for sale.

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[1] Antiscorbutics I, editorial, J. A. M. A. **73**: 271 (July 26) 1919; Antiscorbutics II, ibid. **73**: 338 (Aug. 2) 1919.

[2] Givens, M. H., and McClugage, H. B.: The Antiscorbutic Property of Fruits, I, An Experimental Study of Dried Orange Juice, Am. J. Dis. Child. **18**: 30 (July) 1919.

Statistics on Insanity.—On Jan. 1, 1918, there were 239,820 insane patients under treatment in institutions in the United States. Of these, 231,048 were in public institutions, and 8,772 in private hospitals. Compared with the census of Jan. 1, 1917, there was an increase during the year of 6,406 patients in the public institutions and of 541 in the private, a total increase of 6,947. Of the 231,048 patients in public institutions, 207,705 were cared for in state hospitals; 22,443 in county or city institutions, and 900 in institutions for temporary care. The increases during the year in these hospitals were 5,681 and 139, respectively.—*State Hospital Quarterly*, Utica, N. Y., May, 1919.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending August 8, there were 9,661 officers in e Medical Corps, a decrease of 770 from the previous week. he Medical Reserve Corps contained 3,117 officers. The tal number of physicians discharged since the beginning of e war is 23,214.

Confirmation of Promotions of Colonels Noble and McCaw

The United States Senate has confirmed the nominations f Col. Walter D. McCaw and Lieut.-Col. Robert E. Noble be brigadier-generals in the Medical Corps of the United tates Army and to serve as assistant surgeon-generals. eneral McCaw entered the army as an assistant surgeon, ug. 20, 1884, appointed from the state of Virginia. He holds edical degrees from the Medical College of Virginia and om Columbia University. He was awarded the distinuished service medal for his work in France. He is 59 ears old. General Noble entered the service, June 29, 1901, ppointed from Alabama. He was graduated from the Alaama Polytechnic Institute, Columbia University and the rmy Medical School. He is 49 years old.

New Head for Department of Physical Reconstruction

Major Horace M. Evans, M. C., U. S. Army, has been ppointed officer in charge of the section of physical recontruction in the hospital division, succeeding Col. Frank illings. The Surgeon-General has also directed the appointent of chiefs of sections of physical reconstruction in the arious Army hospitals doing such work. These officers will ave charge of all hospital activities pertaining to physical econstruction of disabled soldiers, acting under the comnanding officer with the medical and surgical services.

Medical Supplies for Red Cross

Senator James W. Wadsworth, Jr., chairman of the Senate Iilitary Committee, has introduced a joint resolution to uthorize the Medical Department of the Army to turn over o the American Red Cross all surplus medical supplies in rance, to relieve the needs of the people of Europe for edical supplies.

Promotion of Dr. Bainbridge to Commander in the Naval Medical Corps

Dr. William Seaman Bainbridge, at present chief of the urgical division of the new 1,200 bed Naval Hospital at Ward's Island, N. Y., and consulting surgeon to the Third Naval District, has been promoted to the rank of commander in class 4, approved July 23. We are informed that this is the first time in the history of the Navy that an official of the reserve force has been promoted to this rank.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Akron—Wiates, W. L. (C.)
Bass Station—Rosser, W. W. (M.)
Birmingham—Faris, W. E. (C.)
Senteff, L. H. (L.)
Cullman—Thurlow, A. A. (L.)
Fitzpatrick—Griswold, J. C. (C.)
Mobile—Forcheimer, H. H. (C.)
Troy—Beard, J. W. (C.)
Valley Head—Norton, E. M. (L.)

ARIZONA

Nogale—Smelker, V. A. (M.)
Verde—Judd, W. C. (L.)

ARKANSAS

Batesville—Johnston, O. T. T. (C.)
Bentonville—Huffman, K. B. (C.)
Clinton—Hunter, R. M. (C.)
Earl—Watson, H. S. (C.)
Green Forest—Poynor, E. E. (C.)
Hamburg—Simpson, J. C. (L.)

CALIFORNIA

Brea—Davis, W. W. (L.)
Exeter—Mix, P. A. (C.)
Fresno—Pomeroy, F. K. (L.)
Glendale—Bardill, J. W. (C.)
Los Angeles—Bartow, W. L. (C.)
Los Cruces—Phillips, O. S. (C.)
Norwalk—Kellogg, P. S. (M.)
Oakland—Devine, C. T. (C.)
Purcell, E. M. (L.)
Pasadena—Griffith, H. M. (C.)
Sacramento—Briggs, G. A. (L.)
San Francisco—Bloch, H. I. (L.)
Boskowitz, G. H. (C.)
Cass, D. (L.)
Hawkins, H. M. (C.)
Hoffman, L. H. (M.)
Hopkins, E. K. (C.)
Krout, B. M. (C.)
Robinson, J. W. (C.)
Roncoviere, L. D. (C.)
Santa Monica—Balsley, J. A. (C.)
Stockton—Johnson, L. R. (C.)

COLORADO

Blackhawk—Froid, C. M. (L.)
Denver—Beaghler, A. L. (C.)
Carpenter, F. H. (C.)
Lyons, O. (M.)
Macomber, H. G. (L.)
Durango—Hutchinson, A. F. (C.)
Fort Collins—Rew, A. W. (C.)
Hotchkiss—Copeland, W. C. (M.)
Longmont—McFarland, S. B. (C.)
Strong—Durnell, A. (C.)

CONNECTICUT

Bridgeport—Dixon, H. C. (L.)
Olsson, E. E. (L.)
Danbury—Stahl, W. M. (L.)
Greenwich—Hyde, F. C. (M.)
Hartford—Biram, J. H. (L.)
New London—Acker, G. N. (C.)

DELAWARE

Seaford—Allen, B. M. (C.)
Wilmington—Burns, I. (C.)

DISTRICT OF COLUMBIA

Washington—Carr, W. B. (L.)
Kotz, J. (L.)
Luce, C. R. (L. C.)
MacNamee, A. M. (C.)
McKay, J. G. (L. C.)
Townshend, G. D. (L.)

FLORIDA

Bronson—McLeod, R. F. (L.)
Century—Gachet, N. L. (L.)
Jacksonville—Jelks, E. (C.)
Rothrock, A. M. (C.)
Myakka City—Maura, F. R. (M.)
Pensacola—Bryans, H. L. (C.)
Tarpon Springs—Vinson, W. J. (C.)

GEORGIA

Arabi—Miller, W. A. (M.)
Atlanta—Armstrong, T. B. (L.)
Becch, T. R. (L.)
Shanks, E. D. (C.)
Bainbridge—Willis, L. W. (L.)
Bronwood—Bowman, R. E. (L.)
Butler—Montgomery, R. C. (C.)
Canon—Terrell, J. H., Jr. (L.)
Cartersville—Wofford, W. E. (C.)
Demorest—Lamb, R. B. (C.)
Douglas—Smith, J. R. (C.)
Dublin—Page, L. J. (L.)
Fort Valley—Smisson, R. C. (L.)
Gay—Ellis, W. P. (C.)
Jeffersonville—Ray, S. W. (C.)
Kingsland—Prince, A. B. (C.)
Lithonia—Almand, C. A. (L.)
Macon—Corn, E. (L.)
Milledgeville—Pettit, J. K. (L.)
Monticello—Williams, W. A. (C.)
Warrenton—Davis, A. W. (L.)
Waycross—Lane, P. P. (L.)

IDAHO

Bellevue—Byrd, A. G. (L.)
Gooding—Cromwell, J. H. (C.)
Paris—Arntzen, J. L. (C.)
Pocatello—Richards, F. P. (C.)
Post Falls—Prichard, J. R. (C.)
Priest River—Ingram, J. W. (M.)
Twin Falls—Alexander, D. L. (C.)

ILLINOIS

Akin—Reed, J. E. (L.)
Aledo—Moore, G. H. (C.)
Aurora—Thomas, E. M. (L.)
Brownfield—Field, L. M. (C.)
Carrolton—Black, J. M. (L.)
Carthage—Knight, L. C. (L.)
Centralia—Kissel, J. P. (C.)
Chicago—Allen, T. D. (L.)
Allen, T. G. (L.)
Anderson, F. A. (L.)
Bacon, C. M. (L.)
Barnett, I. F. (C.)
Bassler, H. H. (C.)
Bedessem, P. M. (C.)
Bettman, R. B. (C.)
Beveridge, T. F. (C.)
Blech, G. M. (L. C.)
Blomgren, W. L. (C.)
Bresnahan, J. F. (C.)
Clark, E. (M.)
Clark, F. M. (L.)
Clayton, H. C. (L.)
Cleff, O. (C.)
Davenport, G. L. (C.)
Eck, C. P. (C.)
Gaarde, F .W. (M.)
Gaff, J. H. (L.)
Hansen, A. R. (C.)
Hauber, A. H. (L.)
Haug, L. A. (L.)
Helwig, A. G. (C.)
Hottinger, E. S. (C.)
Jenkinson, E. L. (C.)
Kispert, R. W. (L.)
Larkin, W. R. (C.)
Like, O. (C.)
Lippman, L. H. (C.)
Chicago—Machler, F. P. (C.)
Magee, I. J. (C.)
Martin, F. H. (Col.)
Mohr, W. C. (L.)
Pellettieri, J. (L.)
Pratt, R. W. (C.)
Riley, W. J. (L.)
Rubovits, W. H. (C.)
Segall, I. S. (L.)
Shambaugh, G. E. (M.)
Steele, P. A. (L.)
Stone, F. L. (C.)
Stranberg, W. L. (C.)
Torell, G. J. (L.)
Volini, I. F. (L.)
Warszewski, E. H. (L.)
Walman, N. (L.)
Chicago Heights—Fenn, G. K. (L.)
Decatur—Taylor, C. M. (L.)
East Moline—Randolph, H. E. (L.)
East St. Louis—Bernard, L. J. (L.)
Elkhart—Woodward, J. T. (C.)
Evanston—Nusbaun, P. L. (M.)
Roler, A. H. (L. C.)
Forrest—Evans, G. S. (C.)
Galena—Logan, R. E. (L.)
Geneva—Allen, J. S. (L. C.)
Harrisburg—Fuson, C. M. (C.)
Hazel Dell—Thomas, G. B. (C.)
Henry—Coggshall, T. C. (C.)
Herrin—Baker, L. W. (C.)
Jerseyville—Hunt, A. S. (C.)
Joliet—Fletcher, W. R. (L.)
Talbot, E. R. (C.)
Kankakee—Lockwood, C. R. (C.)
La Salle—Burke, E. J. (L.)
Lawrenceville—Montgomery, K. E. (L.)
Marietta—Jeffries, D. W. (C.)
Melrose Park—Short, R. D. (L.)
Minier—Rost, J. F. W. (L.)
Moline—Kohler, A. E. (C.)
Murphysboro—Sabine, R. S. (C.)
New Athens—Joseph, R. J. (C.)
New Berlin—Maxwell, T. R. (L.)
Normal—Wallis, M. (M.)
North Chicago—Mieczynski, J. F. (L.)
Oak Forest—Schlesinger, J. (L.)
Oblong—Wilson, C. S. (M.)
Ottawa—Edgcomb, J. H. (L.)
Paris—Williams, B. G. R. (L.)
Peoria—Cook, W. C. (C.)
Plainville—Aleshire, J. L. (C.)
Pontiac—Dargan, C. M. (M.)
Quincy—Stimpson, G. C. (L.)
Robinson—Davis, C. L. (C.)
Rockford—Sullivan, H. A. (L.)
Rock Island—Ostrom, L. (C.)
Rushville—Schenk, M. C. (C.)
Sandoval—Ruddick, H. C. (C.)
South Wilmington—Wright, L. G. (L.)
Springfield—Aschauer, A. G. (C.)
Cole, H. H. (C.)
White, E. C. (C.)
Streator—Clark, J. E. (C.)
Powers, G. J. (C.)
Tampico—Horn, A. S. (C.)
Washington—Bennett, O. P. (M.)
West Frankfort—Peterson, A. A. (L.)

INDIANA

Anderson—Miley, W. M. (C.)
Tracy, J. R. (C.)
Attica—Bechett, C. G. (M.)
Auburn—Hines, A. V. (C.)
Aurora—Ullrich, A. J. (C.)
Bedford—Norman, O. B. (M.)
Brazil—Elliott, H. (C.)
Decatur—Hoffmann, S. P. (C.)
Fort Wayne—Catlett, M. B. (C.)
Garrett—Thomson, J. W. (C.)
Greenfield—Brown, K. T. (M.)
Hayden—Cramm, G. W. (L.)
Hobart—Mackey, D. (L.)
Indiana Harbor—McGuire, D. F. (C.)
Indianapolis—Beler, R. C. (C.)
Brauchla, H. C. (L.)
Emhardt, J. W. (M.)
Funkhouser, E. (C.)
Habich, C. (L.)
McGaughey, S. (C.)
Moore, R. M. (C.)
Storms, R. B. (C.)
Kokomo—Bennett, E. N. (L.)
Everman O. (C.)
Mecca—Swayne, J. F. (C.)
Monrovia—Grave, E. F. (C.)
Montpelier—Emshwiller, M. A. (C.)
Muncie—Glascock, F. L. (L.)
Newport—Casebeer, I. M. (C.)
New Salem—Metcalf, H. C. (L.)
Portland—Hiatt, E. R. (C.)
Richmond—Churchell, E. R. (M.)
Rockville—Bloomer, J. R. (C.)
South Bend—Wilson, J. L. (L.)
Tipton—Reagan, L. M. (C.)

Valparaiso—Weldy, C. (C.)
Washington—Banister, R. F. (C.)
Wayne—Ditton, I. W. (C.)
Whiting—Ballard, C. A. (C.)
Mackey, C. G. (L.)

IOWA

Blackburg—Selman, R. J. (C.)
Buffalo—Frank, G. W. (C.)
Cedar Rapids—Riggle, F. P. (L.)
Centerville—Lowrey, C. E. (L.)
Cherokee—Wescott, L. A. (C.)
Des Moines—Dilley, H. H. (L.)
Fagan, R. P. (L. C.)
McKinley, A. D. (C.)
Dubuque—McGuire, C. A. (C.)
Parker, H. C. (M.)
Fort Des Moines—Loosbrock, J. F. (M.)
Iowa City—Gittens, T. R. (C.)
Gregg, J. B. (C.)
Jenkinson, H. R. (L.)
Mechanicsville—Priessman, F. A. (C.)
Monona—Brownson, J. D. (C.)
Montezuma—Cullison, R. M. (L.)
Mount Vernon—Mills, H. R. (C.)
Muscatine—Fruth, H. E. (C.)
Ottumwa—Newell, W. C. (C.)
Perry—McKirahan, J. R. (M.)
Rockwell—Guthrie, J. K. (C.)
Meany, J. F. (L.)
Rose Hill—Carver, H. E. (C.)
Shenendoah—Weaver, J. O. (L.)
Sioux City—Frear, C. E. (C.)
Hendrickson, A. H. (C.)
Maxwell, C. T. (C.)
Trierneiler, J. E. (L.)
Strawberry Point—Howard, W. H. (C.)
Varina—Creane, J. C. (L.)
Waterloo—McConnell, G. (M.)
Waverly—Gernsey, M. N. (L.)
Williams—Carey, F. S. (C.)

KANSAS

Beloit—Pickler, R. S. (C.)
Dresden—Funk, F. R. (C.)
Horton—Poutre, F. G. (L.)
Kansas City—Hobson, G. H. (C.)
King, H. W. (L.)
Lancaster—Charles, H. L. (C.)
Lenexa—Allen, L. G. (L.)
Lucas—Miller, E. A. (L.)
Manchester—Jackson, D. O. (C.)
Medicine Lodge—Coleman, T. A. (C.)
Pittsburg—Updegrove, W. H. (L.)
Pretty Prairie—Springer, R. W. (L.)
Scandia—Ward, R. C. (L.)
Topeka—Allen, G. V. (L.)
Erickson, O. L. (C.)
Tyro—Chadwick, I. B. (C.)
Wichita—Mitchell, W. I. (M.)
Rea, J. G. (L.)

KENTUCKY

Busseyville—Bussey, J. C. (C.)
Covington—Cohen, S. D. (L.)
Earlington—Sisk, A. O. (M.)
Finchville—Nash, W. H. (L.)
Franklin—Guthrie, S. R. (C.)
Hazard—Collins, R. L. (C.)
Horse Cave—Honaker, H. P. (C.)
Lancaster—Kinnaird, V. G. (M.)
Lexington—Willmott, C. B. (L.)
Louisville—Boulware, J. P. (C.)
Burns, C. C. (L.)
Floyd, J. B. (L.)
Lynnville—Ellis, N. B. (C.)
Midway—Anderson, S. J. (C.)
Newport—Backsman, E. B. (C.)
Paint Lick—Carman, W. L. (L. C.)
Strode—Palmore, E. E. (M.)
Symsonia—Smith, E. E. (L.)
Wallins Creek—Howard, W. P. K. (L.)
Winchester—Browne, I. H. (L.)
Bush, E. R. (C.)

LOUISIANA

Abbeville—Edwards, H. G. F. (C.)
Carson—Callihan, P. W. (L.)
Fullerton—Talbot, M. W. (L.)
Kenner—Reeves, E. W. (L.)
Mansfield—Cooper, A. S. (C.)
New Orleans—Bird, T. B. (C.)
Blakely, R. M. (C.)
Brown, F. T. (M.)
Humphries, S. R. (C.)
Levy, L. H. (C.)
Mayer, G. A. (L.)
Nicolle, H. T. (M.)
Werlein, P. E. (L.)
Shreveport—Hunter, W. B. (C.)
Slicer, J. E. (L.)
Waterproof—Gorton, J. M. (C.)

MAINE

Bangor—Scribner, H. C. (C.)
Brewer—Thomas, C. M. (M.)
Caribou—Blossom, F. O. (L.)
Houlton—Potter, J. G. (C.)
Mapleton—Floyd, A. E. (C.)
Portland—Haskell, A. W. (C.)
South Portland—Jordan, F. H. (M.)
Springfield—Glynn, R. R. (M.)
Waterville—Hill, F. T. (L.)

MARYLAND

Baltimore—Burns, J. E. (L. C.)
Clift, J. W. V. (C.)
Cudd, J. E. (L.)
Detrick, F. L. (L.)
Foster, H. M. (C.)
Hedrick, E. H. (L.)
Reinhardt, G. H. (C.)
Sanger, B. J. (L.)
Streett, J. H. (L.)
Wynne, H. M. N. (C.)
Magnolia—Shohl, A. T. (C.)
Oakland—Darby, J. D. (L.)
Woodsboro—Kable, W. H. (L.)

MASSACHUSETTS

Amesbury—Wright, A. C. (L.)
Boston—Batchelder, H. G. (C.)
Emmons, H. M. (C.)
Foster, J. H. (L.)
French, E. H. (C.)
Goffin, J. L. C. (L.)
Goulding, T. F. (L. C.)
Grandison, L. J. (C.)
Hardy, W. C. (C.)
Kendall, M. R. (C.)
Morris, S. L., Jr. (C.)
Osborn, S. H. (L.)
St. Antoine, H. E. (L.)
Stoddard, J. K. (L.)
Vose, R. H. (M.)
Brockton—McCann, C. D. (C.)
Cambridge—White, G. A. (L.)
Wiggin, R. C. (C.)
Chicopee—Foley, J. D. (C.)
Fall River—Barnes, F. R. (C.)
MacKnight, R. P. (C.)
Haverhill—Coffin, F. H. (C.)
Lynn—Merrill, E. A. (L.)
New Bedford—Mahoney, J. F. (C.)
Northampton—Janes, B. F. (C.)
Orange—Alexander, K. L. (C.)
Pittsfield—Lally, W. J. (C.)
Springfield—Horrigan, A. J. (C.)
Sunderland—Moline, C. (C.)
Taunton—Murphy, J. L. (C.)
Waltham—Dennen, R. W. (C.)
Wellesley Hills—Stanwood, F. A. (M.)
Worcester—Albec, G. M. (C.)
Calwell, H. S. (M.)
Lazarus, L. (L.)
Quist, F. J. (L.)
Schofield, R. W. (C.)

MICHIGAN

Alma—McNabb, A. A. (L.)
Ann Arbor—Criswell, R. H. (C.)
Denney, R. W. (C.)
Searles, W. I. (L.)
Battle Creek—Stone, R. C. (C.)
Tower, L. H. (L.)
Bear Lake—Norconk, W. H. (L.)
Benton Harbor—Becker, M. G., Jr. (C.)
Mitchell, C. A. (M.)
Big Rapids—Yeo, G. H. (L.)
Brooklyn—Schepeler, C. W. (C.)
Channing—Hayes, R. E. (M.)
Detroit—Boyes, H. R. (C.)
Donovan, D. R. (C.)
Goldstone, R. R. (C.)
Haden, R. L. (L.)
Henderson, H. (L.)
Kaminski, Z. L. (C.)
Sewell, G. S. (L.)
Smith, C. V. (C.)
Sutherland, A. P. (L.)
Yoh, H. B. (C.)
Escanaba—Defnet, H. J. (C.)
Ryan, V. F. (L.)
Walch, J. J. (L.)
Flint—Pratt, G. K. (C.)
Lansing—Cushman, M. L. (C.)
Holm, M. L. (C.)
Mount Clemens—Ullrich, R. W. (C.)
Negaunee—Abrahamson, I. L. (C.)
Ypsilanti—Rexford, W. K. (C.)

MINNESOTA

Albert Lea—Rudolf, S. F. (C.)
Barnesville—Cyr, A. (C.)
Glencoe—Wheeler, M. W. (C.)
Hallock—Wood, J. R. (L.)
Hector—McKibben, H. E. (L.)
Mankato—Denman, A. V. (L.)
Middle River—Spinks, R. E. (C.)
Minneapolis—Goss, H. L. (C.)
Grempler, W. E. (L.)
Hansen, E. W. (C.)
Luehrs, L. E. (L.)
Lynch, M. J. (C.)
Nordin, G. T. (L.)
New Prague—Maertz, W. F. (C.)
Osakis—Hengstler, W. H. (M.)
Owatonna—Andrist, J. W. (C.)
Pipestone—Schmidt, G. F. (M.)
Rochester—Bacon, K. (C.)
Lowell, H. M. (C.)
St. Paul—Brodie, W. D. (M.)
Dunn, J. N. (C.)
Ghent, M. M. (C.)
Turnacliff, D. D. (L.)
Thief River Falls—Douglass, J. E. (C.)
Warren—Borreson, B. (L.)
Waseca—Lynn, J. F. (C.)
Wells—Anderson, S. H. (C.)
Wheaton—Bates, B. V. (C.)

MISSISSIPPI

Bay St. Louis—Rush, B. C. (C.)
Bethany—Waldrop, H. G. (L.)
Bond—Hood, B. S. (L.)
Columbus—Ervin, W. L. (C.)
Dockery—Farmer, E. E. (L.)
Eastman—Graham, A. T. (L.)
Gulfport—Parker, E. C. (C.)
Meridian—Cleveland, T. G. (C.)
Strain, T. A. (C.)
Midnight—James, W. A. D. (C.)
New Albany—Boswell, H. P. (C.)
Plattsburg—Slaughter, J. H. (C.)
Wood, S. H. (C.)
Ratliff—Burns, E. P. (C.)
Rhodes—Slay, I. J. (L.)
Sanford—Fridge, H. G. (L.)
Sweetwater—McGahey, F. L. (C.)
Tippo—Friday, W. C. (L.)
Wayside—Russell, F. H. (C.)

MISSOURI

Ash Grove—McHaffie, C. H. (C.)
Orr, C. H. (L.)
Ballwin—Koch, O. W. (M.)
Brumley—Thompson, P. (C.)
Carrollton—Atwood, W. G. (L.)
Centerville—Ralls, L. B. (C.)
Elvins—Whiteside, E. E. (C.)
Fredericktown—Slaughter, S. C. (L.)
Gallatin—Smith, M. A. (C.)
Goodwater—Ramming, H. (L.)
Independence—Twyman, G. T. (C.)
Kansas City—Callaghan, R. (L.)
Connell, E. S. (C.)
Culbertson, W. F. (C.)
Hoagland, W. L. (C.)
Horigan, J. A. (C.)
Kearney—Milligan, R. H. (L.)
Knox City—McReynolds, R. (C.)
Lathrop—Schoenfeld, O. E. (L.)
New Hartford—Gay, R. J. (L.)
Oakridge—Statler, W. K. (C.)
Popular Bluff—Knecht, L. B. (L.)
Princeton—Mullinax, C. E. (C.)
Rutledge—Petty, W. S. (C.)
Saline—Wilkin, T. J. (L.)
Springfield—Wills, W. J. (C.)
St. Joseph—Forgrave, L. P. (C.)
St. Louis—Baker, E. (L.)
Calhoun, J. G. (C.)
Campbell, O. H. (L. C.)
Cleveland, H. F. (C.)
Clithers, W. H. (L.)
Cooper, T. E. (C.)
Gordon, F. N. (M.)
Joseph, D. R. (M.)
Larimore, J. W. (C.)
Leggat, A. C. (M.)
McCarthy, E. F. (L.)
Mellies, G. A. (C.)
Redington, J. C. (L.)
Reim, W. H. (L.)
Riley, G. L. (L.)
Rossen, J. A. (L.)
Schmalhorst, D. E. (C.)
Senseney, E. T. (C.)
Shepherd, H. A. (L.)
Westerman, C. M. (C.)
Wichman, A. G. (M.)
Warrensburg—Powers, J. A. (C.)

MONTANA

Anaconda—Dorland, M. A. (C.)
Butte—Brindjone, E. F. (C.)
Kingsbury, W. V. (C.)
Great Falls—Dye, W. G. (C.)
Greer, E. J. (C.)
Putney, G. H. (C.)
Snyder, K. A. (L.)
Helena—Treacy, J. L. (C.)
Inverness—Reilly, F. S. (C.)
Missoula—Dodds, E. F. (C.)
Troy—Olson, J. W. (C.)
Warm Springs—Long, W. E. (C.)

NEBRASKA

Barada—Strong, J. F. (L.)
Blair—Brooks, E. B. (M.)
Blue Hill—Laird, C. R. (C.)
Elm Creek—Yoder, C. A. (C.)
Grand Island—Regan, J. H. (L.)
Hastings—Strate, L. K. (L.)
Sucha, W. L. (L.)
Lincoln—Flansburg, H. E. (L.)
Norfolk—Phillips, W. M. (C.)
Omaha—Akin, H. L. (M.)
Moore, J. C. (M.)
Stapleton, H. B. (L.)
Overton—Edwards, C. B. (L.)
Pawnee City—Waddell, J. C. (M.
Randolph—Gleason, B. F. (L.)
Steinauer—Johnson, W. L. (C.)
Tekamah—Johnson, H. A. (M.)
West Point—Wells, H. L. (L.)

NEVADA

East Ely—Ashby, C. (C.)

NEW HAMPSHIRE

Concord—Amsden, H. H. (C.)
Nashua—Mulvanity, A. F. (L.)
Warner—Cogswell, L. H. (C.)

NEW JERSEY

Arlington—Lingle, C. P. (L.)
Atlantic City—Guion, E. (C.)
Sharpe, E. S. (M.)
East Orange—Buvinger, C. W (M.)
Jersey City—Hirsch, R. (C.)
Maxon, C. B. (L.)
Perlberg, H. J. (L.)
Montclair—Dodd, S. W. (C.)
Morristown—Pinckney, F. H. (L.)
Newark—Reitter, G. S. (C.)
Weinstock, M. B. (L.)
Paterson—Donnelly, J. G. (L.)
Gillson, H. V. (C.)
Salem—Hilliard, W. T. (C.)
Skillman—McLain, M. M. (L.)
Trenton—Sands, J. P. (L.)
West Hoboken—Sacco, A. G. (C.)

NEW MEXICO

Dawson—Brady, F. (C.)
Elida—McGee, B. B. (C.)

NEW YORK

Albany—Brown, J. C. (C.)
Kellert, E. (L.)
Auburn—Kober, W. H., Jr. (C.)
Batavia—Gould, C. B. (C.)
Owen, E. E. (C.)
Beacon—Sharp, G. A. (C.)
Binghampton—Bloom, M. S. (L.)
Blackwells Island—Howard, J. C. (M.)
Brooklyn—Anderson, R. B. (M.)
Aronson, B. (L.)
Bersin, A. A. (L.)
Buswell, C. E. (C.)
DeCoste, S. H. (C.)
Dexter, T. H. (M.)
Garlick, R. H. (C.)
Goldfarb, L. (L.)
Gotlieb, A. L. (L.)
Hecht, S. (L.)
Heffter, O. H. (M.)
Howard, T. (M.)
Jacoff, M. (C.)
McGoldrick, J. L. (L.)
McNeile, H. J. (L.)
Pashman, D. (L.)
Sussman, H. A. (C.)
Buffalo—Dobbie, R. P. (L.)
Dooman, D. S. (L.)
Johnson, H. B. (C.)
Laduca, J. P. (L.)
Clinton—Hamlin, V. B. (C.)
Elmira—Mark, A. (C.)
Glens Falls—Lawler, F. J. (L.)
Palmer, F. (C.)
Hudson—Edwards, J. L. (C.)
Little Neck—Van Nostrand, H. S. (L.)
Mount Vernon—Wilson, M. J. (L.)
New Rochelle—Smith, C. A. (C.)
New York—Alexander, M. (L.)
Amoss, H. L. (M.)
Arnold, R. N. (L.)
Atkins, R. T. (M.)
Beard, R. W. (L.)
Berberovich, T. F. (C.)
Bibby, H. L. (M.)
Bidwell, A. M. (C.)
Blancard, W. (M.)
Blum, H. (L.)
Bradner, J. C. (C.)
Branower, J. (C.)
Cannaday, R. G. (C.)
Cartwright, H. T. (L.)
Chase, A. F. (M.)
Cleveland, M. (M.)
Craig, C. B. (M.)
Croce, J. P. (L.)
Davis, T. K. (C.)
Fitzgibbons, P. J. (L.)
Frasier, N. R. (L.)
Ginsburg, A. (C.)
Green, B., Jr. (C.)
Greenberg, I. (L.)
Healey, J. F. (L.)
Hyams, J. A. (L.)
Janes, H. H. (L.)
Johnson, O. H. (C.)

New York—Kupperman, M. (L.)
Levey, S. P. (L.)
Lincoln, A. L. (C.)
Liotta, M. A. (L.)
McDonald, R. F. (C.)
McDuffie, J. H., Jr. (L.)
McFarland, G. B. (C.)
McGlade, P. P. (L.)
McIntosh, R. (L.)
Osborne, L. J. (C.)
Ostrowsky, H. (L.)
Platt, M. W. (C.)
Pound, R. E. (M.)
Resnik, J. (L.)
Rock, J. W. (C.)
Rosenfeld, S. S. (L.)
Sachs, L. B. (C.)
Scholl, A. J., Jr. (C.)
Schultheis, D. (L.)
Strickler, F. P. (C.)
Sullivan, E. B. (C.)
Timm, A. B. (M.)
Touchstone, J. L. (L.)
Tyner, C. V. (L.)
Vander Veer, A., Jr. (M.)
Wallace, K. B. (C.)
Wood, W. B. (C.)
Zingher, A. (C.)
Palmyra—Pierce, L. R. (C.)
Penn Yan—Strait, B. S. (C.)
Rochester—Graham, C. T. (C.)
Miller, A. S. (C.)
Randall, H. (L.)
Schairer, W. W. (C.)
Steinhauser, C. G. (L.)
Salamanca—Ubel, G. B. (C.)
Salem—McSorley, F. W. (M.)
Schenectady—Stearns, W. A. (C.)
Witter, C. B. (C.)
Staten Island—Gilmore, G. B. (L.)
Syracuse—Doust, B. C. (C.)
Scott, R. C. (L.)
Troy—Buchanan, A. (M.)
Hogan, J. T. H. (C.)
Urlton—King, S. M. (C.)
Watertown—Barnett, M. D. (C.)
Waterville—Cole, L. F. (C.)
Wellsville—Eaton, R. M. (C.)
White Plains—Vosburgh, T. J. (L.)
Willard—Priestman, G. (C.)
Yonkers—Hoy, M. J. (C.)

NORTH CAROLINA

Asheville—Griffith, L. M. (C.)
Durham—King, M. N. (C.)
Speed, J. A. (C.)
Germanton—Petree, P. A. (L.)
Greensboro—Lipscomb, H. R. (L.)
Kingston—Mangum, C. P. (L.)
Raleigh—Mordecai, A. (C.)
Southport—Dosher, J. A. (C.)
Walkertown—Hurdle, S. W. (C.)
Williamston—Saunders, J. H. (C.)
Wilmington—Hooper, J. W. (C.)
Ruark, W. T. (L.)
Wingate—Williams, E. J. (L.)

NORTH DAKOTA

Ashley—Maereklein, E. H. (L.)
Bottineau—Scully, F. J. (L.)
Dickinson—Nachtway, A. P. (C.)
Enderlin—Cherry, W. S. (L.)
Minot—Jackman, J. C. (C.)
Valley City—Livingston, J. W. (M.)
White Earth—Kennedy, E. F. (L.)

OHIO

Arcadia—Taylor, E. B. (L.)
Bedford—Ralston, J. H. (L.)
Cardington — Moccabee, W. D. (L.)
Chagrin Falls—Wakefield, E. F. (C.)
Chatfield—Edwards, A. R. (C.)
Cincinnati—Applegate, M. M. (C.)
Ayres, W. M. (C.)
Baehr, E. M. (M.)
Greene, C. D. (C.)
Molony, L. A. (C.)
Schell, H. F. (C.)
Wenning, T. H. (C.)
Cleveland—Beekel, F. (L.)
Davis, C. V. (L.)
Dippel, A. L. (L.)
Marine, D. (L. C.)
Pilcher, J. D. (M.)
Richardson, M. L. (C.)
Sheets, L. G. (C.)
Sill, R. H. (C.)
Southwick, A. A. (L.)
Townsend, O. E. (L.)
Cleveland Heights—Garvin, J. A. (L.)
von den Steinen, E. (C.)
Columbus—Bausch, H. G. (L.)
Beatty, H. G. (L.)
Hancy, F. C. (L.)
Ludwig, E. C. (M.)
Osborn, M. F. (C.)
Small, V. R. (C.)
Cuyahoga Falls — Caines, J. W. (L.)
Dayton—Austin, R. C. (C.)
Brower, A. B. (L.)
Prugh, M. D. (C.)
Elyria—Hubbell, W. B. (M.)
Montpelier—Steele, W. H. (L.)
New Berlin — Dougherty, J. B. (M.)
New Bremen—Havemann, G. A. (C.)
North Ridgeville — Pease, R. A. (C.)
Sonora—Loebell, M. A. (C.)
Toledo—Bowen, R. B. (C.)
McGonigle, M. B. (C.)
Mundy, C. S. (L.)
Walnut Creek—Bahler, C. T. (L.)
Zanesville—Rambo, H. M. (L.)

OKLAHOMA

Ada—King, R. F. (L.)
Chandler—Adams, J. E. (L.)
Checotah — Montgomery, A. B. (L.)
Cordell—Bungardt, A. H. (L.)
Idabel—Hill, L. H. (C.)
Ingersoll—Jones, E. L. (L.)
Lexington—Rock, J. L. (L.)
Marshall—Richmond, H. C. (L.)
Muskogee—Holcombe, R. N. (C.)
Okemah—Pemberton, J. M. (C.)
Oklahoma City—Hunter, G. (C.)
Langston, W. (C.)
Walker, O. J. (L.)
Owasso—Humphreys, D. W. (L.)
Quinlan—Eilers, P. G. (L.)
Sapulpa—Justice, H. B. (C.)
Shawnee—Wagner, H. A. (C.)
Strang—Leonard, J. D. (L.)
Stringtown—Rose, C. C. (L.)
Verden—McVey, G. M. (C.)
Vinita—Jackson, W. W. (C.)
Marks, W. R. (L.)
Wakita—Harrington, W. E. (M.)

OREGON

Coquille—Low, G. E. (C.)
Gresham—Hughes, H. H. (L.)
Prineville—Newsome, G. S. (L.)

PENNSYLVANIA

Allentown—Peterson, R. A. E. (C.)
Altoona—Bay, P. A. (L.)
Bloomhardt, F. H. (L. C.)
Hull, L. E. (C.)
Alverton—McNish, G. T. (C.)
Avoca—Druffner, L. C. (L.)
Burgettstown — Patterson, W. P. (C.)
Burnham—Thomas, L. I. (C.)
Byberry—Halprin, A. (C.)
Catasauqua—Baker, H. L. (L.)
Chambersburg—Maclay, J. P. (L.)
Chester—Evans, W. B. (C.)
Clarion—Fitzgerald, C. A. (L.)
Columbia—Miller, M. V. (C.)
Dillsburg—Crawford, W. L. (C.)
Dunmore—Carroll, F. A. (C.)
Eddystone—Armitage, G. L. (C.)
Elizabethville—Barto, R. E. (L.)
Erie—Miller, R. O. (C.)
Fountain Springs—Marsh, E. E. (C.)
Freeland—Dickinson, C. S. (C.)
Girardsville—Dewey, M. G. (C.)
Greensburg—Murdock, D. R. (C.)
Harrisburg—Reckford, F. F. D. (L.)
Honesdale—McConville, W. T. (C.)
Lansford—Bellas, J. J. (C.)
Mildred—O'Connor, J. J. (C.)
Mont Alto—Berry, J. (M.)
Makler, J. S. P. (C.)
Montgomery—Turner, W. E. (C.)
Mount Carmel — McNelis, T. J. (L.)
Mount Holly Springs—Fralic, H. B. (C.)
Philadelphia — Annesley, W. H. (C.)
Barron, C. A. (M.)
Baun, W. D. (L.)
Beltran, B. R. (C.)
Boyle, H. C. (C.)
Conlen, A. J. P. (L.)
Drayton, W., Jr. (C.)
Fox, H. (M.)
Hetherington, R. R. (C.)
Kennedy, J. P. (C.)
Kline, O. R. (L.)
Langton, D. J. (L.)
Loewenberg, S. A. (C.)
Longaker, E. P. (L.)
McMonagle, J. W. (C.)
Miller, R. L. (L.)
Morris, S. M. (C.)
Purves, G. M. (C.)
Ramsay, W. G. (L.)
Reading, J. H., Jr. (L.)
Philadelphia—Ruoff, W. (C.)
Thrush, M. C. (M.)
Valc, C. F. (L.)
Wells, J. R. (M.)
Zacks, M. A. (L.)
Pittsburgh—Bradford, C. L. (M.)
Campbell, R. J. (C.)
Carroll, T. B. (M.)
DeMuth, J. S. (C.)
Denslow, W. B. (C.)
Eber, S. I. (C.)
Evans, T., Jr. (C.)
Feldstein, G. J. (L.)
Glass, S. J., Jr. (L.)
Harmount, W. C. (C.)
Lacy, G. R. (C.)
Lindeman, C. E. (C.)
McCartney, J. S., Jr. (L.)
Moffitt, H. F. (L.)
Schubb, T. (L.)
Stewart, W. J. (C.)
Vaux, C. J. (Col.)
Scranton—Hanley, C. H. (L.)
Murrin, C. E. (L.)
Shaul, E. B. (L. C.)
Sharon—Hagin, E. N. (L.)
St. Michael — Dickinson, E. P. (L.)
Stewartstown—Free, E. M. (L.)
Swissvale—Caldwell, C. S. (C.)
Tamaqua—Harding, F. B. (C.)
United—Freas, M. W. (C.)
Vanderbilt—Hazlett, J. H. (C.)
West Chester—Woodnard, W. W. (L.)
Whitsett—Fosselman, D. C. (C.)
Wilkes-Barre — Donnelly, F. E. (C.)
Wadhams, R. L. (C.)
Wilkinsburg—Walker, W. J. (C.)
Williamsport—Trainer, R. F. (C.)
Wilson—Cort, A. L. (L.)

RHODE ISLAND

Providence — Cummings, W. W. (C.)
Wakefield—Thewlis, M. W. (C.)
Woonsocket — Weeden, A. A. (C.)

SOUTH CAROLINA

Bishopville—McLure, H. M. (L.)
Charleston—Cain, F. G. (L.)
Columbia—Boling, J. R. (C.)
West, C. A. (L.)
Conway—Norton, J. A. (C.)
Easley—Wallace, J. (M.)
Greenville—Gentry, C. W. (C.)
Orr, J. L., Jr. (M.)
Jefferson—Thomas, J. E. (C.)
Piedmont—Jewell, J. P. (L.)
Walhalla—Sloan, B. F. (C.)

SOUTH DAKOTA

Aberdeen—Adams, J. F. (C.)
Bellefourche — Tulisalo, O. W. (L.)
Brookings—Fisk, R. R. (C.)
Castlewood—Crawford, J. H. (L.)
Chamberlain — Crawford, R. A. (C.)
Dell Rapids—Grove, A. F. (L.)
Elk Point—Bushnell, W. F. (C.)
Hitchcock—Scheib, A. P. (L.)
Lead—Crane, H. L. (C.)
Sioux Falls—Donahoe, S. A. (C.)
Vermillion—Stoland, I. (C.)
Wilmot—Harris, C. N. (C.)

TENNESSEE

Bells—Farrow, E. (C.)
Bethel—Edmundson, L. A. (L.)
Chattanooga—Barnett, J. H. (M.)
Newell, E. D. (L. C.)
Clarksville—Ross, E. B. (C.)
Cleveland—Speck, C. T. (C.)
Cookeville—Howards, W. A. (C.)
Copenhagen—Kirkpatrick, J. W. (C.)
Dresden—Mayo, B. S. (C.)
Gallatin—Lackey, W. N. (C.)
Halls—Blankenship, J. C. (C.)
Knoxville—Bomar, F. H. (C.)
Frazier, C. A. (L.)
La Follette—Jennings, T. (C.)
Memphis—Blassingame, C. D. (C.)
Drake, J. R. (C.)
Gillespie, E. C. (C.)
Meeker, S. (C.)
Owens, J. P. (M.)
Webb, G. C. (L.)
Nashville—Alexander, H. K. (L.)
Buckner, M. G. (C.)
Hartman, M. D. (C.)
Hite, J. H. (L.)
Walton, C. D. (C.)
Shelbyville—Moody, S. S. (C.)
Westmoreland—Law, W. P. (L.)

TEXAS

Beaumont—Grimes, J. (M.)
Thomson, W. F. (C.)
Bonham—Nevill, O. C. (L.)
Coleman—Cochran, R. H. (C.)
Cooledge—Anderson, J. J. (L.)
Dallas—Bruce, B. S. (M.)
Eddy—Lucey, W. E. (C.)
Elmendorf—Smith, R. K. (L.)
El Paso—Austin, C. P. (C.)
Helm, H. M. (M.)
Liddell, T. C. (C.)
Fort Worth—Austin, C. B. (C.)
Horn, W. S. (M.)
Logsdon, H. A. (C.)
Mulkey, Y. J. (C.)
Ogden, W. H. (C.)
Gustine—Stricklin, M. L. (C.)
Harrold—Clark, J. F. (C.)
Houston—Lummis, F. R. (C.)
Milton, S. (C.)
Myers, C. D. (L.)
Robbins, F. L. (C.)
Pasadena—Acker, E. (L.)
San Antonio—Bush, H. M. (C.)
Johnson, J. J. (C.)
Scull, C. E. (C.)
Smith, B. F. (M.)
Sarita—Cooley, W. H. (L.)
Sherman—Spangler, D. (C.)
Tyler—Rice, E. D. (L.)
Waco—Hodges, E. D. (L.)
Wichita Falls—Tyson, W. S. (C.)
Walker, M. M. (M.)

UTAH

Ogden—Bartlett, F. K. (C.)
Salt Lake City—Black, B. W. (M.)
Bowman, A. J. (C.)
Mayo, W. B. (C.)
Richards, H. Y. (L.)

VERMONT

Burlington—Brown, T. S. (C.)
McIvor, D. G. (C.)
Smart, C. L. (C.)
Craftsbury—Bibby, E. N. (L.)
Danby—Farrell, E. V. (L.)
Richmond—Mitchell, S., Jr. (C.)
Vergennes—Watt, W. G. (C.)

VIRGINIA

Chase City—Finch, A. T. (M.)
Dillwyn—Brown, C. A. (L. C.)
Greenwood—Wilson, W. (L.)
Holland—Waff, J. J. (C.)
Hurley—Wire, B. O. (L.)
Max Meadows—Herndon, L. S. (L.)
Newport News—McCutcheon, R. H. (C.)
Norfolk—Devine, C. J. (L.)
Love, J. M. (C.)
Lynch, J. F. (L. C.)
Petersburg—Early, L. S. (L.)
Richmond—Wellford, B. R. (C.)

WASHINGTON

Acme—Brinson, E. L. (L.)
Burlington—Jackson, W. L. (C.)
Colfax—Hill, R. B. (C.)
Kennewick—Crosby, F. M. (C.)
Seattle—Delaney, F. J. (C.)
McKee, J. A. (M.)
Sprague—McCaffrey, E. H. (C.)
Tacoma—Argue, H. S. (C.)
Davies, J. S. (L.)
Morse, R. A. (L.)

WEST VIRGINIA

Cannelton—Shaffer, J. S. (M.)
Charleston—Swint, B. H. (L.)
Conings—Law, H. D. (L.)
Hinton—Rose, E. E. (L.)
McMechen—McGuffie, C. R. (L.)
Worthington—Orr, W. W. (C.)

WISCONSIN

Appleton—McGrath, E. F. (C.)
Beloit—Fosse, B. (M.)
Bloomington—Lewis, P. J. (M.)
Brodhead—Darby, G. S. (M.)
Sutherland, J. (L.)
Butternut—Axley, A. A. (C.)
Dousman—Nitbohm, D. R. (L.)
Eau Claire—Hayes, E. P. (L.)
Ellsworth—Smith, L. G. (M.)
Endeavor—Simpson, J. E. (C.)
Green Bay—Clifford, P. M. (L.)
Kenosha—Thompson, G. E. (C.)
La Crosse—Andrew, G. F. (C.)
Simones, V. L. (L.)
Madison—Heise, H. A. (L.)
Marshfield—Vedder, J. B. (C.)
Milwaukee—Armitage, J. E. (M.)
Bading, G. A. (C.)
Curtin, A. L. (L.)
Kuhn, H. J. (L.)
Loughlin, T. F. (L.)
Mulsow, J. E. (C.)
Neilson, G. W. (M.)
Rieckoff, G. G. (C.)
Mondovi—Parmenter, E. L. (L. C.)

Readstown—Pierson, P. R. (L.)
Rosholt—Birkelo. C. C. (C.)
Sun Prairie—Allen, W. E. (C.)
Superior—Conklin, G. H. (M.)
Two Rivers—Gates, E. (M.)
Wausau—Jones, M. L. (C.)
Webster—Converse, G. L. (C.)
West Bend—Lynch, D. W. (C.)
Whitehall—Tyvand, J. C. (C.)

WYOMING

Cheyenne—Fox, G. A. (C.)
Sheridan—Benson, A. H. (C.)
Brown, H. M. (L.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

ALABAMA

Opelika—Thomas, E. C.

ILLINOIS

Peoria—Brown, W. L.

INDIANA

Brownsburg—Lingeman, E. L.
Indianapolis—Thurston, H. S.
Terre Haute—Mitchell, A. M.

LOUISIANA

New Orleans—Wynn, W. H.

MASSACHUSETTS

Boston—Cobb, G. N.
Keegan, J. J.

MICHIGAN

Detroit—Andrews, F. T.
Muellenhagen, W. J.

MINNESOTA

Minneapolis—Hocom, H. E.

MISSOURI

St. Louis—Hennerich, W. E.

NEW JERSEY

Long Branch—Nichols, S. H.

NEW YORK

New York—Condict, W. L.
Ellis, M. I.
Lynch, J. R.
Neubauer, A. A.

NORTH CAROLINA

Potecasi—Parker, P. G.
Woodland—Parker, W. R.

OHIO

Lima—Basinger, H. I.

PENNSYLVANIA

Philadelphia—Boles, R. S.
Schless, R. A.
Vattier, L. C.
Wishaw—Hall, W. D.

TEXAS

Fort Worth—Carter, C. F.
Mabank—Pierce, J. L.

VIRGINIA

Richmond—Trice, E. T.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Sanatorium Sold.—The Highland Park Sanatorium, Montgomery, founded by Dr. Isaac L. Watkins, in 1895, has been sold to Dr. Thomas Brannon Hubbard.

Personal.—Dr. Jacob Roscoe Snyder, Birmingham, has been appointed medical adviser at the Alabama Children's Aid Society.——Dr. Fred D. Reynolds has succeeded Dr. E. W. Edahl as assistant state bacteriologist.

Alumni Officers.—At the annual meeting of the Alumni Association of the Medical School of the University of Alabama, Mobile, the following officers were elected: president, Dr. Josiah E. Evans, Mobile; vice presidents, Drs. Abner N. Steele, Anniston, and William W. Perdue, Mobile, and secretary-treasurer, Dr. Eugene Thames, Mobile.

Hospital Notes.—It is announced that the new Coffee Memorial Hospital, Florence, will soon be in operation. The building next door to the hospital will be secured for a nurses' home.——A memorial hospital is to be built in Montgomery in honor of soldiers and sailors who served during the world war, and subscriptions for a bond issue of $50,000 are being secured for construction purposes.

Care of Feebleminded.—The Alabama Society for Mental Hygiene has recently issued a series of news bulletins relative to the increased number of the feebleminded and insane in that state. At this time there is before the legislature a mental deficiency bill carrying an appropriation for the establishment of the Alabama Home for Mental Inferiors. Many of the bulletins deal with typical instances in which feebleminded and insane persons have brought great expense to the state.

Health Bill.—A bill carrying with it an appropriation of $150,000 for the furtherance of health work in Alabama, contains the following principal features: adoption of a model law for vital and mortuary statistics; adoption of the latest methods of reporting notifiable diseases a strict social disease control law; regulations on midwifery; prevention of ophthalmia neonatorum; adoption of milk standard; provisions concerning water supply and soil pollution; the inspection of hotels, cafes, barbershops, meat and milk depots and dairies; the abolition of part-time health officers; the adoption of an all-time county health officer plan, with the county as a unit, and giving state health officers authority to remove inefficient county health officials.

FLORIDA

Personal.—Dr. Ralph N. Greene, Chattahoochee, has been elected state health officer of Florida, and has entered on his duties.——Mr. Joe L. Earman, West Palm Beach, has been elected president of the state board of health.

Provision for Orthopedic Hospital.—The state health officer announced, July 29, that the state board intended to take advantage of the authority vested in the board and either establish a state orthopedic hospital or employ physicians at various points throughout the state to conduct treatment for the prevention or correction of deformities in children.

GEORGIA

Home for Feebleminded.—The House of Representatives, July 8, passed by a vote of 140 to 19, the bill providing for a special training school for mental defectives.

Personal.—Dr. Ovid H. Cheek, Dublin, has been appointed health commissioner of Laurens County succeeding Dr. Edward B. Claxton, Dublin, resigned.——Dr. John P. Kennedy, Atlanta, has been reelected health officer, and Dr. Claude A. Smith, director of the laboratory of hygiene, of the city of Atlanta.

ILLINOIS

Charge for Telephone Consultation.—Physicians of Kane County announce that hereafter they will charge 50 cents for information given to patients or friends of patients over the telephone.

Infantile Paralysis.—Three new cases of infantile paralysis were reported at Ladd, August 6, and one additional case at Princeton, Peru and East St. Louis, respectively. During the present epidemic there have been seventy-five cases reported, with only two deaths, and the majority of cases were found in LaSalle, Bureau and Putnam counties. The situation is believed to be under control.

Chicago

Physician Fined.—Failure to comply with the state law requirements by reporting a case of sore eyes in a baby is said to have resulted in Dr. Frank J. Zuehlke being fined $25 and costs, August 5.

Laboratory to Be Enlarged.—In order to increase its capacity for the production of antipneumonia serum, the laboratory of which Dr. Preston Kyes, professor of preventive medicine in the University of Chicago, is in charge, is to be enlarged at a cost of $5,000.

Infantile Paralysis.—During July, twenty-nine cases of anterior poliomyelitis were reported to the health department, the largest number of cases for July in any year with the exception of 1916. There were, however, only three deaths from the disease during the month.

Graduate Course Lecture.—The ninth lecture of the Graduate Summer Quarter in Medical Science at the University of Illinois, College of Medicine, was delivered, August 6, by Dr. Aaron Arkin, Ph.D., professor of pathology and bacteriology in the University of West Virginia, Morgantown, on "The Influence of Some Chemical Substances on Immunity Reactions."

Nursing Courses.—The Chicago Chapter of the American Red Cross has announced an appropriation of $15,000 to finance an educational campaign for preparedness against epidemics and civilian diseases. This course is not, as was stated in the last issue of The Journal, connected in any way with the Nursing School recently opened by the department of health.——The lectures in the home nursing course at the old Loyola College are being attended by more than 1,100 women.

MICHIGAN

Personal.—Dr. Harvey E. Hoffman has resigned as city physician of Ludington.

Infant Clinics Opened.—Seven temporary baby clinics operated by the Detroit Board of Health were opened, July 11. These clinics are in addition to the six in board of health centers, and the two in settlement houses at present in operation.

Physician Arrested in Raid.—In a raid made in Detroit, August 31, according to reports, Dr. George A. Fritch, who has been arrested many times in connection with the performance of illegal operations, was arrested, charged with performing an illegal operation.

Establishment of Health Districts.—Plans have been made to reorganize the department of health activities of Detroit, by dividing the city into ten health districts, each having a full-time physician and a staff of nurses. The new scheme is to be put in operation in Delroy district, in September, with a doctor and sixteen nurses on the staff.

Charges Dismissed.—The charges of violating the medical advertising law and of failing to report a contagious disease, which were pending against Dr. Wilson Fish, Detroit, and the charge of practicing medicine without a license which was pending against Leon Burgess, Detroit, were dismissed, July 31, by Justice Cotter on the request of the department of health.

MINNESOTA

Wassermann Laboratory Established. — The Minnesota State Board of Health opened a Wassermann laboratory, August 1, under the charge of Mr. Ralph M. Sperry, formerly of Philadelphia.

Malpractice Not Proved.—The state supreme court, August 1, decided that Drs. Robert C. Farrish and William C. Portmann, Sherburn, could not be held liable for alleged malpractice for the treatment of a child who was suffering from bone disease.

Personal.—Dr. Charles E. Smith, St. Paul, assistant secretary of the state board of health, has been designated as acting executive officer of the board.——Dr. Mabel S. Ulrich, Minneapolis, supervisor of social hygiene education, has just completed a course of lectures on social hygiene, in the summer school of Columbia University.

Sanatorium to Be Closed.—Abandonment of the Ramsey County Tuberculosis Sanatorium at Lake Owasso was approved by the Ramsey County board, July 29, when an item for $16,826 for the maintenance of the institution was stricken from the budget, at the recommendation of the board of control and at the suggestion of Dr. Arthur B. Ancker, superintendent of the City Hospital.

Bracken's New Work.—Dr. Henry M. Bracken, who was secretary and executive officer of the Minnesota State Board of Health since 1897, but resigned in May to accept a commission as surgeon of the United States Public Health Service, in charge of the War Risk Insurance Medical Service, for the Northwestern states, has opened an office in the Lowry Building, St. Paul.

Venereal Disease Clinics.—During June, 1,235 treatments were administered in the venereal disease clinics under the control of the state board of health, with a total of 526 patients. From Aug. 1, 1918, to the close of the fiscal year, July 1, 1919, 6,770 cases were reported to the division of venereal disease. The division which was formerly located in the capitol at St. Paul is now housed on the university campus in Minneapolis, in the Pathology Building, with the divisions of preventable disease and sanitation. The divisions of records, nursing and vital statistics and the executive officers are in the capitol building in St. Paul.

MISSISSIPPI

Sanatorium Sold.—Dr. Julius Crisler, owner of the Jackson Sanatorium, has disposed of his interest in the hospital to Drs. William W. Smithson and James P. Wall, Jackson.

Society Promotes Propaganda for Care of Feebleminded.—Under the secretaryship of Dr. Thomas H. Haines, Jackson, the Mississippi Mental Hygiene Commission has issued news bulletins in an endeavor to promote the establishment of a colony for the feebleminded in Mississippi.

New Hospitals.—The Biloxi City Hospital Association accepted the new hospital, July 19.——A contract has just been let for the erection of a private hospital at Marks. The hospital will be of brick and reinforced concrete construction, will have two wards and about ten private rooms, and will cost about $20,000.

NEW JERSEY

Hospital Memorial.—Residents of Gloucester will erect a memorial hospital in honor of soldiers of the country who fought in the world war. Decision was reached at a public meeting at the City Hall. It is estimated that the hospital will cost $50,000. Funds will be raised through an appropriation by the city and by public subscription. The proposed hospital will have twenty-five beds. The annual expense of operation is expected to be $9,600.

Health Board Quits.—The members and officers of the board of health of National Park resigned in a body in a movement stated to create harmony between the two factions which now exist in the fast growing borough. Mayor Edgar Walters appointed a new board. Council has approved the new appointments and the new board, consisting of William P. Abdill, Charles Chism, Frank Wakeley and E. R. Allen, will likely accept the appointments.

NEW YORK

New York City

New York's Lowest Mortality Record.—For the week ending July 26 a death rate of 8.87 per thousand was recorded, against a rate of 11.21 for the corresponding week of 1918. This is the lowest death rate recorded since the organization of the health department in 1866. The next lowest rate was that of June 21, of this year, which was 9.10 and the third lowest was that for the week of July 19, which was 9.16.

Health Center Opened.—A health center for women and girls has been opened at 43 East Twenty-Second Street, under the direction of the social education department of the Young Women's Christian Association. It is under the charge of Dr. Bessie Fiorence L. Meredith, and the purpose of the center is "to keep well women well." No fees are charged for examination and the center is to be opened from noon to 10 p. m. daily.

New Home for Hospital.—According to a recent announcement, the Beth David Hospital, located at Lexington Avenue and One Hundred and Thirteenth Street, has completed plans to erect a modern seven-story building on the present hospital site. Work on the new building is to begin at once. The building will afford accommodations for 150 patients and will provide increased dispensary facilities. In September, a drive for $100,000 needed for the new building will be begun.

Personal.—Dr. Simon Flexner of the Rockefeller Institute for Medical Research was elected a fellow of the Royal Society of London, June 26.——Dr. Charles T. Graham-Rogers has been commissioned captain, M. C., N. Y. N. G., and assigned to duty with the Forty-Seventh Infantry——Dr. Howard Fox has returned from France where he has been in military service and has resumed his practice.——Major James O. Tryon, field director of the American Red Cross at General Hospital No. 41, Fox Hills, Staten Island, has resigned.

The Housing of Addicts.—Following a closed session of the sinking fund commission, and a special meeting of the board of estimate, August 8, Dr. Royal S. Copeland, health commissioner, announced that the proposed home for addicts will be at the Sea View Hospital, Staten Island. The Navy Department will be advised at once of this action which will make unnecessary the turning over of Pelham Bay Naval Station to the city for this purpose which aroused such violent opposition on the part of the residents in that locality. The present action does not bid fair to meet with any greater favor. Ralph McKee, acting president of the Borough of Richmond, has asked Mayor Hylan to postpone the sending of addicts to Seaview Hospital, until a public hearing can be held to thresh out the matter. Protests against the plan are coming in from residents in all parts of Staten Island.

NEBRASKA

New Laboratory Building Nears Completion.—The new south laboratory building on the campus of the University of Nebraska College of Medicine at Omaha is rapidly being completed and will be ready for the opening of the fall session in September. The new building will house the departments of biological chemistry, physiology and pharmacology as well as the university outpatient department and the department of experimental surgery. The north laboratory building completed in 1913 houses the laboratories of anatomy, including histology and embryology, pathology and bacteriology. Between the two laboratory buildings but further in the background is the University Hospital completed in 1917 which has 130 teaching beds. These three buildings, which are uniformly four stories in height and of uniform construction, were erected at a cost of over $500,000. The campus is large enough to provide space for other laboratory buildings or hospitals which the future may demand. The University of Nebraska College of Medicine represents one of the many marvels of growth among medical schools in the United States since all building construction at Omaha has been done during the last six years.

PENNSYLVANIA

State Society Meeting.—The annual meeting of the Medical Society of the State of Pennsylvania will be held in Harrisburg, September 23 to 26, under the presidency of Dr. Frederick L. Van Sickle, Olyphant.

Personal.—George W. Stimson, Major, M. C., U. S. Army, Pittsburgh, who has been serving in France as otolaryngologist with Evacuation Hospital No. 31, landed in Newport News, Va., July 20.——Dr. Thomas D. White, Orrstown, has been elected chief of staff and Dr. Joseph J. Maclay, Chambersburg, reelected secretary-treasurer of the staff of the Chambersburg Hospital.——Dr. Julius H. Comroe, York, has been appointed chief of the York Genito-Urinary Dispensary; Dr. Chester G. Crist, Gettysburg, medical inspector for Adams County, and Dr. James P. Dalbey, Gettysburg, narcotic inspector for Cumberland and Adams counties.

Philadelphia

Personal.—Dr. Samuel T. Orton of the University of Pennsylvania Hospital has been appointed head of the Psychopathic Hospital of the University of Iowa, Iowa City.——Dr. James A. Irwin sailed, August 9, on the *Haverford* for Europe.——Drs. Hobart A. Hare, Robert G. LeCount, John C. DaCosta, Judson Daland and Morris B. Miller have been promoted from lieutenant-commanders to commanders, U. S. Navy.——Dr. William C. Johnson has been appointed assistant chief resident physician, bureau of charities.——Dr. Richard H. Harte, who organized Pennsylvania Hospital Unit No. 10, has received a communication naming him a Companion of the Order of St. Michael and St. George, conferred by Great Britain in recognition of his services during the war.

VIRGINIA

Personal.—Dr. Alexander G. Brown, Jr., has been elected a member of the staff of the department of medicine of Stuart Circle Hospital, Richmond, and Dr. Benjamin H. Gray, a member of the staff of the department of obstetrics, and both have been elected members of the board of directors.——Dr. Clifton M. Miller has been reelected a member of the Richmond School Board.

Hospital Notes.—Marshall Lodge Hospital has been incorporated at Lynchburg, Va., without capital stock, with the object of conducting a hospital and training school. The incorporators are W. E. Graves, president; W. F. Holt, trustee, and P. G. Cosby, secretary, all of Lynchburg.——The opening of the new negro hospital and the Dooley Hospital for Infections Diseases, Richmond, is being held up on account of lack of equipment. The equipment of the negro hospital will cost $20,000 and that of the Dooley Hospital, $6,000. Both are to be operated under the supervision of the Memorial Hospital which belongs to the Medical College of Virginia. The negro hospital, when equipped, will accommodate 200 patients, and the Dooley Hospital, thirty-six.

WISCONSIN

Personal.—Dr. Gustavus I. Hogue, Lieut.-Col., M. C., U. S. Army, Milwaukee, has returned after two years' service in France.——Dr. Joseph P. Donovan, Madison, is reported to be seriously ill with disease of the stomach.——Dr. Francis J. Broghammer, Superior, has been placed in charge of the free clinic for venereal diseases soon to be opened in Superior.——Dr. Edward G. Birge, son of President Birge of the University of Wisconsin, Madison, has been appointed state epidemiologist of Iowa, succeeding Dr. John H. Hamilton, Iowa City, resigned.

GENERAL

Gift to Red Cross.—The Abyssinian Mission, which recently arrived in the United States, brought to the national headquarters of the American Red Cross two £500 Bank of England notes, approximately $5,000, to be used in the work of the American Red Cross.

Nurses Cooperate with Cancer Control Society.—The American Nurses' Association, National League for Nursing Education and National Organization for Public Health Nursing have adopted resolutions pledging cooperation with the American Society for the Control of Cancer in its endeavors to obtain and disseminate information regarding the prevalence, treatment and prevention of cancer.

Sioux Valley Physicians Meet.—The annual meeting of the Sioux Valley Medical Association, whose membership includes the states of South Dakota, Iowa, Nebraska and Minnesota, was held in Sioux Falls, S. D., July 16 and 17, under the presidency of Dr. Joseph G. Parsons, Sioux Falls. Dr. Alfred E. Spaulding, Luverne, Minn., was elected president; Dr. John A. Dales, Sioux City, Iowa, secretary, and Dr. Walter R. Brock, Sheldon, Iowa, treasurer.

Methodist Hospital Activities.—According to an article in the New York *Christian Advocate*, May 29, 1919, the Methodists now have forty-seven hospitals, with a property and endowment value of $16,000,000, at which 100,000 patients, exclusive of outpatients, are treated annually. The creation of a board of philanthropies, to have general charge of the hospitals and related institutions, will be considered in the next quadrennial conference, which will meet at Des Moines, Iowa, in 1920.

Motion Picture "Our Children."—The Children's Bureau of the Department of Labor has made its first public showing of the bureau's motion picture, entitled "Our Children." This picture shows how the citizens of Gadsden, Ala., organized for child welfare and what they did to Gadsden to make it a safe place for children to grow up in. These pictures are being shown in towns visited by the child welfare special and the events depicted are said to be typical of actual happenings which have taken place and are taking place all through the country as a result of children's year.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian and St. Luke's hospitals, New York City, each $5,000 by the will of Henry B. Mace.

St. Luke's Hospital, New York City, $609,548.78; Staten Island, N. Y., Hospital $40,000; St. John's Hospital, Brooklyn, and St. Luke's Hospital, San Francisco, each $20,000, and Nassau Hospital, Mineola, N. Y., $10,000 by the will of William H. White, Cold Spring, N. Y.

The income of the Bartlett Memorial Fund of $100,000, to be devoted for ten years to medical work; medical mission in the Philippine Islands so long as they are United States territory, $50,000 to be known as the Elizabeth Gale Memorial Fund by the will of Mrs. Emma Gale Harris, Chicago.

St. Luke's Hospital, Chicago, $600 a year for ten years, by the will of Mrs. Josephine N. Smith, of Jacksonville, Ill.

The High Cost of Living.—According to a report of the National Industrial Conference Board, just issued, the cost of living for American wage earners was 71 per cent. higher in July, 1919, than at the outbreak of the world war in July, 1914. The advance is approximately 6 per cent. since March, 1919, and 12 per cent. since June, 1918. In making this estimate, the costs of food, shelter, clothing, fuel, heat, light and sundries are taken into account. In judging prices of food the board uses the average retail prices as collected for the United States Bureau of Labor statstics. The remaining figures used were obtained through questionnaires to merchants, real estate brokers, and others regularly selling the items concerned. Among food items which have made particular advances since June, 1918, were: coffee, 41 per cent.; butter, 24 per cent.; sugar, 16 per cent., and Milk, 15 per cent. Sugar, pork, potatoes, flour and lard advanced more than 100 per cent. from June, 1913, to June, 1919. The average rise in rents since 1914 has been 28 per cent.; clothing, 13 per cent. in the last year and 100 per cent. in the last five years. Fuel, heat and light have advanced 57 per cent. in five years. Sundries, including tobacco, candy, ice cream, drugs, household furnishings and supplies have advanced in general a total of 63 per cent. in five years, and 5 per cent. in the last three years.

Enforcement of the Harrison Narcotic Law.—Under date of July 31, 1919, the commissioner of internal revenue issued to collectors of internal revenue a circular letter of instruction relative to the enforcement of the Harrison Narcotic Law with regard to which recent decisions of the Supreme Court of the United States have a vital bearing. While vigorous enforcement of the Narcotic Law is greatly needed, and must obtain, it is not to be enforced in such a manner as to bring unwarranted suffering. Renewed attention is called in the circular to the fact that the constitutionality of the Harrison Narcotic Law has been clearly upheld by several decisions of the Supreme Court of the United States, as already stated. It has also been held by the Supreme Court that an order for narcotics issued by a practitioner to a habitual user for the purpose of providing him with a supply sufficient to keep him comfortable and not with a view to curing him of the habit renders the practitioner guilty of an indictable offense.

The decision of the circuit court in the Thompson case affirmed the conviction of a physician who furnished narcotics to an addict, although the defense was set up that the narcotics were furnished in decreasing quantities in an attempt to cure addiction. In opposition to the physician's defense it was shown by the testimony that the physician did not personally attend the addict or give him personal attention sufficient to prove that he was practicing in good faith. This is an important decision and indicates that the courts do not intend to allow the defense of professional treatment to hold without supporting testimony that bona fide personal supervision was given in the case. In the Oliver case the charge to the jury as delivered by U. S. Circuit Judge Woods is important. The case concerned the sale of paregoric which has increased very rapidly since the passage of the Narcotic Law. If prescribed as a medicine paregoric is exempt under Section 6 of the Act, but if prescribed for the purpose of evading the intentions and provisions of the Act by supplying addicts with a preparation with which to satisfy their addiction "then the offense was complete" and the defendant "would be guilty."

In the administration of the law many emergency cases naturally arise. As an aid in deciding such cases the following suggestions, subject to modifications through further interpretation of the law by the courts, have been submitted by the commissioner of internal revenue:

1. USE OF NARCOTICS IN THE TREATMENT OF INCURABLE DISEASE, OTHER THAN ADDICTION

With reference to persons suffering from *a proven incurable disease such as cancer, advanced tuberculosis* and other diseases well recognized as coming within this class, the reputable physician directly in charge of bona fide patients suffering from such diseases may, in the course of his professional practice, and strictly for legitimate medical purposes, prescribe narcotic drugs for the immediate needs of such patients, provided said patients are personally attended by the physician and that he regulates the dosage himself. The prescriptions in such cases should bear the endorsement of the attending physician to the effect that the drug is to be dispensed to his patient in the treatment of an incurable disease.

Such bona fide cases of incurable disease should not occasion difficulty in the proper administration of the law, and the fact that the patient suffering from such incurable disease is addicted to the use of narcotic drugs should not complicate the matter. In this class of cases, as well as in others hereinafter mentioned, caution should be exercised to avoid being imposed upon by unscrupulous persons, and too much credence should not be given to the unsupported statements of the addict himself, because the confirmed addict will go far beyond the truth in an attempt to secure an ample supply of narcotic drugs with which to satisfy his cravings.

The primary responsibility obviously rests upon the physician in charge of the case. The Bureau manifestly is not charged with the duty of laying down any fixed rule as to the furnishing of drugs or the frequency of the prescriptions in any particular case involving an incurable disease. The danger of supplying persons suffering from incurable diseases with a supply of narcotic must be borne in mind, because such patients may use the narcotics wrongfully, either by taking excessive quantities or by disposing of a portion of the drugs in their possession to other addicts or persons not lawfully entitled thereto.

While the primary responsibility rests upon the physician in charge, a corresponding liability also rests upon the druggist who knowingly fills an improper prescription or order whereby an addict is supplied with narcotics merely for the purpose of satisfying his addiction.

2. AGED AND INFIRM ADDICTS

Cases will come to your attention where aged and infirm addicts suffering from *senility, or the infirmities attendant upon old age,* and who are confirmed addicts of years' standing will, in the opinion of a reputable physician in charge, require a *minimum amount of narcotics in order to sustain life.* In such cases prescriptions to meet the absolute needs of the patient may be written and filled without involving a criminal intent to violate the law. Even in these cases every reasonable precaution should be exercised to prevent the aged and infirm addict becoming the innocent means whereby unauthorized persons may engage in the illicit use and traffic in these habit forming drugs. Prescriptions in this class of cases should bear the endorsement of a reputable physician to the effect that the patient is aged and infirm, giving age, and certifying that the drug is necessary to sustain life.

3. THE ORDINARY ADDICT

One of the principal difficulties in administering this law will arise in the case of the ordinary addict who is neither aged nor infirm nor suffering from an incurable disease. *Mere addiction alone is not recognized as an incurable disease.* It is well established that the ordinary case of addiction yields to proper treatment, and that addicts can be taken off the drug and when otherwise physically restored and strengthened in will power will remain permanently cured. The average addict does not believe this and it is symptomatic with him to have a fear and distrust of any treatment or cure. Wherever the occasion presents itself, the hope of successful treatment should be instilled in the minds of the unfortunates addicted to this terrible habit.

Addicts who have been deprived of the drug their system craves suffer frequently most terribly. While in this condition they are likely to become public charges, since they are a menace to life and property. At the present time certain municipal and state authorities are endeavoring to handle addicts, but a project is being considered through which the U. S. Public Health Service will take over their care. Congress, however, has made no appropriation for the purpose as yet. In certain cities, namely, New York, New Orleans and Memphis, public clinics have been established for drug addicts, and the suggestion is made to the collectors of internal revenue that they should support such undertakings in their respective districts.

The Bureau of Internal Revenue makes it distinctly understood that it does not approve the so-called reductive ambulatory treatment for the reason that when the addict controls the dosage he will not be cured; then, too, through deception he may secure a supply of drugs for peddling purposes.

FOREIGN

Strike Suspends Publication of Swedish Medical Journals.—The Swedish Medical Association announces that on account of the prevailing strike of printers the publication of their three periodicals is temporarily suspended. This includes *Hygiea* and the *Handlingar* and *Förhandlingar* published by the Association.

Memorial to Hugh Owen Thomas.—The Medical Institution of Liverpool is establishing a foundation for an oration as a memorial to the late Hugh Owen Thomas, the orthopedic surgeon. What form the memorial will take depends on the support received, either the erection of a statue or bust, together with the foundation of an oration in that branch of surgery which Hugh Owen Thomas did so much to create. Primarily, the object is to create a Hugh Owen Thomas Memorial Lecture. Subscriptions to the fund may be sent to Dr. C. Thurstan Holland, Medical Institution of Liverpool, England.

LATIN AMERICA

New Laboratory at Valparaiso.—A new hygienic laboratory provided with the most modern equipment has been recently inaugurated at Valparaiso, Chile, in connection with the hospital of San Juan de Dios. The laboratory comprises sections devoted among others to bacteriology, chemistry and serum manufacture.

Work of Child Congress in Montevideo.—Among the resolutions adopted at the *Segundo Congreso Americano del Niño* held at Montevideo in May, 1919, appear the following: recommending a prophylactic campaign on behalf of tuberculous children; recommending the compulsory teaching in schools of the prophylaxis of tuberculosis, syphilis, alcoholism, echinococcus cysts and malaria; establishment of systems of school medical inspection with special reference to the prevention of tuberculosis; establishment of special bureaus to prevent infant mortality; a greater uniformity in the collection of statistics on infant mortality; extending the protective measures so that they will begin with the preconceptional period and continue until the child reaches adolescence; the consolidation in one single office of all work relating to the protection of infants; regulating the work of pregnant women; extending as far as possible to the homes themselves the protection of children; offering prizes to mothers who nurse their infants; having at all infant stations (whenever practicable) mother's milk available for distribution; adoption of legislation requiring physicians to write their prescriptions on sheets having on the back a series of hygienic precepts, these prescriptions to be kept by the patient and not by the druggist; instituting a prenatal system of prophylaxis against ophthalmia neonatorum without neglecting the Credé method of treatment; making compulsory the reporting of ophthalmia neonatorum; intensification of the antitrachoma propaganda; teaching of hygiene in primary schools, especially as related to children; organization of a system of dental dispensaries in schools and making compulsory the examination of all children's teeth.

In the section of medicine the resolutions adopted dealt especially with the desirability of having at the third Congress a number of papers on the gastro-intestinal disturbances of infants, the importance of maternal nursing and the necessity of securing sanitary dwellings for workingmen.

Another resolution adopted by the Congress provided for the creation of an American international office for child welfare work in general, to be located at Montevideo and to represent all the countries that may desire to join it. The Congress was presided over by Dr. Luis Morquio, the professor at the University of Montevideo, and well known pediatrist, and was well attended, especially from Uruguay and neighboring countries.

PARIS LETTER

Paris, July 17, 1919.

Treatment of Acute Appendicitis

At a recent meeting of the Academy of Medicine, Dr. Témoin of Bourges contributed a communication on the treatment of acute appendicitis which remains one of the most interesting subjects of surgery by reason of the extreme frequency of appendicitis, its increasing severity during the influenza epidemic, and the division of surgeons, with regard to operative procedure, into abstentionists and interventionists. The most generally accepted doctrine is that one should not operate in case the crisis has lasted more than thirty-six hours, but that, this period once past, one should pursue a waiting policy until defervescence is accomplished. Témoin does not share this opinion. He does not think a question of hours should influence the surgeon when dealing with an affection so variable in its course, in its symptoms and in its severity. In the period between 1911 and 1919 he has operated in all the cases of appendicitis he has encountered, no matter how serious they were, and it has been rather the exception for the operation to be performed during the first forty-eight hours. He has performed 1,175 operations, and his testimony is to the effect that the percentage of cures varies not by reason of the number of hours that have elapsed since the beginning of the crisis but depends on the character of the lesions and the disturbances caused by the infection. The percentage of recoveries, he states, is 100 per cent. when the lesions are limited to the appendix. The mortality, on the contrary, varies between 5 and 20 per cent., in case peritonitis has resulted as a consequence of the perforation, and is in direct proportion to the stage of evolution reached. The indications are then for as early an operation as possible, but one should not decline to operate because the beginning of the crisis dates back more than thirty-six hours. Témoin emphasizes the importance of certain details of technic and certain symptoms. In any event, from a statistical standpoint his records are complete, since he has operated in all the cases that he has encountered and in all the phases of their evolution. His records permit an instructive comparison of resection and the advantages of surgical intervention with the results and the dangers of the waiting policy.

Dr. P. Reynier, hospital surgeon and professor on the faculty of the Paris School of Medicine, remarked that in many forms of appendicitis the indications for operation depended on the cases. Témoin stated that at the beginning of a case of appendicitis one could not know what its course would be. When the symptoms are moderate in the beginning it does not follow that the case will develop favorably. For patients living out in the country the waiting policy is especially baneful and favors the development of a generalized peritonitis. It is a question of symptoms and not of hours which should guide the surgeon in acute appendicitis as well as in purulent salpingitis.

Annual Neurologic Reunions

The Société de neurologie de Paris, thinking that it would be eminently worth while to secure an exchange of views between the neurologists of France and the neurologists of allied, associated and neutral countries, has just formulated a plan for the holding of annual neurologic reunions to which will be invited all the members of the national society, its foreign correspondents, and neurologists and psychiatrists of foreign countries.

These annual reunions will be held in Paris in the month of June or July. A two-day meeting, with two sessions each day, is planned. A question that awakens both scientific and practical interest will be chosen as a subject of study and will be presented in a brief paper by some one designated in advance by the society to open the discussion. The discussions and the communications will bear solely on the subject chosen in advance. The first of these reunions will be held in 1920, and the subject chosen is: "Les formes cliniques et traitements de la syphilis nerveuse" ("The Clinical Forms and the Methods of Treatment in Neurosyphilis").

Franco-American Medical Relations

At the instigation of Dr. Dehelly, an organization has been formed in Paris which has for its purpose the establishment of constant relations between American and French medical men. At an informal gathering at which some thirty surgeons and physicians of Paris were present, a provisional committee was formed and various subcommittees were appointed. One subcommittee purposes to study the necessary means to bring about an exchange of articles in the press of the two countries. Another subcommittee will occupy itself with the organization of postgraduate courses of instruction of such a character that American physicians spending a short time in France may take advantage of it without losing a moment's time. A third subcommittee is charged with the duty of collecting such information and providing such arrangements as will make their stay in France as pleasant as possible.

LONDON LETTER

London, July 17, 1919.

Tetanus in the War

Analyses of the cases of tenanus treated in the home military hospitals, made by a committee of investigation appointed by the War Office with Major-Gen. Sir David Bruce as chairman, have been given in previous letters. A tenth analysis for the period from April to September, 1918, and an eleventh for September, 1918, to March, 1919, have just been issued. The toal number of cases in the whole series was 1,426, and the average incubation period, 39.5 days. In the tenth analysis there were eighty-seven cases of general tetanus and thirteen cases of local tetanus; the rate of mortality in the former was 29.9 per cent.; among the latter there were no deaths. In the eleventh analysis there were eighty-six cases of general, and fourteen of local tetanus; the rate of mortality in the former was 30.2, and among the latter there were again no deaths. On the recommendation of the adviser in pathology to the army in France (Sir William Leishman), the primary prophylactic dose of antitetanic serum was changed from 500 to 1,500 units. This increase, which was instituted in November, 1918, should show its good effect, if any, on the incidence of the disease among all wounded rather than in the rate of mortality among cases of declared tetanus. The prophylactic value of antitetanic serum is now established, but clinical and experimental evidence goes to show that within about ten days the immunity produced begins to decline. Accordingly, the Tetanus Committee advised that four prophylactic injections should be given to every wounded soldier at intervals of seven days. The army medical authorities decided that all wounded men, including patients with trench foot and frost bite, should receive at least four subcutaneous injections—the first at the time of the wound. Instructions were also issued that accidental wounds received at home—especially those contaminated with dirt—should be treated in the same way. These multiple prophylactic inoculations have been in vogue more or less since the beginning of 1917, but the number of wounded men receiving four inoculations has varied much according to the energy of the local authority. The results are not yet available, but the known figures suggest strongly that the death rate among those who contract tetanus tends to fall as the number of injections increases from one to five. Hence the Tetanus Committee recommends that until our knowledge of the immunizing process in tetanus is more advanced, these multiple injections should be continued.

Early in 1918, Major Carroll Bull, U. S. M. C., demonstrated his method for the production of the toxin of gas gangrene (*B. welchii*). Dr. R. A. O'Brien, of the Tetanus Committee, at once began to prepare a double serum containing the antibodies of tetanus and gas gangrene, and the committee recommended the use of this double serum as soon as possible so that its value might be tested. By the middle of July, 60,000 doses were sent to France. At a War Office conference held in November, 1918, it was decided to add the antitoxins of *Vibrion septique* and *B. oedematiens* to the double serum. In the last two analyses of cases treated in home hospitals, only two cases are noted in which the injection of double serum was given, and both the patients recovered. It appears that this "tetanus plus gas gangrene serum" in the strength used was not a marked success in the prevention of gas gangrene, though there is no evidence that the addition of antitoxins of other anaerobes had any effect, good or bad, on the tetanus antitoxin.

With regard to treatment of tetanus, the Tetanus Committee holds that "in acute general tetanus the best method lies in the earliest possible administration of a large dose of antitoxin by the intrathecal route, repeated on the following day, combined with and followed on succeeding days by subcutaneous and intramuscular injections." In acute general tetanus the best results were obtained from very large doses. Analyses of the last two series of 100 cases treated are neither for nor against the intrathecal route.

Sir Douglas Haig's Criticisms of Pensions for the Disabled

In giving evidence before the Select Committee on Pensions at the House of Commons, Sir Douglas Haig severely criticized the methods followed. He said that in the late summer of 1918 he was appalled by the evidence received as to the methods of the state to provide for the disabled. Not only were the cases dealt with by the Disabled Officers' Fund brought under his notice, but he daily received letters from all parts of the country with the same piteous appeal. Since then matters had been in some degree improved, but not so far as the officers were concerned. He held strongly that it was the duty of the state to provide for those who had suffered in the war, but he was prepared to admit that there might be small gaps which might be filled by voluntary effort. The strain thrown on charitable institutions was sufficient condemnation of government methods and proof of the inadequacy of state pensions. In the first place, he held it was necessary to have a single authority to coordinate and advise the three ministries—war, pensions, and labor—that were affected. There was no chain of responsibility. The War Office should not discharge until the Pensions Ministry could take responsibility, and the Pensions Ministry should hold until the Ministry of Labor could make provision. Of medical boards, Sir Douglas said: "In some cases the members of the board are ignorant of the actual disease suffered. In others they are lacking in all sympathy and generosity. There is no uniformity in their decisions, and some treat every individual who appears before them as a malingerer. I strongly advise the appointment of a selected combatant officer to act as assessor so as to produce some confidence in the decision. Again, in some cases the disability is reassessed at the Ministry of Pensions to the individual's disadvantage. That this should be done without the individual being seen or heard is contrary to all ideas of British justice." He advocates a more generous provision for the wives and children of officers and men, and also for the education of their children. The total disability rates for both officers and men were inadequate. The weekly allowance should be increased to at least $10. He urges a more generous and sympathetic treatment to all who suffered from gas poisoning, shell shock and neurasthenia. Their suitable treatment was no easy matter. Employers were shy of giving them appointments. Immediate reform in the method of treatment was called for. After paying tribute to the courtesy and sympathetic attitude of the present minister of pensions and to the excellent work of the present officers, Sir Douglas appealed for: (1) a greater generosity on the part of the state; (2) a single authority to coordinate the work of ministers, and (3) an improvement in the machinery, which was working laboriously but too slowly and in many cases unsympathetically.

The Ministry of Health

A three-day conference, arranged by the Royal Institute of Public Health, has been held at the Guildhall to discuss the powers and policy of the newly constituted Ministry of Health. The conference was attended by representatives of the local health authorities throughout the country and by a number of well known physicians interested in public health. Sir Kingsley Wood, M.P., said that the Local Government Board was about to disappear, and that a new era would begin in the health administration of the country. In the past, to a large extent, prevention had been lost sight of. Health problems had been dealt with by jerks and fits and starts, and a large part of the health organizations set up had followed the outbreak of some epidemic or pestilence. There had been utterly inadequate provision for research. A beggarly sum of $300,000 a year had been granted by the government. Under the new health ministry they hoped to found an important medical research department with branches in different towns. Our present system, to a large extent, had taken a parochial and not a national view of health affairs. There were no fewer than twenty-one government departments or sections dealing with health affairs, and the whole of them were largely interested in matters which had nothing to do with health at all. We had now got one minister solely responsible to Parliament and to the country. The war had brought forward the question of stamping out venereal disease, and the Ministry of Health started on its career today facing that tremendous problem. Motherhood and child welfare and the better treatment of tuberculosis also demanded provision.

The following resolutions were carried, and it was decided to forward them to the Minister of Health: 1. Sanitary inspectors, health visitors, and similar classes of public health officials should be adequately trained, and the present system of examinations should be coordinated so as to secure one qualifying examination for the whole country. 2. The conference views with satisfaction the contemplated creation of advisory councils in connection with the work of the Ministry of Health, and urges that the services of those who have had long and practical experience in administrative and executive public health should be secured on those councils. 3. In view of the large national demands which will be made on the Ministry of Health as an organizing and controlling center, it should not be burdened with functions of detail which may deprive the local authorities of the sense of responsibility and a sense of initiative. 4. In view of the invaluable services rendered by women who are serving as elected or coopted members on local authorities, or as officers of such authorities, women should be included in large numbers on all advisory bodies, and greater facilities should be provided for the training of expert women workers in the homes of the people. 5. All questions comprised within the scope of port and maritime sanitation should receive the earnest attention of the Ministry of Health, and, in order to insure greater cooperation and confidence between British and foreign port authorities, the widening and readjustment of the agreements reached at the International Sanitary Convention are necessary. 6. Greater use should be made of the services of the British consuls in foreign ports in obtaining and transmitting information relative to the sanitary conditions of the ports. The smaller authorities should be joined together with the object of securing the whole-time services of health officers.

British Versus German Hygienic Methods in Tropical Medicine

The war has revealed the exaggerated estimate of German methods generally held and has shown that in spite of "thoroughness," they are by no means necessarily superior to those of other countries. An interesting illustration how they have been surpassed by British methods is furnished in an account by a high official from Dar-es-Salaam given to the *Morning Post*. The Germans on the East Coast of Africa, of course, recognized the connection between malaria and *Anopheles maculipennis*. But their way of combating the malarial mosquito was very unscientific, though typically German in other respects. They enclosed only the important buildings with fine-mesh wire-netting screens to keep out the mosquitoes. But that made an intolerable condition by preventing the circulation of the air and still left human beings open to mosquito bite if they lived outside the compounds or when they left them. The British military authorities, on taking possession, went to work much more soundly. They attacked the malaria at its source by carrying on a war of extermination against the mosquito. It was practically the same method which the Americans had followed with such success in Panama, and a British soldier who had seen service against the mosquito in Central America was of great value in this campaign. Swampy places were drained off, and ditches were deepened and graded to guard against stagnant water. Pools were oiled and fish introduced to eat the larvae of the mosquito. When ponds could not be oiled, larva-eating fish were introduced. One experiment of this kind failed at first from an unforeseen cause. The fish were introduced to the pond. Within a few days aquatic birds preyed on them. Another experiment was then made. Some broad-leaved aquatic plants were first introduced, and then the fish. The leaves of the plants protected the fish from the birds, and the mosquitoes were overcome. The anopheles mosquito, and with it malarial fever, has been practically banished from Dar-es-Salaam. The campaign, too, is being extended from there to other parts of German East Africa, the natives being trained in mosquito extermination.

British and American Surgeons in France

The *Times* has published a special supplement on America in the war. As the medical work was not noticed, Sir Anthony A. Bowlby (lately consulting surgeon, British armies in France), has in a letter drawn attention to the closeness of the sympathy which existed, both before and during the war, between the medical professions of the United States and of Great Britain. An American unit from Harvard University, completely staffed one of our general hospitals in France as early as 1915, and in 1917 six more British hospitals in France were staffed by the United States. In 1917 the British Army in France had from 100 to 200 American surgeons working on our front with regiments, field ambulances and casualty clearing stations, and not a few of them were killed or wounded. The services they rendered at a time when we were very short of surgeons should never be forgotten, and it would be impossible to overestimate the cordial good fellowship and mutual regard and esteem which prevailed everywhere.

Marriages

John Edward Wattenberg, Lieut., M. C., U. S. Army, Berger, Mo., on duty at Fort Des Moines, Iowa, to Miss Ione Crenshaw of San Diego, Calif., at Fort Des Moines, July 17.

Robert Boyd Pratt, Lieut.-Col., M. C., U. S. Army, Bellefontaine, Ohio, to Mlle. Adrienne Pairotteau of Vendee, France, recently.

Richard Orrin Adams, Capt., M. C., U. S. Army, Columbus, Ohio, to Miss Newman of Hampstead, London, England, June 25.

William Garretson Carhart, Major, M. C., U. S. Army, Minneapolis, to Miss Floyde Foreman, in Chicago, July 17.

Henry Franklin Schantz, Reading, Pa., to Miss Irene G. Clark of Niagara Falls, N. Y., at Reading, July 23.

Stuart McGuire, Richmond, Va., to Miss Ruth Isabelle Robertson of Walker, Ont., August 12.

James Gilmer Stone, West Grove, Iowa, to Miss Frances Heaton of Des Moines, Iowa, July 29.

Franklin Harrison Hooper to Miss Demaris Marie Berkey, both of Cleveland, August 7.

William Frederick Mayer to Leone Elizabeth Rabb, both of Johnstown, Pa., June 25.

Frank White McCorkle to Miss Mamie Woodfin, both of Uniontown, Ala., August 6.

Deaths

Charles Calvin Moyer ⊕ Lincoln, Neb.; Baltimore University School of Medicine, 1893; aged 52; for six years a pharmacist at Hartleton, Pa.; but for the last twenty years a practitioner of Lincoln; secretary of the faculty and professor of obstetrics in the Nebraska College of Medicine until the discontinuance of the institution in 1908; gynecologist and president of the staff of St. Elizabeth's Hospital, Lincoln, for several years; died at his home, July 30, from carcinoma.

Hanson Thomas Asbury Lemon ⊕ Washington, D. C.; George Washington University, Washington, D. C., 1896; aged 50; surgeon to the Southern Railway system, and president of the Association of Surgeons of the Southern Railway; local surgeon of the Pennsylvania and Chesapeake and Ohio systems; president of the Washington Society for Mental and Nervous Diseases; died at his home, July 21, from encephalitis.

Zelotus Clifford Wolfe, Corydon, Ind.; Kentucky School of Medicine, Louisville, 1881; aged 63; a member of the Indiana State Medical Association; for eighteen years head medical examiner for the Modern Woodmen of America and Independent Order of Odd Fellows; who was operated on in St. Anthony's Hospital, Louisville, Ky., July 23, for abscess of the gallbladder; died in that institution, July 26.

Otis Johnston, Quincy, Ill.; Chaddock School of Medicine, Quincy, Ill., 1889; aged 52; a member of the Illinois State Medical Society and for several terms president of the Adams County (Ill.) Medical Society; local surgeon for the Burlington and Quincy, Omaha and Kansas City railroads; surgeon in charge of St. Mary's Hospital, Quincy; died at his home, July 21, from heart disease.

Oliver Perry Brittin ⊕ **Capt., M. C., U. S. Army,** Athens, Ill.; Barnes Medical College, St. Louis, 1908; aged 35; secretary of the Menard County (Ill.) Medical Society in 1914; who recently returned from overseas; while driving over a grade crossing near Springfield, Ill., in his automobile, July 2, was struck by a train and instantly killed.

Gaston A. Hebert ⊕ Hot Springs, Ark.; Tulane University, New Orleans, 1895; aged 46; lecturer on physiology and hygiene in the St. Joseph's Hospital Training School for Nurses, and chief of the clinic of dermatology and syphilology at St. Joseph's Infirmary, Hot Springs; died in that institution, July 17.

Charles Long, Salemville, Pa.; Albany (N. Y.) Medical College, 1867; Bellevue Hospital Medical College, 1870; aged 77; a member of the Medical Society of the State of Pennsylvania; president of the Altoona (Pa.) Board of Health in 1897; died in the Altoona Hospital, July 8.

Daniel James Kelly, Washington, D. C.; Georgetown University, Washington, D. C., 1875; aged 75; assistant chief examiner in the patent office, Washington; for nearly forty years professor of physiology, chemistry and toxicology in his alma mater; died in Providence Hospital, Washington, July 26.

Charles Frederick Myers, Albany, N. Y.; Albany (N. Y.) Medical College, 1910; aged 35; a member of the Medical Society of the State of New York; attending physician to the Central Federal Tuberculosis Clinic; was instantly killed in an automobile accident in Albany, July 30.

Luke F. Bonner, Barnwell, S. C.; Medical College of the State of South Carolina, 1891; aged 51; a member of the South Carolina Medical Association; died at his home, July 25, from septicemia, three days after a surgical operation performed in a hospital in Augusta.

Edgar Mortimer Day, Pittsburgh; Johns Hopkins University, Baltimore, 1918; aged 28; who served overseas as first lieutenant, Medical Corps, with Base Hospital No. 18; was drowned at the family summer home at Point au Baril, Georgian Bay, Ont., July 23.

Henry Zimmermann ⊕ **Lieut., M. C., U. S. Army,** Springfield, Mass.; University of Maryland, Baltimore, 1912; aged 30; recently discharged from the Army; was shot and killed in Springfield, August 7, by a woman whom he is said to have refused to marry.

Luke Teskey, Toronto; Trinity Medical College, Toronto, 1877; aged 70; a member of the faculty of the University of Toronto, and on his retirement made emeritus professor; died in the Toronto Hospital, May 1, from carcinoma of the pylorus.

Jay D. Whelpley, Howard City, Mich.; Grand Rapids (Mich.) Medical College, 1901; aged 49; a member of the Michigan State Medical Society; died at his home, May 26, from cholecystitis and pancreatitis following influenza.

Davis Herren ⊕ **Lieut., M. C., U. S. N. R. F.,** Crownpoint, N. M.; Memphis (Tenn.) Hospital Medical College, 1912; aged 31; formerly in the United States Indian Service; died in Colorado Springs, Colo., July 25, from tuberculosis.

Carter H. Smith, Lebanon, Ind.; Rush Medical College, 1873; aged 84; who on completion of a half century of practice in 1911, was given a banquet by the Boone County Medical Society; died at his home in Lebanon, July 25.

Alexander George Crockett, Max Meadows, Va.; Vanderbilt University, Nashville, Tenn., 1885; aged 57; a member of the Medical Society of Virginia; senator from his district for four years; died at his home, July 27.

William Patrick Sweeny ⊕ **Capt., M. C., U. S. Army,** Saratoga Springs, N. Y.; Albany (N. Y.) Medical College, 1915; aged 26; was instantly killed in an automobile accident in Albany, N. Y., July 30.

George K. Okin, Brownville, N. Y.; Long Island College Hospital, Brooklyn, 1918; an intern in the Seaside Hospital, Coney Island, N. Y.; was drowned while bathing near the hospital, July 17.

Charles D. McCarthy ⊕ Geneva, N. Y.; University of Buffalo, N. Y., 1888; aged 58; health officer of Ontario County, and surgeon to the Geneva Hospital; died, July 8, from general endarteritis.

Effie A. Current, Danville, Ill.; Medical College of Indiana, Indianapolis, 1901; aged 44; at one time coroner of Kearney County, Neb.; died at her home, June 11, from tuberculosis of the lungs.

Seth James Crudup, Julian, Neb.; Baltimore Medical College, 1890; aged 61; who was operated on for carcinoma of the stomach, July 18; died in a hospital in Richmond, Va., July 20.

Beauregard W. Flinn, Little Rock, Ark.; Memphis (Tenn.) Hospital Medical College, 1881; aged 57; a member of the Arkansas Medical Society; died at his home, July 24.

Henry Dousin Leitch, Vancouver, B. C.; Trinity Medical College, Toronto, 1884; aged 60; died in the Vancouver General Hospital, April 21, from pyonephrosis.

Frank Albert Towsley ⊕ Midland, Mich.; University of Michigan, Ann Arbor, 1880; aged 61; died at the Battle Creek Sanitarium, July 23, from nephritis.

William Deadrick Nelson, Jr., Canton, Ill.; Rush Medical College, 1884; aged 62; a member of the Illinois State Medical Society; died at his home, July 28.

Edward Richard Trippe, Easton, Md.; University of Maryland, Baltimore, 1862; aged 79; died at his home, July 1.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

HORMOTONE AND HORMOTONE WITHOUT POST-PITUITARY

Report of the Council on Pharmacy and Chemistry

"Hormotone," of the G. W. Carnrick Company, is adverised as "A pluriglandular tonic for asthenic conditions." Hormotone Without Post-Pituitary" is recommended for se "in neurasthenic conditions associated with high blood ressure." These preparations are sold in the form of tablets or oral administration. The Council declares these preprations inadmissible to New and Nonofficial Remedies ecause: (1) Their composition is semisecret (Rule 1); 2) the therapeutic claims are unwarranted (Rule 6); (3) ey are sold under names not descriptive of their composiion but suggestive of indiscriminate use as "tonics" (Rule 8); 4) in the light of our present knowledge the routine adminstration of polyglandular mixtures is irrational (Rule 10). n explanation of this action, the Council authorized publiation of the report which appears below.

W. A. Puckner, Secretary.

Each tablet of "Hormotone" (G. W. Carnrick Co., New ork City) is said to contain 1/10 grain of desiccated thyroid nd 1/20 grain of entire pituitary, together with the hormones f the ovary and testes—the amounts and the form in which e latter are supposed to be present are not given. From is it will be seen that the only definite information given the medical profession regarding the composition of ormotone is that it is a weak thyroid and a still weaker ituitary preparation.

What results can be anticipated from one or two tablets ree times daily (the recommended dose of Hormotone) ach containing 1/10 grain of thyroid and 1/20 grain entire ituitary? Such doses of thyroid may, of course, have a eneficial action in a limited number of cases of myxedema nd cretinism. An extract of the posterior lobe of the ituitary (Liquor Hypophysis, U. S. P., for example) will, *hen injected subcutaneously or intramuscularly,* have a proounced effect on the parturient uterus; its action on certain her forms of smooth muscle will be much less certain. ut the *oral administration* (for which Hormotone is recomended) of the posterior lobe of the pituitary has not been own to have any such effect. The use of the anterior lobe doses of 1 to 4 grains (doses very many times larger an those recommended for the entire gland in Hormotone) in the experimental stage and its only probable value seems be in those cases of known gland deficiency.

As to the other alleged ingredients of Hormotone—horones of the ovary and testes, amounts not stated: all ysicians know the uncertainties attending the use of ovarian eparations and the serious question as to whether testicular tracts have any therapeutic value. Whatever may be the ysician's views as to the probable therapeutic value of ese organs, the first thing he desires to know is how much the substance he is giving and from what part of the and it is obtained.

So much for the facts; yet the physician is asked to jump om this region of solid fact into a sea of hypothesis; to lieve that small amounts of the well-known drugs thyroid d pituitary, plus an unknown amount of unknown hormones the testes and ovary are of great value in conditions that themselves are often purely hypothetical. He is asked to lieve that this combination has virtues in such conditions "hypofunction of the adrenal system," neurasthenia, the atigue syndrome," amenorrhea, dysmenorrhea, "natural and tificial menopause," sexual neuroses, cold extremities, caras asthenia, low blood pressure, infantilism, sterility, melanolic conditions, obesity, anorexia, anemia, slow metabolism, constipation, psychasthenia, lowered virility and the sexual neuroses of the unmarried, hysteria following functional exhaustion of the nerve centers, frigidity, etc., etc., especially if he guesses that the trouble is due to a "pluriglandular disturbance," "glandular hypofunction," an "adreno-pituitary deficiency," suboxidation, etc.

The physician is invited to use Hormotone because, among other reasons, each alleged constituent is said to be "in physiologic sympathy and therapeutic harmony with the others," and further, because:

> "Pluriglandular therapy has the endorsement of high authorities, is both logical and effective and Hormotone is a splendid example of it. It will be seen at its best where the patient lacks snap and vim and vigor. Asthenic conditions necessarily indicate hypofunction of the adrenal system . . ." etc.
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> "The use of gland extracts in the treatment of aplasias of the pluriglandular system has become an established therapeutic measure of miraculous potency (Bayard Holmes: The Internal Secretory Glands, *Lancet-Clinic,* Sept. 19, 1914)."

The G. W. Carnrick Company also advertises a "Hormotone Without Post-Pituitary," each tablet of which is said to contain 1/10 grain desiccated thyroid, and to "present" "hormone bearing extracts of thyroid, anterior pituitary, ovary, and testes." This product is just as irrational as "Hormotone."

Correspondence

ILLINOIS' COMMENDABLE CONSOLIDATION OF MEDICAL CHARITIES WITH MEDICAL EDUCATION *

To the Editor:—Illinois has discovered that its legislature desires to do the right thing but depends on the experts of the executive departments to give it the information on which to act. It is obvious that the legislature cannot know, in advance, the details of all needs which lead to requests for legislative action. The consolidation of 125 commissions into nine departments, each in charge of a single director gave Illinois its opportunity to do things right. The results have been that laws were enforced, routine work was accomplished promptly and well, and, in spite of the war time, the total of appropriations was not exceeded, and yet the state found itself with a full treasury. The legislature, therefore, has confidence in the executive officers. It has not only asked for their advice but also acted on it and has granted all reasonable requests.

To the writer was given the administration of all of the hospitals, charitable and penal institutions of the state; he was also given certain legal duties and instructions. The department was expected to conduct research into the causes and treatment of insanity, feeblemindedness, delinquency, dependency and crime; to train physicians, nurses and others for the special work of the department and, in general, to do whatever was necessary to perfect its service to the public. Those connected with the department could not conduct research as a matter of routine. They were not educators but professional administrators. Another creature of the state, however, the University of Illinois, was organized to do, through its medical school, the very things the department was not organized to do. A perpetual cooperative agreement has been entered into with the university, therefore, whereby the medical school will have in charge the professional work and teaching and the department of public welfare will administer the entire group of institutions, including the medical school. This arrangement provided for future development and was for the public good. The legislature promptly approved the agreement and made an initial appropriation of $1,500,000 for the land needed and to begin the construction of a psychiatric institute, a surgical institute for children, a new eye and ear infirmary and a clinical hospital. By approving the agreement they also committed themselves to a plan requiring several millions of dollars in the future. The director of public welfare will control all building operations for both parties, and an endeavor will be made to produce buildings which will be educational in character rather than of the institutional type. The buildings will include a clinical laboratory, a reconstruction hospital, a contagious disease hospital, a medical college and others to be added as needed.

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* See editorial, p. 538.

As the department of public welfare can furnish clinical material of almost any kind and in any quantity, the result should be a state university medical school with unrivaled facilities for teaching, research and training of professional talent. The department of public welfare will benefit because it will have met its obligations and will be enabled to secure an abundance of trained specialists for its various hospitals and other institutions.

The State Surgical Institute for Children and the three other buildings provided for will be erected on the deserted Cubs' Park baseball field, Lincoln and Polk streets, Chicago, which is being purchased by the state for the sum of $400,000. The Eye and Ear Infirmary, the largest of the group, will replace the old Eye and Ear Hospital at Clinton and Adams streets. But the hospital we are most proud of is the State Surgical Institute for Children and we plan to make it excel anything of its kind in the country. The Clinical Hospital for Children will contain every modern feature used in medical schools. The Psychopathic Hospital will devote its time to research work with the feebleminded, studying exhaustively plans for training morons and borderline cases in useful occupations. The medical personnel at the new group will be chosen from physicians now attached to the state medical school and students graduating from the state school will be given preference for appointment as interns. Construction work on the buildings will begin in the spring.

Charles H. Thorne, Springfield, Ill.
Director of Public Welfare, State of Illinois.

NEW METHOD FOR OPENING HYPODERMIC NEEDLES

To the Editor:—To one who is accustomed to using hypodermic needles frequently, as in the administration of vaccines and other medicinal preparations, the value of some method by which the lumen of the needles can be kept free of rust and other materials in the shortest possible time is a distinct advantage over the method of boiling in a solution of sodium carbonate, as recommended in The Journal, and the use of the copper wire, etc. The use of a small instrument known as the pivot broach, used by jewelers to drill very fine holes in watch repairing, permits a needle to be opened very quickly. This instrument is a three-cornered piece of tempered steel with a round handle at one end, the cutting edges being the three corners which act as a drill. It is the size of the lumen of the needle, and the same length as the average hypodermic needle. If the broach is introduced at either end with a semirotary motion, as if drilling, the needle can be entirely freed of rust or other materials. Care, of course, must be exercised in handling the broach, as it is likely to snap off if it is forced too hard in the beginning. When the needles are opened by this method, I have found them very satisfactory, and they last almost indefinitely. The broaches can be obtained from any jewelers' supply house at a very moderate cost.

Milton H. Prosperi, M.D., Washington, D. C.

DIFFICULTY OF OBTAINING BRANDY AT DRUG STORES

To the Editor:—It seems to me that this war-time prohibition measure is a great deal too drastic as regards the medical profession and drug stores. As the measure now stands, it is almost impossible to prescribe brandy in any amount, either alone or in mixture, and have it filled at the drug stores. Practically all the drug stores here cannot afford to pay for the license for liquor, in the small amounts in which it is ordered by physicians. At present, with the large number of infant diarrhea cases in which brandy is needed as a stimulant, brandy is almost impossible to obtain. I have had quite a number of cases in which brandy was imperative, but the patient made a canvass of all the drug stores, and could not obtain any. Something should be done by the medical profession whereby prescriptions for brandy in amounts of 1 or 2 drams in medicinal mixtures could be easily and readily filled.

Lionel L. Albert, M.D., Central Falls, R. I.

CALCIUM CHLORID IN INTESTINAL TUBERCULOSIS

To the Editor:—I have read with interest Dr. Maurice Fishberg's article on this subject in The Journal, June 28. The intravenous administration of calcium chlorid solutions as an aid in the treatment of pulmonary and glandular tuberculosis has been continuous in my practice for the past five and one-half years. I published my first report on this work in the *Indianapolis Medical Journal,* January, 1915. Since that time have used this method as an adjunct in the treatment of both pulmonary and glandular forms of tuberculosis. I am convinced that the intravenous use of calcium chlorid solutions is a distinct aid in the treatment of these forms of tuberculosis.

Thomas J. Beasley, M.D., Indianapolis.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OPPORTUNITIES FOR MEDICAL PRACTICE IN MEXICO

To the Editor:—Please give me information regarding the opportunities for physicians and surgeons in Mexico.

J. R. E., M.D., Baltimore.

Answer.—At present, opportunities for American physicians and surgeons in Mexico are rather limited. In Mexico City there are already a number of American physicians who, it is reported, are more than sufficient to serve the decreased American colony. In smaller towns there may be a better opportunity, but conditions are at this moment too uncertain to make it worth while to take the chance. The American consuls would, of course, have definite information in regard to conditions in any specific state or town. A physician with exceptional ability could, of course, make room for himself practically anywhere. The practice of medicine is entirely "free" in all Mexico, with the exceptions of the states of Puebla and Jalisco, where only those having officially recognized degrees are allowed to practice.

INDUSTRIAL MEDICINE IN SOUTH AMERICA

To the Editor:—I am desirous of learning something about the opportunities in industrial medical work in Central or South America. Can you furnish me any of this wanted information through your new connections in issuing the Spanish edition of The Journal, or can you advise me as to whom to correspond with on this subject?

W. A. J., M.D., Chicago.

Answer.—The opportunities for an American physician who wishes to engage in industrial medical work in Central or South America would seem to be limited to those American companies which are in business there. Among these may be mentioned the United Fruit Company, the new branches opened by meat packers in Argentina and Uruguay, and more recent ramifications of the steel industry in Peru, especially the Schwab interests. It would seem very desirable and practically necessary that any American physician going to any Spanish-speaking country should know the language. In The Journal, August 2, an American corporation advertises for a physician for duty in Peru. Names and addresses of American firms with business interests in Central and South America can be obtained from the United States Chamber of Commerce or the United States Bureau of Foreign and Domestic Commerce, Washington, D. C.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.

Hawaii: Honolulu, Sept. 8-10. Sec., Dr. J. R. Judd, Honolulu, Hawaii.

Illinois: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.

Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.

Massachusetts: Boston, Sept. 9-11. Sec., Dr. Walter P. Bowers, State House, Boston, Mass.

New Hampshire: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.

New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.

Rhode Island: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

NEW YORK ASSOCIATION FOR MEDICAL EDUCATION

The proposal of a small group of physicians, surgeons and nedical teachers of New York to establish a central clearing iouse for medical education has so favorably impressed their colleagues that what has been for years past a dream and a hope has now become an accomplished fact. The medical profession has developed within itself an active organization o stimulate, obtain support for, and expand medical education for students and graduates of medicine in the interest of an ultimate better service to the public.

With a committee on education that embraces the deans of the four undergraduate medical schools and representatives of the graduate teaching institutions, and with all the principal institutions for medical teaching and service, and or those devoted to disease prevention and health protection, epresented on the board of trustees, the best results of cooperation and coordination are certain to be achieved.

The Association for Medical Education is now organized o offer opportunity to teachers and workers in the medical ciences, whether they are practitioners of medicine or wholly ngaged in teaching and research, to participate in the consideration and direction of all matters affecting medical ducation. It also offers a medium through which the unsurpassed clinical material and research facilities of this metropolitan area may be made readily and conveniently available o all students and graduates of medicine from our own or other countries. The development and special encouragement f teachers of medicine will be one of the important functions f this association.

It is felt by the incorporators that the city of New York s under obligation to assemble and provide resources for the eaching of medicine, in its broadest terms, in a manner compatible with the city's position as an international port and raffic center, and to an extent worthy of its reputation as welcoming hostess to the visitors of the world. Furthermore, the profession feels keenly its duty to pay fitting tribute o the services and contributions of the many leaders of nedicine and its allied sciences who have honored this city y their work in healing the sick and controlling disease.

No one medical school or group of special interests, hospitals, laboratories or individuals can command sufficient upport to assume the representation or direction of an undertaking in which the entire profession and the public have o large a stake. The spontaneous and immediate support iven to the association's plans by the whole medical profession of New York City is a guarantee of the representative nd democratic character of the undertaking. To accomplish the purposes of the association, a corporate membership f 300 active workers in the practice and teaching of medical ciences was selected, and from this body a board of trustees, twenty-seven in number, has been duly elected. General members from the profession at large are provided for in the constitution, and will soon be requested to take an active hare in the deliberations of the association. Among the ncorporators are many who are not at present engaged in eaching, as well as members of the faculties of medical chools and of the attending staffs of both private and public hospitals. A finance committee has already obtained, within the profession, sufficient funds to provide for the immediate establishment and permanent maintenance of a bureau of information and correspondence at the New York Academy of Medicine, 17 West Forty-Third Street. Reliable data concerning all the facilities that are now or can be made available for teaching purposes will be assembled here; and from this office information concerning the details of courses, dates, fees, qualifications demanded, attendance requirements, etc., will be issued by bulletins and letters. This activity of the Association for Medical Education will be supplementary to the excellent work already well established, and which has been of such great value, by the bureau of clinical information of the Society for the Advancement of Clinical Study.

A committee on education has been most carefully selected, and is now organized to fulfil its difficult functions in a spirit of fairness and firmness. It will be the duty of this committee to prepare plans and standards that shall insure a permanent improvement in the character of medical teaching in New York City; to keep itself informed concerning and to pass on the qualifications of teachers and the character of the courses they offer to graduate students of medicine, and to observe and regulate the manner in which engagements are met by those offering courses under the auspices of the association.

In order that the work outlined by the association shall receive active and sustained consideration, an executive secretary has been engaged to devote his entire time to the development of the project. For this position the executive committee has selected Dr. Henry O. Reik of Baltimore, recently lieutenant-colonel in the Medical Corps of the United States Army and commanding officer of Base Hospital No. 67, American Expeditionary Forces; formerly associate in ophthalmology and otology (1900 to 1912) in the Johns Hopkins University Medical Department, and secretary-treasurer of the International Otological Congress of 1909 to 1912.

The active cooperation of the public health committee of the Academy of Medicine was promptly offered to the association, and a study of the dispensary and hospital teaching facilities of the city has been undertaken by its permanent staff.

What has been a gain to one school or hospital has often heretofore resulted in a loss or injury to the interests of another, and it has seemed essential for the uniform development of all branches of medical science, in every medical school, that a generous provision of funds be actively sought and then so distributed, according to plans matured and agreed to by the association, as to serve the best interests of all institutions and of the public. In forwarding so ambitious a scheme, there must be tactful education of the expectant recipient, the prospective donor and the medical profession as well, in the possibilities of the benefit and the urgency of present needs. A medical education foundation, to meet demonstrated needs, to insure adequate provision for research, teaching, practical training and progressive reeducation of the practitioner, can be made to yield results in safeguarding health and the salvaging of sick and maimed, out of all proportion to the investment. Confidence in the generosity of a well informed public is a fundamental faith of the present day—a faith that has never been betrayed. Special pains will be taken to avoid interference with any other solicitations now being made, and with the sources of benefactions now reached by the various colleges and hospitals in the city.

Looking to the comfort and welfare of visiting physicians and surgeons, the association contemplates establishing a central residence or meeting place with provision for social life on lines similar to those developing in London and Paris in anticipation of the need of such professional homes for visiting Americans and colonials. Nor will efforts be spared to obtain close coordination with similar associations of physicians in other cities, under the general central auspices of the Council on Medical Education of the American Medical Association. One of the privileges of the New York association will be to see that those seeking opportunities in clinical, laboratory or field work, which may be better provided elsewhere than in the metropolitan area of New York, shall be promptly directed to the best teachers and the best facilities wherever they are to be found in this country or in Canada. Cooperation with the committees in London and Paris, which are organizing the medical resources of England and France for the benefit of visitors from the Americas, will be favored, and this may prove to be one means to return in part the courtesies and assistance the American medical officers received without stint from their colleagues during service overseas.

Though New York possesses, to an even greater degree than Berlin and Vienna, most of the elements that made those cities world medical centers, it has not been previously prepared to supply the demands of postgraduate students. Furthermore, a broad distribution from this storehouse of accumulated scientific knowledge that might and should be applied to the prevention of disease and to the healing of the sick has not previously received anywhere in this country its fair share of attention from the genius of American organization and liberality. This association now desires, through proper organization and the procurement and employment of an efficient endowment, to foster such use of this possessed knowledge and facilities as will result in widespread benefit to the whole country. Singleness of purpose, united effort, and personal unselfishness, coupled with unbounded ambition for the advancement of the profession, are certain to win a generous public support.

The officers of the association are: president, Wendell C. Phillips, New York; first vice president, George David Stewart, New York; second vice president, Glentworth R. Butler, Brooklyn; secretary, Haven Emerson, New York; treasurer, Arthur F. Chase, New York.

The association is now in the process of incorporation under the laws of the state of New York, and the trustees who have already accepted their election are: Samuel A. Brown, Emanuel Libman, William Francis Campbell, James Alexander Miller, Rufus I. Cole, Walter L. Niles, William Darrach, William H. Park, Charles N. Dowd, Charles H. Peck, Charles A. Elsberg, Eugene H. Pool, James Ewing, Thomas W. Salmon, John A. Hartwell, Frederick Tilney, Otto V. Huffman, George Gray Ward, Jr., George W. Kosmak and Adrian V. S. Lambert.

Book Notices

Traité de Physiologie. Par J.-P. Morat, Professeur à l'Université de Lyon, Correspondant de l'Institut, et Maurice Doyon, Professeur adjoint à la Faculté de médecine de Lyon. Fonctions de Relation. Par J.-P. Morat. Fonctions de Reproduction. Par M. Doyon. Paper. Price, 25 francs. Pp. 872, with 221 illustrations. Paris: Masson & Cie, 1918.

The present volume is the fifth and last of a set dealing with physiology. Unfortunately, the first four volumes did not reach The Journal for review. What is said here, therefore, is necessarily limited to the single volume at hand without reference to the relation of the volume to the others of the set which have preceded it.

The first half of the book deals chiefly with the organs of special sense and ends with a chapter on locomotion and phonation; the remainder is concerned with reproduction, including necessarily a discussion of lactation and the internal secretion of the gonads. In many respects the presentation of the subject matter is different from the usual mode of presentation found in similar English and German texts. The discussion of the special senses is essentially that of years back; for little of great importance has been discovered since the days of Donders, Kühne, Helmholtz, Ewald, Herring and others who were most actively engaged in advancing our knowledge of the special senses. Parenthetically, we express our surprise that the method of retinoscopy, the principal method of correcting errors of refraction, does not even receive mention. The physiology of reproduction and internal secretion of the gonads is presented fully and satisfactorily.

The book is remarkably free from errors. The legends of Figures 69 and 70 ought to be interchanged in order to conform to the facts which the diagram intend to illustrate.

A more serious criticism is the almost complete disregard of the research of American investigators. The most notable example is the failure of the author (Morat) even to refer to the work of Cannon, Carlson, and others in his discussion of the physiologic mechanism underlying the sense of hunger, in spite of the fact that the scientific contributions on this subject which have appeared in various American journals comprise about fifty papers and a monograph of some 300 pages by Carlson. If the first four volumes disregard the results of American investigations as does this volume, the authors must be charged with inexcusable ignorance of the literature or with chauvinism.

Hospital Accounting and Statistics. Compiled and arranged by William V. S. Thorne, Treasurer and Member of the Board of Managers of The Presbyterian Hospital, New York. Fourth edition. Cloth. Price, $1.50. Pp. 119. New York: E. P. Dutton & Co., 1918.

This is a standard handbook on the forming of a system of accounting for hospitals that will be simple and intelligent and that will satisfy certified public accountants. Every account that is generally required to be kept in a hospital is classified, and its use is explained. Illustrations make clear the methods of keeping the books, making financial statements, accounting for each of the separate departments, apportioning the expenses, and accounting for reserves and endowments. In addition to financial forms and methods, the book discusses the other hospital records and statistics, illustrating practical forms for use in all the various departments. There is a large number of inserts that are copies of forms in actual use by many of the leading institutions. Hospitals and medical societies have been making an effort to bring about a uniform system of records and reports not only to increase the efficiency in the hospitals but also to facilitate the comparison of financial records and statistics, and medical records and statistics. This book furnishes a practical basis for the adoption of standard records and reports that shall both minimize clerical labor in the hospital and provide a common basis for comparisons between institutions.

Diet in Health and Disease. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, and John Ruhräh, M.D., Professor of Diseases of Children in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore. Fifth edition. Cloth. Price, $6. Pp. 919. Philadelphia: W. B. Saunders Company, 1919.

The fifth edition of this most valuable work is fully up to the standard of previous editions. It is an encyclopedia on diet. The authors explain that the stress of war work prevented the inclusion of any literary references prior to January, 1918. A considerable space is occupied by tabular matter and discussion relative to alcohol and various alcoholic products. Very possibly this may be greatly abbreviated in future issues, since the analysis of thirty or more brands of beer can have but slight interest for those who have no beer at all. The book presents briefly and particularly all of the well known dietary methods; for example, those of Leube, the Karell method, the Sippy diet, the Prochownick diet for pregnancy, and in fact a series of diets for every possible illness, institute or individual. Numerous supplementary tables add to the value of the text.

The Organs of Internal Secretion: Their Diseases and Therapeutic Application. A Book for General Practitioners. By Ivo Geikie Cobb, M.D., M.R.C.S., Neurologist Brinnington Section Second Western General Hospital. Cloth. Price, $2.50. Pp. 274. New York: Williaim Wood & Co., 1919.

In spite of the statement in the preface to the second edition of this book, there is no evidence that "the entire book has been carefully revised and brought up to date." It is virtually a reprint of the first edition. Aside from the addition of several paragraphs and one new chapter, it contains the same misinformation, contradictions, misleading statements and typographic errors as in the first edition, and is in the same excellent literary form. The review of the book printed by The Journal, March 23, 1918, p. 876, applies as well today to the new edition as it did when the book first appeared, with the exception that the page references given in the first review are necessarily not the same. The chapter on "The Endocrine Glands and Nervous Disorders" which has been added to the new edition conforms in style and content to the remainder of the book previously published.

The Soul in Suffering: A Practical Application of Spiritual Truths. By Robert S. Carroll, M.D., Medical Director, Highland Hospital, Asheville, North Carolina. Cloth. Price, $2. Pp. 241. New York: The Macmillan Company, 1919.

Dr. Carroll endeavors to condense in his little book the experiences of many years spent in contact with those sick in body, mind and soul. "Religion and medicine," he says in his introduction, "have stood too long on opposite sides of the couch of suffering, forgetting, one the body and the other the soul, and both, the mind." Assuming that the mission of suffering is to build character, he endeavors to bring together the practical benefits of modern scientific medicine and the aspirations of religion. His book can be read with pleasure and profit by physicians and patients, and by any others endeavoring to solve that great problem of human existence, pain.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Tri-State District Medical Society, Rockford, Ill., Sept. 1-4.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN THERAPEUTIC SOCIETY

Annual Meeting, held at Atlantic City, N. J., June 6 and 7, 1919

(Concluded from page 449)

Proportionate Dose of Quinin Required to Produce the Same Results in Treating Malaria in Children of Different Ages as in Adults

Dr. C. C. Bass, New Orleans: No two textbooks on malaria give the same treatment, unless one copies from another. The dose for adults is stated as being from 10 to 40 grains, but that for children is very indefinite. There are two ways to control malaria: one by destroying mosquitoes, the other by controlling the parasite in man. Malaria can be eliminated from a locality by whichever means is most practical. In large areas the disinfection of persons is more practical than ditching and draining. In an area of the Mississippi Valley, with a population of 31,459 persons, the highest percentage of infection was in the 5 to 10 years group, and most malaria was in persons under 20 years of age. By ordinary means of treatment few persons are thoroughly disinfected, and will subsequently relapse. Relief of clinical symptoms does not mean disinfection.

Children under 1 year of age should be given 0.5 grain; at 1 year, 1 grain; 2 years, 2 grains; 3 and 4 years, 3 grains; 5, 6 and 7 years, 4 grains; 8, 9 and 10 years, 6 grains; from 11 to 14 years, 8 grains, and at 15 years the adult dose, 10 grains. Ten grains of quinin every night for eight weeks disinfects 90 per cent. of all infected persons. The remaining 10 per cent. have to receive three 10 grain doses a day for three or four days, and later 10 grains a day for eight weeks. The amount of quinin taken is the only criterion as to disinfection of the infected individual.

DISCUSSION

Dr. Douglas Vander Hoof, Richmond, Va.: The physician generally thinks he has done his duty when he has relieved symptoms. For the sake of the community the patient has to be disinfected. A good deal of harm is done by giving proprietary medicines containing small doses of quinin, by which means the malarial parasite becomes, to a certain degree, resistant.

Dr. Jacob Diner, New York.: There is little difference between quinin sulphate or chlorid, except as to palatability. In giving quinin to children, one should not use condensed milk, as that tends to create a distaste for milk and deprive the child of nourishment. The stimulation of taste buds is caused by solution. Therefore if given in an insoluble form, such as alkali, salicylate or tannate, it will accomplish the purpose just as well as when given in some syrup. The latter as sold in drug stores often contains only 1 grain per dose.

Dr. Horatio Wood, Philadelphia: The question of dosage for children opens an interesting problem. Dr. Bass bases the dosage on the age of the child. Cowling and Young approximate the weight of the child. A physician should be able to guess the weight of the child, and this is the proper way. Where therapeutics is carried out in such a wholesale manner, this might be difficult. It was interesting to hear that insoluble salts are absorbed as readily as soluble salts. In regard to disguising taste, sweet disguises bitter. The taste of quinin can be disguised by putting it in a suspension of gum acacia. I find that methyl thionin has a decided antiperiodic effect, especially against the gametes. It may be found that the parasites become quinin fast by developing a resistance.

Dr. J. B. White, New York: Two things are important: the treatment of the paroxysm and the prevention of recurrence. Small amounts of quinin can be given before the paroxysm, to allow of assimilation, and from 30 to 40 grains during the paroxysm. With a mixed paroxysm, such as double quotidian or double tertian, 20 grains, three times a day is better.

Influenza and After

Dr. Thomas F. Reilly, New York: In most of the acute diseases, the subsidence of the acute symptoms is commonly followed by a return to normal and freedom from symptoms. In the influenza of this year, however, one had to deal with an almost diametrically opposite clinical picture. In about one half of the cases a syndrome or group of symptoms, materially different from that observed during the course of the disease, appeared on the subsidence of the acute symptoms. These sequelae were often more annoying and resistant to treatment than the primary disease. In some cases one set of symptoms was present, in another, several independent groups. Almost every portion of the body and every organ was affected. First and foremost among symptoms was the cough. This frequently resembled whooping cough; the patient coughed continuously until exhausted. The cough often produced nothing but small quantities of tough mucus. Another cause of trouble was the existence of various painful and parasthesic areas in the chest. Pain and cold feelings between the scapulae were associated with enlarged glands or exaggerated hilum shadows. Sometimes they were lower down the back, radiating to the abdomen. Occasionally there was involvement of the diaphragmatic pleura, with tenderness at the junction of a line from the tenth costal cartilage to the parasternal line. In many cases there was associated suppurative appendicitis, with localized pain and high leukocytosis. Nausea and vomiting were present. Headache was often very persistent. Dyspnea and palpitation on exertion were common, and there was often allorhythmia. Associated symptoms were: sweating of hands, night sweats, weakness, loss of memory and energy. Fatigue was easily induced. Often there was pain over the heart. One case of aortitis following influenza was noted. Digestive disturbances were common, but indefinite, if one excepts hyperchlorhydria. Ulcer cases were prone to relapse. Albuminuria and impairment of vision were occasionally noted. A persistent subfebrile temperature was not uncommon. Disturbances of the nervous system were melancholia and sleeplessness, the latter causing much worry to the patient. Loss of taste and smell was temporarily noted. Falling out of the hair was frequent. Treatment was directed to controlling the cough and for this application of a 2 per cent. solution of silver nitrate to the fauces, nasopharynx and nose was effective. Occasionally, codein, ¼ grain, with heroin, 1/16 grain, was necessary. Creosote and terebene were of value. In cases of enlarged glands sodium iodid, 2 grains, or syrup of ferrous iodid was used. Calcium iodid, 2 grains, four times a day, was valuable, particularly in the treatment of mediastinal glands with cough. In the group representing the sympathetic syndrome—weakness, sweating, etc.—the following was used: extract of the suprarenal glands, 3 grains; arsenous oxid, 1/10 grain; strychnin, 1/30 grain, and quinin sulphate, 2 grains, one capsule before meals. This combination gave good results. Patients who suffered cardiac neuroses were ordered to rest for a week or two. For the headaches of sinus origin, a cleansing alkaline solution was used. An epinephrin spray brought relief. Change of climate was the sovereign remedy. In cases of continuous or relapsing temperature, foreign protein injection, by means of government lipovaccines, was instituted with good result. For the digestive disturbance, a diet suited for hyperchlorhydria was advisable. Alcohol, in the form of red wine or whisky and water, did much to combat depression. The eyes returned to normal without treatment. The myringitis, which was often persistent, was treated best with a 2 per cent. solution of silver nitrate. Some cases seemed refractory to any treatment.

General Treatment of Influenza

Dr. Noble P. Barnes, Washington, D. C.: Patients should be kept in a light, airy room, free from dust. Antiseptic sheets should be hung over the door, and sputum cups in paper bags should be used. Roentgen-ray examination should be made and the blood pressure taken. After establishing the diagnosis, frequent examinations should be avoided. Immunizing vaccines should be used, as this disease fails to awaken body response, as shown by leukopenia and asthenia. In the beginning stages of pneumonia, the intravenous injection of typhoid protein is a safe procedure. It is contraindicated beyond the third day of the disease and in myocardial insufficiency or endocarditis. The reaction is not specific, but depends on the protein content. The patient should be put to bed with the first symptoms, and kept there until four days after subsidence of temperature. Then, if the heart and lungs are normal, he can get up. Diet could then be to full digestive capacity. Coal tar and depressing drugs should not be given. The one essential measure above all others is prolonged rest in bed.

DISCUSSION

Dr. F. M. Pottenger, Monrovia, Calif.: I do not think the tuberculous patient is susceptible to influenza. Among 100 patients in one sanatorium there was not a single case of influenza. There was no quarantine, but care was taken. As regards cold air, there is nothing to be gained by subjecting the patients to cold. They do not require an absolutely equable temperature. It can be much lower than 72. F. In regard to changes of temperature, a marked variation between morning and night is beneficial to patients and acts as a stimulus, as long as the body cells react well.

Dr. Douglas Vander Hoof, Richmond, Va.: No one has ever convinced me of the value of vaccines in a disease that does not confer immunity in the body. Influenza seems to predispose to other attacks. There may be danger of producing a negative phase by vaccine and subjecting the individual to increased sensibility. As to isolation of patients in separate rooms, certainly patients in private rooms do better than those in wards. The high mortality was due to enforced congregation of cases, with subjection to mixed infection.

Dr. Thomas F. Reilly, New York: I noticed one sign in patients with even mild influenza. They had enlargement of Steno's duct, with redness of the tip of the tongue, which stuck out like a cock's comb. Nausea was a distressing feature in the early part of the epidemic. This was well controlled with from 3 to 5 grains of chloral.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

August, 1919, **18**, No. 2

*Relationship of Convulsions in Infancy and Childhood to Epilepsy. J. L. Morse, Boston.—p. 73.

*Postinfluenzal Encephalitis. H. Heiman, New York.—p. 83.

*Constipating Qualities of Orange Juice. H. J. Gerstenberger and W. M. Champion, Cleveland.—p. 88.

*Study of Lactose, Fat and Protein Content of Women's Milk. W. Denis and F. B. Talbot, Boston.—p. 93.

*Cause of a "Sporadic" Case of Cerebrospinal Meningitis. H. L. K. Shaw, Albany.—p. 101.

*Fat Metabolism of Infants and Young Children. III. Fat in Stools of Children on a Mixed Diet. L. E. Holt, A. M. Courtney and H. L. Fales, New York.—p. 107.

Classical Case of Hemophilic Arthritis. M. G. Wilson, New York. —p. 127.

Review of Recent Literature on the New-Born. N. O. Pearce, Minneapolis.—p. 133.

Convulsions and Epilepsy.—Morse has looked up, as far as possible, the condition of the babies and children with convulsions whom he has seen, including only those cases in which the convulsions were the primary cause for his attendance and excluding all those cases in which there were any evidences of acute or chronic cerebral disease. Satisfactory reports have been obtained regarding 107 children. Morse has divided these cases into four classes: (1) cases in which the convulsions were associated with evidences of spasmophilia; (2) cases in which the convulsions occurred in the course of whooping cough; (3) cases in which there was a single convulsion or a series of convulsions at the onset of some acute disease or with an attack of acute indigestion; (4) cases in which there had been repeated convulsions during a considerable period or in which there had been repeated attacks suggesting petit mal. It is evident that convulsions which are a manifestation of spasmophilia are not likely to eventuate in epilepsy. Convulsions which occur in the course of whooping cough must always be regarded seriously, as they are quite likely to be followed by epilepsy later. Single convulsions or a series of convulsions occurring at the onset of an acute disease or with an attack of acute indigestion are less likely to be followed by epilepsy than are repeated convulsions during a considerable period or repeated attacks suggesting petit mal. Repeated attacks which would be classified as petit mal, or which suggest it, are just as likely to eventuate in epilepsy as repeated attacks of general convulsions. Nothing can be told from the nature of the early attacks as to the nature of the attacks when epilepsy develops later. When an injury to the head has directly preceded the onset of the attacks or there is no apparent cause for the attacks, epilepsy is more probable than when there is an apparent cause, such as indigestion, for each attack. The presence of an apparent cause for the attacks does not, however, exclude epilepsy. The longer the attacks have persisted, the more probable is the diagnosis of epilepsy. General impressions, which cannot be explained, have a certain value in diagnosis. Finally, and most positively, Morse says, there is no way to determine immediately when a baby or child has a convulsion, or has had repeated convulsions or repeated attacks suggesting petit mal, whether it has epilepsy or whether it will develop it later.

Postinfluenzal Encephalitis.—From his observation of eight cases Heiman differentiates three main forms, depending on the severity and the most prominent symptoms: (1) Irritable; (2) lethargic and (3) lethargic with paralyses. There is no specific therapy. Good results have been reported from lumbar punctures, but Heiman has not found this procedure of special benefit.

Constipating Qualities of Orange Juice.—Observations made by Gerstenberger and Champion on a normal infant of 10 months of age to ascertain the position as a cathartic or laxative of orange juice to an equal amount of a 10 per cent.

ugar solution composed of 6.5 per cent. glucose and 3.5 per ent. sucrose show in one period no difference between the wo solutions, and in the other period a relative laxative dvantage of the sugar solution over the orange juice, or etter, a relative constipating ability of orange juice as comared with the effect obtained with the 10 per cent. sugar olution. During the sugar solution period anywhere from 5.71 to 96.53 per cent. of the water output went by way of he kidneys, and from 4.29 to 3.47 per cent. went through the ntestines, while in the case of the orange juice from 97.15 o 97.25 per cent. of the fluid output went by way of the idneys, and from 2.85 to 2.74 per cent. by way of the inteines. In other words, orange juice, relatively speaking, has een less laxative than a 10 per cent. sugar solution when iven in doses of 15 c.c., six times in twenty-four hours. This bservation confirms practical experience that orange juice n the maximum amounts ordinarily used has more of a onstipating than a laxative effect, and therefore should only e used as an antiscorbutic or as a diuretic, but not as a axative, and especially not for children who are already onstipated. These observations also point to the important ôle that diuresis may play in the production of constipation, nd it may be possible that some of the cases of constipation n infants supposed to be due to an abnormally long retention f the feces in the gut and a consequent too complete absorpion of water in the large intestine are primarily due to the resence of a factor that causes an abnormal increase in the xcretion of water through the kidneys.

Lactose, Fat and Protein Content of Woman's Milk.—Denis nd Talbot found that there is a rapid increase of lactose uring the first few days when colostrum changes into milk, nd a further increase as lactation progresses. The reverse s true of protein which after the first rapid decrease during he change from colostrum into milk tends to further decrease uring the course of lactation. After the colostrum period here does not seem to be any relation between the stage of actation and the amount of fat in the milk. There is usually higher percentage of lactose at the beginning of a single ursing than at the end. Although this difference may be 1 r more per cent., it is usually less. It is almost the rule for he percentage of fat to be much higher at the end of nursing han at the beginning. There is very little, if any, difference n the protein. The milks taken simultaneously from both reasts of the same woman tend to have the same composiion, but often vary in respect to the percentage of fat. oward the middle or later afternoon the volume of milk in woman tends to diminish. The percentage of fat is, as a ule, higher at midday or midafternoon, than at other times f day.

Sporadic Case of Meningitis Due to Carrier.—Shaw cites he case of a 5 month old breast fed infant living on a farm ho developed cerebrospinal meningitis. There was no ecord of any previous cases in the locality. On account of ne isolated location of the farm it was possible to ascertain nd examine every person who had come to the house for a eek previous. One of the visitors was the uncle of the aby, a man, 33 years of age, who enlisted in the army in pril, 1917, and went to France in August, 1917. He eturned to this country in January, and fondled the baby anuary 28. A few days later the baby was taken ill. Examiation of the spinal fluid confirmed the diagnosis of meningooccus meningitis. Postnasal cultures made from eight perons were negative except those from the soldier, and the eningococci obtained from him were agglutinated by the uid obtained from the spinal fluid of the baby and were also roved to be identical by culture. A point of interest is that he organism still persists in this carrier four months later. Ie has used irrigations of all kinds and has been under the reatment of a nose and throat specialist, but the meningoocci resist all bacterial procedures.

Fat Metabolism.—This study of fat metabolism presents bservations on children whose diet contained a large proporion of solid food. It gives the findings as to fat percentage nd distribution in the stools of a number of children receivng a mixed diet and the fat retention of these children.

American Journal of Ophthalmology, Chicago

July, 1919, **2**, No. 7

- Detachment of Retina in Eclampsia and Toxemia of Pregnancy. C. A. Clapp, Baltimore.—p. 473.
- Conjunctivitis Due to Food Anaphylaxis. F. A. Conlon, Lawrence, Mass.—p. 486.
- Ocular Lesions Consecutive to Injections of Antityphoid Vaccine, Keratitis Herpetica Febrilis. R. P. Luna, Guatemala, C. A.—p. 488.
- Effects of Faulty Cranio-Spinal Form and Alignment on the Eyes. L. Mills, Los Angeles.—p. 493.
- Control of Trachoma Among Alien Labor Companies of British and American Expeditionary Forces. G. S. Derby, Boston.—p. 500.
- Granuloma of Cornea. M. Feingold, New Orleans.—p. 510.
- Ophthalmo-Therapeutic Ignorance Regarding Optic Atrophies. M. J. Schoenberg, New York.—p. 517.
- Determination of Deviation in Squint by Priestley Smith Method, With a Modification to Insure Greater Accuracy. W. F. Holzer. Worcester, Mass.—p. 520.
- Primary Sarcoma of Iris. H. Friedenwald, Baltimore.—p. 523.
- Stubbornness of Some Cases of Conjunctivitis. J. Santos Fernandez, Havana.—p. 524.

American Review of Tuberculosis, Baltimore

July, 1919, **3**, No. 5

- *Relationship of State and National Associations to Other Agencies in Tuberculosis Campaign. D. R. Lyman, Wallingsford, Conn.—p. 257.
- Need for Broader Program in Campaign Against Tuberculosis. G. T. Palmer, Springfield, Ill.—p. 268.
- *Industrial and Agricultural Community for Arrested Cases of Tuberculosis. H. A. Pattison, New York.—p. 276.

Cooperation in Tuberculosis Campaign.—One of the suggestions made by Lyman in this paper is that the health record of every man be filed with the United States Public Health Service and with the state board of health of his own state. Lyman seems to be convinced that in the near future we will adopt some form of military service for all young men so that we may have all of them as they reach the age of 18 under military training for six months or more. From the standpoint of national health that would mean a chance for a complete physical study and, if need be, corrective physical training during this period for every young man.

Industrial Community for Arrested Tuberculosis Cases.—The proposition offered by Pattison is the development of industries around a community for the sake of that community, which is to be made up chiefly of arrested cases of tuberculosis among soldiers, sailors and civilians. Those soldiers and sailors who are substandard physically because of other forms of disability than tuberculosis would not be debarred, but the totally disabled, epileptic or mentally deranged could not be received. There would also be perfectly well people occupying executive positions or placed in jobs such as were required to keep processes going. The community should be complete within itself, yet in immediate touch with other neighboring villages and cities. Topographically, it should be well situated on elevated, hilly ground with several acres of woodland, and, if possible, with an active but small river winding through it. The tract should be located within 100 or 200 miles of some large city and not in an isolated corner of a far Western state. It should be on a line of railroad and preferably a main line, with ready accessibility to raw materials and markets. The village proper should be laid out according to modern ideas of town planning to care for 500 or 600 population almost immediately, with possibilities for expansion to 4,000. Its general features, in Pattison's opinion, should conform to those of other American towns rather than to English garden cities. While the homes should be diverse in design, the architectural *tout ensemble* should be harmonious and artistic. The department of health should be a model in every respect and be given a place of honor coequal in importance with the industrial phases of the community. Conservation and restoration of man power would be give first consideration. There would be diagnostic, pathologic and research laboratories. The director of the department would be given as many medical assistants and public health nurses as the growth of the community required. Every person, man, woman or child, who came to take up residence would be given a complete physical examination, including stereoscopic chest plates and biologic tests. Periodic reexaminations and special examinations when indicated by the appearance of symptoms would preserve a life history of the "human machine," making it possible to reduce greatly the morbidity and mortality rates in comparison with other industrial towns of like size. Under such conditions an unusual opportunity would be offered for the development and application of psychologic, trade, efficiency and fatigue tests. The population would be drawn largely from the sanatoriums of neighboring states. School training courses would prepare men and women to give occupational therapy and prevocational training in sanatoriums thus sending forth missionaries to prepare sanatorium patients for the colony.

Archives of Neurology and Psychiatry, Chicago

Aug. 1, 1919, **2**, No. 2

Physician and Human Conservation. J. H. McBride, Pasadena, Calif. —p. 149.

*Cerebrospinal Fluid in Experimental Compression of Spinal Cord. J. B. Ayer, Baltimore.—p. 158.

Clinical Survey of 415 Instances of Brain, Spinal Cord and Peripheral Nerve Injuries, as Seen in Overseas Wounded. J. C. Fisk, and S. Brock. New York.—p. 165.

*Colloidal Gold Reaction in Four Hundred and Ninety-Eight Psychiatric Cases. E. Rawlings, Mendocino, Calif.—p. 180.

*Role of Pituitary Gland in Epilepsy. B. R. Tucker, Richmond, Va. —p. 192.

*Resemblance of Sensory Symptoms of Postdiphtheritic Ataxia to Those Seen in the Cord Changes of Severe Anemia. G. Wilson, Philadelphia.—p. 201.

Diagnosis of "War Psychoses." G. E. McPherson, Medfield, Mass., and L. B. Hohman, Baltimore.—p. 207.

Experimental Compression of Spinal Cord.—The experimental work reported on by Ayer was done on cats. The results showed that paraffin may be injected into the epidural space in cats, with resultant compression of the cord and symptoms of incomplete transverse myelitis. Spinal fluid obtained from below the area of compression usually shows marked increase in protein content, at times is yellow and clots spontaneously. The greater the amount of protein the more likely is the fluid to clot. Fluids obtained from the subarachnoid space above the area of compression are invariably normal or nearly normal. The pathologic fluids obtained are entirely comparable with (1) the *syndrome de coagulation massive et de xanthocromie* of Froin, and (2) the syndrome of Nonne, both characteristic of spinal cord compression in man.

Colloidal Gold Reaction in Psychoses.—An analysis is made by Rawlings of the colloidal gold reaction in 498 cases of various psychoses in which there was suspected a nervous syphilis from the clinical findings of pupillary changes, exaggerated or lost reflexes, speech defects, histories of early cardiovascular involvement or apoplexies; with miscarriages, stillbirths, defective mental development or more frank syphilitic manifestations in the immediate relations. No case was punctured which did not show either a positive Wassermann reaction of the serum with suggestive neurologic symptoms, or neurologic symptoms which made dependence on a negative serum inadvisable. The following results were obtained: One hundred and three patients gave paretic curves with positive Wassermann reactions of either serums or spinal fluids, or both; ten gave suggestive curves of incipient paresis with negative Wassermann reactions of serums and spinal fluids; fifty-three gave syphilitic curves with positive Wassermann reactions of either serums or spinal fluids, or both; 118 gave syphilitic curves with negative Wassermann reactions of serums and spinal fluids; 209 patients gave negative gold reactions, fourteen of whom showed positive Wassermann reactions of the serum and three positive Wassermann reactions of the spinal fluids; five gave atypical curves, several of these being treated cases. Rawlings concludes, therefore, that the spinal fluid of cases of dementia paralytica causes a quite characteristic curve with the colloidal gold solution which is of such frequent occurrence as to be diagnostic. In seven cases the diagnosis was confirmed by necropsy. The spinal fluid of taboparetics may normally give syphilitic curves or rather low paretic curves. Cerebrospinal syphilis gives a curve which may be considered diagnostic. Syphilitic curves with negative Wassermann reactions of serums and spinal fluids may be obtained in cerebrospinal syphilis, the reaction not necessarily being due to a dialyzable substance other than syphilitic. The gold curve is of value in clearing up the etiology of old arteriosclerosis with negative Wassermann reactions; necropsies having demonstrated a syphilitic type of vascular lesion in cases giving syphilitic curves and a simple senile degeneration of the vessels in cases giving negative gold reactions. It is of interest that five cases of Huntington's chorea gave negative gold reactions, one of which, however, demonstrated pathologically an inactive moderate tabetic involvement of the lumbar regions. The syphilitic curve may be of value in clearing up the etiology of mental deficiencies after an active syphilitic process has ceased and antibodies have disappeared from the body fluids. The globulin reaction is rather uniformly strongly positive in paretics and a fair proportion of syphilitics, but there appears to be no definite relationship between the curve and the strength of the reaction.

Pituitary Gland in Epilepsy.—Tucker believes that there is a definite relation between the undersecretion of the pituitary gland and a group of periodic convulsive attacks usually termed epilepsy; that this group is divided into a chronic hypopituitary type and a transitional hypopituitary type by both clinical and roentgenographic evidence; and that pituitary gland feeding has a markedly beneficial effect occasionally leading to cure.

Postdiphtheritic Ataxia.—The three cases reported by Wilson are of interest from the type of sensory loss which they show, the loss of sensation being exactly similar to that seen in the combined sclerosis of pernicious or severe secondary anemia. The subjective symptoms which were complained of in these cases were of the same character that is so common in anemia. All three patients had paresthesias in the hands and feet, and all showed a loss or marked impairment of the sense of position and of vibration; in two of the cases with preservation of touch sense there was impairment of the ability to recognize the two points of a compass. Wilson believes he is justified in placing the lesions which account for the sensory loss in these cases in the posterior columns of the cord and not in the peripheral nerves.

Arkansas Medical Society Journal, Little Rock

July, 1919, **16**, No. 2

Dysmenorrhea. O. Wilson, Little Rock.—p. 47.

Methyl Alcohol Blindness. H. H. Rightor, Helena, Ark.—p. 49.

Intestinal Obstruction. E. L. Beck, Texarkana.—p. 51.

Boston Medical and Surgical Journal

July 31, 1919, **181**, No. 5

Energy Requirements of Children from Birth to Puberty. Shattuck Lecture. F. G. Benedict, Boston.—p. 107.

Nutrition Clinics and Classes: Their Organization and Conduct. W. R. P. Emerson, Boston.—p. 139.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

July, 1919, **12**, No. 1

Influence in Building up Medical and Chirurgical Faculty. H. Woods, Baltimore.—p. 2.

Osler's Influence on American Medical Libraries. J. Ruhräh, Baltimore.—p. 5.

Book and Journal Club of Medical and Chirurgical Faculty of Maryland. J. A. Chatard, Baltimore.—p. 11.

Osler's Influence on Library of Medical and Chirurgical Faculty of State of Maryland. M. C. Noyes, Baltimore.—p. 12.

Osler's Influence on Other Medical Schools in Baltimore and His Relation to Medical Profession. E. N. Brush, Baltimore.—p. 15.

Dr. Osler as a Citizen and His Relation to Tuberculosis Crusade in Maryland. H. B. Jacobs, Baltimore.—p. 18.

Journal of Experimental Medicine, Baltimore

August 1, 1919, **30**, No. 2

*Etiology of Yellow Fever. VII. Demonstration of Leptospira Icteroides in Blood, Tissues, and Urine of Yellow Fever Patients and of Animals Experimentally Infected. H. Noguchi, New York.—p. 87.

*Id. VIII. Presence of Leptospira in Wild Animals in Guayaquil; Relation to Leptospira Icterohaemorrhagiae and Leptospira Icteroides. H. Noguchi, New York.—p. 95.

*Intestinal Obstruction. II. Factors Involved in Production and Absorption of Toxic Materials from Intestine. L. R. Dragstedt, C. A. Dragstedt, J. T McClintock, and C. S. Chase, Iowa City, Iowa.—p. 109.

tudy of Pneumococci Reacting with Antipneumococcus Serums of Types I, II and III; Mutation of One Strain. B. C. Clough, Baltimore.—p. 123.
tudies of Oxygen in Venous Blood. V. Determinations on Patients with Anemia. C. Lundsgaard. Denmark.—p. 147.
treptococci of Equines. F. S. Jones, Princeton, N. J.—p. 159.

Etiology of Yellow Fever.—Examinations of fresh blood om yellow fever patients by means of the dark field micro- ope, made by Noguchi in more than twenty-seven cases, vealed in three cases the presence of *Leptospira icteroides.* e injection of the blood into guinea-pigs from two of the ree positive cases induced in the animals a fatal infection, ile the blood from the third positive case failed to infect e guinea-pigs fatally. Stained blood film preparations from e corresponding cases were also examined, but the per- ntage showing the leptospira in the blood was no greater an that found by examination in the fresh state with the rk field microscope. Examinations of the urine by dark ld microscope and by inoculation into guinea-pigs were tally negative in thirteen cases, including many convales- nts, but in one case one of the guinea-pigs inoculated with c.c. of the urine came down on the fifteenth day with ggestive symptoms (suspicion of jaundice, and some hemor- agic and parenchymatous lesions of the lungs and kidneys). is specimen showed no leptospira by dark field examina- on. In experimental infection of guinea-pigs with *Lepto- ira icteroides* the blood became infective in many instances rty-eight hours after inoculation, and was always infective ter seventy-two hours. The liver and kidney become infective nultaneously with the blood. Detection of the organism means of the dark field microscope has seldom been complished before the fifth day. The organisms are most undant on the sixth or seventh day, but become fewer or mpletely disappear before death. In the meanwhile the imber of organisms increases in the liver and kidney, from ich they disappear as the jaundice and other symptoms come aggravated. When death occurs these organs seem have lost most of the leptospira, and positive transfer by eans of them is less certain. At the later stage of the dis- se the blood is often free from the organisms and ceases to infective.

Etiology of Yellow Fever.—By the inoculation of guinea- gs intraperitoneally with the emulsions of kidneys from ld rats and mice captured in Guayaquil, Noguchi found at 67 per cent. of the wild rats tested harbored in their dneys a leptospira which produced in guinea-pigs symp- ms and lesions identical with those produced by *Leptospira erohaemorrhagiae* derived either from patients suffering om infecious jaundice in Japan or Europe or from wild ts caught in New York. Guinea-pigs inoculated with lled cultures of the Guayaquil strains of leptospira proved be resistant to a subsequent infection with heterologous well as homologous strains of *Leptospira icterohaemor- agiae.* It is concluded, therefore, that the leptospira iso- ted from the kidneys of wild rats and mice in Guayaquil longs to the group of *Leptospira icteriohaemorrhagiae* and ffers from *Leptospira icteroides* in its immunity reactions.

Intestinal Obstruction: Absorption of Toxic Material.— is study was undertaken by the Dragstedts and others to termine the factors involved in the absorption of toxic aterials from the intestine. It was found that if isolated testinal loops were washed with water and ether previous closure many animals survived the operation and never splayed any toxic symptoms, and that these loops when bsequently removed and examined contained great numbers bacteria. Experiments made to determine whether the owth of bacteria and the production of the usual toxic bstances in closed intestinal loops were prevented by the evious use of antiseptics established the fact that this is possible even in a short piece of intestinal tract. They dicate that the part played by ether is not that of a bac- ricide and that it does not markedly inhibit the production toxic materials in intestinal loops. The absorption of these xic substances is for some reason prevented. It is possible r many times the lethal dose of these poisons to remain in osed loops of the jejunum or colon without the production toxic symptoms. Apparently, simple astringents with no germicidal properties are just as effective in preventing the symptoms of toxemia in dogs with closed intestinal loops as are the antiseptics. It was evidently the astringent properties of the ether and the other chemicals rather than their bactericidal properties that account for the results produced. It was also determined that the mucosa of the alimentary tract does not elaborate an internal secretion which is necessary to life, or a secretion which could be disturbed by the conditions of acute obstruction so as to account for the symptom complex of that condition. The substances responsible for the toxemia in acute obstruction are produced by the action of intestinal bacteria on proteins or their split products. An injury to the intestinal mucosa, particularly that resulting from disturbances of the blood supply to the intestine, greatly facilitates the absorption of these poisons.

Studies on Pneumococci.—Clough reports the results of a study of nine strains of pneumococci agglutinating with antipneumococcus serums of all three types (Nos. I, II, III). Seven of the strains were the cause of serious or fatal infections in human beings. The virulence of the strains varied greatly. In general, the strains were found to be serologically distinct, though some interrelationships existed between several strains. A mutation occurred in one of the strains, while it was under observation. On isolation this strain had the cultural reactions of a typical pneumococcus, and had the phagocytic and agglutinative reactions of an atypical Type II. After six months' cultivation on blood agar its serologic reactions changed, and it became actively phagocyted and agglutinated in antipneumococcus serums of Types I, II, III. Its cultural characteristics also changed, and it became bile insoluble, did not ferment inulin, and caused precipitation in glucose ascitic fluid agar. At this time it caused an intense green discoloration at the base of the blood agar slants around the water of condensation. By repeated animal passages this strain was three times made to revert abruptly to its original form (atypical Type IIa), both in cultural and serologic reactions. An immune serum was prepared to each form of the strain, and each serum acted strongly on the homologous form, but was without action on the heterologous form of the strain. Clough believes that this mutation suggests that these pneumococci reacting with all three types of antipneumococcus serums may represent primitive, relatively undifferentiated forms from which the fixed types may have arisen.

Oxygen in the Venous Blood.—Clinical experience agrees with the experimental results obtained by Lundsgaard; a bodily and mentally resting anemic patient usually does not show any marked reaction from the circulation, until the hemoglobin percentage has fallen below 30. In patients whose hemoglobin is below that value an increased pulse rate and palpitation of the heart even at rest is evidenced.

Journal of Infectious Diseases, Chicago

August, 1919, **25.** No. 2

Antigenic Properties of Protéoses. E. B. Fink, Chicago.—p. 97.
*Effect of Potassium Iodid on Experimental Sporotrichosis. D. J. Davis, Chicago.—p. 124.
*Microscopic Appearances in Ulceromembranous Tonsillitis (Vincent's Angina). R. Tunnicliff, Chicago.—p. 132.
Differentiation and Distribution of Paratyphoid-Enteritidis Group. VI. Avian Paratyphoid Bacilli: A Comparative Study of B. Pullorum and B. Sanguinarium. F. W. Mulsow, Chicago.—p. 135.
Incidence of Meningococcus Carriers in a Naval Training Station During 1918. J. T. Short, Great Lakes, Ill.—p. 163.
Study of Dreyer's Agglutination Technic in the Army. A. G. Eggerth, France.—p. 166.
*Rapid Method for Preparing Antigens from Normal Heart Muscle. E. E. Echer and K. Sasano, Cleveland.—p. 174.
*Experimental Gas Gangrene. The Protection by Antiserum and Antiserum Mixtures. M. Nevin, France.—p. 178.

Potassium Iodid in Experimental Sporotrichosis.—The experiments reported on by Davis indicate that potassium iodid given to animals for eight days previous to inoculation with sporotricha will have no effect in inhibiting or preventing the infection. Also, when given simultaneously and for a week following the inoculation, the infection appears to continue without interruption. When the potassium iodid is continued indefinitely, the lesions heal, becoming hard and contracted, but the sporotricha remain alive in their centers for a long time and apparently are unable to disseminate. Lesions following inoculation under the skin usually progress, but if potassium iodid is administered they gradually recede; such lesions can be inspected from day to day and the healing process observed. By reinoculating such an animal, even when receiving potassium iodid, the new infection will progress for a period of two or three weeks and then recede so that it is possible to have in one and the same animal one lesion which is healing under the influence of potassium iodid and another which is progressing. Evidently the potassium iodid does not act in a direct way on the sporotricha, but indirectly through the agency of tissue proliferation and processes incidental thereto. From the experiments it seems clear that potassium iodid acts in such a way as to stimulate the healing process without inhibiting the development of the infecting organism. In other words, its action is curative and not preventive.

Ulceromembranous Tonsillitis.—The ulceromembranous tonsil described in Tunnicliff's report was removed during life, and the removal proved an effective method of limiting the infection. The case was clinically typical of Vincent's angina. Smears showed large numbers of fusiform bacilli and long spiral organisms with wide undulations. Sections of the tonsil showed fusiform bacilli and spiral organisms in enormous numbers in the zone separating the external necrotic epithelium and living tissue. A considerable number were invading the normal tissue, the spirillar forms being the more abundant and in advance of the bacilli. These organisms were apparently not associated with cocci or other bacteria at the line of advancing necrosis.

Antigen from Heart Muscle.—According to Ecker and Sasano suitable antigens can be made by extracting normal heart tissues for a period of from one to three hours with boiling alcohol in a reflux condenser. The value of these antigens compares favorably with those extracted by the usual methods. A primary extraction of the dried tissues with ether results in a slight loss of their fixing power, but yields extracts containing less anticomplementary substances.

Experimental Gas Gangrene.—When *Vibrion septique* and *B. oedematiens* (*B. bellonensis*) are present in mixed infections, Nevin claims that the prophylactic use of the specific serums even when diluted by another serum, is effective. Neither the *B. welchii* antitoxin nor the *B. welchii* (perfringens) antimicrobial serum are of any practical value in the prophylaxis of gas gangrene caused by a mixed infection due to several anaerobic bacilli, such as is commonly found in war wounds today. No accurate investigations of the amount of antitoxin contained in the antiperfringens (*B. welchii*) serum were made, and it is therefore impossible to say whether the protection afforded in pure *B. welchii* infections by the antimicrobial serum was due to the antitoxic principle contained in it, or to other antibodies present, or to a combination of the two. Further studies will be necessary to determine whether a serum of the highest potency can be produced by the inoculation of a sterile filtrate, producing a strict antitoxin, or by the inoculation of whole cultures, producing an antimicrobial serum.

Kentucky Medical Journal, Bowling Green

August, 1919, **17**, No. 8

Possibilities of Antivenereal Work. G. H. Day, Louisville.—p. 300.
Functions of State Drug Inspector. C. S. Port, Lexington.—p. 302.
Id. J. W. McFarlin, Bowling Green.—p. 304.
County Jail. W. H. Oates, Mobile, Ala.—p. 305.
*Sliding Hernia of Urinary Bladder: Report of Two Cases. L. Frank, Louisville.—p. 309.
*Cancer of Colon. J. G. Sherrill, Louisville.—p. 312.
Intussusception in a Woman Three Days After Delivery: Internal Hydrocephalus in a Boy Aged Eleven Years. E. S. Allen, Louisville.—p. 313.
Fatal Laryngeal Edema Following Influenza. H. E. Tuley, Louisville.—p. 315.
Case of Sarcoma of Orbit. A. O. Pfingst, Louisville.—p. 316.
Treatment of Infected Comminuted Compound Fractures. I. A. Arnold, Louisville.—p. 318.
Operation for Thyroid Tumor: Case Report. J. G. Sherrill, Louisville.—p. 323.
Malignant Tumor of Thyroid. S. Graves, Louisville.—p. 325.
Acute Manic Depressive Psychosis; Report of Case. W. E. Gardner, Louisville.—p. 326.
Amebic Infection with Liver Abscess. H. E. Tuley, Louisville.—p. 328.
Fibrosarcoma of Mammary Gland. S. Graves, Louisville.—p. 329.

Sliding Hernia of Urinary Bladder.—These are the only two cases of the kind Frank has seen. He suggests that the greatest care be always exercised during herniotomy, particularly for hernia of the inguinal type, to ascertain the presence or absence of a sliding viscus in the hernial sac. In certain cases where a urinary or fecal fistula has developed after herniotomy, quite likely a sliding hernia of the intestine or bladder was present which was unrecognized during the operation and injury thus resulted. Unless the pathology be recognized definitely during the operation, the sliding viscus may be irreparably damaged during dissection or separation of adhesions.

Cancer of Colon.—In August, 1917, Sherrill removed an adenocarcinoma of the descending colon reuniting the divided ends of the intestine by end to end anastomosis. There is as yet no evidence of recurrence.

Maine Medical Association Journal, Portland

July, 1919, **9**, No. 12

Proceedings of Sixty-Sixth Annual Meeting of Maine Medical Association.—p. 329.

Medical Record, New York

August 2, 1919, **96**, No. 5

Sixty Years of Medicine. A. Lambert, New York.—p. 177.
Some Facts and Principles of Dietotherapy. E. E. Cornwall, Brooklyn.—p. 181.
Focal Infection as a Cause of Painful Heel. Report of Case. S. Epstein, New York.—p. 187.
Foreign Body (Rectal Syringe Tip) in the Uterine Cervix. L. F. Herz, New York.—p. 188.
Open Safety Pin Swallowed by an Eight Months Old Child and Passed Through the Rectum After Four Days. S. Weiss, New York.—p. 189.
Extraction of War Projectiles from Thorax. R. le Fort, France.—p. 190.
Immediate Closure of War Wounds. R. Gregoire, France.—p. 195.

Mental Hygiene, Concord, N. H.

April, 1919, **3**, No. 2

Mental Disease and Delinquency. Report of Special Committee of New York State Commission of Prisons. V. V. Anderson, Boston.—p. 177.
Responsibilities of Universities in Promoting Mental Hygiene. C. M. Campbell, Baltimore.—p. 199.
Psychiatric Thread Running Through All Social Case Work. M. C. Jarrett, Boston.—p. 210.
Mental Disorder Considered as a Psychologic Reaction. M. A. Harrington, New York.—p. 220.
Mental Disease in Families. A. Myerson, Boston.—p. 230.
How to Avoid Spoiling the Child. L. F. Barker, Baltimore.—p. 240.
Mental Diseases in New York State During the War Period. H. M. Pollock, New York.—p. 253.
Mental Tests. S. I. Franz, Washington, D. C.—p. 258.
Drunkenness as Seen Among Women in Court. V. V. Anderson and C. M. Leonard, Boston.—p. 266.

Modern Medicine, Chicago

July, 1919, **1**, No. 3

Rise of Social Medicine. R. Sand, Brussels, Belgium.—p. 189.
What is the American Standard of Living? R. Meeker, Washington, D. C.—p. 193.
Brass Poisoning; Symptoms and Diagnosis. R. P. Albaugh, Columbus, Ohio.—p. 202.
New Developments in Industrial Medicine and Its Future. H. E. Mock, Chicago.—p. 203.
Employment Management and Industrial Medicine. O. P. Geier, Cincinnati.—p. 213.
Protecting the Health of Soft Coal Miners by Prevention of Disease. E. R. Hayhurst, Columbus, Ohio.—p. 216.
Housing and Health. J. H. McBride, Pasadena, Calif.—p. 225.
Sickness Costs and the Family Budget. L. K. Frankel, New York.—p. 233.
What the Social Worker Learns from the Psychiatrist about Her Problem Children. J. Taft, Philadelphia.—p. 240.
National Board of Medical Examiners. W. L. Bierring, Des Moines, Iowa.—p. 246.
Physical Therapy in Functional Disease. J. W. Bowler, Hanover, N. H.—p. 249.
Need of Special Classes for Children with Defective Sight. J. Green, Jr., St. Louis.—p. 257.
Law for the Doctor; Physician's Liability for Acts of his Partner. L. Childs, Indianapolis.—p. 264.
Diabetes Among Jews; Its Cause and Prevention. A. A. Epstein, New York.—p. 269.

New York Medical Journal

August 2, 1919, **110**, No. 5

War Neuroses as Observed in Army Neurologic Hospitals at the Front. J. H. W. Rhein, Philadelphia.—p. 177.
*Treatment of Lymphatic Leukemia with Benzyl Benzoate. F. G. Haughwout and M. A. Asuzano, Baguio, P. I.—p. 180.
Influenza and Bronchopneumonia at Camp Lewis. Study of One Hundred and Fifty-Two Necropsies. W. J. Kerr, San Francisco, H. K. Berkley, Los Angeles and T. H. Coffen, Portland, Ore.—p. 184.
Medical Treatment of Gallbladder Affections. S. Weiss, New York.—p. 187.
*Intrathoracic Goiter, Showing a Thyrotoxicosis. J. H. Leiner, New York.—p. 190.
Practical Application of Our Knowledge of Disease and Defects of School Children. M. Glasgow, New York.—p. 191.
Treatment of Joint, Bone, Nerve and Muscle Injuries by Mechanical Means. J. C. Seal, New York.—p. 195.
Sodoku or Rat Bite Fever. C. G. Cumston, Geneva, Switzerland.—p. 197.

Treatment of Lymphatic Leukemia with Benzyl Benzoate.—Haughwout and Asuzano report on the use of benzyl benzoate in a case of lymphatic leukemia in which the disease had been of at least two or three years' standing. The results were good but the authors make no claim for the therapeutic efficacy of the drug, except that it is evidently free from the evil tendencies and can be administered indefinitely and with effectiveness to a patient in an advanced stage of the disease, without deranging the alimentary tract or kidneys. The initial dose of benzyl benzoate in this case was 10 drops of the 20 per cent. alcoholic solution, in water, three times a day, after meals. Later the dose was reduced to 5 drops, but when former symptoms recurred the original dose of 10 drops was resumed. Improvement in all the symptoms followed; the patient gained in strength, eats well, sleeps well and is free from discomfort or pain.

Intrathoracic Goiter, Showing a Thyrotoxicosis.—In the case cited by Leiner, Forchheimer's treatment of quinin hydrobromate and ergotin resulted in improvement, but when it was stopped a relapse occurred, both subjectively and objectively. When the patient received ovarian extract some improvement was noticed in regard to her hot flushes and tremor. Then she was given 5 grains of thymus extract, three times a day. No exacerbation of her thyrotoxic symptoms was observed.

South Carolina Medical Association Journal, Greenville

July, 1919, **15**, No. 7

Development of Bureau of Child Hygiene of State Board of Health of South Carolina. R. A. Dodd, Columbia, S. C.—p. 496.
Lethargic Encephalitis. J. G. Eaddy, Johnsonville, S. C.—p. 500.
Qualifications of a Successful Health Officer and the Essentials of Good Service. M. M. McCord, Rome, Ga.—p. 502.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

July, 1919, **27**, No. 7

Pathologie Reasons In Conjugated Syphilis of Nervous System. S. G. Burnett, Kansas City, Mo.—p. 141.
Blood Transfusion. F. H. Clark, U. S. Army.—p. 149.

Tennessee State Medical Association Journal,

July, 1919, **12**, No. 3

Suspension Laryngoscopy; Relation to Modern Surgery of Larynx. R. C. Lynch, New Orleans.—p. 77.
Keratitis. O. Dulaney, Dyersburg, Tenn.—p. 80.
Ocular Manifestations of Focal Infection. M. M. Cullom, Nashville.—p. 84.
Medical Books and Doctors of Olden Time. I. A. McSwain, Paris, Tenn.—p. 92.
Achylia Gastrica. O. S. Warr, Memphis.—p. 96. (Abstracted in The Journal, April 26, 1919, p. 1250.)
Practical Demonstration of Vestibular Tests from an Otologist's Standpoint. L. Levy, Memphis.—p. 101.
Present Status of Wassermann Blood Test. W. F. Glenn, Nashville.—p. 105.
The Heart. O. N. Bryan, Nashville.—p. 106.

U. S. Naval Medical Bulletin, Washington, D. C.

July, 1919, **13**, No. 3

Preventive Medicine at Training Camps and Stations. Outline of a Working Plan for the Study of Epidemics. C. E. Riggs, U. S. Navy.—p. 395.
With Marines in France. General Operations of the Regiment. F. E. Locy, U. S. Navy.—p. 417.
Bone Grafts. E. M. Foote, U. S. N. R. F.—p. 433
Internal Derangements of Knee Joints. C. F. Painter, U. S. N. R. F.—p. 442.
Clinical Manifestations of Tropical Sprue. E. J. Wood, U. S. N. R. F.—p. 449.
Methods of Isolation and Cultivation of Pfeiffer's Bacillus: A Review. D. G. Richey, U. S. N. R. F.—p. 453.
Nervous Element in Aviation. G. U. Pillmore, U. S. Navy.—p. 458.
Administration of the U. S. Hospital Ship "Solace." E. E. H. Old, U. S. Navy.—p. 478.

Wisconsin Medical Journal, Milwaukee

July, 1919, **18**, No. 2

Workmen's Compensation and Physician. F. M. Wilcox.—p. 43.
Plea for More Aggressiveness in Treatment of Chronic Gastric Ulcer and Gastric Cancer. K. Doege, Marshfield.—p. 49.
Overtreatment of Neurosyphilis. D. W. Roberts, Milwaukee.—p. 54.
Fluctuations of Refraction in Developing Cataract. C. Zimmermann, Milwaukee.—p. 57.
Hydronephrosis: Diagnosis and Treatment. J. C. Sargent, Milwaukee.—p. 60.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Japan Medical World, Tokyo

July 6, 1919, No. 290

*Therapeutic Efficacy of Antitetanus Serum; Site of Injection. R. Kobayashi.

Therapeutic Efficacy of Antitetanus Serum.—Comparative studies of the therapeutic administration of antitetanus serum by intravenous and subarachnoid injection were made by Kobayashi. In the treatment of the experimental tetanus in the rabbit which had received a dose of the toxin sufficient to kill it in from 5 to 8 days, all the animals that had been given the serum within twenty-four hours after the injection of the toxin into the vein recovered. There was, however, a difference between those animals that were given the serum into the vein and those injected into the subarachnoid cavity, for with the former the minimum therapeutic dose was ten times as large as that with the latter. When the toxin was injected into the subcutaneous tissue instead of into the vein, and the animal was given the serum within twenty-four hours, all the animals recovered, but this time the minimum therapeutic dose with the intravenous administration was 300 times as large as that with the subarachnoid administration. The minimum therapeutic dose with the cases that were given the serum into the subarachnoid cavity after twenty-four hours from the injection of the toxin either intravenously or subcutaneously was just the same, but the intravenous administration of the serum differed within a wide range, for the subcutaneous injection of the toxin was just ten to thirty times as large as that with the intravenous injection of the toxin. The immune serum was found powerless when it was given either subarachnoidally or intravenously after forty-eight hours from the injection of the toxin intravenously. By the subarachnoid administration of the immune serum forty-eight hours after the injection of the toxin subcutaneously, a little efficacy was found to be manifested.

July 13, 1919, No. 291

Phagocytosis of Citrated Blood of Lepers. Y. Hayashi.
*Local Anesthesia of Uterus. Prof. Ando.

Local Anesthesia of Uterus.—By means of the vaginoscope the orifice of the uterus is exposed and the anesthetics are injected with a 5 gram syringe at posterior, anterior and bilateral points along the border of the cervix and the vaginal wall. The needle is driven toward the base of the cavity for a distance of 2 mm. and the injection is made very slowly. The operation is begun in about five minutes after the injection. By this method all the operations on the mucous membrane of the vagina and the uterine cavity may be carried out without applying general anesthesia.

Medical Journal of Australia, Sydney

June 14, 1919, **1**, No. 24

*Three New Amputations of Foot, Each Conserving the Calcaneal Tread. C. E. Corlette.—p. 479. To be cont'd.
*Three Cases of Aplastic Anemia. G. E. Rennie.—p. 485.

Amputation of Foot Conserving Calcaneal Tread.—One of the three operations devised by Corlette was done on a boy whose leg had to be amputated at the junction of the middle and lower third. The whole of the foot in front of the talus on the other side was crushed. The mangled mass was cut away with every possible care to retain viable tissue. There was no material for an upper flap, and there was not enough sole left to cover the surface exposed. With a pair of large bone shears Corlette made a horizontal section of the talus and removed the distal fragment. Next, he did a subcutaneous division of the Achilles tendon. Then he cut through the base of the sustentaculum tali, and cleared the soft tissue from the top and sides of the calcaneus. The shears were used to make a horizontal section of the calcaneus, the upper convex surface being removed as far back as the blades could reach, and a plane surface was left. The residual distal part of the calcaneus was then pushed forward as far as possible; the front of it, including the greater process, was sheared off, and the remaining fragment was fitted in its advanced position beneath the talus, with a view to getting bony union. No wiring was attempted. In point of fact, the primary intention of all this was to get a flap and this was successfully accomplished. The removal of the anterior portion of the calcaneus gave length to the plantar flap, and the horizontal section of the talus and the calcaneus, with removal of bone, shortened the vertical measurement, lessening the distance the flap had to reach. The net result of the procedures undertaken was a very satisfactory viable covering for the gap in front, with a well elevated situation for the cicatrix, away from all risk of pressure. The result was perfect.

In a second case this procedure was altered somewhat. Corlette first removed all that portion of the foot anterior to the mediotarsal joint, leaving the skin intact at the line of demarcation. Horizontal section of the head of the talus was done by an osteotome. The Achilles tendon was cut subcutaneously. The sustentaculum tali was cut off and removed. The various ligamentous attachments of the calcaneus to the talus were divided, and the under part of the talus was removed further back. The calcaneus was horizontally bisected just above the level of the greater process in front. The section of the calcaneus was carried back near to the insertion of the Achilles tendon so that the upper fragment included the smooth surface of bone above the insertion of the tendon. The greater process of the calcaneus, i. e., the part anterior to the groove which provides attachment for the interosseous ligament was removed. The calcaneus was then pushed forward as far as it would go beneath the talus. The skin flaps were cleared of granulation tissue, shaped and sutured. The result in this case was also good.

Three Cases of Aplastic Anemia.—Rennie suggested that aplastic anemia in young persons is the result of the exhaustion of function of a bone marrow congenitally defective in power of endurance, while in older persons it is the result of some poison or poisons which, acting on the bone marrow, destroys its function and so leads to the death of the patient. A pathologic hemolysis as an essential part of this syndrome is not proved.

June 21, 1919, **1**, No. 25

Problems in Connection with Venereal Disease Act, 1918. L. E. Ellis. —p. 501.
*Three New Amputations of Foot, Each Conserving Calcaneal Tread. C. E. Corlette.—p. 502. To be cont'd.

June 28, 1919, **1**, No. 26

Present State of Hospital Roentgenographic Departments in New South Wales. J. G. Edwards.—p. 525.
Three New Amputations of Foot, Each Conserving Calcaneal Tread. C. E. Corlette.—p. 526. To be cont'd.

July 5, 1919, **2**, No. 1

Army Medical Service and Prevention of Venereal Disease. B. T. Zwar.—p. 2.
Army Medical Service: Prophylaxis and Treatment of Venereal Disease. A. E. Morris.—p. 3.
Three New Amputations of Foot, Each Conserving Calcaneal Tread. C. E. Corlette.—p. 8.

New Amputations of Foot Conserving Calcaneal Tread.—In this article Corlette continues his discussion of his operations and describes the technic in detail.

Siamese Red Cross Medical Journal, Bangkok

December, 1918, **1**, Pt. 3

Uncinariasis. M. E. Barnes.
Leprosy of Eye. H. Campbell.
Tropical Ulcer. L. Robert.

Archives Médicales Belges, Liége

March, 1919, **72**, No. 3

*Meningeal Hemorrhage after Contusion of Skull. G. Guillain.—p. 237.
*Physiotherapy of Paralysis of Peripheral Nerves. L. Stouffs.—p. 250.
*Pneumothorax without Symptoms. H. Fredericq.—p. 264.
The Medicine of Aviation. J. Voncken.—p. 270.
Electrons and Rays in Therapeutics. M. Van de Maele.—p. 301.

Meningeal Hemorrhages After Contusion of Skull.—Guillain declares that meningeal hemorrhage is much more common than generally recognized with simple contusion of the skull or apparently mere scalp wounds. He describes thirteen cases from his own experience. The symptoms were very vague, but lumbar puncture cleared up the diagnosis and aided in recovery. Even where there is a hematoma in connection with the meningeal hemorrhage it may subside completely under repeated lumbar puncture and be resorbed spontaneously. In one of his cases pronounced aphasia from this cause retrogressed spontaneously. To open the intact dura mater is not always a harmless intervention and should be avoided when possible. He also warns of the eventual danger from chloroform, ether or nitrous oxid with meningeal hemorrhage. Local anesthesia alone should be used in exploring the skull, as the vasodilation produced by general anesthesia may increase or induce the hemorrhage. The only fatality in his series was in a case in which ether had been given. He warns further that lumbar puncture, withdrawing a rather large amount of fluid, had better not be done at first as the reduction in the pressure might cause some clot plugging a vessel to drop off, and thus might set up a new hemorrhage. In the succeeding days, however, lumbar puncture has decided therapeutic value, reducing the pressure and evacuating the toxic products of the hemolysis. Among the symptoms which suggest meningeal hemorrhage are slight mental confusion, bilateral inversion of the plantar skin reflex, true defensive reflexes like those of the frog, and a sallowness from the hemolysis.

Physiotherapy After Injury of Peripheral Nerves.—Stouffs describes the preferable measures needed to act favorably on the injured nerve, on the paralyzed muscles, and on the psychomotor centers of volitional control.

Spontaneous Pneumothorax.—Fredericq found the heart pushed over to the left in a young soldier with a mild pulmonary tuberculous lesion. He had been taken with a sudden pain in the right kidney region, spreading to the shoulder. There was no vomiting, no dyspnea, no cyanosis, no cough, but radioscopy showed pneumothorax, the right diaphragm immovable, the right lung collapsed. The absence of decisive symptoms in this and in a second case in a girl of 17 suggests that unrecognized pneumothorax may be comparatively common. In the girl, both the pneumothorax and a focus of purulent pleurisy had escaped discovery at the clinical examination. The resonance on percussion seemed normal on both sides, and râles were pronounced also on both sides. She succumbed to progressive asphyxia without a clear diagnosis having been made.

Bulletin de l'Académie de Médecine, Paris

June 17, 1919, **81**, No. 24

*Instrumental Orthopedics. G. Bidou.—p. 797.
*Nitrogen in the Cancerous Liver. A. Robin.—p. 799.
*Asylums for Children with Inherited Syphilis. F. Balzer.—p. 811.
Symptoms from Softening of Corpus Callosum. Laignel-Lavastine. —p. 817.
*Registering Apparatus for Play of Joints. H. Dausset.—p. 819.
*Concussion from Severe Explosions. Chavigny.—p. 822.
*Antipneumococcus Serum. C. Truche.—p. 823.

Instrumental Orthopedics.—Bidou affirms that if the disabled person has anywhere in his body a segment which he can move at will, it is possible to devise some apparatus to utilize this power of movement and adapt it to some useful purpose. Each case has to be studied individually and to make the most of its possibilities requires a combination of ower of observation, mechanical skill and knowledge of natomy and physiology. As an example of what it is possible to realize by this means, he says that a paraplegic by sing the up and down and sideway movements of his shoulers might be able to make movements of progression. alaguier's comment on Bidou's apparatus is that they are so omplicated their use will necessarily be extremely restricted.

Cancer a Ferment Disease.—Robin's study of the ferment rigin of cancer was mentioned in these columns recently, age 152. He tabulates here the findings from five cases of iver cancer compared with normal livers. They confirm that he total nitrogen content of the cancerous liver is less than n the normal liver. The cancer is able to construct more istologic substance out of a given quantity of nitrogen than ormal tissue is able to construct from the same. The nsoluble nitrogen increases, while the content in soluble itrogen grows less and less in the cancerous tissue; the xact reverse is observed in the relatively sound parts of the iver. He interprets these and other findings as evidence hat the proteic elements of the cancer are formed from the products of autolysis of the proteic substances of the organ in which it is developing. This conforms to R. A. Kocher's discovery of the increase in the hexone bases in malignant tumors. It shows the existence of a cancerizable soil, and is the direct opposite of what is observed with parasitic diseases, such as tuberculosis.

Asylums for Children with Inherited Syphilis.—Balzer describes the work of the Welander asylums in Sweden, Norway and Denmark where children with inherited syphilis are given a home and collective treatment for one, three or four years. This seems to be the only way for treatment to be kept up systematically and long enough. One great advantage of such asylums is that wetnurses are saved from contamination by the children. The Paris public hospital service has had to pay out from $3,000 to $8,000 a year to wetnurses contaminated by syphilitic infants. Paris has only one institution approximating the Welander asylums, and this is not restricted to syphilitic infants.

Register of Joint Excursions.—Dausset's instrument records the scope of the movements of the joint, and serves besides as a universal ergograph and machine for active mechanotherapy.

Explosions and Concussions.—Chavigny relates some experiences which seem to conflict with the conclusions neurologists have been drawing from the war cases of aerial shock. He has long made a study of the effects of big explosions, and recently has had exceptional opportunities for this as large amounts of military explosives have been exploded to get them out of the way. The officer in charge, M. Sellier, has several times set off 350 kg. of explosives in one mass at one time. He lay on the ground at a distance of only 80 meters, merely covering his head with one of the box covers to protect it against any falling stones. The explosions were so violent that they broke windows 1,000 meters away and flung open or shut doors 3 kilometers distant. But they did not produce any pathologic effect on the observer at 80 meters. He did not have the auditory sensation of a loud explosion. He felt transiently something abnormal, but the sound wave did not seem to be clearly perceived by the ear, as if the sound wave was beyond the limits of the sounds normally perceivable by the ear. Persons farther away heard the noise of the explosion as terrific. The entire lack of pathologic phenomena in these repeated experiences confirms the negative results of Chavigny's experiments on animals which showed no compression or depression from the atmospheric waves of an explosion nearby. He emphasizes the importance from the medicolegal standpoint of this lack of injury from the severe explosions. It seems to testify that most of the *commotionés* have not been left with organic lesions, and hence that they need not be given the permanent disability pension. The pathologic phenomena observed thus belong in the domain of psychiatry and not in that of neurology, and hence the prognosis is generally so much the more favorable.

Pneumococcus Antiserums.—Truche relates that for years he has made a special study of serotherapy of pneumococcus infections and declares that the unmistakable benefit from it is now established beyond question. In pneumonia, defervescence follows in one or two days and the pulse drops to 80 on an average. In pleurisy the serotherapy effectually supplements surgical measures. In mixed meningococcus and pneumococcus meningitis the antiserums for each should be used. Blacks are very sensitive to pneumonia, but under this serotherapy Blazy found the death rate drop from 32 to 12 per cent. and Lassance, from 13 to 7 per cent. Truche immunizes the horses with very virulent pneumococci, killed with ether and alcohol, and diluted with large amounts of tepid physiologic fluid. He tests on mice the antiserum thus derived.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 6, 1919, 43, No. 19

*The Pathogenesis of Malarial Attack. P. Abrami and G. Senevet.—p. 530; Id.—p. 537.
*Hexamethylenamin in Typhus. Glatard.—p. 545.
*Digestive Antianaphylaxis. P. Pagniez and P. Vallery-Radot.—p. 549.
*Measurement of Spleen. A. Chauffard.—p. 554.
*Treatment of Alimentary Anaphylaxis. Joltrain.—p. 556.
*Cryptogenous Fever. Léopold-Lévi.—p. 559.
*Serodiagnosis of Syphilis. R. Bénard and M. Pinard.—p. 565.
*Intestinal Spirochetosis. G. Delamare.—p. 569.
Intestinal Moniliosis. G. Delamare.—p. 572.
Cancerous Linitis of Stomach in Soldier. P. Carnot.—p. 576.
*Malaria and Typhoid. E. Job and L. Hirtzmann.—p. 581.

Pathogenesis of Malarial Attacks.—Abrami and Senevet explain that the malarial attack is the consequence of an anaphylactic shock from the sudden passage into the blood of a heterogenous colloidal substance, from the bursting of large numbers of rosettes at one time. Their tests demonstrate that the blood may not show a single merozoite four hours before the ague chill, but an hour later there may be 450 per cubic millimeter. This testifies to the bursting of large numbers of rosettes, and the "crisis of hemoclasis" is then under way and reaches its height in two or three hours with the chill. This analogy between the ague chill and the anaphylactic shock suggests the possibility of warding it off by anti-anaphylaxis methods. It also explains some of the satellite symptoms of the ague chill. The algid phase is one of the most constant symptoms of the hemoclastic shock, and prompt intravenous injection of 1,000 gm. of physiologic serum containing 2 mg. of epinephrin has revived the patients at once in their experience. In two of their cases the apparent signs of death had been noted for five minutes when resuscitation followed this injection, supplemented by artificial respiration. Both these patients are now in perfect health. If the algid phase had been the result of insufficiency of the suprarenals, this could not have been remedied by this injection which, however, safely tided the patients past the danger point of the hemoclastic shock.

The assumption that the ague chill and fever are only the tardy consequence of the anaphylactic (hemolysis or hemoclasis) shock, brings the logical conclusion that it might be aborted by the preliminary injection of a small amount according to the Besredka method. They selected as the substance to be injected the patient's own serum, injecting 20 c.c. eight hours before the expected attack. They thus treated six patients who were having daily malaria attacks and who had not been treated otherwise. In three the injection had been made an hour or two too soon, but in the others the attacks were essentially attenuated or there was no chill or sweating. These effects were so marked under the circumstances that they demand further trials on a larger scale. Peptone given every two or three hours before the attacks might likewise ward it off as it wards off urticaria and migraine in certain cases. Although this would have no influence on the proliferation of the parasites, it might prevent the physical process of the sudden upset in the physical balance of the blood plasm. The fever is the manifestation of the upset in the blood, and the parasite does not induce the fever so much by its toxins as by its being a heterogenous colloidal body. This is probably not peculiar to malaria. Systematic study of the blood might show in other diseases a similar premonitory blood crisis.

Hexamethylenamin in Typhus.—Glatard reports a decided reduction of the temperature in six cases of typhus in which he had given a daily intravenous injection of hexamethylenamin. The dose was 1.5 gm. in 5 c.c. of vehicle. No more than four doses were given in any case. The temperature began to go down after the first dose; the charts show the same drop by lysis in the three cases in which the drug was given early. A similar effect was observed in influenza, but it was not so prompt or so decided as in typhus.

Alimentary Antianaphylaxis.—A report of similar experiences by these writers was summarized, May 24, 1919, page 1577. Shellfish, lobsters, and condiments in the cases related seem to have been responsible for the urticaria and Quincke's edema. A complete permanent cure seems to have been realized by the preliminary injections of peptone.

Measurement of the Spleen.—Chauffard draws a line from the middle of the axilla to the trochanter region, the arm held above the head. This line serves as the base from which the ovoid spleen is palpated and percussed, and the outline marked also on the skin. A line is then drawn from the base line, axially, to the farther limit, forward, of the spleen. This axial line is bisected in the center by a line perpendicular to it. We thus have two lines that can be measured and compared from case to case, giving thus the approximate size of the spleen.

Alimentary Anaphylaxis.—Joltrain reports three cases in which the antianaphylaxis treatment proved effectual. Two of the patients were children who developed urticaria after eating eggs, or certain other food. The third was a young man with attacks of asthma nearly every evening, three or four hours after eating. All seemed to be cured completely by taking 0.5 gm. of peptone half an hour before breakfast and dinner for twenty days, with certain dietetic restrictions.

Cryptogenous Fevers.—Léopold-Lévi reports the details of three cases in children in which no cause could be found for the slight but tenacious fever. The thyroid seemed to be in an unstable condition, signs of deficient and of excessive thyroid functioning appearing irregularly. One of the children was physically and mentally inclined to myxedema mornings and to Basedow's disease evenings. The unstable temperature flared up and died down. The benefit from thyroid treatment in these cases confirms the assumption that the unstable thyroid was the main factor in the disturbances. Until thyroid treatment thus proved its efficacy, latent tuberculosis, chronic appendicitis, etc., had been suspected.

Serodiagnosis of Syphilis.—Bénard and Pinard extol the advantages of using fresh serum for the Wassermann reaction, and tell of their experience with it in 224 cases. They found this technic (Hallion and Bauer, 1912) simpler, earlier and more sensitive than others.

Dysenteriform Spirochetosis.—Delamare found refracting spirochetes in twenty of 142 specimens of pathologic stools examined. These spirochetes resembled so closely those of bronchial spirochetosis that they seemed to be identical. In treatment, arsphenamin or emetin (in cases of associated amebiasis) proved effectual.

Malaria and Typhoid.—If the malaria developing during typhoid or paratyphoid is recognized and gets proper treatment, the prognosis is benign except as the typhoid is aggravated. Paratyphoid bacilli may be found in the blood during malaria although sometimes apparently doing no harm.

Paris Médical

June 21, 1919, **9**, No. 25

*Wounds of the Chest. A. Schwartz.—p. 485.
*Rectal Polyposis. P. Carnot, Friedel and Froussard.—p. 495.
*Action of Cold on Malaria Parasites. E. Deglos.—p. 497.

Wounds of the Chest.—This is a ten page general review of this subject from the clinical and therapeutic standpoints.

Rectosigmoid Polyposis.—Carnot, Friedel and Froussard report a case of generalized polyposis of the terminal bowel in which a cure was realized under local applications of magnesium chlorid (*chlorure de magnésium*). The farmer-soldier of 36 had long had chronic ulcerative rectocolitis on the basis of which innumerable small polyps had developed. The infiltration was so intense that the lumen of the rectum no longer admitted the finger. The rectosigmoid segment was dressed every day, after a cleansing enema, with a thick agar mucilage containing at first 10 gm. of magnesium chlorid and later 5 gm. in about 250 gm. of this vehicle. The mucilage was introduced above the stenosis, using a sound and Guyon syringe. This local dressing was borne easily and retained longer each time, two, six, ten hours. The 5 gm. strength is borne well; the stronger solution was expelled too soon. Rectoscopy in less than three weeks showed that the ulcerations had healed, and in the following two or three months the polyps were gradually absorbed until there are now only a few minute polyps that have not been absorbed, and the general health is excellent. The rectosigmoid segment of the bowel is subject to antiperistalsis if the desire to empty the bowel is resisted. They confirmed this with roentgenoscopy in several other patients. Hence the local dressing injected is carried up and spread around. It may be forced back as far as the cecum. A mucilaginous vehicle with emetin may prove useful in local treatment of amebic dysentery in the same way.

The Crescents of Malignant Tertian Malaria.—Deglos noted that all the cases of malignant malaria developed during warm weather, and that during the cold months the parasites already in the blood left the periphery and installed themselves in the spleen. Here they were able to resist treatment until a combination of quinin, arsenic and methylene blue routed them out and cured the patients. Experimental research on the action of cold on these parasites confirmed their apparent inability to stand cold.

Presse Médicale, Paris

June 23, 1919, **27**, No. 35

*Retention of Chlorids and Urea in Nephritis in Children. P. Nobécourt.—p. 341.
*Regeneration of Bone. D. de Frenelle.—p. 342.

Retention of Urea and Chlorids with Nephritis in Children.—Summarized, July 19, 1919, page 230.

Regeneration of Bone.—De Frenelle has watched the healing process in a number of war wounds in which the bone was widely exposed. He saw that when there was a bridge of bone between the two fragments of the long bone, the new forming bone issues from the marrow canal of each fragment, and lines up on the lower surface of the bone bridge, working toward the center of the bridge where the two ends finally meet. The wider the bridge surface facing the marrow canal, the wider the growth of new bone tissue creeping along it from the end. The new forming bone tissue works its way into the bone bridge better the more spongy its texture. As this proceeds, the bone bridge becomes spongier, the holes larger, the new forming bone tissue evidently appropriating to itself the calcium salts in the bone bridge. These observations teach the necessity for opening up the marrow canal into sound tissue, from which the new forming bone tissue can sprout. In implanting a bone graft to serve as the bridge, space must be left on the under side for the new forming bone to creep along it. The implant should be of spongiosa bone and should be strong, the strength depending more on its width than on its thickness. The wider it is, the larger the expanse of regenerating bone that will line it. If too thick, it will hamper the regeneration of the bone by connective tissue-vascular regeneration; this occurs at the sides of the bone bridge, or on top, from scraps of bone and periosteum débris left from the traumatism.

The bone bridge is finally absorbed until nothing is left but a thin shell over the thick mass of new formed tissue which unites the fragments of the bone. The tissues that surround the implant have little to do with the regeneration of bone, and hence it is not necessary to freshen them; but the ends of the implant and of the bone fragments must be carefully freshened. It seems to be immaterial whether the graft is accompanied with its periosteum or not. The advantage of keeping the periosteum is apparent only when the implant gets broken in grafting it. It is not necessary to mortise the bone graft in place. Pointing the ends of the implant and sticking them into the marrow cavity of the stumps holds it firm, but to reenforce it a metal cuff is fitted to each stump with a narrow but strong metal bridge between them which serves to immobilize and protect the bone implant without touching it.

June 26, 1919, **27**, No. 36

*Natural Carbonated Baths in Treatment of High Blood Pressure. C. de la Carrière.—p. 349.
*Roentgen Findings with False Pneumothorax. H. Lebon.—p. 351.
*War Psychiatry. R. Benon.—p. 352.
*Integral Segregation of Urine. Gudin (Rio de Janeiro).—p. 354.

Carbonated Baths in Treatment of High Blood Pressure.—The natural carbonated baths at Royat are said to have a general modifying and tonic action on the nutrition and diuresis. They also dilate the peripheral vessels and thus aid in lowering the blood pressure, while they tone up the heart.

False Pneumothorax.—Lebon's roentgenograms illustrate the decisive differential importance of roentgen examination in cases of supposed pneumothorax. Three typical cases are described. In one the stomach was distended with gases and projected far into the left side of the thorax, pushing the heart over toward the right. In the second case the air bubble in the stomach lay between the left margin of the heart and the wall of the chest. In the third case the stomach was greatly distended with gases and projected high in the left thorax; the roentgen picture was crossed with three large shadow stripes, all starting from the lower right corner.

War Psychiatry.—Benon exclaims that etiology is a thankless science, and analysis of the causes of war nervous affections is peculiarly difficult. One factor he thinks has not been given full credit. This factor is physical overexertion. It entails a condition of nervous exhaustion, general asthenia, and this may entail various psychoses, hypochondria, melancholia, ideas of persecution or dementia praecox. When the asthenia has subsided, or if it has given way to mania or hypersthenia, various forms of intermittent psychoses may develop.

Segregation of the Urine.—Gudin remarks that the ordinary ureter catheter allows urine to flow down along its sides, so that actual segregation of the urine from each kidney is impossible. He remedies this by having the catheter tip made with a pointed olive. This is easily worked into the ureter mouth, and there the olive plugs the lumen of the ureter completely so that no fluid can escape outside of it. He gives illustrations of the cystoscope containing the two olive-tipped catheters. He introduces the catheters into the bladder first, and then slips the outer ends into the cystoscope which is then pushed up into the bladder, guided by the two catheters. The olive tips are too large to enter the lumen of the cystoscope, so the catheters are worked backward into the cystoscope as the latter is introduced. It is then a simple matter to introduce the olive into the ureter; it does not have to be pushed in far to collect all the urine from that kidney. He uses a cystoscope in which the light and the opening for the ureter catheter tips just below are on the opposite side from the curve of the tip. He has been applying this method for three years and with constant success.

Progrès Médical, Paris

June 21, 1919, **34**, No. 25

*Spinal Anesthesia. H. P. Achard.—p. 239.
Spa Treatment of Vascular Affections and Hypertension. A. Mougeot.—p. 240.
*Secondary Sarcomatous Polyposis. L. Thévenot and Bouget.—p. 242.
*Iodin Vapors in Ear, Nose and Throat Disease. A. Maurice.—p. 244.

Spinal Anesthesia.—Achard states that he has applied stovain low rachianesthesia in 123 cases and procain anesthesia in 290—thus well over the 400 mark. There were no fatal accidents and no durable injury in any case, but some disturbances developed within an hour or during the three following days in a few. Analysis of these cases demonstrates, he says, that the only failures were due to defective technic, and with greater experience they grew less frequent. The only mishaps were transient headache indicating slight irritation of the meninges. This was noted in 10 per cent. of the procain cases and in 50 per cent. of the stovain cases. The few cases in which an English make of procain was used all developed headache or pain in the spine; in two cases the latter kept up for five days. Postoperative vomiting and nausea for a few minutes were noted in 10 per cent. of all the cases, and a tendency to brief syncope was evident in 4 per cent. of the procain and in 10 per cent. of the stovain cases. Incontinence of the sphincters is annoying. It occurred in 50 per cent. of stovain cases but less frequent with the procain. The operations were all below the umbilicus and no attempt was made to have high anesthesia.

Sarcomatous Polyposis.—In Thévenot's case and in one reported from Athens the sarcomatous polyposis of the small intestine was secondary to a sarcoma in the mediastinum or rectum. In both the polyposis induced invagination.

Nascent Iodin in Treatment of Ear, Nose and Throat Disease.—Maurice has applied *enfumage iodé* by heating iodoform and insufflating the vapors directly to the focus in tonsil, nose, maxillary sinus or middle ear. In chronic otitis media it has proved a potent adjuvant to the usual measures. It often heals suppuration in the ear without the necessity for destructive operations. He warns that not more than two or three jets should be insufflated at one sitting, as more than this may cause painful distention.

Revue Mens. de Gynécologie et d'Obstétrique, Paris

May, 1919, **14**, No. 5

*Pituitary Treatment in Gynecology. P. Dalché.—p. 165.
Peritonitis from Induced Abortion: Recovery after Enterostomy. L. Aubert.—p. 182.
*Hydramnios after Death of Fetus. P. Balard.—p. 187.
*Gynecologic Treatment of Retrodisplacement of the Uterus. H. Sosnowska.—p. 191.

Pituitary Treatment in Gynecology.—Dalché gives pituitary by the mouth, preferring the dry extract of the whole gland, giving from two to four cachets a day of 0.10 gm. each. This treatment can be applied in every case of metrorrhagia, and it often will give good results. But success depends on its being kept up perseveringly for weeks and months with bleeding fibromas, diffuse fibromatosis and sclerosis of the uterus, retrodisplacement with congestion, virginal metrorrhagia, intermenstrual dysmenorrhea—whenever, in short, the aim is to modify a condition of long standing. For example, a young girl with too frequent and too profuse menstruation should take the pituitary extract every day for a month, then for two weeks each month, beginning the week before the anticipated menses and continuing till the close. The other two weeks he orders 10 drops of tincture of hamamelis in a little water before the two principal meals. In case of a fibroma he alternates the two pituitary weeks with other organotherapy, and may conclude with roentgen treatment. Congestions and excessive functioning of the ovaries or thyroid may likewise benefit by pituitary treatment, as also certain types of headache, even those suggesting false brain tumors, with exacerbations at the menstrual periods. It seems in these cases as if the endocrine upset had induced congestion in the pituitary body and that this congestion was what causes the headache. The action of pituitary treatment is not restricted to the genital organs; it may attenuate and suppress the hot flashes and sudden sweats of the menopause and other symptoms of ovarian insufficiency. It seems to promote sleep, appetite and diuresis, and combat asthenia.

Hydramnios Increases After Death of Fetus.—Balard reports the case of a woman who had had puerperal endometritis, and the fetus died at a following pregnancy, not long before term, but the hydramnios grew larger and larger thereafter. Three liters of fluid at least flowed from the uterus after delivery of the child. The uterus had kept on rapidly increasing in size after the fetus had died. This does not harmonize with the current views in regard to the causation of hydramnios.

Gynecologic Treatment of Retrodisplacement of the Uterus.—Sosnowska discusses how best to reduce the congestion in the pelvis, and also tone up the round ligaments with muscular exercise so they will regain their elasticity and pull the uterus up into place. The resorption of adhesions must also be promoted. The diagnosis of retrodeviation is not always easy; the symptoms may suggest tubal pregnancy, a hematoma in an ovary, a suppurating salpingitis or small dermoid cyst. These excluded, gymnastic exercises and massage may restore tone to the muscles, and the displacement then will correct itself. Brandt advocates "pelvic manotherapy" by introducing thumb and forefinger into the vagina and rectum and manipulating the uterus between them, the patient standing. Or with the finger in the vagina and the other hand on the abdomen the uterus is worked up into its normal position, the patient reclining. These different maneuvers are shown in five illustrations. The pelvis is exercised by three movements done by the patient as she lies on her back with knees spread apart: lifting the buttocks above the plane of the bed, contracting the levator ani muscles as if to retain a large enema, and at the same time pressing the knees together against resistance. The patient must be trained to do these exercises separately and then together, morning and evening. The bowels must be kept open; out of door life, deep breathing, sun baths, etc., aid in the general restoration of vigor and tone, as retrodeviation is usually the result of general ptosis or relaxation of the ligaments stretched by a pregnancy. The above treatment is particularly effectual with intermittent deviation from congestion in the pelvis, usually traceable to chronic intestinal stasis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 28, 1919, **49**, No. 26

Combined Treatment of Influenza. A. v. Salis.—p. 953.
Industrial Ventilating and Humidifying Devices in Tuberculosis Wards, etc. J. Karcher.—p. 967.
Sources of Error in Examining the Blood. F. Rohrer.—p. 971.

Annali d'Igiene, Rome

March, 1919, **29**, No. 3

*Pathogenesis of Cholera. IV. G. Sanarelli.—p. 129.
The Epidemics of Influenza. A. Ilvento.—p. 132.
*Typhus and Serodiagnosis. G. Ficai.—p. 145.

Pathogenesis of Cholera.—In this fourth preliminary note Sanarelli discusses the predilection of the cholera vibrios for the digestive tract, or as he expresses it, the gastro-enterotropism of the cholera germs.

Typhus and Its Serodiagnosis.—Ficai found agglutination of *Proteus X* absolutely constant in typhus, even very early and in the abortive, almost walking cases. Tying a cord around the arm is also instructive. This brings into prominence even the faintest and vaguest exanthems, and the exanthem returns if it has bleached out.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 15, 1919, **40**, No. 48

Intracranial Infections after War Wounds. E. Greggio.—p. 482.

Riforma Medica, Naples

June 7, 1919, **35**, No. 23

Serodiagnosis of Influenza. F. Durand.—p. 458.
Errors in Diagnosis of Abdominal War Wounds. E. Santoro.—p. 460.
Spontaneous Pneumothorax in the Tuberculous. R. Giurato.—p. 464.

June 14, 1919, **35**, No. 24

*The Cerebrospinal Fluid with Spasmophilia. G. Cenoese.—p. 477.
The Geometrical Illusions of Radiology. E. Pittarelli.—p. 479.
Cortical Blindness from War Wound; Recovery of Vision after Operation. L. Cicerale.—p. 480.
Mechanism of Fracture of Bone. E. Aievoli.—p. 482.
Partial or Dissociated Retention of Bile Salts. A. Ferranini.—p. 484.

Cerebrospinal Fluid with Spasmophilia.—Genoese found the spinal fluid under high pressure as a rule in children with spasmophilia. It seemed normal otherwise except that when acetone was found in the urine it could usually be found also in the spinal fluid.

Anales de la Facultad de Medicina, Montevideo

March-April, 1919, **4**, No. 3-4

Traumatic Shock in War. P. L. Wertheimer, R. Fabre and R. Clogne. —p. 149.
*Gallop Rhythm in Children. L. Morquio.—p. 168.
*Acute Otitis Media. J. Giannetto and P. J. Martino.—p. 194.
*Peritonitis from Typhoid Perforation. G. J. Devincenzi.—p. 214.
*Further Applications of the Cystoscope. L. P. Carve.—p. 262.

Gallop Rhythm in Children.—Morquio declares that the sounds with gallop rhythm have a different significance in children and in adults. In adults it is an evidence of interstitial nephritis and arteriosclerosis, of which the most characteristic manifestation is the overhigh blood pressure. In children, both arteriosclerosis and interstitial nephritis are exceptional. He has met only one case in a child of interstitial nephritis like that in adults; it followed infectious purpura. Gallop rhythm in children is a sign of weakness of the heart, or of toxic action on its muscle or innervation, or of inflammatory or degenerative processes in the myocardium. Consequently we encounter gallop rhythm in a number of different diseases entailing these conditions, such as acute nephritis, heart disease, and in typhoid. He describes in detail some cases of different types. In one a girl of 9 with diphtheric polyneuritis and paralysis showed pronounced gallop rhythm for a few days, but then it disappeared as the child slowly recovered. The heart findings were normal when she was discharged from the hospital. Antitoxin had been given freely to combat the evident nephritis, notwithstanding the gallop rhythm and that antitoxin had been given during the primary diphtheria. It had evidently not been given in sufficient amounts then. Another child of 4 presented intense gallop rhythm as almost the only manifestation of an acute nephritis. It disappeared in a week under repose and restriction to a milk diet, flushing the intestine well every day.

Diphtheria antitoxin has never caused any injury in the numerous cases in which he has given it when there was nephritis. It benefited not only the causal diphtheria but the nephritis as well. In one case of severe diphtheria the anasarca and intense albuminuria had withheld the physician from giving antitoxin freely, but after the child was given large doses of antitoxin after intubation, the child's condition began to improve at once. Nothing contraindicates antitoxin in a case of diphtheria. Another case is described in which the precordial gallop sounds were due to the grave toxic condition in severe typhoid fever. The gallop rhythm denoted myocarditis which assumption was confirmed a week later by necropsy. Myocarditis is a rather frequent complication of typhoid in children; he has encountered it in from 5 to 6 per cent. of his cases of typhoid in children, not always in the graver cases. It generally comes on by the end of the second or third week. In this case it enabled the myocarditis to be recognized from the first and warned of the peculiar gravity of the case, although typhoid myocarditis as a rule is less severe in children than in adults. Calamet has compiled twelve cases with a favorable outcome in a total of twenty-four cases.

Children who have had the myocardium seriously touched by the infectious process should be kept under supervision. It may explain sudden death not long after, or acute asystoly, etc., in children after special physical exertion, or the myocarditis in childhood may be the basis of heart disease in the adult. The details of another case are given in which the cardiopathy with the gallop rhythm was the result of acute rheumatism; even if the child had survived the acute stage, he would have suffered from adherent pericarditis. Morquio deplores that some physicians regard rheumatism in a child as comparatively unimportant, and do not give the salicylates in adequate dosage to ward off invasion of the heart. He reiterates that sodium salicylate given in time and in proper doses will almost invariably ward off the participation of the heart. When there is persisting gallop rhythm with rheumatismal myocarditis, along with other signs of cardiac insufficiency, the assumption is justified of grave changes in the heart muscle. It may be encountered also, without being constant, in the exacerbations of chronic conditions. With acute nephritis, mere dilatation of the heart may bring on gallop rhythm, but the whole is transient. The process is graver with rheumatismal heart disease, although it may subside with the other functional disturbances. The prognosis is graver in typhoid fever and in severe toxic-infectious conditions in which the gallop rhythm is a sign of severe myocarditis.

Otitis Media.—Giannetto and Martino describe with sixteen illustrations the various ways in which an inflammatory process in the middle ear may become walled in, and how it may require a specially localized paracentesis.

Peritonitis from Typhoid Perforation.—Devincenzi comments on the unprecedented frequency of cases with perforation of the bowel during the last epidemic of typhoid. It occurred in 14.4 per cent. of the eighty-four cases in men at the Maciel Hospital, while he has been unable to find on record any such high percentage. The range in 23,113 cases he has compiled from international sources was from 1.75 to 6.54, with an average of 3.73 per cent. The women in his hospital seemed to escape, there being only 3.33 per cent. among the sixty women. He discusses the symptoms, pathologic anatomy and treatment. With prompt operation, 27 per cent. were cured in the cases he has compiled and 38.46 per cent. in his own service. He describes the technic he prefers, isolating the injured loop, with a double plastic reenforcing of the less gravely affected tissues. The operative cases are reported in detail.

Cystoscopy.—Carve expatiates on the advantages of the double catheter cystoscope. He uses a No. 23 or 24 Charnière which allows the introduction of two No. 16 Pasteau catheters so that both ureters can be catheterized at one examination. The cystoscope also enables meatotomy of the ureter to be done with precision and without danger. It also facilitates intravesical electrocoagulation procedures. It can be used for dilating the ureter and draining the kidney without special apparatus or catheters. It may also ward off disturbance from local accumulation of blood with intense renal hematuria, and, finally, it may confirm the diagnosis of a bifid ureter. He describes each of these special applications, giving instructive instances.

Crónica Médico-Quirúrgica, Havana

April, 1919, **45**, No. 4

Intellectual Americanism. J. E. López Silvero.—p. 115.
Countries that Have High Regions Should Utilize Them to Reduce Infant Mortality. J. Santos Fernández.—p. 117.
Necessity for Inaugurating in Cuba Prophylactic Treatment of Venereal Diseases. J. E. López-Silvero.—p. 120.
*Subconjunctival Hemorrhages. F. M. Fernández.—p. 131.
Gonococcus Dacryocystitis. F. M. Fernández.—p. 135.
Eugenics in Buenos Aires. J. Santos Fernández.—p. 135.

Subconjunctival Hemorrhages.—Fernández relates that multiple subconjunctival hemorrhages developed in the lower lids and bulbar conjunctiva of a robust young man the day after the death of his father. There had been no physical effort, and the only explanation possible seemed to be the prolonged weeping.

Gaceta Médica de Caracas, Venezuela

May 31, 1919, **26**, No. 10

*Chagas' Disease in Venezuela. E. Tejera G.—p. 103.

American Trypanosomiasis.—Tejera presents conclusive evidence that the trypanosome thyroiditis described by Chagas in 1907 as common in children in certain parts of Brazil prevails also in Venezuela. He reports two cases, in an infant and a boy of 2, belonging to the states of Trujillo and Zulia. His extensive study of the subject has demonstrated further that it is transmitted by a different insect from the one responsible for it in Brazil, *Lamus* (*Conorhinos*) *megistus*, as this does not seem to occur in Venezuela. The bug responsible for the transmission in Venezuela is *Rhodnius prolixus Stal*, as he determined by extensive experimental research and these clinical experiences. These insects in nature may harbor *Trypanosoma cruzi*. The insects are called by various names, pito, chupon, quipito, chinche de monte and chipo. It is a night-biting insect of the reduviidae family. Some specimens sent to Paris in 1913 from Venezuela were artificially infected by feeding them with *Trypanosoma cruzi* sent from Bahia, Brazil. Rincones presented Tejera's report sent from the laboratory of the Caribbean Petroleum Company at Mene Grande, and he added that a few years ago he urged research in Venezuela to find whether this American trypanosomiasis was restricted to Brazil alone. Tejera mentions in conclusion that as goiter seems to be endemic in the Santander district in Colombia, Chagas' disease probably could be discovered there also. He was examining the rhodnius for leishman bodies, in a study of American leishmaniosis, when he was surprised by the discovery in them of *Trypanosoma cruzi* of Chagas' disease. But his clinical cases of the latter came from a different district, and he found the trypanosome likewise in specimens of rhodnius from the environment of the patients. Rats, cats, monkeys and other animals inoculated from the insects developed the trypanosomes in large numbers in the blood. Ayala added that Tejera's research seems to exculpate the drinking water in respect to endemic goiter. He appealed further for research to decide whether there may not be some plant which serves as a host for the trypanosome like the euphorbia for the leptomonas (Iturbe), suggesting some zoological affinity between plants, leishman bodies and trypanosomes.

Medicina Ibera, Madrid

May 31, 1919, **7**, No. 82

*Rachitis and Digestive Disturbance. P. Pereda y Elardi.—p. 161.
Parenteral Injection of Milk. B. C. Duran.—p. 162. Cont'n.
Premature Separation of Normal Placenta. Apaolaza.—p. 164.

Rachitis and Digestive Disturbance.—Pereda insists that the bone anomaly in rachitis is not due principally to the deficiency in calcium, as infants fed on breast milk but not getting enough do not show any signs of rachitis or spasmophilia. Cow's milk, although it contains more calcium, breeds rachitis; not human milk. Cow's milk produces putrefaction in the intestine, and the toxic substances thus generated are responsible for the rachitis. Treatment of rachitis should therefore aim to restore normal conditions in the digestive tract, after which the bone conditions will right themselves, he declares, as the infant gains in weight.

Plus-Ultra, Madrid

March, 1919, **2**, No. 9

*Cholera, Typhoid and Vegetables. F. Murillo.—p. 115.
*Emetin in Hemoptysis. A. N. Blasco.—p. 121.
Peculiar Arrangement of Large Intestine. A. H. Carmona and I. Camacho.—p. 124.
*Puerperal Eclampsia. P. Calvo.—p. 129.
Early Diagnosis of General Paralysis. C. Juarros.—p. 135.
Diathermia and its Clinical Application. L. C. Salse.—p. 136.
Fibroneuroma. A. Guzmán.—p. 147.
Vacuum Extraction of Cataract. B. Castresana.—p. 149.
Graphic Record of Lung and Bronchus Findings. V. Montenegro.—p. 158.
Attenuated Criminal Responsibility. E. F. Sanz and others.—p. 159.
Hysteria. H. Jaworski.—p. 166.
Associated Cancer and Syphilis. Sicilia.—p. 170.

Cholera, Typhoid, Fruit and Vegetables.—Murillo found typhoid bacilli still active and virulent from thirty to thirty-six days after they had been incorporated with garden dirt, or after low growing fruits and vegetables had been sprayed with them. In sterile sand they lived at least fifty-five days. These facts suggest that salads and raw fruits and vegetables of different kinds are a considerable factor in typhoid in Spain. His experiments with cholera germs were equally conclusive up to three weeks in soil contamination and two weeks in irrigation.

Emetin in Hemoptysis.—Blasco reports that he has succeeded in arresting the tendency to hemoptysis with emetin when all else had failed, and he regards it as a most powerful aid in combating hemoptysis in pulmonary tuberculosis. He injected subcutaneously 0.04 gm. of emetin hydrochlorid in 1 c.c. of vehicle. It never caused pain or inflammation, even when three doses were injected in twenty-four hours, to a total of 0.12 gm. The tendency to hemoptysis seemed to be arrested in from one to three hours except in the cases with fever and in the subacute forms of pulmonary tuberculosis. With these, emetin does not display any influence. Its therapeutic action is due to its effect on the smooth muscle fibers, and electively on the bronchopulmonary vessels. It should not be given to pregnant women on account of the danger of abortion, and old, inactive specimens of emetin should never be used.

Puerperal Eclampsia.—Calvo remarks that women are too apt to bear in silence and ascribe to the pregnancy alone certain symptoms which should warn of impending trouble.

Especially during the last month, headache, epistaxis, pain in the kidney region and high arterial pressure should cause the physician to be sent for at once. In a case described in a young primipara this was not done until eclamptic convulsions had developed. The pulse was hard and fast. On exploring the abdomen, the uterus contracted and this brought on another convulsion. As delivery was impending, he completed manually the dilatation of the cervix, already as large as his palm, and delivered an unusually large child. As the placenta came away there was much hemorrhage from inertia of the uterus, but it subsided under pituitary extract. The convulsions then returned every half hour, twenty-four in all, until he injected morphin and gave chloral by the rectum. After this there were no further convulsions but the woman lay unconscious for forty-eight hours, the organic functions, urine, lochia and stools, suppressed. Then the temperature ran up high and he gave 500 gm. of sugar solution and an embrocation of aromatic vinegar with a hot pack, and drew the urine. It was small in amount, very turbid and fetid, with 1.7 per cent. sediment, half of which was made up of streptococci and colon bacilli. The serotherapy and aromatic vinegar were applied again as the temperature ran up anew to 104 F. The urine was drawn every two hours and the vagina was douched with boiled water, and water was given by rectum. The woman gradually recovered, the urine still testifying for some time to suppuration in the urinary passages until recovery finally seemed complete.

Repertorio de Medicina y Cirugía, Bogotá

June, 1919, **10**, No. 9

*Deafmutism. R. F. Vega.—p. 451.
Hormones, Vitamins and Symbiotes. E. Gómez A.—p. 463.
*Exophthalmic Goiter. A. Rocha G.—p. 468.
Indications for Arsphenamin in Syphilis. M. A. Rueda G.—p. 472.

Deafmutism.—Fajardo Vega discusses deafmutism from the standpoint of legal responsibility, querying whether the deafmute's being shut off from the conventional training does not preclude his having a proper conception of abstract ideas of right and wrong. In his expert testimony in a concrete case described, he declared that deafmutism does not compromise the mind, and deafmutism should not be classed with dements as is done by the Code now in vogue in Colombia, the words *demencia* and *sordomudez* being used as if synonymous.

Exophthalmic Goiter.—Rocha's patient, a woman of 65, presented the complete picture of the disease according to the classic descriptions. After marked improvement under direct thyroid treatment for a time, the symptoms began to grow worse. Then followed great and persisting improvement under treatment with the blood from a goat thyroidectomized for the purpose. This treatment had to be suspended at the fifth month, and the symptoms reappeared but were transiently benefited by thyroid treatment again. The thyroid thus showed alternating phases of excessive and deficient functioning.

Revista de la Asoc. Médica Argentina, Buenos Aires

February-March, 1919, **30**, No. 171-172

*Epinephrin in Heart Block. F. C. Arrillaga.—p. 193.
*Benzol in Treatment of Uterine Cancer. J. Bordarampé.—p. 237.
*Tuberculosis of Pubis. J. M. Jorge, Jr.—p. 243.
*Improvement in Psychoses after Operations. G. Madero.—p. 276.

Epinephrin in Heart Block.—Arrillaga gives twenty-nine electrocardiograms from six patients with more or less complete interruption of the muscular connection between the auricle and ventricle. The cardiograms mirror the effect of epinephrin under these conditions. The auricle and ventricle react to the epinephrin parallel and simultaneously as a rule, but occasionally the ventricle responds first. The epinephrin accelerates the contractions, and the effect is more pronounced the greater the deficiency in suprarenal functioning. The epinephrin was always injected subcutaneously, 0.001 gm., and cardiograms were taken at intervals up to an hour and a half afterward. In one man of 55 with a ventricle beat of 30 and an auricle beat of 93, the latter increased to 159 while the auricle beat ran up to 129, but the normal rhythm was never restored in any of the tests in any of his cases. Even when the rhythm seems normal to the finger, the electrocardiogram will show the anomalies. He adds that epinephrin *constituye toda una medicación* in heart block, and that it should not be forgotten in transient heart block from the use of drugs or effect of toxins.

Benzol in Treatment of Uterine Cancer.—Bordarampé had a case of epithelioma of the uterine cervix which was inoperable and progressing and radiotherapy was not available at that time. As a last resort, he applied a tampon wet with pure benzol directly to the neoplasm, leaving it in contact for five minutes and then replacing it with a dry tampon. Besides this, two douches were given daily, each with 2 liters of hot boiled water containing each 50 drops of benzol. The fluid was stirred while the douche was being given. Under this treatment the neoplasm shrank and healed over, and in four months the woman increased 10 or 12 kg. in weight and felt very well. The cancer healed until its operative removal was justified. In a second, similar case the cancer shriveled to a very small bunch under six months of treatment. Then it began to ulcerate again, its aspect then suggesting a superposed syphilitic lesion as the Wassermann reaction was positive. Arsenic and mercury were then given, but under this treatment the cancer flared up anew and metastases developed at various points. Seven other patients have been treated since, with permanent success so far as known. Two are still under treatment; one is progressing well but the other has hemorrhages, and no measures seem able to arrest this tendency to hemorrhage.

Tuberculosis of the Pubis.—Jorge gives the details with illustrations of a case of symmetrical tuberculous fistulas in the pubis as the only appreciable manifestation of the disease. The patient was a little girl of 8, weighing 21 kg. The fistulas healed at a seashore sanatorium and the child weighed 35 kg. when sent home definitely cured. Jorge has been able to find on record only sixty cases of tuberculous lesions in the pubis, and the case histories are incomplete in many of these. As a rule the lesion was the only manifestation of the disease except when it was merely an extension of tuberculous hip joint disease. The pain usually is not severe, and it comes on after exercise, but extremely painful points can be discovered in the pubis. Even after apparently complete cure, the focus may flare up again many years later, especially after a pregnancy, or without apparent motive in strong and robust men. In his case the abscesses kept suppurating after six months of general treatment, heliotherapy, etc., and three months of Beck's paste or other local measures. Then he curetted the fistulas and the foci in the bone, and this started the process of local repair. Radiography soon showed that healing was complete. There does not seem to be any need for resection of the pubis, as ample curetting apparently answers every purpose.

Surgical Affections and Psychoses.—Madero reports three cases in which an operation for appendicitis, for an abscess in the thigh or stones in the bladder was followed by the subsidence of the tendency to delirium and melancholia. The surgical affection in each case was a chronic infectious process with acute exacerbations and much pain. These psychoses of infectious origin are entirely distinct from the delirium of a true infection which subsides with the infectious disease. The "peripheral delirium" may outlast the peripheral lesion, and may keep up until the general health improves after the disease focus has been eradicated. The patient with this kind of a psychosis, he remarks, is a "hypochondriac interpreter of organic mischief."

Revista Cubana de Obstetricia y Ginecología, Havana

April, 1919, **1**, No. 4

*Limitation of Indications for Curetting the Uterus. E. R. de Aragón.—p. 181.
Obstetrics from Life Insurance Standpoint. J. F. Arteaga.—p. 183.
*Eye Symptoms in Toxemia of Pregnancy. F. M. Fernández.—p. 187.

Indications for Curetting the Uterus.—De Aragón regards hemorrhagic endometritis as the only absolute indication for curetting the uterus, but the curet may be useful also to obtain scraps for examination. It is by no means always harmless, and the simplicity of the procedure does not authorize its abuse.

Eye Symptoms of Pregnancy Toxemia.—Fernández reviews recent literature on this subject and the indications for treatment when retinitis or other ocular manifestations develop.

Revista Española de Obstet. y Ginecología, Madrid

April, 1919, **4**, No. 40

Roentgen Treatment of Uterine Myomas. F. Botín.—p. 145.
*Early Diagnosis of Uterine Cancer. V. Aza.—p. 152.
*Puerperal Eclampsia. P. Calvo.—p. 157.

Early Diagnosis of Uterine Cancer.—Aza's article was summarized on page 304 when it appeared elsewhere.

Puerperal Eclampsia.—See abstract of Calvo's article in *Plus-Ultra* above.

Revista del Instituto Bacteriologico, Buenos Aires

March, 1919, **2**, No. 1

*Nonspecific Treatment of Anaphylaxis. R. Kraus.—p. 1.
*Typhus in America. R. Kraus.—p. 19.
*Typhus in Argentina. M. I. Battaglia and B. Barbará.—p. 35.
*Vaccine Treatment of Influenza. R. Kraus and L. Kantor.—p. 59.
Pathologic Anatomy of Influenza. A. H. Roffo.—p. 73.
*Bacteriology of the Air. J. V. Negrette.—p. 86.
Normal Beef Serum in Treatment of Anthrax. IV. J. Penna, J. B. Cuenca and R. Kraus.—p. 89.
*Vaccination against Anthrax. R. Kraus and P. Beltrami.—p. 98.
*Epizootic among Horses. R. Kraus, G. Fischer, and L. Kantor.—p. 114.

Nonspecific Treatment of Anaphylaxis and Allergy.—Kraus describes what is known to date in regard to active and passive anaphylaxis and specific and nonspecific treatment. With his co-workers at the Hospital Muñiz he noted that normal beef serum used in treatment of anthrax caused serum sickness in only 2.1 per cent. of 290 patients treated with it. They proceeded to make a bovine antiserum for both diphtheria and tetanus, using cattle instead of horses for production of the antiserum. This bovine antiserum is not so potent as horse antiserum, but serum sickness was very rare with it, even when large quantities were injected to bring the amount of units up to the required figure. Serum sickness was also very rare when the antiserum from both sources was injected together or, better yet, first the bovine and then the horse antiserum. When the horse antiserum was injected first, 27.2 per cent. of the thirty-three diphtheria patients developed urticaria and 18.1 per cent. serum sickness. Only 3.1 per cent. developed serum sickness among ninety diphtheria patients treated with the bovine antiserum alone. Kraus refers further to the attenuation of scarlet fever in children previously injected with horse diphtheria antitoxin, as reported by Benjamin and Witzinger, and the benefit from normal beef serum in hay-fever. Heterobacteriotherapy and protein therapy and the modification of certain pathologic processes under the influence of intercurrent infection, in connection with the above, all suggest that we are entering on an era of anti-allergy therapy as the logical next step from antitoxin therapy.

Typhus.—Kraus relates the history of typhus in America from its first recorded epidemic appearance early in the sixteenth century, when 200,000 persons died from it in Peru. In South and Central America, Mexico and India, typhus seems to be restricted to mountainous regions and is rarely encountered on the coast. Battaglia and Barbará report their experiences in stamping out an epidemic of typhus in Argentina.

Vaccine Therapy of Influenza.—Kraus and Kantor found the influenza bacillus in 60 per cent. of sixty cases but always associated with the pneumococcus, streptococcus and parameningococcus. In 36.6 per cent. only these were found. They prepared a vaccine with all these bacteria from the patients, treating the bacteria with ether and injecting subcutaneously a dose of 1,000 millions once or twice. Among 204 healthy persons vaccinated none developed serious influenza, and only 1.47 per cent. developed the disease in a mild form, and this within four days of the vaccination, before it had had a chance to actually immunize. The ages ranged from 15 to 30, and the vaccination was done when the epidemic was at its height. Among ninety-eight unvaccinated at the institute, 65.3 per cent. developed the disease.

Influenza Bacillus in the Air.—Negrette was able to cultivate the influenza bacillus from the air of wards containing influenza patients, but never from the air of other wards.

Vaccine Against Anthrax in Cattle.—Kraus and Beltrami urge the necessity of state control of this vaccine, and of international standards, as well as study of the doses, the immunity, its duration, etc. They urge the appointment of an international commission for this purpose.

The Prevailing Disease Among Horses.—The research reported by Kraus, Fischer and Kantor confirms that the prevailing epizootic is the typical meningo-encephalitis described by Borna.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

March, 1919, **27**, No. 3

*The Last Strongholds of Yellow Fever in Brazil. T. Torres.—p. 69.

Yellow Fever in Brazil.—Torres is the chief of the public health service in Brazil, and he expatiates on the necessity of driving yellow fever from the last strongholds in Brazil where it has sought refuge. He discusses ways and means for this, urging in particular the measures recommended by the Second Scientific Pan-American Congress aiming especially at extermination of the breeding places of mosquitoes.

Grèce Médicale, Athens

February-March, 1919, **21**, No. 3-4

*Vasomotor and Trophic Disturbances in Hysteria. E. Macris.—p. 13.
*Breaking Down of the Foot. J. G. Chrysospathis.—p. 15.
*Cycloma of the Solar Plexus. G. Dré Kolias.—p. 17.

Trophic Disturbances in Hysteria.—Macris reports the case of a hysteric young woman who each time after three sittings of hypnosis had what seemed to be nightmares in which she screamed that she was being burned, and patches of erythemia developed, with phlyctenas by the next day. She was a maid in a physician's family, and the supervision of the second and third attacks apparently excluded deception and stamped the phenomena as autosuggestion in a dream.

"Forced Foot."—Chrysospathis reports the case of a healthy soldier of 35 who after a very long and fatiguing march felt suddenly intense pain in the right foot, without trauma to explain it. One of the metatarsal bones had fractured. He ascribes this to the exhausted condition of the muscle which relaxes and allows the heads of the metatarsal bones to hit the ground. Thus fracture may result from this extreme fatigue and forcing of the foot. Besides soldiers, waiters, housekeepers and others who have to stand long on their feet are liable to develop similar disturbance, and it may return.

Disturbances from Anomalies in the Solar Plexus.—Dré Kolias ascribes to reflex action from irritation of the solar plexus a number of disturbances in the pneumogastric-sympathetic system, including hiccup, abdominal painful points, reflex disturbances in the throat, sweat glands, heart and pupils, as well as certain functional brain and spinal cord disturbances. He describes in detail a striking case in a young woman who for three years had been having pains in the stomach region and, later, also girdle pains below, various tender points in different parts of the abdomen, pains in the temples and back of the neck, with occasional loss of consciousness and vomiting. She was sent to the hospital with the diagnosis of recurring hematemesis from gastric ulcer plus hysteria. The abdomen was distended, painful at different points, especially over the adnexa, and there was a hemorrhagic gingivitis. Dré Kolias was convinced that the solar plexus was responsible for the larger part of the symptoms, and instead of operating on the stomach he opened up the solar plexus and dissected around the tripod formed by the celiac trunk, breaking the filaments of the solar plexus to detach the semilunar ganglia. The operation relieved the young woman of all pains and the "hysteric ball," and when last seen nine months afterward she was in florid health. Jaboulay published a case of the kind treated in the same way by what he called *élongation du plexus solaire*. Dré Kolias calls the clinical picture *cyclome du plexus solaire*, and declares that his success justifies wider application of operative relief for functional disorder from the solar plexus.

Mededeel. Gen. Laboratorium te Weltevreden, Java

1919, No. 2-3. Parallel Dutch-English Edition

Fat and Lipoid Content of Blood in the Tropics. F. and E. Weehuizen and C. Alting.—p. 29; C. D. de Langen ard H. Schut.—p. 44.
*Dysenteric Bacilli. W. J. L. Dake.—p 68

Fat and Lipoid Content of the Blood in the Tropics.—There seem to be some sources of error with Bang's micromethod for determining different elements in the blood, and the research here described was undertaken to eliminate these. The methods and findings are described in detail. De Langen and Schut describe clinical experiences, all testifying to the importance of chemical examination of the blood as throwing light on metabolism. Especially in beriberi, the lipoid content of the blood seems to be connected with the disease. Hookworm induces a peculiar orange yellowish tint of the skin, showing that in this disease likewise the lipochrome content of the blood is abnormally high. The fat content of the blood is exceptionally low with beriberi, and they have noticed that persons with hookworm usually escape beriberi. In the seven cases of beriberi examined, the fat content of the blood was exceptionally low, some patients presenting less than a third of the normal figure.

Dysentery Bacilli.—Dake examined the feces of chickens, rats, dogs and rabbits besides human stools, and found frequently in them bacilli closely resembling *Bacillus dysenteriae* except in the response to agglutination and complement fixation. Animals were given true dysentery bacilli on their food, and numerous other tests were made. All the testimony thus obtained speaks in favor of the assumption that dysentery bacilli become modified outside of the body and lose their characteristics to such an extent that they come to resemble closely the dysenteriform bacilli that can be isolated from the normal human and animal intestine. Its motility, virulence for rabbits and agglutinating power may all decline, and the action on maltose and saccharose may change, but the action on mannite always persisted unmodified.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

May 3, 1919, **1**, No 18

*The Work of Leonardo da Vinci. A. J. P. van den Broek.—p. 1555.
*Purpura. C. De Lange.—p. 1564.
Paralytic Dementia or Poisoning. E. van Minden.—p. 1576.

Work of da Vinci in Anatomy and Biology.—Van den Broek analyzes da Vinci's extensive work in anatomy, biology and other branches of science, and expresses his amazement that the results of all this surprisingly accurate research did not seem to have any influence on the course of science in his day. It has been suggested that others plagiarized from him without mentioning his name. Not until the end of the last century and the first of this were his works compiled, and the discovery was then made that he must be regarded as one of the pioneers in modern anatomy, biology, etc. He studied for twenty years the question of aviation, declaring that the flying machine must be built on the principle of the body of the bird, so that the aviator "can balance himself and move through the air like a big bird, to the everlasting glory of the nest where he was born." And da Vinci died May 2, 1519! He studied plant life also, calling attention to the rings of growth in trees and explained why they were thicker on one side of the tree than on the other. The sea shells found on the tops of the mountains around Florence led him to a correct view of geological periods, so that one recent writer says of him "en créant la géologie il en a écrit un chapitre définitif." On one of his sketches is written in large letters, "The sun does not move." One of his aphorisms is that truth is always the daughter of her period.

Purpura.—De Lange lists over a dozen forms of purpura, classifying them in two great groups, those in which the blood vessels are responsible and those in which the blood or the blood-producing organs are to be incriminated. The first group is the anaphylactoid type; the second group is the Werlhof disease type. Both types occur in a chronic intermittent form, an acute or a fulminating form, and the Werlhof type may occur as a symptom in leukemia or other diseases of the blood. She gives the minute details of eight cases of these various types, one the acute infectious form of anaphylactoid purpura in a child under 3 after an infectious sore throat and otitis. The blood platelets numbered only 71,750, but in two weeks they ran up to 1,130,000 and then settled back to an average between 213,000 and 718,000. Recurring epistaxis and hemorrhages from the buccal mucosa were accompanied by petechiae on the limbs and neck. The blood findings are tabulated over a period of six months, the hemoglobin only slowly increasing from 30 to 56 per cent. and the reds from 2,660,000 to 5,580,000. In one boy of 12 there was in addition an intra-abdominal hemorrhage. Tubercle bacilli seemed to be responsible in this case. De Lange cites further a family in which apparently infectious purpura developed in parents, grandmother and three children, all within a few days, and running a mild course in all. Only one of De Lange's eight cases was of the Werlhof type. This was in the young infant of parents both subject to epistaxis. There was nothing to indicate hemophilia otherwise, although there are many reasons for accepting a connection between idiopathic Werlhof's disease and hemophilia. The prognosis in this case seems grave; it may run into aplastic anemia. In treatment of acute purpura, extract of blood platelets should be systematically given when there is thrombopeny. With the anaphylactoid form, gelatin has often given good results, but when there is thrombopeny this should be given cautiously as we know that, in dogs at least, certain colloidal substances, such as gelatin, heterogenous serums, etc., agglutinate the blood platelets, and they are then carried to the liver and destroyed.

Hygiea, Stockholm

June 16, 1919, **81**, No. 11

*Outcome after Tonsillectomy for Rheumatism. H. Nordlund.—p. 497.

Tonsillectomy and Rheumatism.—Nordlund devotes nine pages to tabulation of the details of 30 cases in which tonsillectomy was done to ward off recurring polyarticular rheumatism or hemorrhagic nephritis. This effect was realized in nearly every case, a large number having been free from recurrence since the operation. The results seem to be equally favorable whether the tonsillectomy was done during an acute attack or during an interval. The benefit was equally striking also in the 12 cases in which hemorrhagic nephritis had followed an infectious sore throat. In 6 of the 7 acute cases in this category, marked improvement was evident, but no modification was apparent in the other case nor in 3 of 5 chronic cases; the other 2 displayed pronounced benefit.

Upsala Läkareförenings Förhandlingar

June 17, 1919, **24**, No. 5-6

Analysis of Sensations. H. Ohrvall.—p. 317.
Localization of Sensation of "Sweet Smell" of Chloroform, etc. E. Rocén.—p. 384.
Motor Localizations in the Internal Capsule. G. Bergmark.—p. 401.
*Excitability of the Brain in Young Infants. G. Bergmark.—p. 420.

Excitability of the Brain in Very Young Infants.—Bergmark describes the results of electric and other tests on an infant, 5 weeks old, with a large hernia of the brain. Delivery had been normal but the small hernia of the brain noted at birth rapidly increased until, as the illustration shows, the circumference of the hernia was larger than that of the head, the neck of the hernia measuring 4 and 6 cm. in diameter. There was no reaction to gentle palpation of the herniated brain tissue but the child screamed with strong pressure on it. Bergmark, assisted by Bárány, applied various tests to the brain tissue which demonstrated localized responses to mechanical and thermal stimuli. The modifications under general anesthesia were interesting, as also the peculiar form of the motor response in the arm to pressure on the arm point in the neck of the hernia.

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THE RELATION OF PATHOLOGY TO PRACTICE *

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NEW YORK

With the swinging of the pendulum in the science of medicine has come the fashion of neglecting pathology, the pathology of the type called, in the olden days, morbid anatomy. This neglect is shown in many ways: in a diminution in the volume of published work; in the lessened number of necropsies performed, and in the smaller number of men who are actively interested in the subject. It may be that the great days of Rokitansky, of Virchow and of Cohnheim have passed never to return; but it is more likely that the next swing of the pendulum will bring with it a renewed interest in the study of the anatomic changes which accompany disease.

That, despite the recent progress in biochemistry and serology, there are still a few things to be learned in morbid anatomy has been shown by the recent rediscovery of the peculiar types of bronchopneumonia which have caused so heavy a mortality in those suffering from influenza, and by the large number of important studies on the lesions of toxic war chemicals.

Technical improvements in the methods of histology have lagged somewhat of late, except, perhaps, in neuro-anatomy, and it is not so easy to pick up a simple problem, or one promising considerable harvest with little labor, as it is in some of the newer subjects; but there is much yet to learn. Is the subject of nephritis, of cirrhosis, of myocarditis, of endarteritis, exhausted? Are not tumors still as baffling as they were a hundred years ago?

FAULTY MEDICAL INSTRUCTION

The lack of interest in pathology begins with the student. He is badly taught in many institutions. His course in anatomy and histology is usually ideal from a biologic aspect but ill adapted as a preliminary to the study of pathology. My own belief is that it would be better for the student of medicine if the occupants of the chairs of anatomy should be required to do research chiefly, and, except for special courses, should attend principally to graduate work. Most of the actual undergraduate teaching in anatomy might just as well be done by instructors, and all of the latter should be graduates in medicine and made to arrange some correlation in the subject-matter of their courses to the facts taught in the clinical branches. With the present admission requirements, the assumed cultural value of anatomy may well be forgotten.

Secondly, pathology is badly taught chiefly because of the lack of necropsies. This is due not to the pathologist himself, but to the physicians and the surgeons of the hospitals, who no longer urge that necropsies be obtained as a routine. This is the reason why most of the able pathologists in the United States have been forced to obtain a large portion of their training in Berlin or Vienna. Now that these schools are no longer available, more effort should be made to raise the standard of the teaching of gross pathology in this country. Where can be seen today such brilliant demonstrations as Virchow gave in Berlin, or Kolisko in Vienna?

A third trouble with the student is that after he leaves the regular course in pathology he falls into the hands of men instructing in the clinical branches who often know less pathology than he does, impossible as the fact may seem. If the attempt is made to correlate the physical signs and symptoms of disease with the pathologic changes which underlie such signs and symptoms, the student is apt to be confused by the contradictions between the matter taught in the laboratory and that in the wards. To attempt to determine which teacher is right requires too great an expenditure of cerebral energy on the part of the student, and the knot is usually cut by forgetting both sides. So, as he progresses toward his hospital years or his practice, the student gradually sheds the thin epidermis of pathologic anatomy he at one time possessed, and enters into practical life with a mind unburdened by pathology. In most hospitals today he will see only a fraction of the necropsies that his seniors did about twenty years ago; or if such examinations are fairly frequent, he has little time from his ward duties, and therefore does the practical work, which interests him more than labors in the field of what he considers pure theory.

IMPORTANCE AND NEGLECT OF NECROPSIES

The physician of today also neglects the postmortem room, except in teaching hospitals. How seldom do we see the house staff and medical attendants remain through a complete necropsy, or attempt to study the details of pulmonary, renal or cardiac lesions with a view to checking up physical signs or the stage of lesions.

He rarely obtains postmortems on his private patients, though the intelligent are often more willing to give consent than the family of the ignorant denizen of the hospital ward. Nor does he, as a rule, although there are, of course, exceptions, urge on his staff the importance of the thorough investigation postmortem as the only means of confirming opinions in doubtful cases. Only the pathologist realizes how many patients with hysteria have brain tumors; in how many heart cases there are no valvular lesions, but nephritis; and that 10 per cent. of all old persons die with unsuspected cancer. The result of this lack of interest is that the percentage of necropsies is steadily falling in many of our hospitals. If the Mayo Clinic and the General Memorial Hospital of New York succeed in obtaining a permit in over 90 per cent. of deaths, why does Bellevue Hospital obtain only 7 per cent. and many other institutions only from 20 to 30?

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* Chairman's address, read before the Section on Pathology and Physiology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

INADEQUACY OF FUNCTIONAL TESTS

There is little doubt that the reason so few necropsies are obtained is that the physician of today is more interested in functional tests than in morbid anatomy; and yet of what ultimate value to medicine is a dye excretion test, or a chlorid determination, or a blood urea or creatinin test unless the kidney lesions are also investigated? All these, perhaps more especially the blood sugar test, are of value in treatment and prognosis; but if they are ever to become a permanent part of our body of medical knowledge they must include some morphologic foundation.

It may be convenient and practical to classify nephritics into two groups: those who retain salt and those who do not; but such a method conceals an enormous amount of ignorance. The study of disease by the functional method is of enormous importance and has led to a great increase in our knowledge, but it should not attempt to stand alone and independent of all morphology.

An excellent example of the admirable results following a combined attack is the great advance that has been made in the past fifteen years in the correlation of anatomic findings with groups of clinical symptoms in the diseases of the nervous system. A very important part in this has been due to the discovery and wide use of new histologic methods and the Wassermann test; but the internist could well imitate the neurologists in their extremely laborious studies in the cellular pathology of the nervous system.

VALUE OF PATHOLOGY TO THE SURGEON

The surgeon, too, is not without a certain feeling that pathology is a somewhat dead if still annoying specialty. He is still displeased when told that he has excised only a portion of a tumor, or a secondary deposit and not the primary growth, that the spleen which he has just removed with the utmost skill contains nodules derived in all probability from a benign lump in the breast which some colleague had removed a year or so previous, and never submitted for microscopic examination. He still contributes to the joy of medical literature by such a choice morsel as this, culled from a recent surgical journal:

> A large tumor successfully removed from the pelvis was reported by the pathologist as resembling thyroid tissue, whereupon the thyroid was carefully examined and found to be cancerous. "Nevertheless," remarks the operator with delightful freedom from logic, "it is not wise to rely on microscopic examination of tumors; it is often misleading, and the physical examination of the mass at the time of operation is to be preferred."

So, too, the pathologist is blamed in a recent surgical article for not discovering the frequency of occurrence of perforating duodenal ulcer postmortem, while the surgeon often sees the lesion and saves the patient. The obvious retort, that perhaps the reason such cases do not often come to necropsy is that the patients fortunately do not die of the disease, is to deny the advantages of early operation. Even the physician is not blameless according to certain surgical minds, for he does not yet realize that "the place to learn diagnosis and treatment is at the elbow of the surgeon," and one may, under these circumstances, venture to look forward to a medical elysium in which the crude methods now employed will be abandoned and diagnosis made definite and therapeutics infinite in power by the simple procedure of exposing the offending organ, studying its pathology in situ, and prescribing with a certainty now impossible. Such a time will be anxiously awaited by all but the patient.

SUMMARY

Pathology is today too largely confined to medical schools and teaching hospitals. As it is the foundation of all medicine, the student should be inspired to carry on its study as a part of his practical life. The physician must know and use it to temper his diagnostic and therapeutic enthusiasms. While the diagnosis and treatment of the individual suffering from disease is the art of medicine, we must not become so busy as to neglect the science of medicine which concerns the future of the race.

The surgeon also needs pathologic training to enable him to make a certain diagnosis when some unexpected lesion is discovered during the course of an operation. He needs tumor pathology above everything else, for unless he knows it, the operative results on cancer cannot be improved on as they should be. A knowledge of pathology, in other words, is essential for correct diagnosis, prognosis and treatment.

1145 Amsterdam Avenue.

The Saliva in Pellagra.—M. X. Sullivan and K. K. Jones (*Public Health Rep.*, May 16, 1919) report that in this disease the condition of the mouth and particularly of the tongue is of considerable significance in establishing a correct diagnosis. The quantitative studies showed that salivation spoken of by the patients was often apparent rather than real and was seemingly due to some inhibition of swallowing combined with a peculiar, ropy change in the saliva which made its presence in the mouth more obvious. A tendency toward a greater quantity of solids in the saliva of pellagra patients was also observed. The diastatic power of the saliva of pellagra patients is at least as great as that of normal people. While the amount of mucus precipitated from saliva by acetic acid was greater for the saliva of the pellagra patients than for the controls, the increase is apparently unrelated to the severity of the symptoms. The sulphocyanate content of the saliva disclosed that this is much less marked than in the saliva of normal people. Since it is generally admitted that the sulphocyanate arises from the metabolism of protein and the detoxicating action of the system, whereby poisonous cyanids are converted into the relatively innocuous sulphocyanate, the investigators believe that in pellagra patients there is both a lessened protein intake and a detoxicating power feebler than normal. The reaction of the saliva in pellagra is somewhat more alkaline than is that of normal saliva.

SURGICAL TREATMENT IN THE BLEEDING TYPE OF GASTRIC AND DUODENAL ULCER *

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The surgical treatment of uncomplicated benign lesions of the stomach and duodenum has reached a high state of efficiency and standardization. The various complications, however, which may develop in direct connection with gastric and duodenal ulcer, such as acute and chronic perforation, obstruction, deformity, malignant degeneration, and hemorrhage, present added problems to the surgeon; one of the most important of these is hemorrhage.

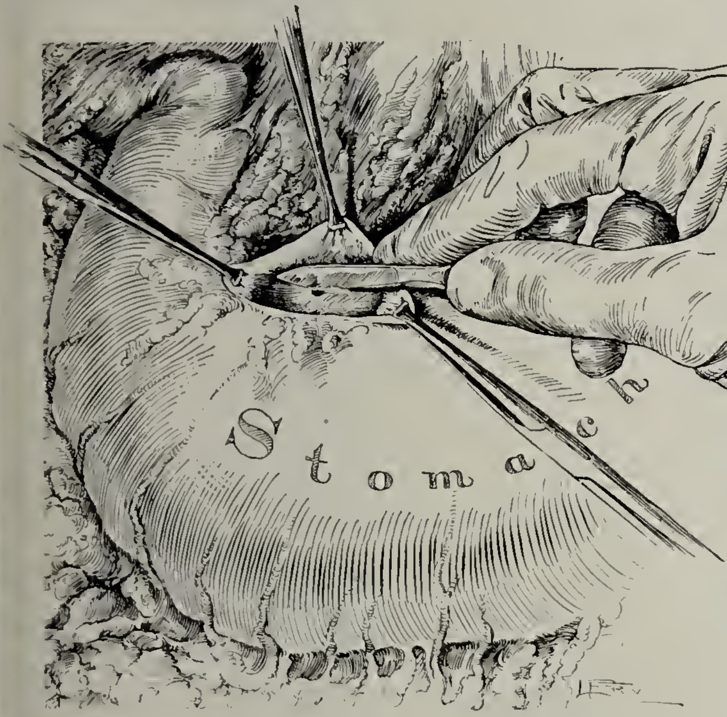

Fig. 1.—Shaving of thickened musculoperitoneal coats.

Gastric hemorrhage has been the occasion of more confusion in diagnosis, uncertainty in therapeutic indications, and irrationality in treatment, both medical and surgical, than perhaps any other gastric condition. The number of cases seen in which an erroneous interpretation of symptoms has led to incorrect suggestion for treatment, resulting in failure to protect the patient against further hemorrhage, illustrates the necessity of persistent study of the subject. This paper is concerned chiefly with two groups of cases, first, those in which operation has proved unsatisfactory because of error in attributing the bleeding to a lesion which is not present, and second, those in which the surgical procedure carried out has failed to obviate further hemorrhages, even though a correct diagnosis has been made.

A study of these groups disclosed certain facts which indicated that it should be possible to decrease the incidence of such failures; in the first group, by more accurate preoperative diagnosis, with better interpretation of operative findings; in the second group, by the addition of certain specific measures to the standard surgical procedures applicable to benign lesions of stomach and duodenum.

The first group of cases, those in which no intrinsic lesion is present, not only is large but also includes a variety of conditions which may be associated with hematemesis. Some of these conditions do not fall within the field of the surgeon, but there are other conditions which can be eradicated by surgical means, and this group is so important that I shall review briefly a representative example, a case illustrating the diagnostic error of presupposing gastric ulcer because of hematemesis, and of following the error by carrying out a routine operation on the stomach designed to cure this imaginary ulcer:

A man (Case 132411), aged 55, came to the clinic, June 5, 1915, because of recurring hematemesis. In some of the attacks the patient had been almost exsanguinated. The hemorrhages had begun in January, 1914, without a previous history suggestive of a causative factor; in July, 1914, a gastro-enterostomy was performed at his home; he was told that an ulcer was found at the pylorus. Some weeks after the operation a hemorrhage occurred similar to those he had had before the operation, and between that time and his registration in the clinic he had had several distinct gastric hemorrhages, the last severe one occurring in February, 1915. There were no typical symptoms nor physical or laboratory findings to establish a diagnosis, but the patient's condition and history were such as to make further exploration imperative.

In July, 1915, I explored and found a patent and well functioning gastro-enterostomy. Palpation revealed no induration in stomach or duodenum, and no visible signs of ulcer, nor did careful inspection through a large opening in the anterior wall of the stomach show any evidence of an active or healed ulcer at the anastomosis or in the stomach or duodenum. Exploration of the biliary tract disclosed a slight thickening of the walls of the gallbladder through which the yellowish spots on the surface of the mucous membrane which indicate a cholecystitis of the "strawberry" type could clearly be seen. The pancreas, too, showed very distinct changes, being considerably enlarged and nodular. This fact, the gallbladder findings, and past experience in similar cases, seemed a clue to the cause of the hematemesis. There were no recognizable changes in the liver, and general exploration was negative. A cholecystectomy was performed because in our experience with cholecystitis, with or without stones, associated with pancreatitis, and without jaundice, this has seemed

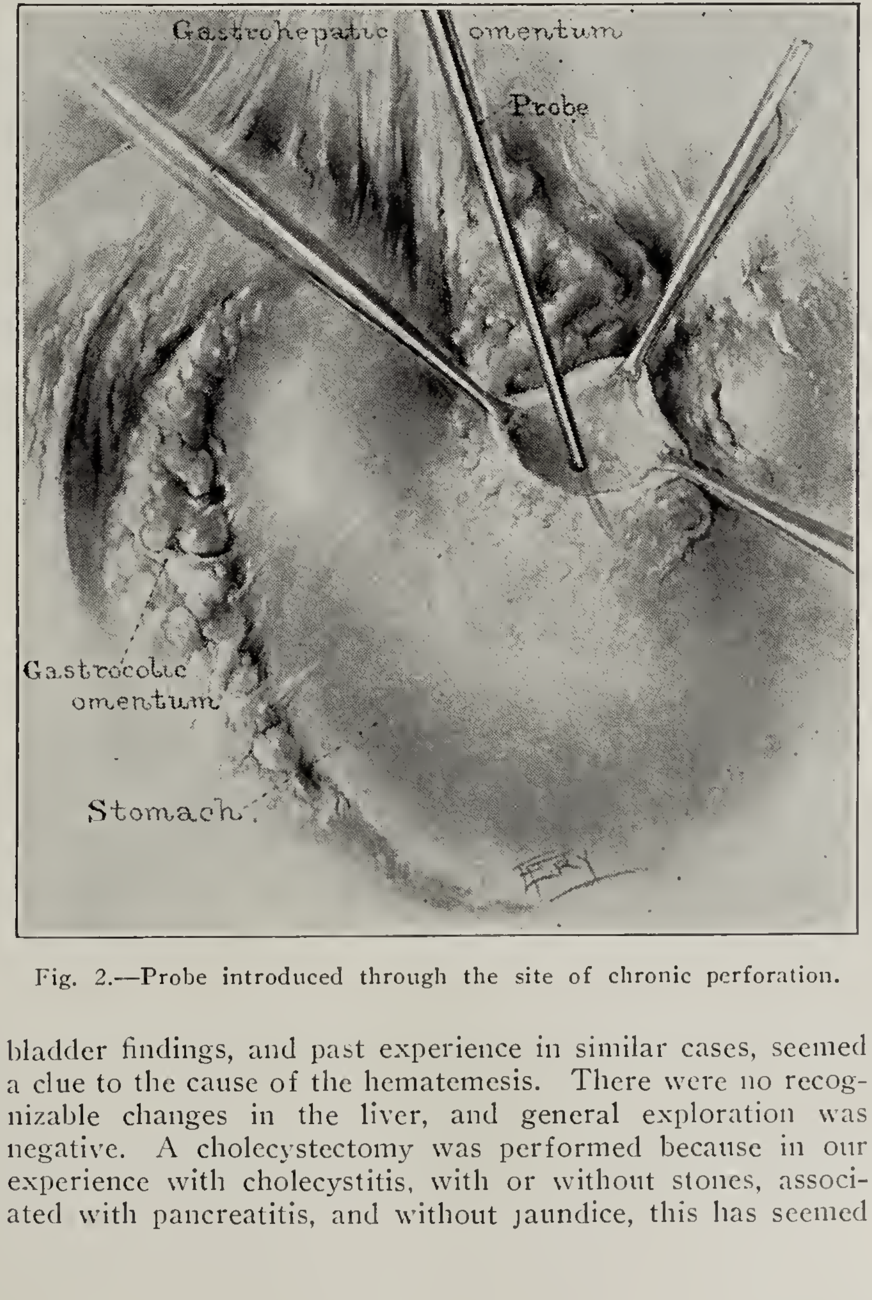

Fig. 2.—Probe introduced through the site of chronic perforation.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

the operation of choice. A well defined chronic catarrhal cholecystitis of the most typical "strawberry" type was found. The patient made an uneventful recovery and has had no hemorrhage since. Similar cases in which the appendix, spleen or liver is the basic focus are not infrequently seen.

The first question, then, to demand a decision in cases of gastric or gastro-intestinal hemorrhage concerns the cause of the hemorrhage. Fortunately, in the majority of cases careful history taking, associated with expert interpretation of roentgen-ray findings, will usually determine whether or not an ulcer is present. If the evidence does not support a diagnosis of ulcer, but indicates disease in some organ in the abdomen, such as the gallbladder, pancreas or appendix, it must not be forgotten that gastric hemorrhage may be due to such extrinsic causes. The spleen and liver particularly should be kept in mind as causative factors, for it has been proved that either the spleen or the liver or both can be the cause of most serious gastro-intestinal bleeding without showing any changes that are recognizable in our present state of knowledge. The group of cases in which an undoubted gastric hemorrhage has occurred but in which the symptoms or physical findings are insufficient to lead to a positive diagnosis either of ulcer or extrinsic trouble requires, therefore, the most serious consideration as to whether operation should be undertaken. Fortunately, symptoms are usually associated with such hematemesis, and, though obscure, justify an exploration, and although doubt may exist as to any satisfactory explanation being found to account for the hematemesis, frequently pathologic conditions extrinsic to the stomach are found which, when eradicated, secure permanent protection against further hemorrhage. In hematemesis unassociated with abdominal symptoms or findings, and in which it is not possible to establish a diagnosis, operative interference should, as a rule, be advised against.

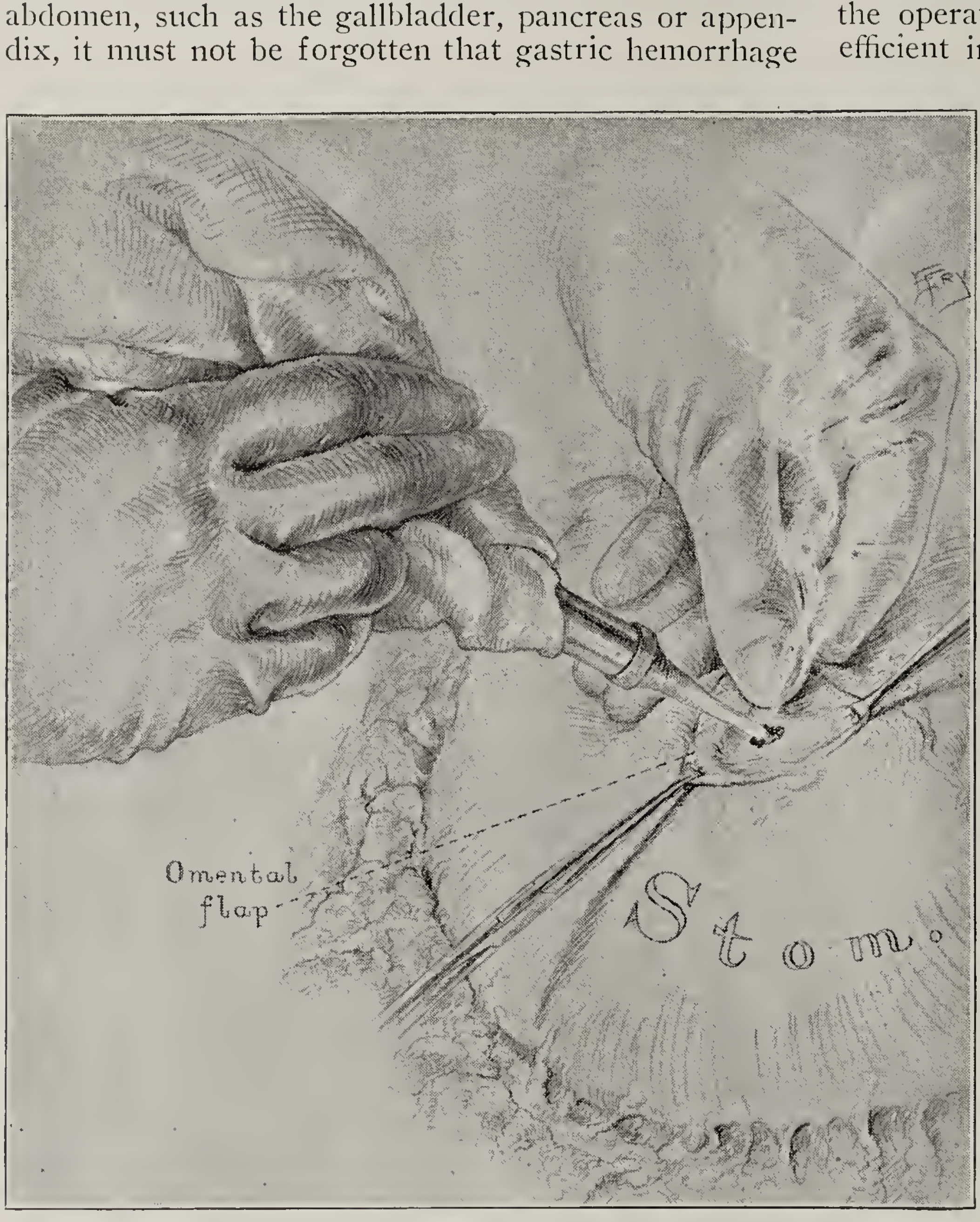

Fig. 3.—Peritoneal surface of ulcer prepared for application of cautery.

The group of cases, however, to which I particularly refer is that group in which recurring gastric hemorrhage has been caused by a chronic gastric or duodenal ulcer. Our records show that 25 per cent. of gastric ulcers and 20 per cent. of duodenal ulcers have been complicated by one or more gross hemorrhages. In the earlier days of gastric surgery the operation of gastro-enterostomy proved to be so efficient in a large majority of benign lesions of the stomach and duodenum associated with hemorrhage that the realization came rather slowly that at least some of the failures to obtain a complete cure, including protection against further hemorrhage, could be attributed to the fact that direct attack on the ulcer was not added to the indirect therapeutic measure of gastro-enterostomy. The recognition of the danger of malignant degeneration in gastric ulcer gave the first impetus to the practice of combining gastro-enterostomy with the radical excision or destruction of such ulcers. The advisability of such a principle is now well established.

It has, therefore, become quite evident that in the surgical treatment of a gastric or duodenal ulcer which has been the cause of hemorrhages, some direct attack on the ulcer is most important. The necessity for this has become apparent to us because of the fact that a number of our own patients with duodenal or gastric ulcer had failed to secure, by gastro-enterostomy alone, protection against further bleeding. Apparently rare as such failures were, they nevertheless formed in the aggregate a group which called for an investigation as to the possibilities of reducing the number of such recurrences. A concise compilation of such cases illustrating the incidence of hemorrhage as a late postoperative complication may be found in the accompanying tables. The cases chosen for study were those in which operation was performed in the Mayo Clinic during the twelve year period between January, 1906, and January, 1918.

A study of Table 1, which represents the percentage of hemorrhages following operations for duodenal ulcer, shows that 12.7 per cent. of the patients who had hemorrhages before operation had hemorrhages after operation, and in two instances the hemorrhages were sufficient to cause death. Twenty patients (0.9 per cent.) in the group who had not reported hemorrhages before operation had hemorrhages following operation. Eighty-three patients, 2.8 per cent. of the total number operated on, had hemorrhages following operation.

Fifteen patients (8 per cent.) with gastric ulcer report hemorrhage after operation who had had hemorrhage before, and two patients (0.3 per cent.) had hemorrhage who had not had hemorrhage before operation. Seventeen patients, therefore, suffered from hemorrhage after operation, a percentage of 1+ of the total number of gastric ulcers operated on.

A comparison of the figures in Tables 1 and 2 shows that the incidence of hemorrhage in duodenal ulcer following operation is definitely higher than the incidence in gastric ulcer, notwithstanding the fact that there is a greater tendency for gastric ulcer than for duodenal ulcer to be complicated by bleeding. This important fact, namely, the difference in operative results in gastric and duodenal ulcers, may be largely attributed to essential differences in operative technic.

TABLE 1.—HEMATEMESIS IN CASES OF DUODENAL ULCER IN WHICH OPERATION WAS DONE

Jan. 1, 1906, to Jan. 1, 1918

	Cases, No.	Per Cent.	Operative Mortality from All Causes Per Cent.
Total number	2,875	....	1.6
Patients having hemorrhage before operation	583	20+	1+
Patients having hemorrhage before operation heard from	494	86.0	...
Patients reporting hemorrhage after operation	63	12.7*	...
Patients reporting hemorrhage after operation but none before	20	0.9	...

* Or 2 per cent. of the total number.

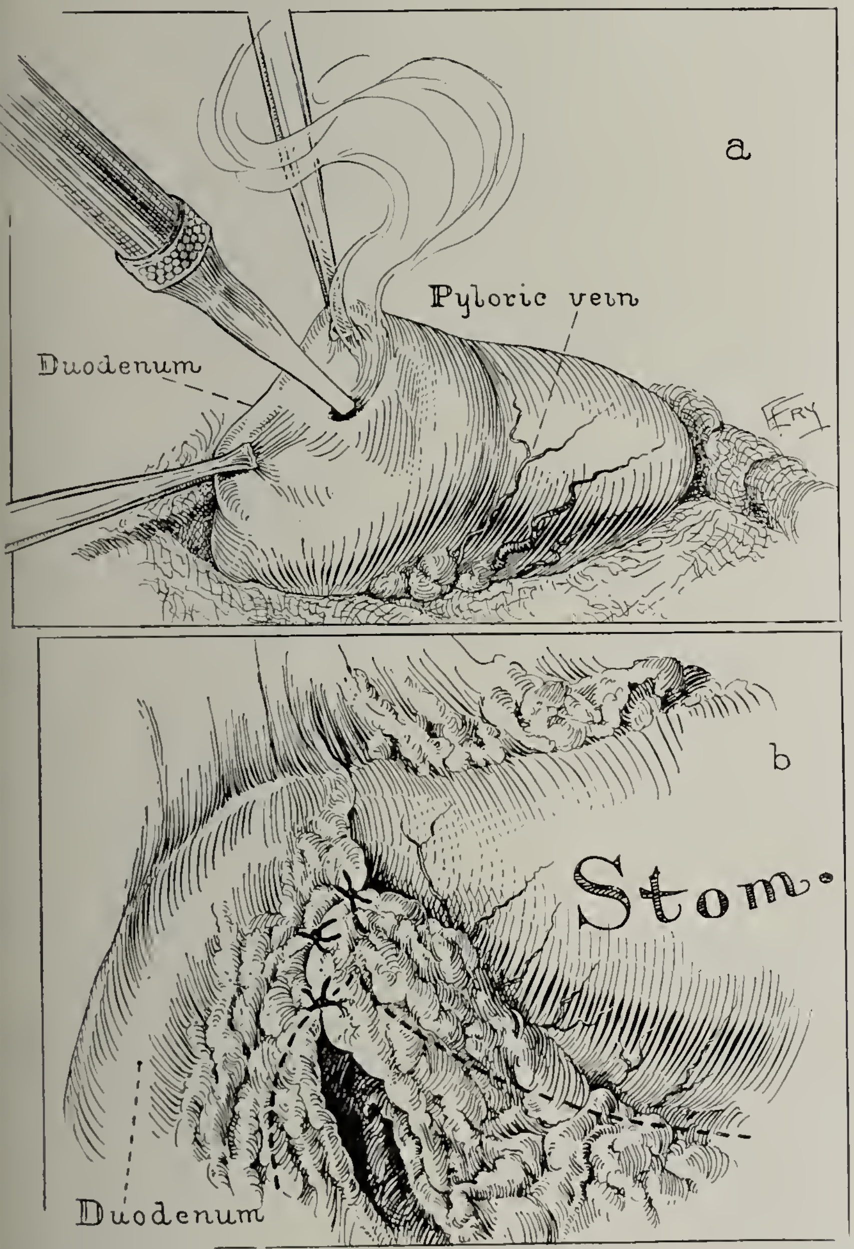

Fig. 4.—*a*, cautery puncture over a small duodenal ulcer; *b*, completed operation; omentum implanted over site of closure.

The radical treatment of gastric ulcer was originally due to the recognition of the fact that an ulcer on the gastric side of the pylorous holds unquestionable possibilities of becoming malignant. Excision of such ulcers either by knife or cautery was, therefore, performed whenever possible by surgeons whose experience was sufficient to make them appreciate the necessity of this treatment. Such radical measures necessarily carry a higher operative mortality, but the avoidance of such mortality by simpler operative measures means a marked increase in ultimate morbidity and mortality.

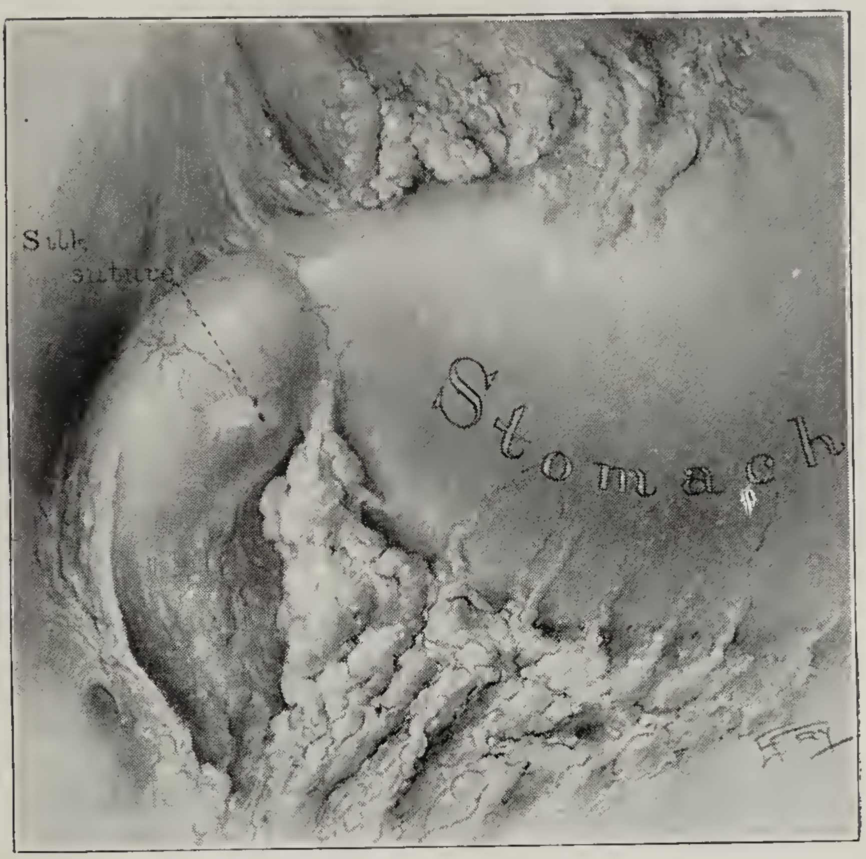

Fig. 5.—Ulcer of the duodenum apparently healed but the cause of recurring hemorrhage. Silk suture which had been placed at a previous operation.

TABLE 2.—HEMATEMESIS IN CASES OF ULCER OF THE STOMACH IN WHICH OPERATION WAS DONE

	Cases, No.	Per Cent.	Operative Mortality from All Causes Per Cent.
Total number	863	....	3+
Patients having hemorrhage before operation	222	25.8	4.8
Patients having hemorrhage before operation heard from	180	81+	...
Patients reporting hemorrhage after operation	15	8.0*	...
Patients reporting hemorrhage after operation but none before	2	0.3	...

* Or 1+ per cent. of the total number.

In duodenal ulcers, however, radical treatment was not necessary because of this possibility of malignant degeneration or of disabling complications, and the indirect method of treatment by gastro-enterostomy proved to be sufficient in a high percentage of cases to relieve the patient of the symptoms of which he complained. The more frequent occurrence of hemorrhage after operation for duodenal ulcer than for gastric ulcer is apparently due to this difference in operative procedure, and the following facts bear out such a statement: In not one of the eighty-three cases in which hemorrhages occurred after operation for duodenal ulcer was the combined operation of excision of the ulcer with gastro-enterostomy carried out, and with the exception of eight cases in which various types of pyloroplasties were performed, in every case a gastro-enterostomy alone was performed. This fact is significant particularly when one compares the results of the established methods of excision and gastro-enterostomy in gastric ulcer in which, although the tendency to hemorrhage had been greater, a much smaller percentage of bleeding followed operation. The combined procedure of excision and gastro-enterostomy was carried out in only one of the seventeen cases of gastric ulcers in which there was bleeding after operation. These facts can only mean that the methods of direct attack combined with gastro-enterostomy which are used in the treatment of gastric ulcer are a source of protection to the patient against further hemorrhage.

Another point brought out in the study of these cases is that in the majority of those patients who had bleeding after operation, the operation relieved all other symptoms, so that the recurrence of the complication of hemorrhage was the only feature which marred an otherwise perfect result. This fact is difficult to explain. It raises the question, for example, whether the hemorrhage actually comes from the site of the symptomless ulcer. The fact that the mucous membrane can bleed when no visible lesion is present, and that recurring hemorrhages from the stomach may take place without any demonstrable changes either in the stomach or in any other organ, throws some doubt on the assumption that all such recurrences have their origin at the site of the ulcer. But the fact remains that in the majority of cases in which we have reoperated, radical treatment of the ulcer area obviated further hemorrhages.

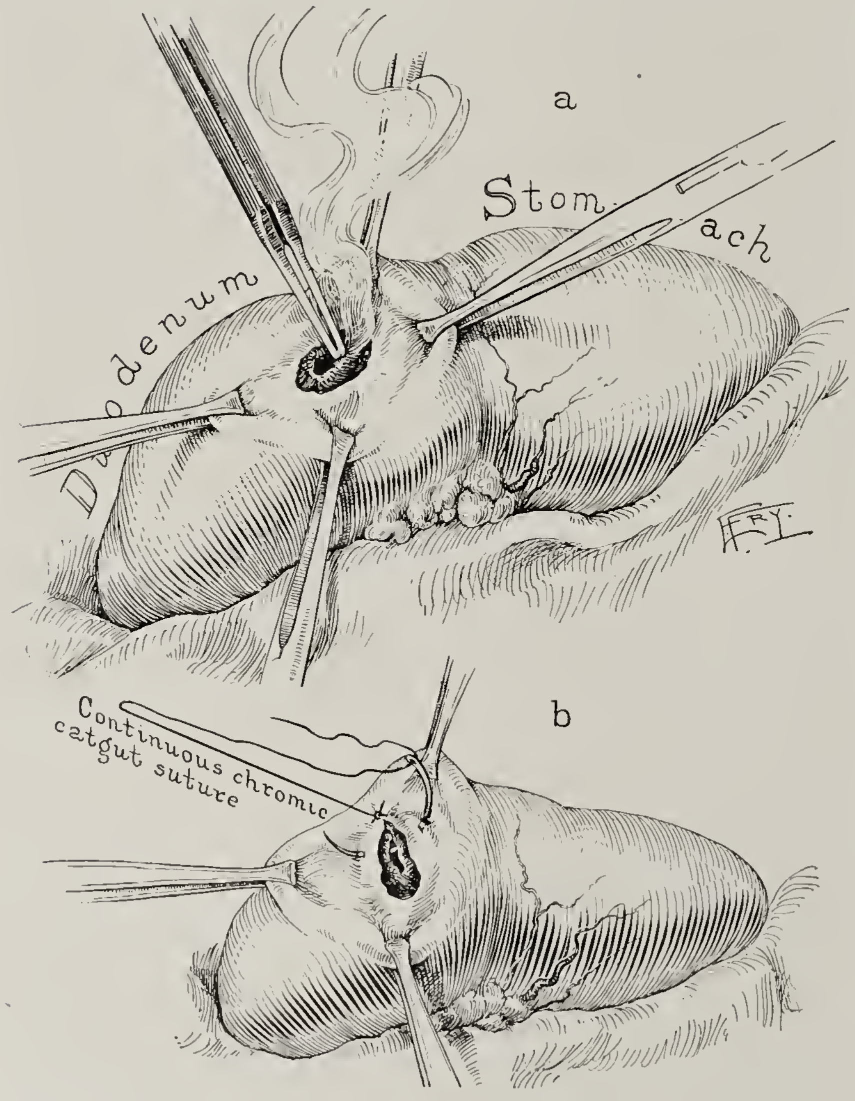

Fig. 6.—*a*, entire scarred area excised with cautery; *b*, transverse closure of cauterized opening by first row chromic catgut.

Our gradual realization of these facts, particularly when we found that 12 per cent. of duodenal and 8 per cent. of gastric ulcers which had been the source of bleeding before operation bled after operation, led to a thorough search for some means of lowering the incidence of these failures. From a study of our own cases it was perfectly evident that gastro-enterostomy alone, as I have pointed out, is insufficient protection against further hemorrhages, and that excision combined with gastro-enterostomy has given almost total protection. The problem resolves itself, therefore, into one which concerns the safest method of accomplishing a radical excision in the majority of cases. Various suggestions have been made and carried out at different times. Ligation of the vessels in the circumference of the ulcer, a procedure highly recommended by Woolsey,[1] devitalization by constricting suture, pyloric exclusion of von Eiselsberg,[2] and excision have all been tried. Unfortunately, under certain circumstances knife excision is a formidable technical procedure and one at which even the experienced surgeon will wisely hesitate. In a search for some method which will be at the same time radical, safe and applicable in the largest number of cases, we have adopted the actual cautery as meeting these requirements.

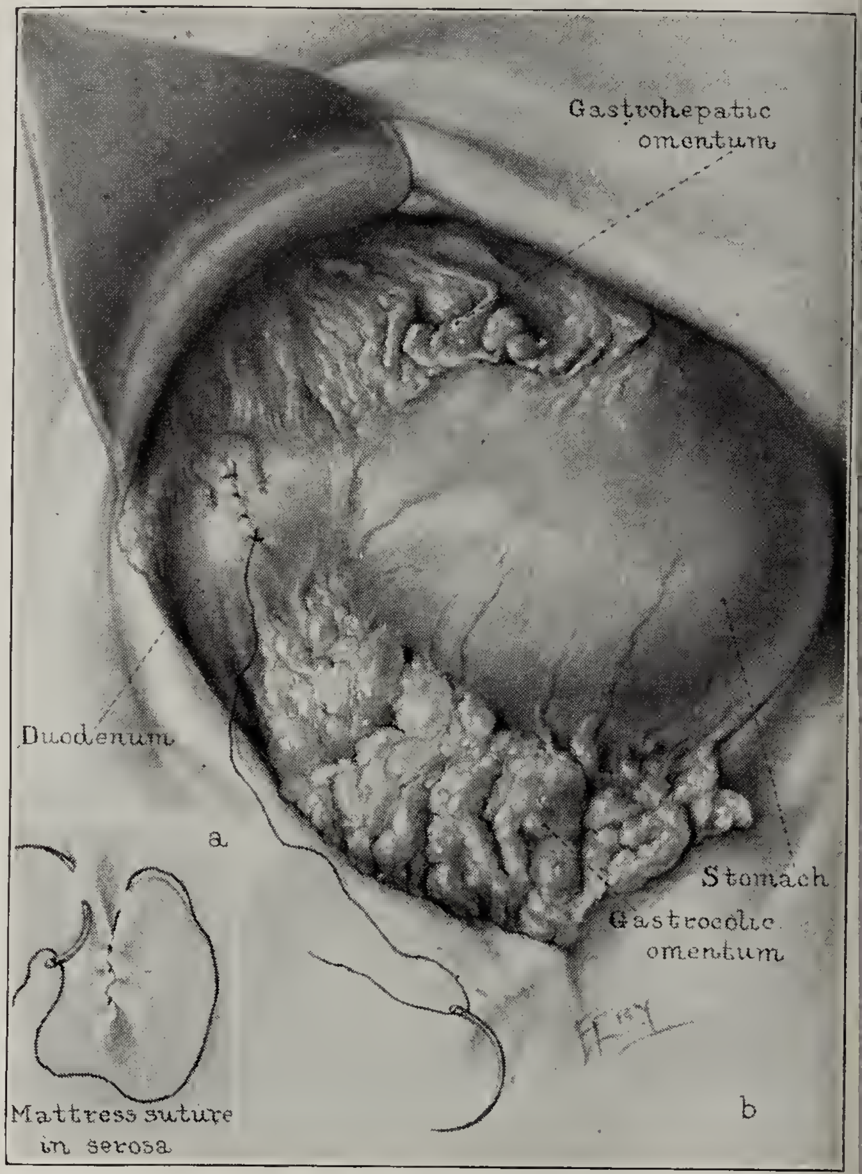

Fig. 7.—*a*, cauterized opening closed by row of catgut; *b*, closure reinforced by a returning second continuous suture.

TECHNIC

The technic for the use of the cautery in the bleeding type of gastric ulcer differs in no particular from that used in the ulcer which has not been associated with bleeding; it may be briefly described by stating

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1. Woolsey, G.: The Surgical Aspects of Gastric Hemorrhage, New York M. J. **107**: 395-398 (March 2) 1918.

2. Von Eiselsberg, F. A.: The Choice of the Method of Operation in the Treatment of Gastric and Duodenal Ulcer, With a Review of My Experience Accumulated in the Past Ten Years, Surg., Gynec. & Obst. **19**: 555-563 (Nov.) 1914.

its important features.[3] Probably the most important point in the technic is the exposure of the peritoneal side of the ulcer, and, in a great many instances, as we have recently demonstrated, a close shaving of the gastrohepatic omentum (Fig. 1) with a portion of the thickened peritoneal coat will disclose the minute opening which marks the site of chronic perforation. In many cases a probe may be introduced (Fig. 2) through this tract and used as a guide in introducing the cautery (Fig. 3). This observation seems important because it shows the frequency with which this perforation can be demonstrated, and that chronic perforation occurs in practically all chronic ulcers. Knowing from palpation the size of the crater of the ulcer, the cauterizing is maintained until an opening as large as the crater is made. In this way, as I have pointed out in previous articles,[4] any malignant cells within an area of 2 cm. of the cautery point are killed, and the danger of cancer-cell grafting, which is always present in knife excision, is avoided. The opening is subsequently closed with fine chromic catgut, and with reinforcing sutures of silk.

Cauterization is simpler in duodenal than in gastric ulcers, as the duodenal ulcer is usually in direct view and is rarely protected by any surrounding tissue; moreover, the crater of the ulcer is often very small, so that only puncture of the ulcer is required (Fig. 4 *a* and *b*). The cautery in duodenal ulcer was first employed in ulcers of the bleeding type, but lately it has seemed advisable to destroy, in this manner, practically all duodenal ulcers which are readily accessible (Figs. 5, 6 *a* and *b*, and 7).

SUMMARY

The points I desire to emphasize are:

1. Hemorrhage following operations for both gastric and duodenal ulcer is of sufficient frequency (2 per cent. in duodenal ulcer and 1+ per cent. in gastric ulcer) to warrant a revision of operative methods in such cases.
2. Gastro-enterostomy or pyloroplasty alone does not always protect against further hemorrhages, while excision of the ulcer and gastro-enterostomy gives almost total protection.
3. Excision by cautery combined with gastro-enterostomy is the most satisfactory method in the majority of cases of minimizing the possibility of recurrence of hemorrhage in all ulcers which have been associated with hemorrhages, and similar treatment seems advisable in both gastric and duodenal ulcers which have not exhibited such a complication.

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[3] Balfour, D. C.: Cautery Excision of Gastric Ulcer, Ann. Surg. **67**: 725-731 (June) 1918.

[4] Balfour, D. C.: Ann. Surg. **67**: 725-731 (June) 1918; Treatment by Cautery of Gastric Ulcer, Surg., Gynec. & Obst. **19**: 528-530 (Oct.) 1914.

The Venereal Toll.—During the month of September, 1916, from nearly 42,000 Canadian troops in Great Britain there were admitted to hospital suffering from venereal disease, 960 men, practically a battalion; during the month of September, 1918, from among 110,000 Canadians in Great Britain there were 750 similar admissions. In two years the venereal incidence had been reduced more than 66 per cent. It stands now at less than the third of what it was two years ago. Had they continued at the same rate, the admissions during the month of September, 1918, would have been, not 750, but over 2,500; not seven and a half companies, but two battalions and a half out of action.—Adami, *Canad. M. A. J.*

A NEW OPERATION FOR DUODENAL AND GASTRIC ULCER *

J. SHELTON HORSLEY, M.D.
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There is no excuse for a new operation if the old ones are satisfactory. The results of a surgical operation are the test of its efficiency, and they should be viewed from two standpoints: First, and most important, is the clinical result and, secondly, the restoration of tissues or organs to their normal physiologic condition. It seems probable that no important physiologic function of the body can be abolished or seriously altered without creating a disturbance of health in at least some of the individuals thus affected.

The usual surgical treatment for duodenal or gastric ulcers is gastro-enterostomy, with or without excision of the ulcer. When done for gastric ulcer, the ulcer is either excised or cauterized with the actual cautery (Balfour). When the gastro-enterostomy is for a duodenal ulcer, the ulcer is usually not excised, but is often sutured over or folded in. Another type of operation employed is the pyloroplasty of Finney.

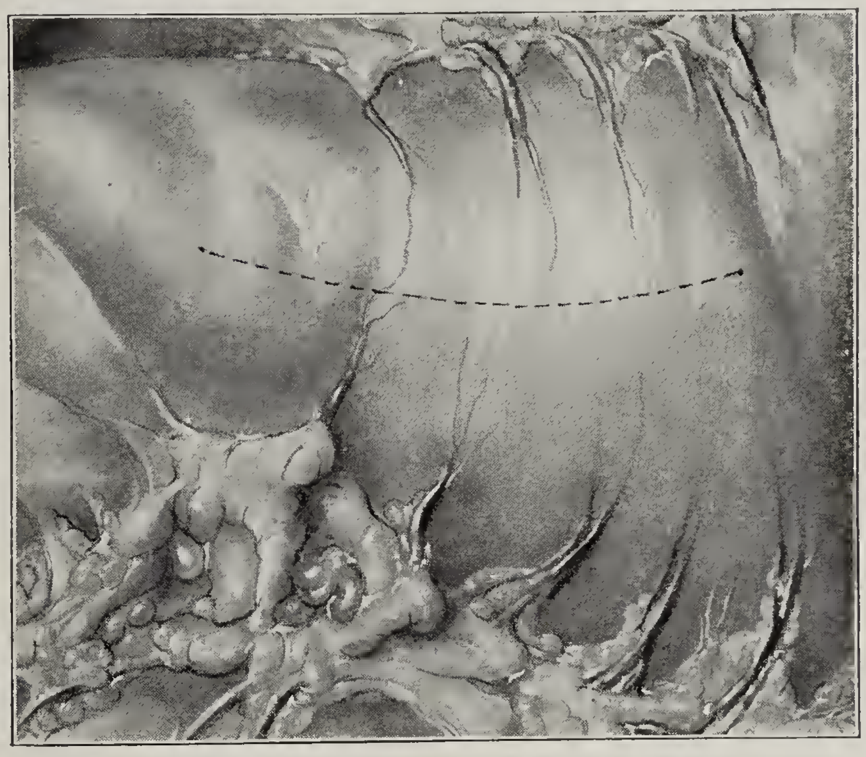

Fig. 1.—The incision is made from a point on the anterior surface of the duodenum not farther from the pylorus than 1 inch, extending into the stomach, midway between the greater and lesser curvatures, not less than two inches. These points are fixed with forceps or sutures before the gauze is placed.

GASTRO-ENTEROSTOMY

The clinical results from gastro-enterostomy when performed for duodenal or for gastric ulcer are by no means perfect. D. C. Balfour[1] says:

> Although evidence is conclusive that surgery gives permanent relief in a higher percentage of cases and with less associated risk than any other therapeutic measure, it is also true that the surgical treatment of gastric ulcer may be made still more efficient.

He reports end-results of 285 cases of gastric ulcer in which operation was performed at the Mayo Clinic from Jan. 1, 1906, to July 1, 1915, with 159 (55.7 per cent.) cures. The rest are classified as "greatly improved," "improved," and "unimproved."

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

[1] Balfour, D. C.: Results of Surgical Treatment of Gastric Ulcer, Surg., Gynec. & Obst. **24**: 731 (June) 1917.

Frank Smithies of Chicago, who was formerly gastro-enterologist at the Mayo Clinic and is now at the Augustana Hospital of Chicago, has long been associated as a medical man with large surgical clinics in which gastro-enterostomy is the chief surgical method of dealing with gastric or duodenal ulcer. He[2] reports observations on 273 patients on whom gastro-enterostomy had been done for the relief of dyspepsia. His paper was intended as a study of the function of the stomach after gastro-enterostomy, but the side-lights on the efficiency of this operation as a therapeutic measure are illuminating.

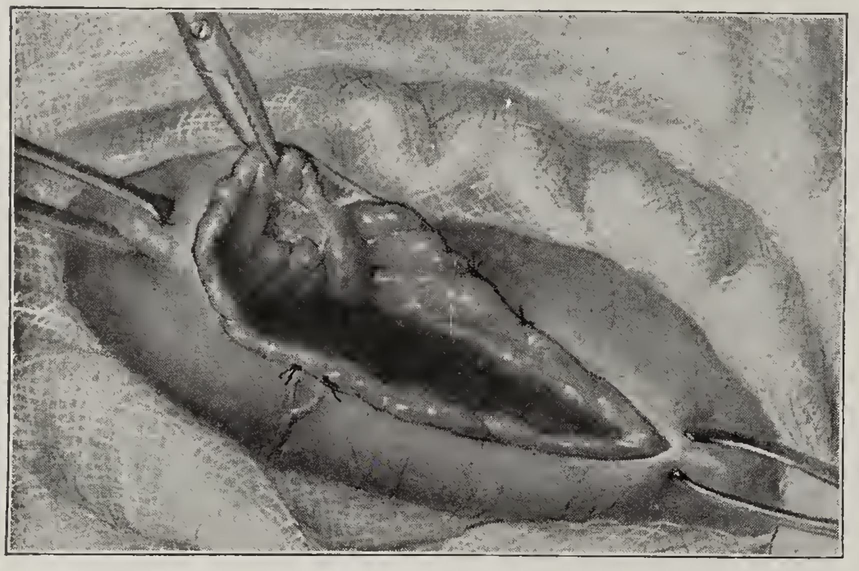

Fig. 2.—The opening in the stomach has been made; first, by cutting down to the gastric mucosa and clamping as many vessels as possible before opening the mucosa; then the incision is extended into the duodenum for not more than one inch. The ulcer is excised from the mucous surface.

Smithies' 273 cases represent 226 patients operated on for gastric or pyloric ulcer, twelve for gastric cancer, and thirty-five for duodenal ulcer not involving the pylorus. Of this entire number, he reports only fifty-seven, or 20.9 per cent., clinically complaint free. Twenty-eight[3] (80 per cent.) of the thirty-five duodenal ulcer patients had pain or distress, and many of this number had other symptoms, such as gas, nausea, vomiting, or eructation. However, as the total number of cases is made up of (1) patients requested to return for examination regardless of their condition and (2) patients who came voluntarily because they were having trouble, the percentage of cures represented is too low. In reply to a request, Dr. Smithies has written me under date of April 10, 1919, that about 65 per cent. of the 273 patients (177) returned for examination at his request. Percentage based on this number (177) would be unduly favorable because these cases were selected apparently arbitrarily from a large number of stomach cases in which operation had been performed and which had been observed by him (2,360) and do not include those patients who came voluntarily because of trouble. Making all allowances for this latter group, which constitutes about one third of the total number, we still have a percentage of complaint-free patients that is very low (much below 50 per cent.) both for gastric and for duodenal ulcer patients on whom gastro-enterostomy had been done.[4]

These results as reported by Balfour and by Smithies certainly cannot be considered satisfactory so far as curing the patients is concerned.

It is obvious that gastro-enterostomy for duodenal or gastric ulcer does not restore the stomach to its normal physiologic condition. The clinical cures following this operation have been variously explained. Some have said that it is a gravity drainage operation, and yet in draining other hollow muscular viscera we do not open at the lowest point. The gallbladder and the urinary bladder are drained from the part opposite the most dependent portion, and an enterostomy is done on the loop of intestine nearest the obstruction and not on the loop deepest in the pelvis; for we know that normal contraction or peristalsis will keep the bladder or bowel empty if an opening is made. From time immemorial the current of pressure and the peristaltic rhythm of the stomach have been focused on the pylorus, and not on the so-called lowest point in the stomach. Besides, there is no one portion of a mobile muscular organ, such as the stomach, that is always at the lowest point. This and other disadvantages of gastro-enterostomy have been admirably demonstrated by Cannon and Blake.[5] It has been affirmed that gastro-enterostomy cures by short-circuiting the course of food and so resting the ulcer; and also that it cures by lessening the acidity of the gastric juice. The roentgen ray has shown that unless the pylorus is closed some food usually continues to go by this route and pyloric closure is not often permanent unless a resection is done.

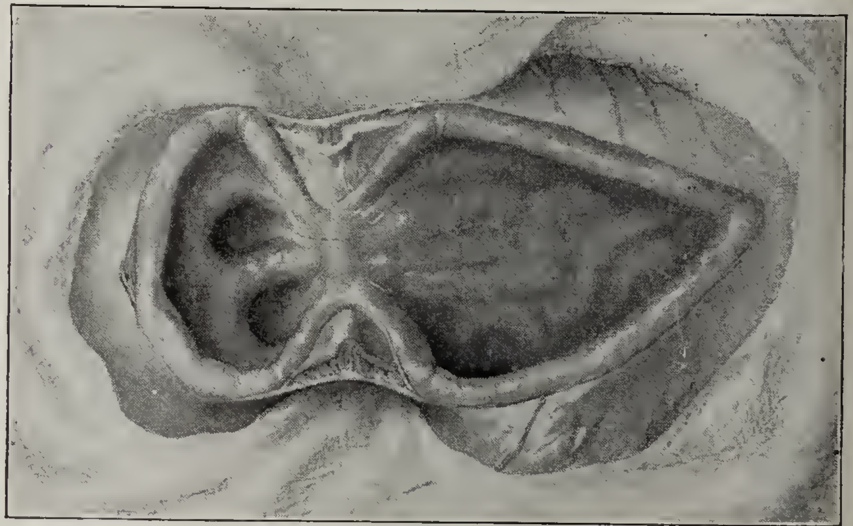

Fig. 3.—If there is marked stenosis, pockets will result on the duodenal side. These are obliterated by incisions of the mucosa and of the constricting bands. To avoid hemorrhage these incisions should be short and not too deep.

Lennander's[6] statement that the stomach is without sensory nerve supply for pain has been apparently disproved. Other investigations[7] seem to have shown that the stomach has a limited supply of nerves that conduct pain. These nerves terminate in the muscular coat of the stomach, and do not reach the mucosa. It has been demonstrated that the pains that come on with such clocklike regularity after meals in duodenal or gastric ulcer are not caused by acid erosion of the ulcer by the hyperacid gastric juice, as was formerly believed, but are due to the pressure of peristalsis on these gastric nerves, which are made unusually sensitive by the inflammation of the ulcer.[8] Consequently, they register impulses of pain from the pressure of peristalsis that in a normal physiologic condition they would not register. The character of the gastric juice has nothing to do with the pain except so far as it excites peristalsis. Gastro-enterostomy probably relieves the pain from a duodenal or gastric ulcer by facilitating the emptying of the stomach, thus lessening peristalsis. This is largely the treatment of a symptom and not an effort to remove a pathologic condition and restore tissues to their physiologic state.

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[2] Smithies, F.: Gastric Function Following Gastro-Enterostomy, Surg., Gynec. & Obst. **26**: 275 (March) 1918.

[3] Smithies, F.: Gastric Function Following Gastro-Enterostomy, Surg., Gynec. & Obst. **26**: 277 (March) 1918, Table IV.

[4] Smithies, F.: Gastric Function Following Gastro-Enterostomy, Surg., Gynec. & Obst. **26**: 277 (March) 1918, Tables III and IV.

[5] Cannon and Blake: Gastro-Enterostomy and Pyloroplasty, Ann. Surg. **41**: 686-711 (May) 1905.

[6] Lennander, K. G.: Abdominal Pain, Especially Pain in Connection with Ileus, J. A. M. A. **49**: 836 (Sept. 7) 1907.

[7] Kast, L., and Meltzer, S. J.: Sensibility of Abdominal Organs and the Influence on It of Injections of Cocain, Med. Rec. **70**: 1017 (Dec.) 1906. Ritter, C.: Sensibilität der Bauchorgane, Zentralbl. f. Chir. **35**: 609 (May 16) 1908.

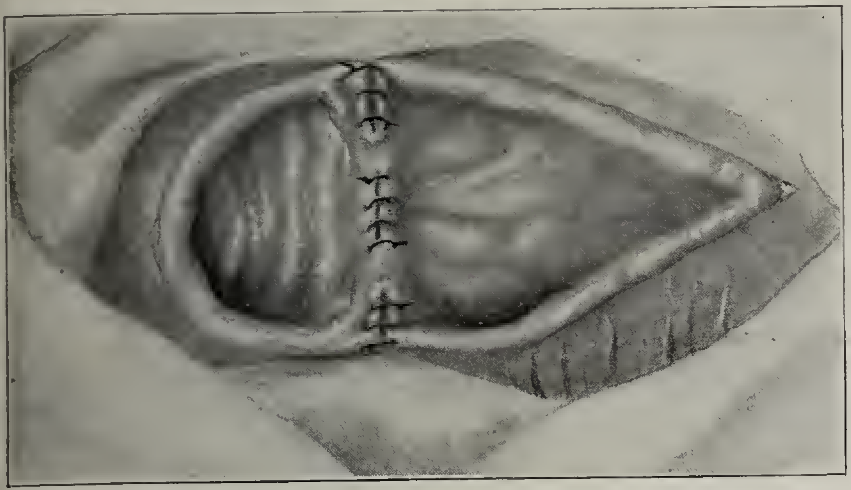

Fig. 4.—The incisions in the mucosa dividing the bands are sewed up transversely, and, if necessary, along the upper and lower border of the stenosis the mucosa of the duodenum is sutured to the mucosa of the stomach. It is essential to have a complete mucous membrane covering for the posterior wall.

The dangers of vicious circle, jejunal ulcer, volvulus, or hernia into the lesser peritoneal cavity, though not great, yet exist when a gastro-enterostomy is done and are not present in operations on the pylorus.

FINNEY'S PYLOROPLASTY

When pyloroplasty is done, the method usually employed is that of Finney. Finney's operation, as is well known, consists of a horseshoe-shaped incision with its center at the pylorus, one limb extending down on the mobilized duodenum, and the other on the stomach near the greater curvature. These limbs of the incision are united by suturing the posterior margin of the wound in the duodenum to the posterior margin of the wound in the stomach, and the anterior margin of the wound in the duodenum to the anterior margin of the wound in the stomach. Many of the objections that apply to gastro-enterostomy do not obtain here, as the operation is done at the normal physiologic outlet of food from the stomach. Finney and Friedenwald[9] report a group of 100 cases in which operation was performed by Finney's method. Five of the patients died soon after the operation. The final results in seventeen are unknown, as the patients could not be traced. Of the remaining number, results are classified as being satisfactory in seventy-three, or 93.6 per cent. of those traced. It is not stated whether the term "satisfactory" means "complaint free." If it does, the results are excellent, but, if not, it would be difficult to compare these statistics with those of Balfour or of Smithies. At any rate the results appear to be better than after gastro-enterostomy. Finney and Friedenwald say that the contraindications for this operation are inability to mobilize the duodenum, and thickening and infiltration about the pylorus.

Finney's operation, while a distinct improvement on gastro-enterostomy, is not free from objections. It seems to have been conceived partly with the idea of making it a gravity drainage operation, when, as already pointed out, drainage of a hollow muscular organ, such as the bladder or bowel, does not have to be from the lowest point in order to be effective. Mobilization of the duodenum, which is necessary for this operation, may be quite difficult and, according to Finney, where numerous adhesions exist, his operation often cannot be done. The incision is made near the greater curvature of the stomach, where the vessels are large. The pylorus is divided in such a manner that it cannot reunite, and its sphincteric action would seem to be permanently impaired. If there is cicatricial contraction at the pylorus, the scar tissue must be sutured to scar tissue, for the apex of both the posterior and anterior margins of the sutured wound are at the pylorus.

HEINEKE-MIKULICZ OPERATION

The Heineke-Mikulicz operation, which was conceived to remedy pyloric stenosis, is generally supposed to be a straight incision with its center at the pylorus or at the point of constriction, the incision being sewed up transversely. Such is the description of the Heineke-Mikulicz operation as it appears in many textbooks.[10] In Binnie's Operative Surgery, 7th edition, p. 385, a description is given of this operation that resembles somewhat the Finney operation. However, the Heineke-Mikulicz operation in its usual conception as being a straight incision with its center at the point of constriction or at the pylorus, the incision being sewed up transversely, finds but few advocates. Grey Turner[11] reports a small series of cases done by this method in which the results are quite satisfactory. As a rule, however, these objections are made to the Heineke-Mikulicz as ordinarily performed: 1. It cre-

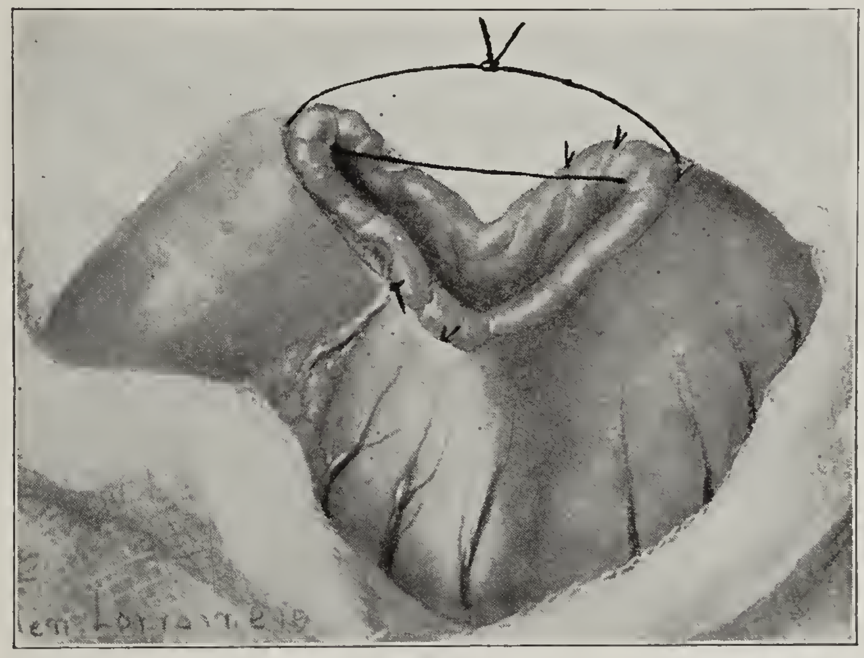

Fig. 5.—In the first step of closing the incision, a suture of tanned catgut is inserted from the end of the stomach incision to the end of the duodenal incision. Then a second suture is placed half way between this stitch and the upper angle of the wound.

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[8] Ginsburg, H.; Tumpowsky, I., and Hamburger, W. W.: The Newer Interpretation of the Gastric Pain in Chronic Ulcer, J. A. M. A. **67**: 990 (Sept. 30) 1916. Hardt, L. L. J.: Pain in Active Pathologic Processes in Stomach or Duodenum, ibid. **70**: 837 (March 23) 1918.

[9] Finney, J. M. T., and Friedenwald, Julius: Thirteen Years' Experience with Pyloroplasty, Surg., Gynec. & Obst. **18**: 273-284 (March) 1914.

[10] Bryant: Operative Surgery **11**: 943, 1905. Dacosta: Modern Surgery, Ed. 7, 1918, p. 1081. American Text-Book of Surgery, Ed. 4, p. 790. Warbasse: Pyloroplasty by Surgical Treatment, **11**: 738, 1918.

[11] Turner, G.: Surg., Gynec. & Obst. **14**: 537 (June) 1912.

ates a pouch with a slight constriction on the stomach side and on the duodenal side. Half of this pouch is made of the duodenum whose walls are much weaker than the walls of the stomach and it may be difficult to empty such a pouch. 2. The incision cannot be made very long because it would extend too far into the duodenum, which would have to be mobilized, and even then the tension of the sutures on the thin duodenal wall would be too great. 3. When stenosis exists, each end of the sutured wound consists of scar tissue which is sutured to scar tissue, for the center of the incision is at the point of constriction. 4. There is a tendency in healing for the pylorus to be drawn up high under the liver.

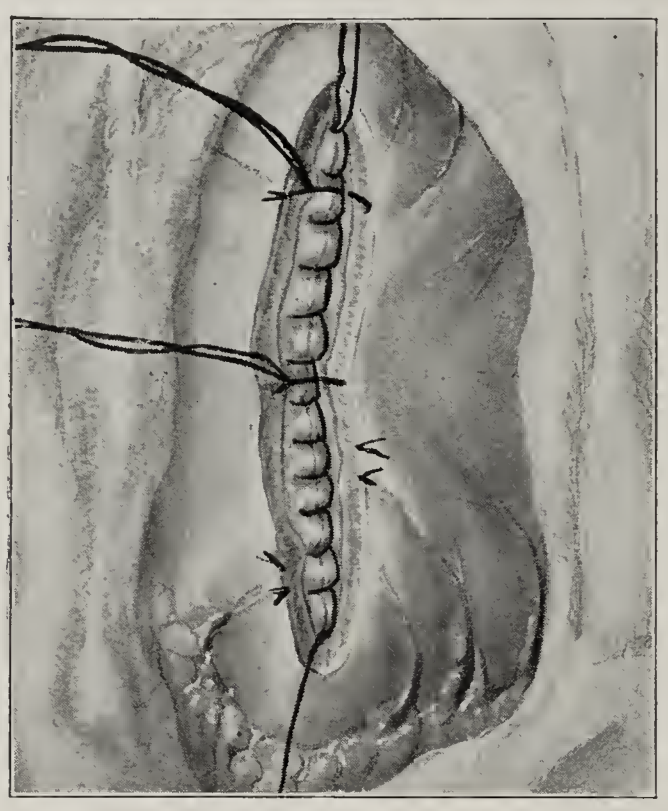

Fig. 6.—These two interrupted sutures are tied, their ends left long, and the suturing is begun at the lower angle with a curved needle and tanned catgut. A continuous lock stitch is used which gently approximates the mucosa. The two interrupted sutures, with the ends left long for traction, greatly facilitate suturing.

THE NEW PYLOROPLASTY

There is one part of the body in which an ulcer in the region of a sphincter has been the object of surgical observation since the earliest times of recorded surgery, and the treatment of this condition has become satisfactorily standardized. This is ulcer or fissure in ano. The analogy between an ulcer in ano and a duodenal or pyloric ulcer of the stomach which is in the region of the pyloric sphincter is striking. We know that the ulcer in ano does not heal readily because of the almost continuous action of the sphincter ani, which alternately compresses or relaxes the tissues in its neighborhood, and that in order to cure it we must employ the principle of physiologic rest and paralyze the sphincter temporarily, and at the same time excise or cauterize the ulcer. In this manner we remove the pathologic condition and institute rest for these tissues. We would not think of treating a fissure in ano by doing a colostomy and side-switching the fecal contents, particularly if the colostomy permitted a small amount of fecal matter to continue to pass through the anus; and yet in performing a gastro-enterostomy for the cure of a pyloric or duodenal ulcer we are practically doing just this very thing. By using the well known surgical principles that have been established for years for the treatment of fissure in ano, namely, temporary paralysis of the sphincter and excision or cauterization of the ulcer, we can cure practically 100 per cent. of such cases. If, then, the ulcer in the duodenum or pylorus is not cancerous and is the only pathologic lesion, have we not a right to expect as good results here, so far as ultimate cure is concerned, by excision of this ulcer and temporary paralysis of the sphincter muscles, as has been obtained since the early days of surgery by similar treatment of an ulcer within the region of the sphincter ani? The operation here proposed has been conceived on these principles, and an effort has been made to carry them out as far as possible, at the same time avoiding the objections that have been noted to other types of pyloroplasty. The steps of the operation are:

1. The upper portion of the duodenum and the pyloric end of the stomach are exposed through an ample abdominal incision, and a point is selected in the midline of the anterior surface of the duodenum an inch from the pylorus, and another point on the stomach not less than two inches from the pylorus and midway between the greater and lesser curvatures (Fig. 1). Each of these points is grasped with Allis forceps or fixed with a suture. The stomach and duodenum are then surrounded with moist gauze.

2. An incision is made with a sharp knife from the point on the duodenum to the point on the stomach. If the ulcer is in the anterior surface of the duodenum, the incision should pass along the lower edge of the ulcer (Fig. 1). An effort is made to divide the peritoneal and muscular coats without opening the mucosa. The incision should go no farther than 1 inch into the duodenum. It extends 2 inches or more into the stomach. The bleeding points or exposed vessels are clamped.

3. The mucosa is incised and any further bleeding points are clamped, care being taken to include as little of the mucosa in the grasp of the forceps as possible. The vessels are tied with catgut (Fig. 2). If there is a tendency for duodenal contents to regurgitate, gauze wrung out of warm salt solution is gently packed into the duodenum. Moist gauze can also be placed in the stomach if necessary. If the ulcer is along the incision, it is excised from the mucous surface and the forceps, scissors, and knife used in the excision are laid aside, as they are probably septic. Because the mucosa in this region is almost free from bacteria except in the ulcer, there is no occasion to disinfect the normal mucosa, as there would be in operations on the intestine lower down.

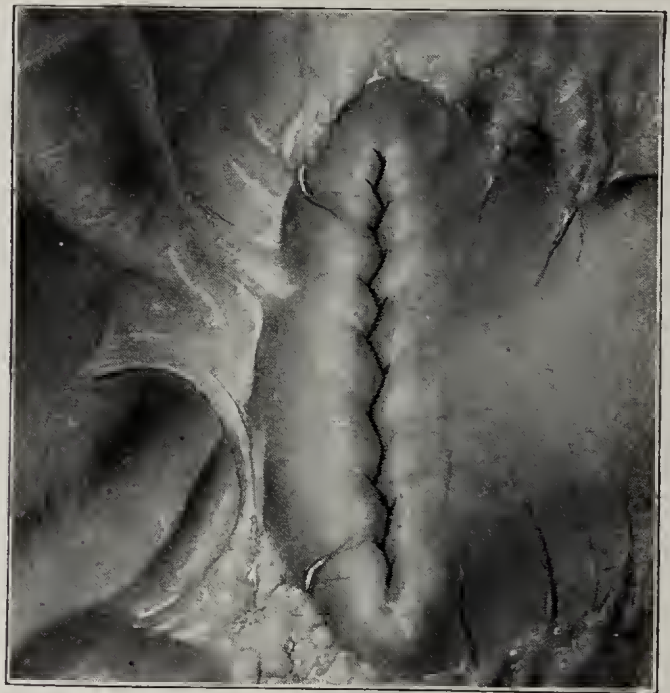

Fig. 7.—A second row, mattress or right-angle sutures, is placed, burying the first row in the mucosa; and then a third row, which takes in the peritoneum and muscle, buries both the other rows.

4. If the ulcer is in the posterior wall of the duodenum or pylorus, the wound is retracted, the ulcer exposed and

excised, the deeper structures are sutured with tanned or chromic catgut, and the mucosa is gently approximated by a continuous suture. The suture in the mucosa must not be tight, as this might cause necrosis of the mucosa and spread the ulcer. If there is an old contraction resulting in pockets, the mucosa and the contracting band should be divided and the mucosa sutured transversely to the incision. To avoid hemorrhage, the incision that relieves the contracting band should be short and should divide only the superficial part of the band. The neglect of this precaution resulted in a fatal secondary hemorrhage in my last pyloroplasty (Figs. 3 and 4).

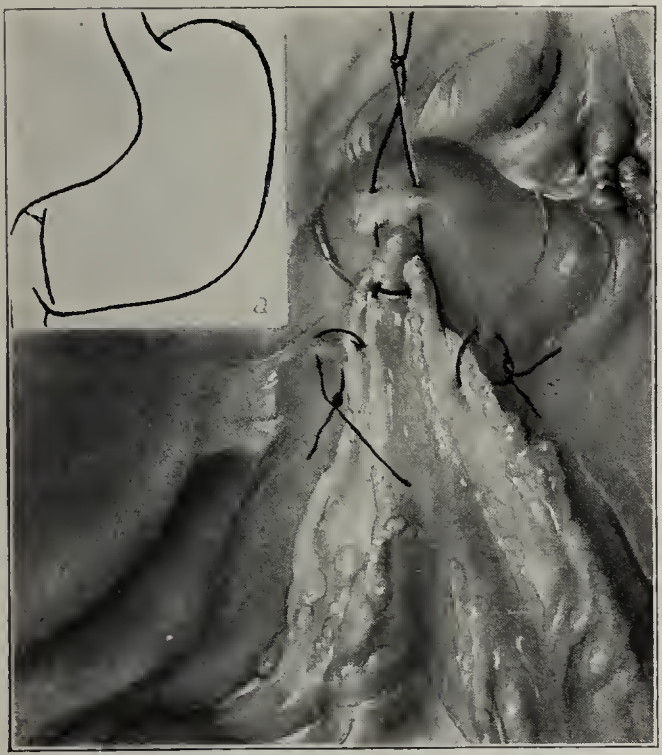

Fig. 8.—A piece of gastrocolic omentum is brought over the incision and fastened with interrupted stitches of tanned catgut. Inset (*a*) shows, diagrammatically, that the pylorus is widened but not destroyed, that the outer end of the stomach is converted from a cone to a rectangle, and that there are no constrictions or pockets.

5. The ulcer having been removed or pockets and contractions remedied, the ends of the incision are approximated by a tanned or chromic catgut suture (Fig. 5). A second suture of similar material placed half way between this middle suture and the upper angle of the wound renders suturing the upper half of the incision easier. Both are tied and their ends left long to facilitate suturing and to hold up the edges of the wound if there is a tendency of gastric or duodenal contents to overflow. A No. 1 tanned or chromic catgut suture is then started at the lowest portion of the wound, *which is in the stomach wall.* It is tied, the short end clamped, and the mucous membrane united by a lock stitch which barely approximates the mucosa and ends at the upper portion of the incision, *which is also in the stomach wall.* Before completing this suture any gauze packing in the duodenum or stomach is removed. The suture is tied at the upper portion of the wound and the ends are left long and clamped (Fig. 6).

6. A second row of sutures, consisting of the same kind of catgut, in a curved round needle, is inserted, taking in the muscular coat. This is a continuous mattress or right-angle stitch. Only enough tissue is included in the sutures to secure a firm hold. The long ends of the previous row are cut short.

7. A third row of sutures of fine tanned or chromic catgut is placed, but the gauze around the stomach and duodenum should be removed before this third row is begun, as gauze packing hinders the approximation of the peritoneum. This row includes the peritoneum and muscular coats and buries the first and the second rows of sutures completely. This is also a continuous mattress suture (Fig. 7).

8. A portion of the gastrocolic omentum, or else the right edge of the great omentum, can be brought up over the line of incision without tension. It is fastened here with interrupted stitches of fine catgut. Care should be taken that it barely covers the upper end of the sutured wound and that it is not fastened to the gastrohepatic omentum, as this might result in too complete a surrounding of the pyloric end of the stomach (Fig. 8).

9. If the ulcer is not in the duodenum or the pyloric region, the operation, as just described, may be done in order to relieve the spasm of the pylorus and the ulcer then excised, or cauterized, as advocated by Balfour, through another gastric incision.

The advantages of this operation are:

1. It removes the obstruction and the pathologic condition, and permits the normal resumption of the stomach function.

2. The ends of the sutured incision are within the stomach wall. The ratio of the incision should never be less than two parts in the stomach to one in the duodenum. Usually 2 inches in the stomach and 1 in the duodenum are sufficient. The anterior stomach wall in the midline can readily be pulled over to the first inch of the duodenum. In the Heineke-Mikulicz operation, and also in the upper part of the Finney operation, the ends of the sutured incision are in the scar tissue at the pylorus, while in this operation the ends of the sutured incision are within the healthy stomach wall, and the scar tissue that may remain about the pylorus is approximated, not to other scar tissue, but to healthy stomach wall. Consequently, union should be more satisfactory than where scar tissue is opposed to scar tissue, as in the other two types of pyloroplasty.

3. There is no pouch formation as in the Heineke-Mikulicz operation, in which the center of the incision is at the pylorus. The operation merely changes the shape of the pyloric end of the stomach from a funnel with gradually approaching walls to a rectangle that empties into a funnel with a more obtuse angle.

4. The parts to be put at rest are the parts most concerned in contraction and relaxation, which are the pylorus and the adjacent portion of the stomach. By making the incision from the duodenum about 2 inches into the stomach, this is effected. A long incision into the duodenum does not help in any way.

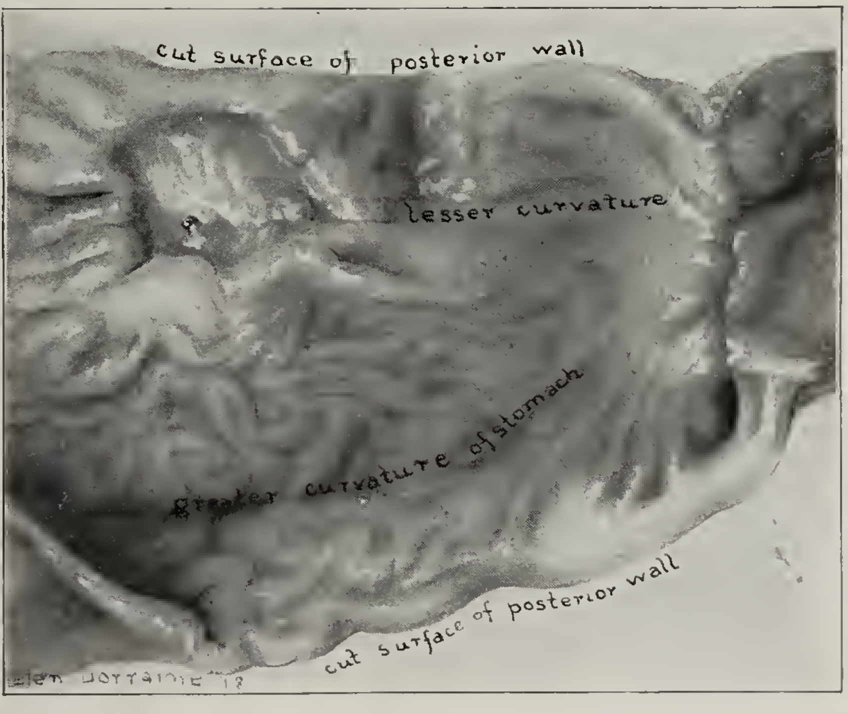
cut surface of posterior wall
lesser curvature
greater curvature of stomach
cut surface of posterior wall

Fig. 9.—Drawing of stomach removed at necropsy of A. R. The incision was made in the posterior wall of the stomach. Note the ulcer that involves the lesser curvature and the large blood vessel protruding in the ulcer. Also note the healing of the pyloroplasty, which makes a wide opening. The patient died from hemorrhage from the gastric ulcer twenty-one days after operation.

5. The function of the pylorus and pyloric end of the stomach is not permanently destroyed. The stomach wall that is brought over acts as a link between the ends of the pyloric sphincter, and, in the course of time (usually a few weeks), the sphincter resumes its action, though, because it has been enlarged, it cannot become spastic as it was before the operation.

6. The operation is simpler than the Finney operation, in which the duodenum has to be mobilized and the posterior and the anterior margins of the wound must be sutured separately.

There is a superficial resemblance between this operation and the Heineke-Mikulicz, because in both operations the pylorus is divided and in both the incision is approximately straight. Here, however, the resemblance ceases, and the differences become marked, for, unlike the Heineke-Mikulicz, the operation described was conceived on the principle of giving temporary physiologic rest to tissues in the pylorus and the pyloric end of the stomach; the incision is longer than in the Heineke-Mikulicz operation; it is differently placed; it extends not more than 1 inch into the duodenum nor less than 2 inches into the stomach; it can be considerably prolonged at the stomach end; it gives an excellent view of the pyloric end of the stomach; it requires a rather definite technic to be closed satisfactorily; it does not form a pouch with a constriction fore and aft; it does not approximate scar tissue to scar tissue, and an essential part of the operation is the removing or remedying of the pathologic condition by excising the ulcer, obliterating pockets, or incising constricting bands (Figs. 2, 3 and 4). In addition, the reinforcing with omentum (Fig. 8) adds security to the sutures, prevents adhesions to surrounding tissues, and counteracts the tendency for the pylorus to become fixed high up under the liver, which sometimes occurs after the Heineke-Mikulicz operation.

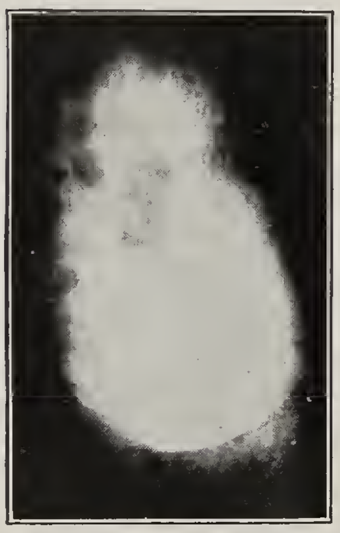
Fig. 10.—A roentgenogram of the stomach of W. J. B., taken two days before operation. There was constant deformity of the duodenal cap. The patient had been suffering for a number of years. The diagnosis was duodenal ulcer.

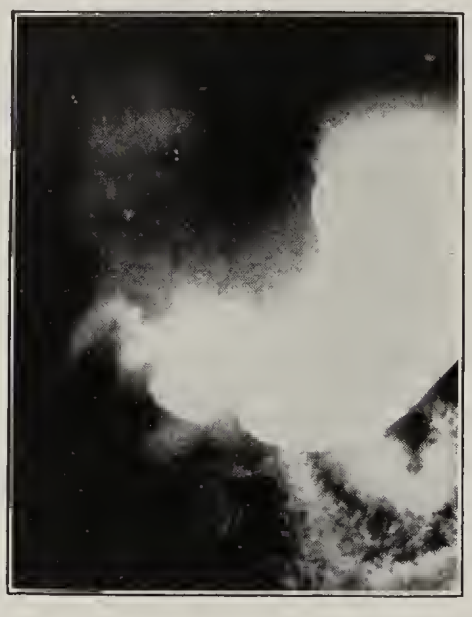
Fig. 11.—A roentgenogram of the stomach of W. J. B., taken four months after the pyloroplasty. Note the improved tone of the stomach and the ready emptying.

The postoperative treatment is about the same as that employed for gastro-enterostomy. If there is any vomiting or marked discomfort, the stomach should be promptly washed out under low pressure, not more than a pint of fluid being used at a time. The head of the bed is elevated from 12 to 18 inches, and the patient is given one-half ounce of hot water every hour for the first twenty-four hours and after that 2 ounces of hot water every hour for twenty-four hours. Enemas of 6 ounces of physiologic sodium chlorid solution with one-half ounce of glucose and 1 dram of sodium bicarbonate are given every six hours for the first two days. At the end of forty-eight hours a small amount of liquid nourishment, but not including milk, is commenced and continued until the fourth day after operation, when milk is added to the diet. About the seventh or eighth day after operation a purgative is given and soft diet is begun.

CLINICAL REPORT

The first operation of the new pyloroplasty was done on Mrs. G. A. H., April 4, 1918. Five days later, April 9, I did a gastro-enterostomy on a man with duodenal ulcer. In the case of Mrs. G. A. H., gastro-enterostomy could not be performed because there were extensive adhesions in the lesser peritoneal cavity. Gastro-enterostomy was done on the man because I was not then assured of the full value of the pyloroplasty. Mrs. G. A. H., however, made such a satisfactory recovery that I have done the pyloroplasty in every case of duodenal or gastric ulcer since April 9, 1918, and since that date I have not done a gastro-enterostomy.

I have so far done eleven of the new pyloroplasties. Three of the operations were for gastric ulcer, two being for ulcer in the cardiac portion of the stomach on the posterior wall near the lesser curvature. In both of these cases, the ulcer was in a similar location and was reached through an incision in the anterior wall of the stomach.

Case 1.—A. R. was operated on Sept. 23, 1918, for gastric ulcer. The ulcer had not quite perforated, though the peritoneum appeared to be slightly adherent behind. The margins of the ulcer were excised, the mucosa was brought together with mattress stitches of tanned catgut, and then the pyloroplasty was done. The patient made an uneventful recovery from the operation and appeared to be doing well until the eighteenth day, when he had a moderately severe hemorrhage from the stomach. After gastric lavage with hot water the bleeding seemed controlled. Twenty-four hours later, however, he began vomiting blood and, in spite of gastric lavage and transfusion of blood, he died, Oct. 14, 1918. Necropsy was held a few hours after the death of the patient, and the stomach was obtained. It showed that the pylorus had healed satisfactorily, but the ulcer had extended to the lesser curvature and involved a blood vessel of considerable size, which was protruding from the ulcer. From this vessel the hemorrhage apparently had come (Fig. 9). Doubtless the ulcer was sutured too tightly, necrosis of the mucosa resulted, and the ulcer spread.

Case 2.—In the second patient with gastric ulcer (L. B.), an ulcer in a similar location had perforated and a small abscess had formed. A transgastric operation was done, Sept. 27, 1918, and an effort was made to approximate the edges of the ulcer by mattress sutures and a continuous lock stitch within the stomach. The pyloroplasty was then done, and a drainage tube carried down to the abscess anteriorly, without disturbing the adhesions elsewhere. In three days the gastric contents appeared through the drainage tube. The fistula closed in about three weeks, and the patient went home and improved considerably. Four months later, however, he began to have symptoms similar to those before operation. A roentgenographic examination by Dr. A. L. Gray, May 11, 1919, revealed spastic hour-glass contraction about the ulcer, but the pyloric end of the stomach was emptying rapidly and satisfactorily. The patient was again operated on, May 13, 1919. There was no abscess, but the ulcer persisted and was adherent to the liver and pancreas. The ulcer and a portion of the surrounding healthy stomach wall were excised. There were considerable adhesions, but the pylorus appeared to be in a satisfactory condition. The patient is recovering uneventfully.

Case 3.—In the case of M. L. S., the ulcer was prepyloric, being about 1 inch from the pylorus on the posterior gastric wall near the greater curvature. This ulcer was easily excised through the incision for pyloroplasty (May 6, 1919), an operation which gave excellent exposure. The patient recovered uneventfully and is now complaint-free.

Two patients were operated on for stenosis of the pylorus and six for duodenal ulcer. The stenosis was marked with a large amount of connective tissue in both cases. The cicatricial band that formed pockets posteriorly was cut, as shown in Figures 3 and 4, and the mucous membrane sutured transversely to the incision. Of the six duodenal ulcer cases, three had extensive adhesions. In two of these there had been a previous perforation with leakage of the duodenal contents. In one, operation was done about three months after the perforation, and in the other about sixteen months after perforation. Of the remaining three cases two were simple nonadherent duodenal ulcers on the anterior surface of the duodenum and the third was on the upper border of the duodenum.

Case 4.—All the patients except this one (Mrs. W. W. H.) were examined roentgenographically, and a diagnosis of ulcer was made before operation. In this instance the patient weighed about 230 pounds, and the history seemed to indicate gallbladder trouble. Operation showed the gallbladder thickened, moderately adherent and without stones, but there was an ulcer in the upper border of the duodenum which appeared about to perforate. On account of the fat of the patient and the fact that the duodenal portion of the pyloroplastic incision was placed too near the ulcer, the operation was more difficult in this instance than in any other. She is now complaint free.

This series of cases represents most of the types of ulcer that we have seen, and yet the operation could be done effectively in each case, though in two there was pyloric stenosis and much scar tissue, and in two there had been previous duodenal perforation followed by extensive adhesions.

FINAL RESULTS

Nine of the eleven patients are now living and have been communicated with during the last few weeks. One gastric ulcer patient (L. B.), as described above, has recently been reoperated on for excision of the gastric ulcer, which was not cured by the original operation. He is recovering satisfactorily. The prepyloric ulcer patient, M. L. S. (operated on May 6, 1919), is in excellent condition and is complaint free. Of the two patients with pyloric stenosis, one (F. P. B., operated on May 15, 1919, and the last pyloroplasty that was done) recovered uneventfully till the eighth day after operation, when secondary hemorrhage began, and, in spite of gastric lavage with hot water and transfusion of blood, the patient died the tenth day after operation. Necropsy showed the bleeding came from small vessels in the region where the posterior cicatricial band was cut. The anterior pyloroplasty incision was in excellent condition and the pylorus was wide open. The other (R. D. L., operated on Jan. 22, 1919) has gained 30 pounds and is complaint free. Of the six duodenal ulcer patients (operated on April 4, July 3, July 30, Oct. 4, 1918, Jan. 22, March 31, 1919) four are entirely complaint free. Two express themselves as being greatly improved, but still have minor symptoms, such as occasional gas and gastric discomfort, particularly when imprudent in their diet. Of these two patients one (Miss E. D. H.) had, in addition to a duodenal ulcer, marked ptosis of the stomach and transverse colon, but only the pyloroplasty was done and the appendix removed, no operation being done for the ptosis. If this patient wears an abdominal support she is comfortable and complaint free. She says she is greatly improved (Fig. 13). There is no change in weight. She follows her profession as a trained nurse.

In the other patient (W. W. G.) there had been severe hemorrhage a few days before operation, and at the time of operation there appeared to be acute cholecystitis, the gallbladder being enlarged and congested, and the duodenal ulcer, which had been demonstrated by the roentgen ray previous to operation, was small and nonadherent. The pyloroplasty was done, but, as the gallbladder seemed to be the major trouble at the time, it was drained. This patient now looks well, and feels well most of the time, but has occasional "indigestion" and has to be particular about his diet. He expresses himself as being greatly improved; he works hard, and has gained about 18 pounds in weight since a short time before operation. In these two cases the duodenal ulcer was not the sole and probably not even the chief cause of the symptoms. The symptoms from ptosis seem relieved by an abdominal support, and cholecystitis and drainage probably produced adhesions to which may be attributed the few disagreeable symptoms which the other patient now occasionally suffers.

Five patients were, after the operations, studied with roentgen rays by Dr. A. L. Gray, professor of roentgenology in the Medical College of Virginia. His reports show that the pylorus has returned to its function, though it seems to be somewhat more open than usual. In all of the five patients examined by him, the stomach emptied satisfactorily except in one instance (Miss E. D. H., the patient with ptosis), in which the emptying time, though delayed, is markedly improved over what it was before operation.

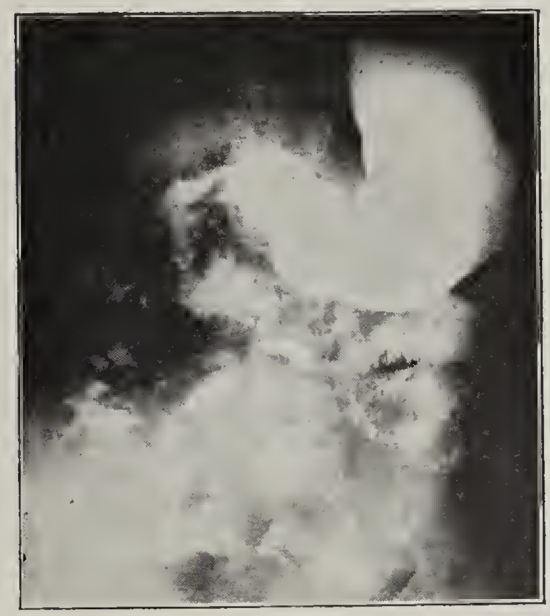

Fig. 12.—A roentgenogram of the stomach of Mrs. G. A. H., taken about one year after pyloroplasty. The patient had had a previous duodenal perforation, and there were numerous adhesions. The stomach is emptying satisfactorily.

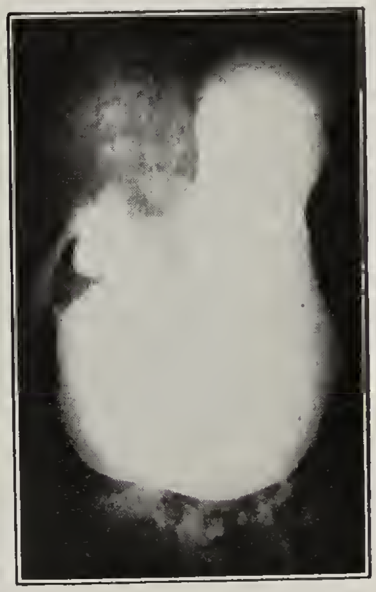

Fig. 13.—A roentgenogram of the stomach of Miss E. D. H., taken four and one-half months after the pyloroplasty for duodenal ulcer. The patient had marked ptosis. There were no adhesions. The pylorus, as shown, is functioning normally, with a perfect duodenal cap. The pylorus is a little wider than normal.

Of the five patients in whom the duodenal ulcer (four cases) or stenosis (one case) appeared to be the chief or the only pathologic condition, every one is now complaint free. One has gained 32 pounds, one 30 pounds, one 20 pounds, one 9 pounds, and one (Mrs. W. W. H.) has not gained in weight.

Summing the clinical results, I find there were eleven patients on whom the new pyloroplasty was done, two of whom died. Of this number, three patients had gastric ulcers, with one death, which can hardly be justly attributed to the pyloroplasty; one is complaint free; one had recurrence, which required another operation, done recently, on the ulcer. There were two patients with pyloric stenosis; one is complaint free, the other died on the tenth day after operation of secondary hemorrhage from the incision in the posterior constricting band. This incision had been made too deep. There were six patients with duodenal ulcer; two, in whom the ulcer was probably not the chief pathologic condition, are greatly improved, but not complaint free; and four, in whom the ulcer was the sole or the chief lesion, are complaint free.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BALFOUR AND HORSLEY

Dr. Raymond P. Sullivan, Brooklyn: Dr. Balfour has presented clearly and concisely the interesting subject of recurrent hemorrhage from a gastric or duodenal ulcer. Three points are worthy of emphasis: (1) From the records of such a large clinic, it is evident that gastric hemorrhage is an indication of ulcer in only 25.8 per cent. of gastric ulcer and 20 per cent. of duodenal ulcer cases. Hence, the diagnosis of ulcer depends more especially on the clinical history and roentgen-ray findings. Gastric hemorrhage no longer has the significance formerly attributed to it in the diagnosis of ulcer, but is a very important factor when preceded or followed by definite symptoms. (2) The technic of handling either gastric or duodenal ulcer should be simple and direct. Excision is indicated in gastric ulcer but, when complicated by bleeding, duodenal excision or destruction should be practiced. Three methods of excision may be considered: (*a*) Suture exclusion or devitilization. This method is rarely practiced today because of its uncertainty in uniformly removing infected tissue, and it has given way to more direct methods. (*b*) Excision by knife, followed by suture closure, is probably the most universal practice. However, it is apt to be attended by removal of too much tissue predisposing to greater subsequent deformity, or too little, thus favoring recurrence of ulcer, especially if nonabsorbable suture material is used, or retention of early cancer cells. (*c*) Perforation and destruction by actual cautery is direct and is attended by all the advantages of heat for sterilization; destruction of early cancer cells and control of hemorrhage. Whichever method is used, gastro-enterostomy should follow. In all bleeding duodenal ulcers, ligation of vessels immediately proximate to the ulcer must be considered, although undoubtedly Balfour's method of cautery destruction is a direct attack for destruction of the ulcer area. The third practical lesson to be derived from the paper is that gastro-enterostomy is never indicated because of gastric hemorrhage alone. Nevertheless most cases of gastric hemorrhage are probably surgical due to septic condition of the gallbladder and pancreas or spleen or appendix. I wish to draw attention to the fact that a varicose condition of the veins of the cardia, which frequently accompanies heart or liver disease or in arteriosclerosis, may give rise to gastric hemorrhage, especially if lavage is practiced. In dealing with a perforating adherent bleeding ulcer of the posterior wall of the stomach, the operative procedure must depend on the skill and judgment of the operator. Future risk to the patient for recurrent hemorrhage or development of cancer will depend on the radical removal of the ulcer area. In these cases I have used a combined cautery method after careful knife dissection of the adherent area and have had satisfactory results. The figures presented by Dr. Balfour indicate that a cautery destruction of bleeding ulcers offers a greater protection to the patient against recurrent hemorrhage, and it promises to be a standard technic.

Dr. Alfred A. Strauss, Chicago: I think Dr. Balfour has given the medical profession something to think about regarding the value of simple gastro-enterostomy. I hope he will be more successful in persuading the profession on this point than I was five years ago, when I insisted that gastro-enterostomy alone has little value in gastric and duodenal ulcer, and that all ulcers should be excised, if at all possible. At that time I demonstrated methods of excising ulcers, not only in the upper portion of the stomach but also in the pyloric region and in the duodenum, by reconstructing those portions of the stomach, after excision of the ulcer, by means of fascial transplants reinforced by the free edge of the attached omentum. The use of the omentum not only prevents hemorrhage and leakage, but also furnishes a new collateral blood supply to that portion of the stomach. For the ulcers occurring on the posterior wall of the body of the stomach, which are adherent and cannot be freed, the transgastric incision through the anterior wall of the stomach and the Balfour cauterization method are ideal. As to the question of excision versus cauterization, I do not think one can always tell whether or not the ulcer is malignant, as shown by McCarthy of the Mayo Clinic. It can readily be seen that the Balfour method of plunging the cautery into the center of the ulcer may leave the malignant edges of the ulcer. I therefore believe that wide excision by means of the cautery knife is more effective. I do not believe that gastro-enterostomy after excision of the ulcer is necessary. The purpose of this gastro-enterostomy is to give the stomach a normal, or quicker than normal, emptying time and this can be accomplished by a very simple pyloroplasty. By making an incision one inch in length extending from the pyloric ring back onto the stomach, through the muscularis down to the mucosa, and a half inch incision along the ring at right angles to the first incision on each side, a wedge shaped piece of the pyloric muscularis can be removed. This allows the mucosa to bulge and this is covered with the free edge of the attached omentum. This simple plastic operation can be done in a few minutes; it destroys the sphincter control and allows the stomach to empty from one and one half to two hours. A fluoroscopic examination of sixteen cases operated by this method showed the emptying time to be from one and one half to two hours.

Dr. J. B. Blake, Boston: Dr. Horsley has reported his unfavorable as well as his favorable results. If this were not true an operation which suggests the limitation of gastro-enterostomy could not be so well considered. I want to comment on three points in his paper: (1) The parallel which exists between ulcers of the anal sphincter and ulcers of the pyloric sphincter; (2) the function of the pylorus and the importance of maintaining that function, restoring it if possible, and (3) the very great importance of giving this method a fair trial and the necessity of following exactly what Dr. Horsley has pointed out if we are to try his method. So far as I am aware this is the first time that a parallel has been cited between an ulcer of the anal sphincter and ulcer of the pyloric sphincter. At first it seems a little far-fetched but if you will recall what Dr. Horsley pointed out the parallel is closer than one might at first believe. The action of both sphincters is essential to health. One cannot be absolutely normal with the exclusion or removal of either of the two sphincters. The ulcer in one is as much a source of irritation and spasm as in the other. Dr. Horsley referred to the fact that the stomach is not a passive bag and cannot be drained by a hole in the bottom, that the pylorus is a bit of highly organized physiologic tissue intended to empty the stomach. That it will do so is proved by the fact that any effort of exclusion of the pylorus other than excision has practically never been successful. Even if the pylorus is damaged, it still attempts, and is usually successful in emptying at least part of the stomach. Operations before this time have been of one or two classes. Surgeons have done gastro-enterostomy and excised the pylorus or else they have done one of the exclusion operations which are never successful. I am speaking particularly of cases in which gastro-enterostomy is done and nothing else. Dr. Balfour has shown that in the bleeding ulcer it is not effective, certainly not in ulcers in which bleeding is a prominent feature. If we can substitute an effective operation on the pylorus and restore its function gastro-enterostomy may become unnecessary. No operation can stand, nor should it fall, on the experience or the operative technic of one man alone. Dr. Horsley's operation should be repeated by good operators in all parts of the country. Only then will it be known whether this is going to limit gastro-enterostomy and give something more efficient and more simple.

Dr. Horsley's operation is useful if the ulcer is situated on the anterior surface of the duodenum and if the pyloric ring and antrum are wide. If they are narrow the operation would seem rather difficult. I think a procedure which I have employed a number of times after excision of a duodenal ulcer is more practicable. By taking a tongue-shaped portion of the pyloric antrum and pulling it through the incised ring, the defect left by removal of the ulcer may be corrected. The mucosa and the muscularis are sutured separately and the edges do not have to be inverted. The free edge of the omentum is brought over the operated area. In the ulcers on the lesser curvature demonstrated by Dr. Horsley I do not think that the additional extensive plastic operation for paralyzing the pyloric sphincter is justifiable, when the same effect can be accomplished by cutting a small portion of the pyloric sphincter muscle away, without incising the mucosa.

Dr. John T. Bottomley, Boston: The crux of the matter, of course, is the removal of the ulcer. We must remember, too, that when we excise an ulcer of the stomach or the duodenum we are removing only the end stage of some other pathologic process; hence we should always search for the foci of infection in the gallbladder, appendix, teeth, tonsils, or elsewhere. Even destruction of the ulcer by cautery will not always result in its cure. I have operated on an ulcer of the stomach which had been twice thoroughly cauterized by a most competent surgeon; the symptoms continued until finally resection of the stomach had to be done. No one method is a cure-all in cases of ulcer of the stomach. Destruction by the cautery is not an absolutely certain method of cure but it is a most excellent method and should be tried. I am surprised that so accurate an observer as Dr. Blake failed to remember that Dr. Codman of Boston years ago called attention to the parallelism between the sphincter of the pylorus and the anal sphincter.

Dr. George Goodhue, Dayton, Ohio: The operation on my duodenal ulcer consisted in ligation of vessels running to the ulcer and a gastro-enterostomy ten days after a very severe hemorrhage. Perhaps I am prejudiced but I am in favor of that operation. Surely the mortality of 1.6 per cent. as compared with two out of eleven would seem to lead us to accept gastro-enterostomy as formerly done. For eight years prior to my hemorrhage I was aware of the possession of a duodenal ulcer but I hesitated in accepting an operation because foreign publications in regard to results were unfavorable and the Rochester Clinic had not published a very full report at that time. Their later report, if I remember correctly, shows that about 98 per cent. of operations for cure of duodenal ulcer by gastro-enterostomy give satisfactory results. It seems to me that with such a statement as that we should be inclined to follow the old method unless something else could be shown to be much superior. So far as my own personal condition is concerned, I am unaware of any operation having been done. The fluoroscope shows everything passing through the new opening and I think some of the faults which have led to disfavor in this operation consisted in making the opening too near the cardiac end, as pointed out by Hartmann of France. It should be made in the motor part of the stomach, the pyloric end. It strikes me that the operation as done at the Rochester Clinic and by most other surgeons is founded on a reasonable and scientific basis and should not be discarded too readily.

Dr. John J. Gilbride, Philadelphia: Relative to these cases of severe hemorrhage in duodenal ulcer I wish to call attention to an unusual situation of duodenal ulcer occasionally observed. A number of years ago I saw in a Philadelphia hospital a man who was suffering from severe hemorrhage from a duodenal ulcer. This man died before the operation from hemorrhage. At the necropsy on exposure of the upper abdomen there was no sign of lesion in the duodenum. However, on opening the duodenum the ulcer was found in the upper and inner wall. Of course, unless one had considerable confidence in his diagnosis this case surely would have been missed even at operation. With confidence that one is dealing with duodenal ulcer the thing to do would be, of course, to make an incision through the duodenum and expose the ulcer. In the case referred to a gastro-enterostomy would not have been life saving. Then, again, one would have to be quite certain of the anatomy to deal with the ulcer here owing to the risk of occluding the common bile duct. In these cases, in speaking of the ligation of arteries for ulcer situated in other localities, of course, it would be perfectly obvious that it would be necessary in such a case as this one to ligate the duodenal branch of the gastroduodenalis artery and then do a gastro-enterostomy after closing the duodenal incision. Whether one would wish to deal with such an ulcer locally would be left to the individual operator. So far as I know such cases are not frequent. And this is the only case of which I have knowledge of an ulcer in this situation.

Dr. Albert J. Ochsner, Chicago: I wish to direct attention to a faulty premise which is introduced into every discussion of this subject. In experiments by Cannon and Blake the stomach of the healthy animals had the form needed to do its physiologic work. It is the business of the stomach to store a certain amount of food in one portion, grind it in another portion and deliver it through a normal pylorus. The diseased stomachs which we consider in these discussions have an accumulation of connective tissue and an obstruction in the region of the pylorus which produces an entirely different machine. When you make a gastro-enterostomy you permit the residual decomposed material to pass out of the pouch in the stomach into the duodenum. The conditions are entirely different from those in a normal stomach which could take care of its contents in a normal way. After that has happened, because there could no longer exist a quantity of residual material and you have given the musculature of the stomach time to resume its physiologic work, you make your observations again and find that the stomach walls are again doing their physiologic function in the old way.

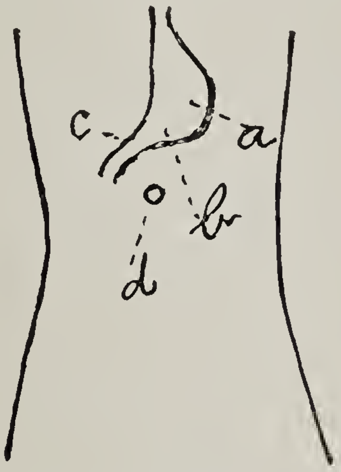

Fig. 1.—*a*, gastric pouch; *b*, pylorus; *c*, duodenum; *d*, umbilicus. The stomach outlet is at the lowest point in a normal stomach.

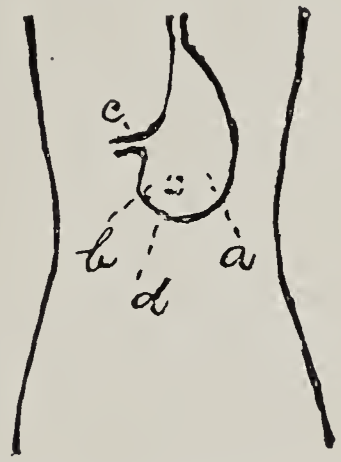

Fig. 2.—The position of these points is altered in the dilated stomach; hence the gastro-enterostomy opening is made between *a* and *b*.

Dr. Miles F. Porter, Fort Wayne, Ind.: Dr. Balfour said that not a few of these hemorrhages from the stomach and duodenum have their origin in toxic conditions elsewhere than in the stomach. He referred to the gallbladder, the pancreas and other organs as being possible sites of the process giving rise to toxic conditions. All of these points are worthy of emphasis. A further fact to which I would call attention is that given an individual who has, or has had, an ulcer of the stomach and has now the remains of it with the hemorrhage, it does not follow that the hemorrhage comes because of the ulcer. A patient came to me to be relieved of severe hemorrhage supposed to be due to a duodenal ulcer first diagnosed by me about fifteen years before. I did a posterior gastro-enterostomy and found a small insignificant scar on the anterior aspect of the duodenum within half an inch of the pylorus. For a few days he had a rather stormy time, apparently from kidney insufficiency, but after that he made a prompt recovery. He went along nicely for a time and then had a sudden hemorrhage. He was referred to another clinic and the pyloric portion of his stomach was removed. The man made another recovery and came back home. He had another collapse and another hemorrhage, and this has been repeated several times. My point is that my diagnosis was correct. He did have a duodenal ulcer, but he was bleeding because he had an arterial condition largely the result of a chronic contracted kidney which I overlooked. I made a mistake when I did the operation on his stomach. My friend who operated afterward made another mistake. There is some way, perhaps, by which we might arrive at the correct conclusion in these cases. If there is I would like to know how to do it.

Dr. William J. Mayo, Rochester, Minn.: I am very much interested in the operation proposed by Dr. Horsley, because the last word has not been said concerning ulcers of the stomach, and the best procedures for getting rid of them. I think, however, that we should ask Dr. Horsley to come before us next year when he will have had an opportunity to perfect his technic. As Dr. Blake says, in order to test the method his technic should be followed exactly. I must say that the two deaths in his eleven cases made me a bit conservative, although, as Dr. Horsley has pointed out, both deaths were due to accidental causes that might be avoided in the future. I think there is opportunity for such an operation and I hope that Dr. Horsley will carry it to its logical conclusion. The old question of cure as the result of operation comes up. Let us bear in mind that ulcers of the stomach and duodenum as they are seen by the surgeon are chronic diseases that have been treated medically for years. I have been asked, "When does a chronic ulcer of the stomach or duodenum become surgical?" For various reasons the answer has been: "After nine complete and perfect medical cures." With regard to the question of failure to cure surgically, I would put it down as a Hibernianism, that the first cause of failure is in doing an operation—gastro-enterostomy usually—on a patient who has no ulcer. We have records of having cut off more than 300 unnecessary gastro-enterostomies, closing the stomach and jejunum. These operations were done in cases in which there was no evidence either in the history or the condition found at the second operation that ulcer had existed. Fourteen of these were my own early cases. The most common cause of failure of operation to cure, when an ulcer really exists, is the use of silk as suture material which, in a certain percentage of cases, leads to secondary ulcer in the suture line. A very large majority of gastrojejunal ulcers (so-called jejunal) are due to ulcerations around silk sutures which cause the same symptoms as the original ulcer. In the course of time, in many instances, healing takes place as the silk passes out. Such cases are mostly responsible for the opinion that medical treatment is necessary after operation. In 1914 Dr. Charles H. Mayo stopped using silk. We all have now adopted catgut, and in more than 4,000 gastro-intestinal anastomoses of various kinds in the clinic there has not been a single instance in which catgut has failed to be satisfactory. Some of the gastrojejunal ulcers become chronic or complicated fistulas form between the colon, stomach, and jejunum. Regarding the excision by cautery and excision by knife: If an ulcer which is cancerous or is beginning to be cancerous is excised with the knife, cancerous cells may be grafted on the edges of the cut wall of the stomach. I have known this to happen so often that I am now afraid to cut into a cancer to take out a piece for microscopic examination, unless I remove the growth at once. I could report such unfortunate occurrences. We can say that there are three periods in the life of a normal cell, growth, function and senility. The malignant cell has but two periods, growth and senility; it has no period of function, but unfortunately it undergoes most active cell division in the embryonic stage. It has been shown that cancer cells are five times as vulnerable as the normal cells. If the cautery excision is used, cell division will be stopped at a distance beyond the actual excision.

Dr. Charles A. L. Reed, Cincinnati: When I heard Dr. Mayo say that the last word on this subject had not yet been spoken I was hopeful that he would speak it. Having listened to him I am still convinced that the last word has not been spoken; and I am quite sure that after I shall have concluded my remarks you, in turn, will say that the last word has not been spoken. The point to which I want to call attention is one which is of enormous importance in the pathology of this condition. Both the essayists called attention to the fact that in certain cases in which hemorrhage followed operation preexisting ptosis had remained uncorrected. I wish to call attention to the fact which has not been mentioned in either one of the papers that in every one of these cases in which this operation was done there was found the condition of extreme visceral cyanosis, a dammed back venous circulation, the primary effect of which is a gastric catarrh. With a general visceroptosis there will be, first, a general venous engorgement and, next, a resulting catarrhal condition of the duodenum and other portions of the alimentary tract, noticeably the colon. Then, as the back pressure in the veins increases to a certain point and the carbon dioxid content of the veins reaches a certain point, molecular death ensues in the follicles and the process of progressive ulceration is inaugurated. In the majority of these instances I am convinced, logically, although I am not able actually to demonstrate it, that these hemorrhages, preoperative and postoperative, are derived in whole or in part from the venous side of the circulation. Therefore, if you have a persistence of the ptosis which causes the venous engorgement and a persistence of the venous engorgement which causes the hemorrhage, you necessarily have a recurrence of the hemorrhage and a persistence of the ulcer. You have such general persistence of both these conditions simply because you have not eliminated the cause, or, in other words, the underlying pathologic factor in the venous circulation. I have been convinced of the importance of this angle of view by repeated experiences, and I find that in so far as I control and restore the venous circulation my recoveries are permanent, and that in so far as I fail to do this, my recoveries are uncertain, to say the least.

Dr. Donald C. Balfour, Rochester, Minn.: Ligation of vessels should always be considered when hemorrhage has occurred. Dr. Strauss makes a plea for excision alone in gastric ulcer. We have so frequently seen patients who have failed to secure relief from symptoms by excision alone, that we now always combine gastro-enterostomy with excision. Regarding excision by the knife or by cautery, Dr. W. J. Mayo has left nothing to be said, but I think the fact should be emphasized that experience with the cautery in malignancy shows that the cautery effectually destroys any cancer cells which may be in the ulcer base, and that knife excision of an ulcer which has undergone early malignant change is always associated with the danger of cancer cells grafting. The danger is avoided in cautery excision. In regard to the best operation in benign lesions of stomach and duodenum, any effort to establish a certain operation as a routine operation in such lesions is inadvisable, and it is only by making use of the various types of operations which have been devised that the surgeon will secure the best results.

Dr. J. Shelton Horsley, Richmond, Va.: The first death was due to hemorrhage from an ulcer in the cardiac portion of the posterior wall of the stomach. In the excision of this ulcer I did an intragastric incision and tied the mattress sutures too tightly in the mucosa of the stomach where the ulcer was excised. The second death was due to the fact that I cut too deeply. Here I am quite sure there would have been no occasion for secondary hemorrhage had I confined the incision to the scar tissue. It is hardly fair to condemn an operation because of two deaths of that character or to compare the mortality of a new procedure with that of a standardized operation such as gastro-enterostomy. Excluding stenosis and gastric ulcer, my mortality in duodenal ulcer is *nil.* I am doing the operation only because I believe I can get better results for my patients by this procedure. In treating ulcer in ano it is essential, after getting rid of the pathology, to obtain physiologic rest by eliminating or diminishing the function of the sphincter. In this operation we cut the pyloric end of the stomach for the same reason. Excision of the ulcer alone is not effectual. We incise at the region of greatest contraction and so give physiologic rest. I have used catgut throughout, following the suggestion of the Mayo Clinic. Dr. Ochsner said the stomachs in which operation for ulcer is done are dilated. This is because of obstruction or pyloric spasm, and if you remove the obstruction as advocated in this pyloroplasty you decrease the burden of the stomach in emptying its contents and it returns to the physiologic norm. The facts are that in this pyloroplasty the pathology is excised or corrected, the tissues are put at physiologic rest during healing which is a first principle in all surgery, and the stomach is returned to its normal function. In gastro-enterostomy, even if one closes the pylorus, it opens and a portion of the food goes over the ulcer, so but little rest is afforded; the ulcer is often not removed; and the stomach function is anything but physiologic.

THE PHYSIOLOGY OF SNEEZING *

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Sneezing may be defined as a spasmodic expiration preceded by one or more spasmodic inspirations. The expiration is momentarily opposed by the closure of the nasopharynx and a more or less complete closure of the mouth. With the onset of the expiration there is a rapid rise of intrapulmonic pressure which, when a certain value is attained, suddenly forces open the nasopharyngeal partition. In consequence, a blast of air is driven into and through the nasal chambers; at the same time, however, the mouth, not infrequently, is partially opened, thus permitting a portion of the blast to be driven through the buccal orifice. The object of the sneezing spasm is the dislodgment of mucus or other fluid from the surface of the nasal mucous membrane.

The act of sneezing is, in its entirety, quite complex, and may be subdivided for convenience of presentation into two phases, a nasal and a respiratory, both of which are reflex in character and involve two different reflex mechanisms, a nasal and a respiratory. Each mechanism consists of afferent nerves, a central mechanism, effected nerves and responsive organs.

THE RESPIRATORY PHASE

As the effective portion of the sneeze is the respiratory, it will be conducive to clearness if this is considered first.

The primary activity in this reflex is a deep inspiration or an enlargement of the thorax and lungs, which has as a result the inhalation and temporary storage of a large volume of air, a condition essential to the satisfactory accomplishment of the object of the sneeze. The inspiration is an active process and is accomplished by the simultaneous and coordinate contraction of various groups of muscles, among which, as representatives, may be mentioned the posterior crico-arytenoids, the diaphragm and the external intercostals. The coordinate action of the three groups of muscles implies the coordinate activity of three groups of nerve centers and their related nerves; thus, the activity of the posterior crico-arytenoids is called forth by the discharge of energy from the laryngeal center in the medulla oblongata, and transmitted by efferent fibers in the trunk of the vagus and their continuation in the inferior or recurrent laryngeal; the activity of the diaphragm and the external intercostals is called forth by the discharge of energy from the phrenic and intercostal centers in the cervical and thoracic segments of the spinal cord, respectively, and transmitted by the phrenic and intercostal nerves.

The coordinate contraction of the different inspiratory muscles implies a practically simultaneous discharge of nerve energy from each of the foregoing nerve centers; and this in turn necessitates the existence in the central nerve system of a single group of cells from which nerve impulses are discharged and transmitted by its axonic processes to the laryngeal, phrenic and intercostal nerve centers in the medulla oblongata and the spinal cord, and by which they in turn are excited to and coordinated in their activity. To this group of cells the term "inspiratory center" has been given.

Though the activity of the inspiratory center is normally regulated by nerve impulses ascending the vagus nerves from the lungs, nevertheless it is capable of stimulation in a more or less abnormal manner by the arrival of nerve impulses through other afferent nerves coming from different regions of the body.

The secondary activity in this reflex is a forcible expiration, or a diminution in the size of the thorax and the lungs, which has as a result a compression and expulsion of the previously stored volume of air. Though expiration is normally a passive process and accomplished by the recoil of the elastic forces of the thorax only, under the conditions characteristic of sneezing, these forces are reinforced by the coordinate contraction of various groups of muscles, among which, as representatives, may be mentioned the internal intercostals and the abdominal muscles.

The coordinate action of these groups of muscles likewise implies the coordinate activity of groups of nerve centers and their related nerves. Thus, the activity of the internal intercostals is called forth by the discharge of energy from nerve centers in the thoracic segments of the spinal cord and is transmitted by the intercostal nerves; the activity of the abdominal muscles is called forth by nerve energy discharged from the lower thoracic, and perhaps upper lumbar, segments, and is transmitted by the lower thoracic and the iliohypogastric nerves.

The coordinate contraction of the expiratory muscles implies a practically simultaneous discharge of nerve energy from each of the foregoing nerve centers; and this, in turn, necessitates the existence in the central nerve system of a single group of cells from which nerve impulses are discharged and transmitted by its axonic processes to the intercostal centers in the spinal cord, and by which they in turn are excited to and coordinated in their activity. To this group of cells the term "expiratory center" has been given.

As to the manner in which the expiratory center is stimulated, if at all, under normal conditions of respiration, there is not much definite information available. But as a forced expiration always involves a volitional effort or a discharge and transmission of nerve energy from the cerebrum to the expiratory center, it may be conceived that under the conditions of the respiratory apparatus peculiar to sneezing, the expiratory center is aroused to activity by the descent of nerve impulses from the cerebrum.

Just preceding and conditioning the forcible expiratory effort, the respiratory passage is shut off from the nasal cavities by a partition formed by the elevation of the palate, the advance of the posterior half arches, and the contraction of the superior constrictor of the pharynx. This cooperative muscle contraction results from the discharge of energy from the cells of origin of the spinal accessory nerves.

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At this moment the intrapulmonic air is compressed on all sides by the descent of the ribs, the result of the contraction of the internal intercostal muscles, and by the upward movement of the abdominal viscera, the result of the contraction of the abdominal muscles. With the rise of the intrapulmonic pressure, there comes a moment when the nasopharyngeal partition is forcibly separated, and the air is driven into and through the nasal chambers with a more or less complete dislodgment of the mucus.

The afferent portion of the nerve mechanism, by which the inspiratory reflex is occasioned, consists of fibers of the trigeminal nerve, the peripheral terminations of which are distributed to the nasal mucous membrane, and the central terminations related histologically and physiologically to the inspiratory center.

The stimulus adequate to the excitation of these peripheral nerve endings is a dilatation of nasal blood vessels and the discharge of clear, slightly viscid secretion, perhaps specific in character, from the glands embedded in some portion of the nasal mucous membrane. When this secretion is discharged and begins to trickle over the terminals of the nerve endings in certain regions, nerve impulses are developed which, transmitted to the inspiratory center, stimulate it and cause it suddenly to discharge energy to the spinal inspiratory centers and muscles. With this, the effective portion of the sneezing mechanism is excited and coordinated in activity.

Coincidently with the stimulation of the afferent nerve fibers of this reflex mechanism, there occurs simultaneously a stimulation of purely sensory nerves. The nerve impulses developed in them are transmitted to sensory areas in the cortex of the cerebrum, where they evoke sensations of a peculiar trickling or quivering character which contribute much to the pleasure of the sneeze, and at the same time lead to various muscle reactions and sounds of a more or less pronounced character.

THE NASAL PHASE

As stated in a previous paragraph, the stimulus adequate to the excitation of the sneezing mechanism is the production and discharge of a secretion from glands in the nasal mucous membrane. The production of this secretion is also a reflex act and involves a nerve mechanism consisting of afferent nerves, central cells, efferent nerves and their related responsive organs, glands and blood vessels. Collectively their physiologic action constitutes the nasal phase of sneezing.

The production of the stimulating secretion requires the cooperation of blood vessels and gland epithelium, both of which require for the manifestation of their activity the stimulating influence of nerve energy originating in the central nerve system and transmitted to them by the afferent nerves of the reflex mechanism.

The nerves distributed to these structures belong to the autonomic system, and therefore consist of two consecutively arranged and histologically related neurons known as preganglionic and postganglionic.

In a consideration of this mechanism it will be convenient to consider the postganglionic neurons first. The cell bodies of these neurons are found in, and compose in large part, the sphenopalatine ganglion. From these cells axonic processes pass forward to become histologically related to the walls of the blood vessels and the epithelium of the nasal glands, from which it may be inferred that the sphenopalatine cells are related to vasomotor and secretomotor phenomena. The sphenopalatine cells, however, do not possess spontaneity of action, but require for their excitation the arrival of nerve energy, originating in cells in the central nerve system and transmitted to them by their preganglionic axons. These cells, which constitute the central part of this reflex mechanism, are located in the gray matter beneath the floor of the fourth ventricle. The axonic processes to which they give rise pass forward and emerge from the medulla in the nerve of Wrisberg, of which they constitute a large part; they then pass into the sheath of the facial nerve; after a very short course they leave the facial nerve at the genu, and after that become the great petrosal nerve, the peripheral terminations of which arborize around the cells of the sphenopalatine ganglion.

There is thus established a pathway between the central nerve system and these local peripheral organs along which nerve impulses pass from the center to the periphery. That this is the case is shown by the results of experimentation; thus, if the great petrosal nerve in one of the higher mammals is divided and its peripheral end stimulated with induced electric currents, there promptly occurs a dilatation of the nasal blood vessels and a secretion from the nasal glands. Stimulation of the sphenopalatine ganglion has a similar result. From these facts it may be inferred that the nerve fibers composing the great petrosal nerve, as well as the cells from which they arise, are divisible into two groups, namely, vasodilatator and secretomotor. Any stimulation, therefore, of the central cells will be followed by vascular engorgement and the discharge of mucus.

The afferent portion of the mechanism is widely distributed, though it may be said to consist mainly of (1) cutaneous nerves, (2) nasal branches of the trigeminal, (3) visceral afferent nerves, and (4) nerves descending from the cerebrum.

The stimulation of certain cutaneous nerves, as is frequently the case when they are suddenly exposed to a low temperature or cooled by currents of air, will cause a dilatation of the nasal blood vessels and a discharge of mucus, which in a short time will stimulate afferent nerve endings and occasion a series of reflex spasmodic sneezes. This stimulation holds true for the ankle, neck and head areas of the skin. The impulses thus peripherally generated are transmitted to the central vasodilatator and secretmotor cells, and excite them to activity.

Stimulation of the trigeminal nerve endings, chiefly in the nose, perhaps elsewhere, will cause the same vascular and secretory conditions, as is well known. The stimuli capable of exciting these nerve endings may be mechanical and chemical, as well as organic, emanations, of a more or less unknown nature, from animals and plants. Here, again, the primary effect of these stimuli is the production of the nasal mucus.

Stimulation of other sensor nerve endings, of the glossopharyngeal, the vagus, etc., has been observed to cause the same nasal phenomena, followed by more or less pronounced sneezing.

PSYCHIC STIMULATION

Stimulation of vasomotor, secretomotor and visceromotor centers in the medulla oblongata and spinal cord, by nerve impulses descending from the cerebrum in consequence of psychic states of an affective or notional character, is a well attested fact. It is only ecessary to recall the effects of psychic states on the erve centers regulating the vascular and secretory henomena preceding the discharge of saliva and gasic juice; and on the nerve centers regulating the asodilatator and the secretomotor phenomena of the xual organs. Paralleling these effects are the effects f the psychic states on the vasodilatator and secretootor phenomena of the nasal organs. It has, morever, been frequently observed that the nasal and sexal phenomena often coexist, the two not standing, owever, in the relation of cause and effect but as sults of the same psychic state.

PATHOLOGIC CONDITIONS

In this presentation the attention has been limited the consideration of the normal or physiologic conition. This, if properly conceived, may assist in the terpretation of pathologic conditions. It is quite pparent that pathologic conditions might arise from n alteration in the way of an increase in the irritabily of the afferent portion of the mechanism of the asal phase of the reflex. Local pathologic states freuently so exalt the irritability of the nerve endings iat a slight additional stimulation develops a greater umber of nerve impulses than would otherwise be ie case. As a result, the associated central cells are iore profoundly stimulated and cause by their greater ischarge of energy more pronounced peripheral ffects. It not infrequently happens, also, that the erve impulses thus developed are so numerous that hey overflow their customary channels and stimulate asodilatator, secretomotor and visceromotor centers n different levels of the medulla oblongata and the pinal cord, causing, in addition, the development of athologic phenomena in the respiratory, the circulaory and other organs as well. Instability of the central iechanism, either in itself or as an expression of a iore general nerve cell instability, the result of heredy or of dietetic or sexual excesses or other conditions, iay lead to similar results.

NASAL HYDRORRHEA *

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The rare disease, called by Bosworth nasal hydrorhea, by others rhinedema or edematous rhinitis, ias been given little attention in the literature of ur specialty. There is no description of it in the ooks written by Ingalls, Coakley, Watson Wiliams, Packard, G yson, Gile or Reik. Gleason vrites of it very briefly. In the last edition of iis book, he describes two types, the inflammatory nd the noninflammatory. Coolidge writes of it s would an author who had had no opportunity to tudy cases. The same statement would apply to 3allenger's work. Price Brown describes one case. hurley's description is very brief. D. Braden Kyle, n the early edition of his book, says he can find uthentic records of only twenty-seven cases. Grayon[1] describes it, although his title is, "The Nasal Phenomena of Neurasthenia." Phillips gives less than half a page to a description of this disease, and much of that space is taken up with the chemistry of the discharge. There are numerous references to it in the *Index Medicus*, but careful reading of the articles reveals that everything from hay-fever to the nervous degeneration of advanced diabetes has been described as nasal hydrorrhea.

Because so little attention has been given it, cases are being overlooked by good men, and this is sufficient reason for presenting the topic to this section.

We do not know the cause of the disease. Curtis has found it associated with sexual perversion in young adults, but this is not a factor in many cases. I can find no record of postmortem examinations of the pathologic condition. The cases described by Bosworth, in which postmortems were performed, were undoubtedly unrecognized cases of sinus suppuration. Lacking the exact knowledge of its pathology, we can best define nasal hydrorrhea as an obscure nervous disease, the chief symptoms of which are nasal. There is some relation between this disease and that very obscure nervous affliction known as angioneurotic edema. The phenomena of the two diseases are similar. In three of my patients, both conditions were present. The disease is most common among younger men and women of sedentary habits. There are no known external exciting causes such as produce hay-fever, or as in the edema produced in certain persons by the emanations of horses, cats or other animals. The local pathologic condition is a dropsy. The connective tissue interspaces of the turbinated bodies are filled with serum. If surgical intervention is necessary in the typical cases, the fluid discharged is only slightly blood tinged instead of showing evidence of the free hemorrhage resulting when a turbinate is injured.

The characteristic symptoms of nasal hydrorrhea are a sense of extreme irritation in the nose, followed by sneezing and a very profuse watery discharge from both nostrils. The discharge varies in amount from an ounce to a half pint in twenty-four hours. The fluid is alkaline and contains small amounts of sodium chlorid and traces of phosphates. The presence of mucin differentiates it from the cerebrospinal fluid discharged from the nose after injuries.

In some patients, the discharge persists throughout the day. In others it is periodical, flowing for hours and then ceasing until the next day. Cold winds, dampness and dust aggravate the symptoms. After some months of this annoying flow, polypi appear. Their removal has only a mechanical effect in opening the nostril, as the other symptoms are not modified. They soon recur.

A direct examination of the nose reveals that the mucosa is pale bluish, sometimes translucent. The swollen turbinates entirely fill the nasal cavity. Persistent rubbing with cotton pledgets soaked with an epinephrin and cocain solution will sometimes enable one to shrink the tissues temporarily until it can be seen that no hypertrophy is present. Usually the entire length of the turbinated body is affected. In some cases the anterior portion, in others the posterior portion is more edematous. The disease may begin at any season of the year, and last for months or years.

We have a distinct clinical picture of a rare disease, the symptoms of which resemble hay-fever, but which is not hay-fever. One reason for the opinion that the disease is nervous in its origin and that the nasal symptoms are significant only of lesions in the nerve centers is the marked mental depression, amounting almost to melancholia, from which these patients suffer. Another reason is, I think, from my experience in the cases I have treated, that any unusual mental or emotional strain greatly aggravates the nasal symptoms. A final reason for the belief in the essentially nervous origin of the disease is the absolute failure of local treatment to give relief, and the success of tonic and hygienic measures. There is no evidence to show that the disease is one of anaphylaxis, or one due to disorders of the endocrine glands.

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* Read before the Section on Laryngology, Otology and Rhinology t the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Grayson: The Nasal Phenomena of Neurasthenia, Laryngoscope, December, 1910.

REPORT OF CASES

Case 1.—My first patient, treated thirty-three years ago, was a merchant, aged 30. While in his store in the mornings, between 9 and 10 o'clock, he would feel a sudden occlusion of the nostrils, and before he could get a handkerchief out of his pocket the serum would be dripping from his nose. The flow would continue for about six hours; then he would be comfortable until the next morning, when it would recur. During the attack the lower eyelids would be black from venous congestion. These daily periods of suffering would persist for six weeks, and then he would have several months of ease, only to suffer again in the former way if worried by business responsibilities or if overworked. He finally made a complete recovery. Neither polypi nor sinus suppuration developed in this case. He is still living and in good health.

Case 2.—Another typical case of nasal hydrorrhea was that of a maiden lady, aged 40. She had suffered for months before I saw her. Polypi had already developed in this case. Their removal gave little relief, as the edematous turbinates promptly filled the space left by their removal. The nasal stenosis and constant free discharge greatly interfered with her rest, and her general condition was bad. Under tonic and hygienic treatment, she improved for a time. She was passing through the menopause, and at every recurrence of menstruation, usually once in three months, there was a return of the acute nasal distress. This exacerbation would last for varying periods, and then would come an interval of comfort. Local treatment never had any notable effect in relieving her. Something had to be done to the nose for the effect in relieving the woman's mental depression, but all the real good accomplished was effected by the use of hygienic measures. Ten years after beginning treatment, she still has occasional attacks.

Case 3.—Another patient, a physician's wife, had been treated for several months by one of my colleagues for hypertrophic rhinitis. There was no evidence of inflammation in the nose, and the very profuse discharge revealed the true nature of the case. Sprays of a weak solution of epinephrin gave some relief to his patient. Vigorous outdoor exercise and cold douches to the spine effected a cure.

Case 4.—A case with an interesting sequel is that of E. T. C., an attorney, who was under observation for three years. He also was treated for hypertrophic rhinitis before I saw him. There were polypi present in this case, when I first examined him, and the anterior end of the left middle turbinate bone was dead. Removal of the polypi and of the diseased bone gave some relief, but I was never able to prevent recurring attacks. The patient was a man of good habits and otherwise healthy. His manner of living was in accord with the best teachings of modern medicine, except that he was overworked. Excessive mental exertion seemed to be the most common cause of an acute attack. Sometimes the preparation of an important case for trial would bring on the acute condition, and the nasal obstruction and the loss of sleep would so impair his mental progress that he would be unable to try the case.

At other times the strain of a court trial would be the exciting factor, and he would come to my office with open mouth, serum dripping from his nose, eyes red from loss of sleep, throat congested from the mouth breathing and, altogether, would present a pitiable object of human suffering. Even in his quiescent periods, the membrane in the nose was always pale and bluish. In December, 1910, while visiting in Chicago, he had an attack of angioneurotic edema involving the whole face except the nose. He was confined to his bed for a week with this illness. Since that time there has been no recurrence of edema. The occurrence of an attack o angioneurotic edema in a typical case is another evidence o the essentially nervous nature of the disease. He later developed a frontal sinusitis and was operated on by one o my colleagues.

Case 5.—The nervous disturbances attending the first pregnancy in a young married woman seemed to be the exciting factor in this case. So extreme was the edema that the dropsical anterior ends of the inferior turbinates could be seen at the nostrils. No amount of epinephrin and cocain would shrink the tissues so that any air could be inhaled through the nostrils. The patient could not lie down to sleep without causing dyspnea. Her mental condition was that of beginning melancholia. Prompt relief was imperative; so I resorted to operation rather than wait for the slower results of hygienic treatment. The anterior ends of the inferior and middle turbinates in the right nostril were removed. A few days later the anterior end of the inferior turbinate in the left nostril was snared off. This gave sufficient breathing room to let her lie down and, with tonic treatment, improvement was rapid. This patient had a slight recurrence in the early weeks of a second pregnancy.

Case 6.—In the case of a young man seen in December 1918, the nasal dropsy extended to the palate, producing suffocative symptoms. He is syphilitic, and the anemia due to that disease aggravates the attacks.

DIFFERENTIAL DIAGNOSIS.

The differential diagnosis of nasal hydrorrhea must be made from hay-fever and from the escape of cerebrospinal fluid from the nose. Attacks of nasal hydrorrhea occur at any season of the year and are not excited by pollen. The discharge of nasal hydrorrhea contains mucin and no sugar. The cerebrospinal fluid contains no mucin and precipitates Fehling's solution.

Case 7.—One unusual case I saw in 1910 could easily have been mistaken for unilateral hydrorrhea. All the partition cell walls in the right ethmoid had been destroyed. The cavity was lined with a membrane secreting a clear fluid. There was a small opening in the cavity above the middle turbinate. When the patient stooped, a half ounce of fluid would gush from the nostril. Free opening of the cystlike cavity cured her.

TREATMENT

In the mild cases, sprays of epinephrin solution, one part of epinephrin to 7,000 of saturated solution of boric acid, have sometimes given relief. In the severer cases, the epinephrin preparations do not secure even temporary contraction of the vessels in the turbinated bodies. Cocain must be applied only by the physician himself, and with extreme caution. The patient's mental condition is such that he will use anything to open the occluded nostrils and check the discharge, and the drug habit is quickly formed. A spray solution that has given a remarkably prompt relief in acute inflammation of the nose would seem to be useful in nasal hydrorrhea. The formula is given herewith:

FORMULA OF SPRAY SOLUTION*

Atropin (alkaloid)	gr. ss
Epinephrin	gr. i
Menthol	gtt. xxiv
Camphor	gtt. xii
Oil of sweet almond	fl℥ ii
Liquid petrolatum	fl℥ vi

Mix and dissolve.

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* As this solution is one the druggist cannot make without special instructions, the method of dissolving the epinephrin in oil is given. Triturate the menthol, camphor, epinephrin and atropin (alkaloid) in a mortar until they liquefy. Continue trituration for some time after liquefaction "until the mortar rings." Add the mixed oil of sweet almonds and liquid petrolatum very slowly, with constant stirring. Bottle and let stand for twenty-four hours with occasional shaking. Filter through a dry funnel into a dry bottle, and the preparation is ready for use.

Operative measures, except for the removal of lypi, should be used with extreme caution. A real ysician does not amputate a dropsical leg, but seeks e cause of the dropsy and treats the causal condition. dropsical turbinate should also be treated conserva-ely, and the cure of the disease should be our aim.

As most of these patients are women or men of dentary habits, active exercise in the open air is the st essential treatment. If this exercise is vigorous ough to produce free perspiration, the result will much better.

The exercise should be followed by a hot, cleansing ower bath, ending with a cold shower down the ine. In some very delicate women, massage must given for a time to tone up the flabby muscles so at exercise can be taken. The bowels and kidneys ust be kept active with salines and natural aperient aters. If the open air exercise is taken, the appe-te and nutrition will be restored without medication. erve tonics help in the early cases.

The only positive claim for a cure by medication hich I can find in medical literature is that of Lake. le gives from 30 to 40 grains of calcium lactate daily.

RECAPITULATION

There is a rare disease with edema of the turbinated odies as its most characteristic feature. This edema not secondary to inflammations in the nose or acces-ory sinuses. The degenerative changes in the nasal ssues are result and not a cause of edema.

The disease is not caused by climatic conditions or easonal changes. It is chronic in its course, often sting, with occasional intermissions, for years.

The nasal edema is probably a symptom of a ner-ous disease.

ASTHMA AS A NASAL REFLEX *

GREENFIELD SLUDER, M.D.

ST. LOUIS

The consideration of asthma as a reflex from nasal isease has been a matter of interest to all of us for any years, primarily because of clinical results that re sometimes obtained by its treatment, and also ecause of the scientific interest we have in its prob-ems.

This chapter of medicine was an enigma to me until e past few years: none of the observations published eemed to explain the mechanism of the disease.[1] Now, he question seems to me to present possibilities, if not f solution, certainly of interesting speculation. These leas came to me in the course of my observations on he "lower half" headache[2] produced in sphenoidal and asal ganglion lesions.

To my mind, the explanation of the pain produced rom the nasal (sphenopalatine-Meckel's) ganglion, ecessitates the assumption of functions on the part of he sympathetic nervous system which cannot be roved, according to the conclusions of the foremost men who have worked in this field—Langley,[3] Gaskell,[4] Ranson,[5] and others.[6]

The question of whether or not asthma is a clinical entity is much too large to be considered in such a presentation as this, as is also the question of the sympathetic nervous system, except for the special points I want to mention.

In my explanation of the "lower-half" headache, it must be assumed that in man the sympathetic nervous system has the power of transmitting, under pathologic conditions, afferent pain impulses from the nasal ganglion into the neck and shoulder, etc., though the entire argument of anatomists and physiologists at present is against this assumption. Some of the writers speak of sensory fibers in the sympathetic nervous system. These are stated definitely[7] to be dendrites of neurons, which have their cell-bodies in the posterior root ganglions; and it is asserted that they are transmitted by the sympathetic trunk merely as a pathway. Buch[8] seems to have proved that the sympathetic nervous system, in some way, is capable of transmitting afferent pain impulses.

In my explanation of asthma as a nasal reflex, it must be assumed that the sympathetic nervous system is also capable of transmitting afferent impulses which are not painful sensory ones, because many patients with nasal asthma do not have any pain of any kind. If this be true, the explanation of asthma as a nasal reflex becomes possible.

It is known that the sympathetic nervous system in the nose is derived from the nasal ganglion. This receives its sympathetic nerve supply from the vidian nerve; the great deep petrosal; the carotid plexus; the superior cervical ganglion, etc. If, then, the sympathetic nervous system has the power of transmitting afferent impulses, the impulse may readily be traced from the inflamed nose by way of the nasal ganglion, the vidian nerve, the carotid plexus, to the sympathetic trunk in the neck to the lower cervical and first thoracic ganglions, which are often united, and frequently spoken of as the stellate ganglion.

Through this ganglion pass the fibers from the second, third and fourth thoracic nerves that turn downward, being accelerator fibers for the heart, and vasomotor fibers for the lung.

In what way the impulse is transferred from the cervical sympathetic to the cardio-accelerator and pulmonary vasomotor fibers is not to be speculated on at present; nor is it possible to speculate as to which ganglion serves as the relay or transfer station for the impulse. Langley[3] states that the cardio-accelerator fibers arise in the second, third and fourth thoracic nerves, and pass through or to, the first thoracic or inferior cervical ganglion, thence to the heart. Ranson states that these fibers go to the inferior middle and superior cervical ganglions, and thence to the heart. Langley states that the vasomotor fibers for the

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* Read before the Section on Laryngology, Otology and Rhinology t the Seventieth Annual Session of the American Medical Associaion, Atlantic City, N. J., June, 1919.

[1] One of the best statements of the questions concerned in it is y H. L. Lack: (Diseases of the Nose, New York, Longmans, Green Co., 1905). He, too, is of the opinion that nothing in the literature ears on the nasal mechanism of the disease.

[2] "Lower-half" headache is a convenient designation for pain in nd about the eye, the maxilla and the teeth, passing back to the emple, ear, mastoid, occiput, neck and shoulder. For further detail ee Sluder, Greenfield: Headaches and Eye Disorders of Nasal Origin, t. Louis, Mosby & Company, 1918.

[3] Langley, in Schaffer: Text Book of Physiology 2.

[4] Gaskell, W. H.: The Involuntary Nervous System, New York, Longmans, Green & Co., 1916.

[5] Ranson: An Introduction to a Series of Studies on the Sympathetic Nervous System, J. Comp. Neurol. **29:** 305, 1916.

[6] The literature of the sympathetic (involuntary) nervous system is somewhat difficult to read because of the nomenclature, which is still in considerable confusion. There are three separate nomenclatures, and there are also three types of observers, namely, the anatomists, the physiologists and the neurologists. I use the term sympathetic in the older sense, as including the entire involuntary nervous system.

[7] Herrick, C. J.: An Introduction to Neurology, Philadelphia, J. B. Saunders Company, 1916.

[8] Buch: Die Sensibilitätsverhältnisse der Symp. d. N. Vagus mit besonderer Berücksich. i. Schmerzemif. i. Berliche d. Bauch. Arch. Physiol., 1901, pp. 197-221.

lung arise in the third to seventh thoracic nerves, and pass up to the inferior cervical ganglion, and then to the lung. Ranson does not mention the pathway of these fibers. It would seem that the relay station for the asthma reflex must be in the cervical sympathetic ganglions, whereas the pain in the neck and shoulder would seem to be relayed in the posterior root ganglions; and it would appear that the asthma impulse must be inhibitory to the vasomotor fibers.

EXPERIMENTAL AND CLINICAL DATA

In a perusal of the literature of the sympathetic nervous system, one is impressed by several difficulties in utilizing for clinical purposes the information found. One fact appears very soon, to wit, almost none of the observations have been made on man. Another is that the animals studied vary considerably, giving rise to the feeling that man is probably different from any of the lower animals. Kuntz[9] observed the development of the cervical sympathetic ganglions of the fish, amphibia, turtle, chick and pig. He found that the nasal ganglion developed from cells which had their origins in the geniculate and gasserian ganglions, and advanced along the great superficial petrosal and maxillary nerves, respectively. There were differences in different animals.

In thinking of afferent qualities in the sympathetic nervous system, the sensory origin of some of its cells comes to mind.

None of this argument is other than speculation, based on some anatomic data in connection with the sympathetic nervous system. The most generous thought of it is that it may possibly be considered as a theory of the nasal asthma mechanism.

The clinical side of the question, however, is a set of simple facts. All of us have from time to time read of, and possibly observed, strange phenomena in connection with the nose. We read also of the general application of cocain and of many procedures in the nose, curing or helping asthma. My personal experience along these lines has always been disappointing. Removal of polyps, for instance, at my hands, has never influenced asthma; but I know well that others have been more fortunate. This is true also of resection of the septum, and the treatment of the anterior paranasal cells.

I have, however, been much more fortunate in the treatment of the posterior part of the nasal cavity. Here, to my mind, the question is one of whether or not the condition is due to irritation of the sympathetic nervous system, either in the nasal ganglion or in the course of the vidian nerve as it passes forward through the floor of the sphenoidal sinus.

If this be correct, I can understand how in some cases the sympathetic fibers, as they course from the nasal ganglion into the nose in some specially irritated states, might be the starting point for the reflex, instead of a point further back, to wit, the ganglion or the vidian. Practically, however, this has not been my experience.

If the asthma reflex may be best controlled from the nasal ganglion or the sphenoid sinus, they should also be the places from which the reflex may at least sometimes be started experimentally, or accidentally. This has also been my experience, as the following will indicate:

REPORT OF CASES

Case 1.—The application of horse serum to any part of the patient's nose in an instance of horse asthma, was very irritating, producing at once sneezing, swelling and serous secretion; but the asthmatic attack was produced only from the nasal ganglion region. A subcutaneous injection of sufficient horse serum brought on asthma.

Case 2.—In a case of severe asthma, with upper and middle meatus polyps, the middle turbinate and middle meatus polyps had been removed with the anterior ethmoid cells on both sides. The procedure had, of course, required a considerable cocainization; but neither the surgery nor the cocainization had at all influenced the asthma. Whether the upper meatus lesion was recognizable by the rhinologist at that time, is unknown to me. The case was clearly recognizable when the patient consulted me, one year later. I at once performed the nasal ganglion experiment of cocainization, trying to help it. A drop of 90 per cent. solution was applied to the sphenopalatine foramen, and at once relieved the asthma. The patient stated that that spot had never been touched before. He did not know I had used cocain, or where I put it. I opened the postethmoidal and sphenoidal cells later. The sphenoid was full of polyps. The bone lesion is not controlled. Polyps reform, and he still has asthma. An autogenous vaccine of staphylococci has helped the bone lesion, and the asthma is much better. A coryza reestablishes all of his troubles, polyps and asthma. This case is of twenty years' standing. Epinephrin administered subcutaneously stops the asthma.

Case 3.—In an instance of long standing and great severity, in every way similar to the one preceding, cocain applied to the nasal ganglion was found to have a reversed action. Instead of helping, it at once made the attack violent. This is a rare reaction, seen sometimes in the treatment of nasal ganglion neuralgia.[3] The patient, in this instance, has been greatly helped by the postethmoidal sphenoidal operation.

Case 4.—In another case of five years' duration, with lower-half headache, the reflex and pain were controlled from the nasal ganglion. I injected it twice with 95 per cent. alcohol containing 5 per cent. phenol (carbolic acid). The pain is stopped; a very slight degree of asthma returns from coryzas. In this case the headache and asthma are brought on at will by application of irritants to the sphenopalatine foramen, as, for example, by a 2 to 50 per cent. silver nitrate solution. Other areas in the nose do not respond to this experiment.

Case 5.—A 2 per cent. menthol solution in oil produced a severe attack of asthma in a case of severe sphenoidal headache (after the cells had been opened five years) in an effort to find an intrasphenoidal application which would be helpful and lasting in effect. The sphenoid had been filled with solutions of iodin, sodium salicylate, oil of wintergreen, and phenol. The menthol alone produced asthma. Coryzas, in this case, produced lower-half headache, often severe, but not asthma.

Case 6.—In a case of autumnal hay-fever, with asthma, the intrasphenoidal application of ragweed pollen extract, in midwinter (ground covered by 3 inches of snow) produced asthma. The intrasphenoidal application of cocain during the attack of hay-fever stops the asthma.

In young patients, postethmoidal-sphenoidal lesions producing asthma are often accompanied by fever. I have thought, in trying to explain the fever, that they were probably accompanied by bronchitis; but I am not sure of this, because I never see the children in these attacks—they are always brought to me after the attack.

Case 7.—In a child, aged 6, very intelligently nursed, tachycardia is always present and lasts for about two weeks after the asthmatic attack is over, suggesting that the tachycardia is, in this case, a reflex from the nose, and of the above-detailed mechanism. The attacks are always accompanied by fever.

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[9] Kuntz: Further Studies on the Development of the Cranial Sympathetic Ganglia, J. Comp. Neurol. **24**.

Case 8.—In another case, every coryza that affects the factory fissure produces asthma, for the time, of the coryza.

INFLAMMATORY CASES

In some of my cases, intelligent effort to prove some nsitization to proteins failed to reveal it. These ses were apparently of local inflammatory origin. ome were acute, and some were chronic hyperplasia, ithout bacteria that could be grown by our present boratory methods. Others, such as the hay-fever oup, are clearly sensitive.

Clinically, the local inflammatory cases depend for eir relief on the control of the local lesion. Aside om the indicated surgery, an autogenous vaccine, hen bacteria can be grown from the lesion, is somemes helpful, making the interval between coryzas nger. The cure of the case depends on the cure of e local lesion. Inasmuch, however, as no preventive r coryzas is known at present, the acute inflammatory ction so produced in that district is apt to rekindle the ouble. This has been my experience. The patients ay be much relieved, just as headaches from such sions may be very greatly relieved, but there are lmost sure to be recurrences, just as a coryza in that istrict can always make headache, because the nerves emain in their vulnerable positions, and are affected y the inflammatory action.

Thought of the sympathetic nervous system in relaon to asthma, as here detailed, raises the question of hy there are not more cases of this kind; or of why ot all patients suffering from nasal ganglion or vidian erve lesions have asthma; or of why some have sthma only, and no other manifestation, from a most ronounced lesion of these parts. There does not seem o me to be any direct answer.

Speculation, however, continues with the thought hat there may be anatomic variations sometimes which xplain some cases; for example, the (normal) fibers f the cervical sympathetic nervous system arise in the horacic nerves and pass up to the superior cervical anglion (preganglionic neurons), and from this anglion proceed (postganglionic neurons) to or hrough the nasal ganglion. Should, however, these rrangements be changed and the relay station be the ower cervical or first thoracic ganglion, there are met he vasomotor fibers for the lung and accelerator fibers or the heart. In what way the reflex is then transerred is beyond speculation.

SENSITIZATION

In this immediate association of thoughts comes lso the question of sensitization. Some nasal ganglions and vidian trunks are sensitive to things that do ot affect others, as, for example, Case 4, in which the patient was sensitive to silver nitrate solution locally, and in Case 5, in which the patient had a vidian trunk sensitive to menthol. In both of these cases asthma is produced by these irritants. Probably for all hayfever patients, the ganglion is sensitive to locally applied pollen extract; but if the anatomic arrangement of the sympathetic nervous system is normal, they have hay-fever without asthma. Should, however, the lower cervical or first thoracic ganglion be the relay station, that patient may develop the asthma. (The questions of sensitization in general cannot be considered here.) That there are anatomic variations in the sympathetic nervous system seems certain to me from my observations of the nasal ganglion. Sometimes the pupil dilates from cocainization of it, and once I saw the eyelid droop from it; and I have seen the cocainization of the ganglion of one side stop pain on the opposite side.[10]

NASAL OR SPHENOPALATINE NEUROSIS *

HARRY L. POLLOCK, M.D.
CHICAGO

In 1914 I presented a paper on the "Injection of the Sphenopalatine Ganglion in some of the Commoner Diseases of the Nose[1]." I was very much surprised to learn that the average rhinologist did not interest himself in this particular phase of our specialty. In the past few years, however, considerable interest has been taken in the subject, although there is not, even now, attributed to it the importance which I consider it deserves.

To understand the etiology of these various neuroses, a fairly clear conception is necessary of the anatomic relationship of the ganglion to the various accessory sinuses of the nose; therefore I will review the anatomy of this region rather extensively. The sphenopalatine, Meckel's or nasal ganglion is deeply placed in the sphenomaxillary fossa, close to the sphenopalatine foramen. It is triangular and is situated immediately below the superior maxillary nerve, just as it passes the fossa. Its sensory root is derived from the superior maxillary nerve, through its two sphenopalatine branches. Its motor root is derived from the facial, through the large superficial petrosal, nerve and the large, deep petrosal nerve. These last two join before their entrance into the ganglion to form the vidian nerve; its sympathetic root from the carotid plexus.

The branches of distribution are in four groups: ascending, which passes to the orbit; descending, to the palate; internal, to the nose, and posterior, to the nasal pharynx (Gray). The ascending branches supply the mucous membrane of the postethmoidal and sphenoidal sinuses. The descending branches are distributed to the roof of the mouth, soft palate, tonsil and lining membrane of the nose. The internal branch is distributed to the septum and outer wall of the nasal fossa, and to the mucous membrane behind the incisor teeth. The posterior branch is distributed to the upper part of the pharynx and to the region behind the eustachian tube.

As can readily be seen from the wide distribution, there are numerous points which may be irritated and cause symptoms, either locally or reflexly at some distant point. Nevertheless, owing to the great area of the nasal mucosa, including the lining of the nasal accessory sinuses, to the fact that the mucous membrane is brought into contact with various irritating substances by breathing and to the further fact that the sinuses are often the seat of suppurative processes, we must look here for most of the causes that produce symptoms of nasal ganglion neurosis.

Most textbooks state that the ganglion lies in the upper portion of the sphenomaxillary fossa, but does not explain its relation to the various accessory sinuses which surround or are in intimate contact with it. To understand some of the etiologic factors causing neuroses of this ganglion, it is necessary to study the relation of the ganglion to the accessory nasal cells. I quote from Sluder:

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[10] An extensive interesting historical résumé of the observations on asthma is to be found in Brown, O. H.: Asthma, St. Louis, C. V. Mosby Company, 1917.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Pollock, H. L.: Injection of the Sphenopalatine Ganglion in Some of the Commoner Diseases of the Nose, Illinois M. J. **27** (May) 1915.

> *Relation of the Nasal Ganglion to the Wall of the Paranasal Cells.*—When the upper boundary of the fossa is made entirely of the sphenoid sinus, the ganglion lies in close relation to the sphenoidal sinus; when the upper boundary of the fossa is made by the sphenoid sinus in its posterior half, and by the posterior ethmoidal the anterior half, the ganglion lies in close relation to both. When the sphenoid sinus is prolonged downward and forward, the ganglion will lie in close relation to it, in front. When the sphenoid is prolonged downward into the pterygoid process, the ganglion will then lie posteriorly in close relation to the sphenoidal sinus. Anteriorly, the fossa is formed by the wall of the maxillary sinus, but the ganglion can never lie in close relationship to this wall because of the pad formed by the arteria-palatine descendens and the arteria-spheno-palatina with their accompanying veins and the surrounding connective tissue.
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> *Relation of the Nasal Ganglion to the Lateral Wall of the Nose.*—The sphenopalatine foramen is accurately placed at a point just posterior to, and immediately above, the posterior tip of the middle turbinate. The ganglion usually lies close to the plane of this foramen. The ganglion does not, however, always show the same relation to the foramen. I have found it as close as one-half millimeter from the general membrane of the nose, and as far as nine millimeters.

Judging from this close relationship of the ganglion to the accessory sinuses, one cannot but believe that an inflammation or suppuration in these sinuses must at times involve the ganglion itself, and give rise to the neurosis which we so often find.

Clinically, we divide the neuroses into two great classes; namely, the neuralgic and the sympathetic (Sluder)[2]. When a patient presents a clinical picture of a ganglion neurosis, one must attempt to ascertain the underlying pathology and correct it before attacking the ganglion itself.

The neuralgic syndrome consists of pain, intense and excruciating in character (in some, cases of milder variety), radiating to any and all points supplied by the branches of the ganglion. The typical location of the pain is over the root of the nose, in and about the eyes, over the frontal region, into the pharynx and tonsil region, in and around the ear, posterior to the mastoid, into the occiput, to the neck, the shoulder, the arm and, at times, even to the fingers. The most severe and constant pain seems to concentrate at a point about 6 mm. back of the mastoid. Not all patients present this typical picture, as usually only one or more of the named are involved; but I have seen a few cases in which all of them were affected at the same time. In practically all of these types of cases, the pain just posterior to the tip of the mastoid is present.

When a patient presents this clinical picture, the diagnosis is simple. All local points of irritation or inflammation must be searched for and corrected before an attempt is made to attack the ganglion itself. By these points I mean the teeth, gums, deflected septum or spurs, and all sinus diseases, either suppurative or nonsuppurative.

I have described the sympathetic syndrome before[3]. The condition comes on at any time of the year, is irregular in its time of appearance, duration and severity, and is in no way associated with the ripening of the various pollens, to the inhalation of which hay-fever has been ascribed. On the contrary, those of my patients who have had these symptoms for a number of years inform me that the attacks scarcely ever occur during August or September, and that if they do, the severity of the attack is lessened.

The paroxysms are often brought about by contact with or inhalation of a specific kind of perfume, a particular flower, the odor of various animals, a slight draft of air, or the inhalation of ordinary dust; or they may come on apparently spontaneously. These paroxysms usually begin just on arising, with attacks of sneezing. The patient sneezes from five to fifty times, and the attack is followed immediately by a profuse watery discharge from the nose. At the same time there is a reddening of the mucous membrane of the eyes, accompanied by profuse lacrimation. The nose becomes blocked, and breathing is naturally difficult. These symptoms may be of short duration, lasting only an hour or so, or they may continue for six or eight hours, and then suddenly abate, only to reappear on succeeding days, or when the patient is again brought into contact with the specific irritant. Some of these acute attacks may continue for a week or ten days, and some, only a day. The appearance of the nose between attacks, is usually normal except, possibly, for a slight paleness of the mucous membrane. During the attacks, however, the turbinates are swollen, soft, pale and edematous, and have a boggy appearance. This is especially true of the inferior and, to a lesser degree, of the middle turbinate. The mucous membrane of the septum is also pale. The eyes are red, the conjunctiva is injected, and at times there is an accompanying itching.

The secretion is thin, watery and acrid. After a few days of the attack, the upper lip becomes irritated and excoriated from the constant clearing and blowing of the nose, and from the acrid reaction of the secretions. Even the entire tip of the nose may become red and swollen from the same cause.

Just why some of these cases present symptoms of the neuralgic and some of the sympathetic type is difficult to explain. We know, however, that other ganglion present the same phenomena. The lenticular ganglion, for instance, when inflamed, may have its sensory cells or its motor cells affected. In the one case we have pain, or perhaps herpes oticus, and in the other we may have a facial paralysis as first described by J. Ramsay Hunt[4].

The prognosis of these neurosis is always bad if left alone. When proper treatment has been resorted to, the prognosis is naturally improved; but at this point I desire to state emphatically that the brilliant results which we desire or ought to expect in the neuralgic type are not often achieved. When perchance we do succeed in stopping these severe pains, if only in a small percentage of cases, the results certainly justify the efforts in this direction.

That we secure temporary relief, say, for a few months, can readily be explained by the work done by Otto May[5] on the alcoholic injection into various nerves of animals. He has shown that alcoholic injections do not destroy completely the nerve fibers and nerve cells, as they recover their function a few months after the injection. The alcoholic injection does, however, inhibit the function of the nerves for that length of time and, as a consequence, we obtain during this period, a cessation of the symptoms produced by an inflamed nerve or ganglion. We do not often penetrate the ganglion itself, but only bathe the surface with the alcohol which we inject into the spheno-maxillary fossa. We obtain a much larger percentage of cases of improvement in the sympathetic neurosis than in the neuralgic type. In a large percentage of these sympathetic affections we obtain complete cure and, in practically every case, an improvement in the symptoms.

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[2] Sluder, Greenfield: Concerning Some Headaches and Eye Disorders of Nasal Origin, St. Louis, C. V. Mosby Company, 1918.

[3] Pollock, H. L.: Hyperesthetic Ethmoiditis, read before the Illinois Medical Society, 1919.

[4] Hunt, J. R.: J. Nerv. & Ment. Dis., 1906.

[5] May, Otto: Functional and Histologic Effects of Intraneural and Intraganglionic Injections of Alcohol, Brit. M. J. **21** (Aug. 31) 1912.

TREATMENT

As I stated before, all pathologic conditions of the upper respiratory tract must be corrected; and these conditions include those affecting tonsils, teeth, gums accessory sinus, deflection and spurs on septum.

We have had one case referred to us in which a mastoidectomy had been performed to relieve the severe pain located just back of the mastoid proper. No relief was obtained; the diagnosis had been made of a primary mastoiditis, but at the operation no pathologic condition was found. In taking a roentgenogram of the teeth, we discovered an upper impacted third molar, the removal of which cleared up the condition completely.

I now have a young woman under treatment who developed a typical neuralgic syndrome, following an attack of influenza. Hers was one of the most aggravated cases I have ever seen. She had her ethmoids completely extenerated, and the sphenoids opened, without relief. An otologist diagnosed primary mastoiditis and performed a simple mastoid operation, but found no pathologic condition. I injected the ganglion with a 2 per cent. phenol alcohol solution, and it lessened her pain decidedly, although it did not destroy it completely, so that now no narcotics are necessary, whereas, formerly, large doses were required to give her some relief.

One of the most valuable prognostic points is the application of from 20 to 90 per cent. cocain solution in the region of the sphenopalatine foramen. If this stops or ameliorates the pain to a great degree we can be reasonably positive that the injection of the ganglion will give good results.

The technic is simple. I first cocainize the posterior end of the middle turbinate and the wall just behind it, with a 20 per cent. solution of cocain. Then a sword needle of Sluder is employed, a straight needle 5¼ inches long with a cross bar near the end. The needle is introduced from the septal side of the nose. I transfix the posterior end of the middle turbinate and press the needle gently through the turbinate until the posterior wall is felt. The needle is then pushed upward, outward and backward through the bony wall which is the anterior boundary of the sphenomaxillary fossa, in which the ganglion lies surrounded by connective tissue. Usually, by tactile sense, one feels the needle slip into the cavity. The ganglion is about 0.66 cm. back of the wall. A 5 c.c. Lüer syringe, filled with a 2 per cent. solution of phenol (carbolic acid) in alcohol is then attached to the needle, and from 5 to 15 minims are injected. If the needle succeeds in penetrating the ganglion, the patient complains of excruciating pain in the eye, ear, top and back of the head and in the shoulder, but should the phenol alcohol solution merely surround the ganglion, the pain will be less severe.

The pain usually lasts anywhere from a few minutes to twenty-four or forty-eight hours, and it is in cases in which the pain is prolonged after injection that the end-results to the patient are most gratifying. The number of injections necessary is variable. If the ganglion is penetrated the first time, as indicated by the severe pain, only one injection is required. If not, two, three or four attempts may be made at intervals varying from a few days to several weeks. If no relief is obtained after four such injections, I feel that further attempts would be useless. Often we find the posterior wall so thick that it is impossible to push the needle through, and in these cases I have resorted to the use of a mallet to drive it into the cavity. In using the mallet one is not so sure of being in the proper place, so I usually withdraw the needle and then reintroduce it by tactile sense, as I then have a far better knowledge of where the end of my needle is.

I have not said anything concerning the medical treatment of or rather topical applications to, the region of the sphenopalatine foramen, for the reason that in my experience I have seen nothing but the most transitory results occur from these applications, and do not believe the method worth trying.

SUMMARY

In every case in which a diagnosis of nasal ganglion neurosis has been definitely established, we should at least atttempt to give patients permanent relief from the severe neuralgias. That we do not obtain as large a percentage of results as we desire may probably be due to faulty technic. Nevertheless, on account of the simplicity of the injection and the freedom from danger, it ought, in every case, to be given a trial, as nothing is to be lost and everything gained. Even if only transitory results, say from four to nine months' duration, are obtained, we have accomplished much, as the patients can be injected at the expiration of this period with probably less danger than before.

108 North State Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BRUBAKER, THOMPSON, SLUDER AND POLLOCK

SIR ST. CLAIR THOMSON, London, England: This is a most interesting subject and I have heard much of it for twenty-five years. I am afraid we have all talked of it and heard of it, and "evermore came out by the same door by which we entered." I am inclined to think that just as the lunatic, the lover and the poet are of "one nature, all akin," so hay-fever, rhinorrhea, spasmodic sneezing and asthma are somewhat of "one nature, all akin." What that nature is, I am not prepared to say, but I think there are more things in our inheritance and in our nervous system than are dreamed of in our rhinology.

Inquiring into the history of many of these patients we find that they come most distinctly from what, for want of a better word, we call the neurotics. I will not go as far as the man who said his practice was confined to the neurotic, the erotic, and the tommyrotic. He was a neurologist. But in tracing the history of these people I have been struck by finding that a patient who has hay-fever or attacks of sneezing, had a father who had asthma, and I have lived long enough to find that that patient who in youth or adult life suffered from sneezing and rhinorrhea will get quit of it and in later years become a wheezy, placid old gentleman with bronchial asthma which takes him off to the silent realm. So that part of the subject I would suggest that we do not forget.

I endorse everything Dr. Thompson said in his paper, which my own experience entirely confirms. A few years ago the term "vasomotor rhinitis" was used, but the word "hydrorrhea" is better. I think I understood the doctor to say that cerebrospinal rhinorrhea came from traumatism. I have seen two cases where there was no traumatism, and by searching the literature and analyzing the cases reported by Bosworth in the earlier edition of his textbook, I find that he found, from postmortem records, that several of his cases were cases of cerebrospinal rhinorrhea. Of the two cases I had I have published one, and in that my conclusion was that the poor girl, 22 years of age and unmarried, with no bad family history, died of cerebrospinal rhinorrhea, at the time thought to be meningitis. My other case was seen in consultation with Sir Victor Horsley, and he threw out the suggestion that he was not sure it was not syphilitic. I have not published that case yet, although I have the notes and intend to do so; but the postmortem findings showed that Sir Victor Horsley was right, it was a syphilitic neurosis of the anterior fossa of the skull; but it was a case of rhinorrhea.

In regard to the tests, nasal rhinorrhea secretion contains mucin, while the cerebrospinal rhinorrhea secretions contain glucose or some other variety of sugar reducible by Fehling's solution. But there is a simple test, and that is, that with nasal rhinorrhea the handkerchief of the patient, when soaked, becomes stiff, as if it were starched; while with the cerebrospinal rhinorrhea the handkerchief remains soft. I have seen many cases that were not recognized because they did not give a Fehling's reaction; but if the fluid is not tested within an hour the sugar decomposes and you get no reaction. The other points Dr. Thompson brought out are all admirable, the fact that climate and age make very little difference, that the patient dies a natural death; also that the effect of the cerebrospinal rhinorrhea is more or less continuous, while the real rhinorrhea has its periods of intermission.

As regards treatment, I will never forget a paper read some twenty years ago by Dr. William White, the great surgeon of Philadelphia, on the success of the operation per se. He gave a record of cases out of his enormous experience, in which he had operated for symptoms, say abdominal or hemiplegic, and after he had done all this work, the patient got well. I think we should probably remember this in all the treatments we suggest. I do not wish to depreciate research in this condition; I think it is most admirable, and any of us who have had relatives or friends suffering from the agony of trigeminal neuralgia, will welcome the injection of alcohol or anything that will give them relief. We have a saying that the German doctor kills you, and the English doctor lets you die. I think, therefore, that both of us ought to cross the Atlantic and learn from you and your society how to make the patient comfortable.

Dr. Wolf Freudenthal, New York: From a clinical point of view it seems to me that the action of sneezing is analogous to that of coughing. That is, just as an effort is made from the lungs and lower respiratory tract to bring up the secretions or foreign bodies that get down into the deeper bronchi by coughing after the epithelia have brought them to the upper air tract, so it is natural that when any foreign body or substance gets into the nose, we should want to get rid of it in some way. In the lower area we can blow it out, but when this foreign substance gets into the region of the nervus ethmoidalis we cannot do so; in many instances it requires further action, and that act is sneezing. I do not understand the doctor's explanation of the action of the soft palate. After one or two inspirations we make an expiration. It seems to me the most natural thing that the palate would do is to close up. Is it open during this action, or can we keep it closed and yet sneeze? From the doctor's description we see that from many points in the system impulses may be brought to the nose. From a clinical point of view I want to remind you of the epistaxis that occurs during menstruation and the attacks of sneezing that occur before the end of menstruation. On the other hand, impulses that start in the nose may go to any other part of the body, including the lungs and bronchi. In reference to Dr. Thompson's paper I have seen about six such cases. There is no doubt that an angioneurosis is at the bottom of the disturbance. I have seen one case of rhinorrhea cerebrospinalis of the type described by St. Clair Thomson. No treatment seemed to make any impression on the patient. After six years she had an acute frontal sinusitis. I operated and she recovered soon afterward. Three or four years ago this rhinorrhea suddenly appeared again. A very peculiar fact was that after she left the hospital I was called to her house on account of a swelling over the frontal sinus, the side operated on. I ordered the usual medication and next day the swelling was gone. About eight days later there was an edema over the other frontal sinus and over the antrum. I knew then that it was an angioneurosis.

In regard to the papers of Dr. Sluder and Dr. Pollock: In trying to solve the problem of the acute asthmatic attack by physiologic experiments and in trying to look into the etiology of this condition during the attack—I studied this condition thoroughly—and am inclined to believe that the sympathetic nerve is the most important one during the acute attack. I would, however, like to remind those who do this work that the sympathetic and the vagus nerves are so interwoven that often we do not know which is the action of the sympathetic and which is that of the vagus.

Dr. Emil Mayer, New York: I have been greatly interested in this splendid presentation of Dr. Brubaker as I feel that it throws light on a question that I have not as yet been able to answer satisfactorily. It may help also to explain the effect of affections of the sinus on asthma in showing a direct connection between the nose and the spinal column. I have at various times called attention to the remarkable results following the use of cocain and trichloracetic acid applied to certain sensitive spots in the nose in cases of dysmenorrhea. It is really remarkable to note the prompt relief sometimes occasioned when women are in very great pain, unable to move about, pale and listless, and then to see their color return and absolute freedom from pain immediately follow this application to the nose. While the fact of relief in a large majority of cases has become fully established, the explanation as to why it occurs has until now not been sufficiently clear. It has been shown here that there is a direct connection between the nose and certain ganglions. Dr. Sluder asked one question: Why are there not more of these cases? The answer rests with the general practitioner. When he knows as much about these cases as we do, there will be more cases. I can say from my own experience in a large general hospital, in association with a visiting staff that made thorough examinations, there were daily requests from the physicians for examination and report on their patients by the laryngologist as well as by the other specialists whose opinion might be desired. In this way I had occasion to see many cases of asthma that would ordinarily not come to the laryngologist, and the number of cases were by no means as few as they would seem to be from the question put by Dr. Sluder.

I do not recall that Dr. Thompson spoke of the advantage of the internal administration of arsenic in the cure of these cases of hydrorrhea. I have used this remedy successfully in a number of cases of this affection looking on them as being analogous to affections of the skin. This is a field which many of us have overlooked. I have found a number of instances in which there was a remarkable similarity to the skin diseases in the mucous membrane. In a recent case of hydrorrhea I told the patient that I was going to give her some arsenic to relieve her trouble and she then informed me that some years previously she had had an affection of the skin which was entirely relieved by the internal administration of that drug and hence she was glad to take it in this present instance. The result was entirely satisfactory and the patient has remained well.

Dr. Orville H. Brown, Phoenix, Ariz.: The hypersensibility of this ganglion may play an important part in asthma. Asthma is a very complicated condition. As a disease it must have one exciting cause, although it may have many contributing causes, and in my opinion the probable cause may overshadow the essential, primary and direct cause. The muscular effort in normal inspiration and expiration is wholly a passive process. In forcible expiration the air gets tangled up and in an effort to get out it rushes from one cell to another. That produces a much increased intra-alveolar pressure. It presses on the blood vessels, not only the chest but the abdomen. Theoretically, then, asthma might be produced in a normal individual by prolonged forcible expiration. Given, then, this condition which ordinarily produces this nonpassive expiration, without bronchitis, without nasal infection, without hay-fever, and there is an ideal condition for the individual to become asthmatic. Often there is also a pulmonary phthisis, and that helps to keep up the inflammatory condition. I have often wondered whether hay-fever was not due to focal pathology of the nose; but whether it is or is not we must get at the focal condition, and we must not forget that any inflammatory conditions around the nose or respiratory tract contribute to the pathology, and that an inflamed appendix or prostate can help to keep up this process which originally started in an inflamed sinus. Whatever keeps up the hay-fever condition must be ferreted out, and desensitization or removal of the pathology should be recommended.

Dr. Joseph C. Beck, Chicago: One point impressed me with reference to the etiology, and that is the "etiology of the etiology." The gentlemen do not go far enough. Dr. Thompson merely touched on the subject by saying that the question of the endocrinology or what the internal secretions have to do with hydrorrhea nasalis is not in place. I do not know whether he meant that we were not fit or able to discuss the subject. However, I believe that the question of asthma and all this matter of sensitization is a disturbance of the glands of internal secretion. For instance, I do believe that the suprarenal glands play a most important part in the chemical change in the blood as, for instance, in the calcium content. You know how Wright of England treated the question of angioneurotic edema by administration of large doses of calcium. Crile has shown that marked changes take place when the suprarenals and other glands of internal secretion are affected and how the calcium content is changed. Give a large dose of epinephrin hypodermically to a patient during an attack of asthma and, as a rule, it has an effect. I believe that this is due to the hypoepinephrinization, and that day by day the dose will have less effect because there is a tolerance developed and the etiology of the etiology has not been studied and removed, that is, to know what is the cause of the disturbed condition of the suprarenal glands. It is well known that chronic infection, whether from bowels, appendix or teeth, produces a change in these glands, and there I think lies a great part of the trouble, the etiology of the etiology.

In reference to the affection of the ganglions and the work of Sluder, as presented by Dr. Pollock in his paper, there is not enough emphasis laid on the fact that men will not try this method of treatment because some other man says "I have tried it and it is no good." I had a patient referred to me recently by a neurologist in Chicago who has recognized that this ganglionic disturbance exists and has come to stay. It was referred for ganglion injection. The patient was difficult to anesthetize locally, so had to be put under general anesthesia. The operation was followed immediately by paralysis of the pupillary sphincter and the motor muscle (internal rectus). There was a loss of sensation to the cornea. We ought to be careful in such sphenopalatine cases where this complication occurs not to lose an eye following the injections.

Dr. John A. Thompson, Cincinnati: The necessity of writing a paper that can be read in fifteen minutes precludes any mention of the bibliography. Perhaps for the reason of condensing I spoke of the escape of the cerebrospinal fluid as being traumatic. I meant to include in that form those cases where the escape is caused by disease. A woman had an aphonia for nine months. She had a laryngitis secondary to a badly deflected septum. I straightened the septum and found behind that a bad infection of the posterior ethmoid and sphenoid. When I opened these cavities the dura was bare for one by one and a half inches; you could see the brain pulsating. A careful examination showed there was no bone between the nose and brain, and a very little further extension of the diseased condition might have caused a fatal meningitis, or by perforation of the dura permitted the cerebrospinal fluid to escape. Most cases are traumatic in the sense we usually use the word, but in other cases the perforation is through disease.

In regard to Dr. Beck's statement that we have not gone far enough with the etiology of the etiology, I meant only to say that so far there has been no observation, either experimentally or clinically, to show the relationship of the endocrine glands to nasal hydrorrhea or rhinorrhea, whichever term you prefer. As for asthma: While cases of nasal asthma do occur, in a majority of these cases the cause is outside the nose. Treating these patients by tracheal injection for twenty-eight years I have come to feel that bronchitis exists in all cases of asthma. If you will cure the point of infection from which the acute attacks spread out, you will cure many more cases of asthma than you do by treatment through the nose.

Dr. Greenfield Sluder, St. Louis: Dr. Beck spoke of some unfortunate experiences with the injection of the nasal ganglions. I, too, have had some unfortunate experiences. In the course of probably 1,500 injections I have had hemorrhage four times, once a hemorrhage of clinical issue immediately on the insertion of the needle. Three times I have had secondary hemorrhage. If an accident happens, it seems to me it punctures the internal maxillary artery rather than the sphenopalatine. When a hemorrhage occurs it must be packed at once, but that packing is very easily inserted and the flow is easily controlled if you follow the track of the needle. If one does not know the origin of the trauma and attempts to pack such a case, he must pack anteriorly and posteriorly. I have also had the misfortune to paralyze the external rectus. When that happens it can be explained by the connective tissue of the sphenomaxillary fissure being unusually loose, permitting the flow of the alcohol upward and outward. I believe Dr. Beck's trouble would have been avoided by the very slow instillation of the alcohol.

Dr. Harry L. Pollock, Chicago: Regarding the nasal hydrorrhea of the sympathetic type: In order to make a diagnosis of the sympathetic type, I stated that all pathologic conditions must be excluded. In some cases Dr. Thompson said polypi were present. In my cases where I diagnosed sphenopalatine neurosis of the sympathetic type, everything was normal, except a slight paleness of the mucous membrane, so I think we had a noninflammatory ethmoiditis. In regard to the treatment of this sympathetic type: It is explained by my chart. I have had many of these cases, and if you shut off the afferent impulse you are bound to cure the patient at once. In regard to the cause of asthma: I presented a paper on this and went very thoroughly into it, to find what was the underlying cause of asthma. Polypi, focal infections, split proteins, these are not the real cause, but the underlying principle of all is the altered secretion of the ductless glands. You may have one patient with nasal polypi and asthma, and the next twenty-five will have a nose full of polypi and no asthma. More cases of nasal polypi are complicated by asthma than not. I believe it is due to the altered secretions of the ductless glands; otherwise every patient with polypi would have asthma.

An Early Spanish Physician.—Dr. Francisco Javier Balmis, a Spanish physician, was, while residing in Mexico, the individual selected by the Archbishop-Viceroy of that country, to take to Europe specimens of the plants of the agave and begonia, which were in favor at that time for the treatment of venereal diseases and scrofula. In 1804 he was ordered by the king of Spain to introduce vaccination against smallpox in the Spanish colonies and at the same time to establish boards to promote its use. He did this in the Canary Islands, Porto Rico, Cuba, and in Venezuela, Guatemala, and New Spain (Mexico), and also introduced it in the English settlements and among the Moors and Chinese in Asia. He wrote a number of articles on these subjects.—From Beristain's Bibliografia Mexicana.

TRAUMATIC NEUROSES IN WAR AND IN PEACE*

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For a period of four months I was on duty in U. S. Army General Hospital No. 30, Plattsburg Barracks, N. Y. This hospital was the only so-called war neuroses hospital conducted by the War Department in this country. There were three groups of patients: (1) those who had been sent from camps in this country; (2) soldiers who had been in France but who had not seen any actual fighting, and (3) soldiers who had been in combat. The majority of these cases, no matter what their source, were sent to Plattsburg because they were difficult to cure.

This was particularly true of the overseas cases. It is, of course, known that a majority of the patients were cured in front line stations, and that those who were not thus cured were sent to Base Hospital No. 117 or to other centers. The more refractory of these cases or those that seemed to be incurable, or that for some reason or other did not offer favorable conditions for cure, were returned to the United States and to Plattsburg.

HYSTERIA

Of the patients studied in Plattsburg, those with hysteria attracted most attention. There were present the usual types which have been so well and often described, such as aphonia, stuttering, amnesias, paralyses of both legs and more rarely of one upper or lower limb, less frequently a combination of mutism with deafness, a few cases of blindness, tremors, gaits of various sorts, and a large number of so-called epileptic or fainting cases. There is no need of describing the sypmtoms in these cases, for the patients presented the usual pictures which are present in all. However, some unusual phenomena were observed. There was one case, which is worth particular mention, of a man who had a constant dancing of the eyeballs:

A boy, aged 18 years, with a normal history, after a particularly trying attack which lasted many days, and in which many of his companions were killed, began to develop a tremor all over his body with quick jerking movements of the head and a constant dancing of the eyeballs to which his lieutenant called his attention. This was in April, 1918. His tremors gradually lessened, but the movements of the eyeballs continued. It is interesting to note that besides having been gassed he had a flesh wound in the left leg, and a rifle bullet wound in one shoulder. Examination did not detect anything unusual, with the exception of quick reflexes; but there was present a constant horizontal nystagmus, which greatly increased under excitement, and almost disappeared when the patient was at rest or when free from exciting stimuli, and was absent when he was asleep. The ocular movements were quick and of wide range, and were different from the nystagmus seen in multiple sclerosis or any other disease.

There is no reason why there should not be a hysterical tremor in the eyeballs, just as well as in any other part of the body, but that such a thing is possible, is interesting.

EPILEPSY AND HYSTERIA

One of the most difficult problems was the differential diagnosis of epilepsy from hysteria. It was commonly known by the soldier that fits would disqualify him for service and as a consequence, a great many so-called epilepsies developed. Of those patients returned to Plattsburg from the American Expeditionary Forces whose cases were diagnosed as epilepsy, a surprising number proved to be such, although there were a great many cases of hysteria diagnosed as epilepsy. On the whole, it cannot be said that war experience produced epileptic attacks; but undoubtedly in a number of patients, epilepsy appeared earlier than would have been the case in ordinary civil life. The diagnosis of epilepsy was nearly always possible after an attack was observed, although in a number of cases it was difficult.

There was no essential difference in the hysterias which developed in the patients who had had their entire service in this country, and in those who had been with the American Expeditionary Forces, including those who had been in actual combat, with the exception that in the home troops tremors were not prominent. There were several cases of so-called "trench back" or camptocormia, all of them from this country. There were three instances of so-called reflex contractures in the hands and fingers. As is, of course, well known, Babinski and Froment believe that these are organic in character; the opposing view being held by others, notably Roussy and Hurst. In the few cases observed by us, we were able to effect a cure, and I have no doubt that they were purely hysterical in character.

It has been said that this war produced two new types of neuroses: (1) the so-called reflex contractures of the hands and fingers, and (2) trench back or camptocormia. I have seen some examples of the latter condition in civil life, and in January, 1918, I exhibited in a clinic, to a class of medical officers under instruction at that time in Philadelphia, a medicolegal case with a history of an injury to the hand, a typical example of reflex contracture of the hands and fingers.

SIMILARITY OF NEUROSES IN WAR AND IN PEACE

In view of this experience, the question naturally arises: Is there any difference between the hysterias of war and of peace? In my experience of a good many years with traumatic neuroses I have seen a duplication of practically every type of hysteria seen in Plattsburg, but, of course, not in such abundance and of such variety. In civil life, aphonia, stuttering, deafness and blindness are not so frequent; but paralysis, contractures, tremors and fits are common.

This view is not held by Schwab, who states that "the war neuroses are specific war conditions, and with the ending of the war they disappear from clinical experience. Their place is taken by the civilian neuroses, which are different things." The opposing view is taken by Leri, who believes that the hysterias of war and of peace are identical.

This difference in the point of view held by Schwab and by myself is, no doubt, due to the different conditions under which neuroses were studied. Many of the patients returned from France were so much better when they reached Plattsburg that they presented an entirely different clinical picture. Besides, their presence in this country virtually assured them that they would not be returned to France. Therefore the conditions surrounding them approximated a peacelike basis and offered an excellent opportunity for comparison.

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Of the neuroses, other than hysteria, Schwab mentions neurasthenia; psychasthenia; hypochondriasis; anxiety neurosis; effort syndrome; exhaustion; timorousness or state of anxiety; concussion, (*a*) syndrome, (*b*) neurosis; gas, (*a*) syndrome, (*b*) neurosis.

As in hysteria, the clinical picture of these conditions changed materially, and only the neurasthenias and anxiety neuroses were at all prominent, although there were some psychasthenic and hypochondriac states. These neuroses were similar to those found in civil life.

INFLUENCE OF THE ARMISTICE

Some interesting observations were made regarding the suggestibility of patients and the influence of the armistice. It did not cause a very great change, and there were practically no spontaneous cures, although our work became much easier and there was a greater incentive for the patients to get well and less difficulty in getting them well. One interesting observation was made: Before the armistice it was possible to suggest new areas of disturbance of sensation or an increase of paralysis. This was impossible after the armistice, and the only suggestion that the patients took kindly to was that of getting well.

The suggestibility of hysteria was very well shown in the occurrence of "fits." Patients in whom attacks were absent for months suddenly developed them in times of stress; as, for example, when under arrest after an offense had been committed. One patient left the post under the impression that he had the right to do so, but on discovering that he was absent without leave, he developed a series of attacks lasting several days, giving this occurrence as an excuse for his absence.

PERSONALITY OF THE WAR NEUROTIC

There was, however, one very distinct impression made on all of the medical officers who were on duty at Plattsburg for any length of time. It was the first time that I have ever had the opportunity of living exclusively among neurotics, for any length of time. Because of the peculiar situation at Plattsburg, it being an old army post converted into a hospital with practically no outside attractions, the atmosphere of the place naturally was much more acutely felt than would have been the case if such a hospital had been located in or near a large city. I was sent to Plattsburg and was placed in charge of all treatment; that is, it was my duty to see that the patients got well. The patients were indifferent. They seemed to care about getting well and yet not to a very great extent. After the armistice, it was different. They wanted to go home, but the incentive for getting well was not even then what it should have been. The individual patients, while they were talkative, especially about their deeds of valor, at the same time were by no means so cheerful, openhearted and joyful as the average wounded soldier in other hospitals. Most of the patients were boastful, and wore all sorts of decorations, even wound stripes to which they were not entitled. On questioning, it was often found that some had put on wound stripes after they had been in a hospital with a mere cold.

Another noticeable thing was the difficulty we encountered in managing both enlisted men and officers. They were constantly complaining and finding fault. There were many who had been absent without leave. Every one who is familiar with the service knows that all soldiers grumble about everything under the sun. This is a normal condition; but the patients in Plattsburg were certainly more difficult to handle than were those in other hospitals. Perhaps this should be expected among such unstable neurotics.

In other words, the conclusion was forced on me that the war neurotic, as seen in Plattsburg, was distinctly different from the normal individual; that he was boastful, somewhat depressed, erratic and certainly unreliable.

Numerous studies have been made of the personality of the war neurotic and of his neuropathic inheritance. Schwab states that the proportion of neuropathic cases in his experience was never under 2 per cent., or much greater than 5 per cent. When, however, it is taken into consideration that the more difficult and intractable cases were returned to the United States, it can be readily seen that the proportion of such individuals was much greater in Plattsburg.

TREATMENT OF THE WAR NEUROTIC

The treatment of the war neurotics in Plattsburg did not offer any unusual experience. The method adopted was similar to that found successful in neurologic centers abroad. The physicians, hospital corps men and nurses were instructed as to the nature of hysteria and war neuroses, and an effort was made to institute a so-called "atmosphere of cure," which was eminently successful. Electricity was only occasionally used. In fact, cases which were difficult to cure in France and in camps in this country offered no special difficulty, once the "atmosphere of cure" was established; for as happens in such instances, success led to success, and nurses and hospital corps men were as successful as the physicians.

As an example of this, I lectured one afternoon to those hospital corps men who were on duty at night. That same evening, twelve patients arrived from Camp Taylor, and were met by one of these men. Among these patients was a man who had paralysis of an arm, another who could not talk, a third who walked in a hopping manner, a fourth with paralysis of a leg, and a fifth with a very markedly bent back. On the way to the hospital, a hospital corps man told the patients of the wonderful cures that were made. I saw these patients on their arrival at the hospital and, seeing the good work that was being done by the hospital corps men, gave them instructions not to have them disturbed. The following day all these patients were well with the exception of the man with the bent back, who after one application of the faradic current promptly straightened up. This is an example of what can be done by an untrained attendant where there is good team work and the example of success.

TREATMENT OF THE PEACE NEUROTIC

The treatment of the traumatic neuroses presents different conditions. In the war neuroses, as has been generally accepted, the cause lies in a defense reaction to a personally intolerable situation, whereas in the peace traumatic neuroses, the causes can be assigned either to the desire of the injured for compensation, in the actual trauma produced, or in the fear of the consequences of the injury. I have had many years of experience with traumatic neuroses, testifying both for and against corporations, and I have always felt that the chief reason why so many of these cases last such a long time is that they are not disposed of immediately after their occurrence.

In the work of the Industrial Accident Commission of California, an excellent opportunity has been offered to study the final outcome of accident neuroses. Under the direction of Dr. Walter F. Schaller,[1] a special investigation was made of fifty cases. All but four of the persons were personally interviewed, and in all but two of them the factor for recompense was present. It is unnecessary to give in detail the results of this investigation, but it is interesting to note some salient facts:

Age was apparently unimportant.

Women showed a greater tendency to recover, although not one was entirely relieved.

The severity of the original injury apparently bore no relation to the outlook for recovery.

Most of the symptoms were predominantly hysterical.

The cheerful patients showed a marked contrast in recovering to those who were depressed.

Schaller emphasizes that of all the factors which enter into the course of the accident neuroses, the question of compensation is one of the most important, and its great psychic influence cannot be denied. This was not true, however, in all of his cases, for in three, there was recovery while the patients were still being paid under the periodic payment plan. The cases showing lump sum settlement proved the most favorable for recovery, early lump sum settlement being more favorable than periodic payments and a final lump sum settlement.

One very interesting phase of the investigation was the lapse of time between the injury and the recovery. the longest period being three years and nine months and the shortest, seven months. It can be seen from the foregoing that there is no basis of comparison, so far as cure is concerned, between the traumatic neuroses of war and of peace.

1909 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. Robert McGregor, Saginaw, Mich.: There does not seem to be any essential difference between war neuroses and the neuroses of common life. Whatever distinctions there are lie in the severe character of the causal conditions, the intensity of the symptoms and the facility with which the symptoms interchange between those of anxiety states and those of hysteria. I had the good fortune to see many of those cases in military hospitals in England and France and also in civilian hospitals in London among women and children as a result of air raids. I believe the problem of treatment is psychologic. At the same time one should not forget that many organic conditions are bound to underlie those manifestations, and the victim of severe shock must always remain the potential epileptic.

Dr. Charles A. Rosewater, Newark, N. J.: While on duty at General Hospital No. 30 at Plattsburg, I saw a case which presented features of unusual interest, and demonstrated, as stated by Dr. Weisenburg, that hysterical manifestations are induced by suggestion and can be cured by suggestion, even in cases of long standing. For about ten years a soldier had contractures of the right toes, with rigidity of the right ankle and partial rigidity of the right knee. He limped perceptibly, walked on the outside of the foot. He was unable to rest his weight on the foot. There was almost complete anesthesia of the entire leg. It appears that while working as a carpenter, his foot was crushed in an accident. Amputation of the toes was advised, but the patient declined and was treated by his physician for several months. For weeks the foot was kept in an elevated position, followed by a period during which crutches and later a cane were used. When finally the dressings were discontinued, the doctor is said to have declared, "I saved your foot, but you will never be able to use it." In response to this suggestion, the patient never used his foot. It is difficult to understand how the soldier was considered fit for overseas duty, but, nevertheless, he was sent to France. While drilling he fell, and being unable to keep up with his company, was returned to this country with the diagnosis of "hysterical paralysis with contractures." Learning from him that he was a singer, I reminded him that if he held back the tones he could not sing, and explained to him that his inability to use the foot was entirely due to the fact that he was holding back the impulse necessary to move the muscles. I assured him that he was perfectly able to move the foot which was a trifle weak from disuse. He reacted favorably to the reeducation seances, and after a few days was completely cured, and walked as he did before the accident ten years ago.

Dr. W. H. Hicks, Newark, N. J.: As a member of the advisory examining board of the state of New Jersey I saw many cases of psychoneurosis and I would like to ask Dr. Weisenburg if the psychoneurosis which occurred in many cases was due to a fundamental law of self-protection, a psychic inhibition, the best way for the patient to escape danger and founded on fear; if such was the case, how could one determine a real psychoneurosis that produced a monoplegia from a malingerer who had sufficient willpower to simulate monoplegia?

Dr. Lewis J. Pollock, Chicago: The policy adopted by the A. E. F. in the treatment of the psychoneuroses was such as to centralize the patients and to treat them as soon after the development of the condition as possible. For that reason relatively few cases were seen in base hospitals. However, during the early months of the active participation of the A. E. F. in this war it became necessary for a considerable number of these patients to be sent through base hospitals. I had the opportunity of observing about 350 cases of psychoneuroses developing at the front. Although agreeing with Schwab that the history of neuropathic hereditary taint did not frequently make its appearance, it was noted in a large percentage of cases that the patients themselves gave a history of having a certain type of make-up which we are accustomed to speak of as unstable. By this I mean that the individual had always been oversensitive, hyperimpressionable, easily upset, inclined to overscrupulousness or diffidence and embarrassment. Frequently he was the subject of various fears, as fear of lightning, high places, at times fear of loss of consciousness and rarely death or insanity. Though the fundamental features of the war neuroses are the same as those of civil life, the picture in its entirety differs in many respects in the cases observed in France from the condition met with in civil practice. This difference is probably due to the numerous conditions tending to produce the neurosis and which occur consecutively. From the time a man is inducted into the army until his return to civil life he is the potential possessor of a neurosis. Conditions in training camps, on transports, in rest camps, in cantonments, in France awaiting active service, in battle and in base hospitals on the way back from the line, all contribute to the formation of a neurosis. It is, therefore, rare to meet with only one type of a neurosis in a single individual. If a conversion hysteria develops in a soldier as the result of any situation which might be present, the rapid disappearance of the symptoms following the many defective methods of treatment does not mean that the man is well. Most frequently when the hysterical symptoms disappeared an anxiety neurosis was found to be present, the treatment of which was essentially a different thing and one marked by slow recovery and stubbornness. It is surprising to me to note that Dr. Weisenburg reports so many cases showing the stigmata of hysteria, as aphonia, paralyses, etc. Inasmuch as it was the policy of the neurologists in France to send to the United States only such cases as were constitutional and inasmuch as the hysterical stigmata, whether occurring in constitutional cases or not, were so easily cured, it occurs to me to inquire as to whether these stigmata did not redevelop during their journey homeward. I do not believe that the desire to avoid duty at the front contributed largely to either the formation of the neurosis or its incurability. It was not the fact that the individuals consciously wished to avoid service, but their character formation was such that they were unable to successfully cope with the situation and although frequently consciously wishing to "carry on," unconsciously the neurosis developed as a means of escape from a situation which produced a conflict between the man's social and moral desire and his incapability. It was only in this manner that the desire to avoid service contributed to the formation of the neuroses and not in the sense of disloyalty or cowardice.

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[1] Schaller, W. F.: Diagnosis in Traumatic Neurosis, J. A. M. A. 71: 338 (Aug. 3) 1918.

Dr. Theodore H. Weisenburg, Philadelphia: The differential diagnosis between hysteria and malingering is not easy, and in Plattsburg it was one of the most difficult of the questions that we had to decide. The reason for this is evident because hysteria itself is a motive disease, whereas in malingering the whole basis is that of a desire to deceive. I recall one case that gave us particular trouble. This man had a bent back. He developed this condition seventeen days after he entered the service. After a year of treatment in various hospitals, he was finally made to straighten up in two or three minutes, which to some of us proved that he was a malingerer. Yet other careful neurologists had found such disturbances in him as hemianesthesia. Therefore, it was difficult for us to label him finally as a malingerer. Dr. Pollock's discussion is very interesting and intelligent. His experience was different from mine in the sense that he dealt with neuroses very soon after combat, whereas the patients we had in Plattsburg approached peace conditions. As he stated, it was the policy of the War Department to return to the United States, at least in the beginning, only the constitutional cases. Therefore it is only natural that there should be in these cases a great many with a psychopathic history. Regarding Dr. Pollock's question as to whether or not the symptoms persisted from the beginning, for it was his thought that there might have been intermissions, this might have been the case, but careful histories showed that in a number of instances the symptoms persisted from the beginning. Undoubtedly the fact that the patients knew that they would not be returned to the front had a beneficial influence in their cure and this was shown in the armistice, for while this did not bring about any great change and there were no spontaneous cures, yet our work became very much easier.

A THERAPEUTIC STUDY, PHARMACOLOGIC AND CLINICAL, OF BENZYL BENZOATE *

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During the past four years, I have been engaged in an extensive and intensive pharmacologic study of opium, and more especially of the so-called "minor" opium alkaloids, individually and in combination with each other and with the principal opium alkaloid morphin. As the result of this work, it soon became evident that the minor opium alkaloids can and do modify the effects of morphin very markedly when given in combination with it. Thus it was pointed out that there is a distinct difference in the analgesic effect produced by morphin, on the one hand, and by opium, on the other, because of the presence of the minor alkaloids in the latter.[1] Again, important differences have been shown to exist for the same reason between the pharmacologic action of morphin and opium on the respiratory center,[2] the vomiting center,[3] and other centers in the medulla.

EFFECTS OF OPIUM ALKALOIDS ON SMOOTH MUSCLE

One interesting feature disclosed by the pharmacologic studies just mentioned is the fact that while opium and its alkaloids exert their most marked effects on the central nervous system, nevertheless they produce also distinct and important pharmacologic effects on peripheral structures, and more particularly on smooth muscle organs. I first studied the action of the opium alkaloids on smooth muscle in connection with a pharmacologic study of the ureter,[4] because excised rings of that organ permit of an accurate analysis of the action of drugs on the rhythmic contractions or peristaltic movements and the tonicity of smooth muscle. It was soon established from studies on excised ureters of lower animals and of man as well as from observations of the ureters in lower animals in situ, that the opium alkaloids in respect to their action on those organs can be divided sharply into two classes: the pyridin-phenanthrene group, of which morphin is the principal member, on the one hand, and the benzyl-isoquinolin group, of which papaverin is the principal representative, on the other. The morphin group was found to stimulate the contractions of the ureteral preparations and increase their tonicity, while all the members of the papaverin group were found to inhibit the contractions of the ureters and lower their tonus.

It was found, furthermore, that in combinations of members of the two groups, small amounts of the benzyl-isoquinolin class were sufficient to overcome the stimulating effects of the morphin group. These observations led to several practical deductions. Thus, at my suggestion, Dr. J. T. Geraghty injected a solution of papaverin directly into the ureter of a patient and in that way facilitated the expulsion of a small ureteral calculus.[5] Again, the tonus-lowering action of papaverin and its relatives gives a scientific explanation for the well-known empiric observation that opium is more efficient in relieving the pains of renal colic than is morphin when given alone, because, when the combination of total opium alkaloids is administered, the patient has the advantage of both the central narcotic or analgesic effect of morphin as well as of the peripheral tonus-lowering or antispasmodic influence of the papaverin group.

Following the studies of the effects of the opium alkaloids on the smooth muscle of the ureter, I investigated the action of the same alkaloids on other kinds of smooth muscle. The results of these investigations have been published elsewhere.[6] The smooth muscle structures thus studied were the intestine, pyloric rings, uterus, gallbladder, urinary bladder, biliary ducts, seminal vesicles, vas deferens, bronchial rings, and rings of excised arteries. As a result of these investigations, I was led to conclude that the action of the opium alkaloids on all kinds of smooth muscle structures is the same as that described in connection with the ureter, namely, that the morphin alkaloids stimulate contractions and increase tonus, while the papaverin alkaloids inhibit contractions and lower tonicity, and, furthermore, that so far as the peripheral effect is concerned, in case of combinations of the two groups, the benzyl-isoquinolin constituents exert the predominating effect. Here, again, some practical deductions were drawn from the experimental data. Thus it was found, as has been long known by empiric observation, that opium is more efficient in relieving gallstone colic and uterine colic than is morphin when administered alone.

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* Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Macht, D. I.; Herman, N. B., and Levy, C. S.: J. Pharmacol. & Exper. Therap. **8**: 1 (Jan.) 1916.

[2] Macht, D. I.: J. Pharmacol. & Exper. Therap. **7**: 339 (Oct.) 1915.

[3] Macht, D. I.: Tr. A. Am. Phys, 1916.

[4] Macht, D. I.: J. Pharmacol. & Exper. Therap. **9**: 197 (Dec.) 1916.

[5] Macht, D. I., and Geraghty, J. T.: Bull. Johns Hopkins Hosp. **27**: 119 (April) 1916.

[6] Macht, D. I.: J. Pharmacol. & Exper. Therap. **11**: 389 (June) 191

Following the experimental investigations just described, I undertook a further analysis of the interesting peripheral action of the opium alkaloids on smooth muscle. The results of these investigations have been published before. Briefly stated, the conclusions to which these studies have led were that the stimulating effect of the pyridin-phenanthrene group of alkaloids is to be attributed to the pyridin portion of their molecules, while the inhibitory and tonus-lowering action of papaverin and the other members of the benzyl-isoquinolin group are to be ascribed to the presence of the benzyl grouping in their molecules. The reasons for these conclusions are to be found explained in detail in a previous article.[7]

EFFECT OF NONALKALOIDAL AND NONNARCOTIC COMPOUNDS

These observations and conclusions led me to surmise that possibly the inhibitory and tonus-lowering effects of papaverin might be produced by the exhibition of a benzyl grouping in some simpler form. Accordingly, a search was made for simple nonalkaloidal anl nonnarcotic compounds containing the benzyl radical which could be administered to animals without toxic results. Two such bodies were discovered. They are the well-known esters benzyl benzoate and benzyl acetate. As these esters are practically insoluble in water, their pharmacologic action could not be well studied on excised tissues or isolated organs; but experiments with them on intact animals revealed the fact that both of these esters actually produced the same pharmacologic effects as those of the opium alkaloid papaverin, and that they were much less toxic than papaverin. Metabolic studies in connection with these experiments showed that the benzyl group of benzyl benzoate and benzyl acetate is, in a large measure, converted in the body into hippuric acid and is excreted as such in the urine, and also in the saliva, bile and pancreatic juice. The comparatively very low toxicity of benzyl benzoate and of benzyl acetate for animals, and their striking papaverin-like effects on various viscera, led me to try their action on myself, and as no untoward or even disagreeable symptoms followed the ingestion of these drugs by mouth, it was deemed justifiable to administer these agents to suitable patients with their consent.

The conditions in which is was anticipated that the benzyl effect would tend to produce therapeutic results were those either of excessive peristalsis or excessive spasm of smooth muscle.[8] It would take too much time in this communication to describe in detail all the cases in which the benzyl esters were administered. I need only state that for oral administration the benzoate was chiefly used, as the acetate, owing to its sharp, fruity, banana-like odor, is liable to disagree with many stomachs. The benzoate was administered either in the form of an alcoholic solution or, dissolved in oil, in the form of capsules. Occasionally, intramuscular injections were also employed, in which case both the benzyl benzoate and the benzyl acetate were given in oil.

CLINICAL CONDITIONS TREATED WITH BENEFIT

The clinical conditions in which the benzyl esters were given and in which their administration was followed by remarkable pharmacologic and therapeutic results can be summarized as those of:

1. Excessive peristalsis of the intestine, such as in diarrhea and dysentery. Here, truly remarkable results were obtained. Diarrheas of long standing, both in young and in old persons, were quickly checked by a brief employment of benzyl benzoate by mouth; and even in cases of dysentery also, patients were greatly benefited by it. A series of dysentery cases has been studied for me by Professor Haughwout of the University of the Philippnies, with most remarkable success, and is reported by that author elsewhere.[9]
2. Intestinal colic and enterospasm, both of a postoperative and other character.
3. Pylorospasm, whether of functional character or produced reflexly by ulcers and neoplasms. In these cases the effects of the drug could be and were studied by the roentgen-ray method.
4. Spastic constipation, in which there was a tonic spastic condition of the intestine. This was relaxed by the antispasmodic action of the benzyl radical and the condition relieved.
5. Biliary colic. In a number of cases of gallstone colic, patients were treated very successfully with benzyl benzoate.
6. Ureteral or renal colic. I have collected records of a number of such cases in which patients were treated with the benzyl esters with very good results.
7. Vesical spasm of the urinary bladder. Here also, a number of patients with these affections were treated with remarkable results.
8. Spasmodic pains originating from the contractions of the seminal vesicles. At least two cases have been found in which patients had such pains, in both of which great relief was experienced after the administration of benzyl benzoate.
9. Uterine colic. I have a record of a large number of cases of spasmodic dysmenorrhea, in which treatment by other drugs, by pessaries and even by curettage was unsuccessful, in which complete relief was obtained after one or two doses of benzyl benzoate by mouth.
10. Arterial spasm. Under this heading I include a large number of cases of hypertension or high pressure. It was found that the administration of benzyl benzoate by mouth markedly lowered the blood pressure, both the systolic and the diastolic, the effect, in practically all such cases, being more lasting than that produced by the administration of nitrites. Indeed, patients who did not respond to the nitric treatment often responded with a falling blood pressure after administration of benzyl benzoate. I have been giving benzyl benzoate by mouth to a large number of nephritics over long periods of time. No deleterious effects on the kidney function have been noted in any of these; the hypertension, however, has been greatly improved in most of them. The effect of the benzyl

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[7] Macht, D. I.: J. Pharmacol. & Exper. Therap. **11**: 419 (July) 1918.

[8] Macht, D. I.: Proc. Soc. Exper. Biol. & Med. **15**: 63 (146) 1918.

[9] Haughwout, F. C.; Lantin, P. T., and Asuzano, M. A.: Protozoologic and Clinical Studies on the Treatment of Protozoal Dysentery with Benzyl Benzoate, Arch. Int. Med., to be published.

treatment on the arterial wall is seen from the fact that in cases of high blood pressure benzyl treatment produces a fall, not only in the systolic but also in the diastolic readings. Thus, for example, in one case, after the administration of benzyl benzoate by mouth, the blood pressure fell from 200-140 to 180-115; in another, from 320-160 to 255-140; in another, 194-100 to 178-80, and in another, from 215-145 to 190-135. A number of cases of coronary spasm (angina pectoris) seemed to be benefited by the benzyl treatment.

11. Cases of bronchial spasm. It was found that benzyl benzoate was capable also of producing relaxation of the bronchial spasm in patients suffering from true asthma. As the term asthma is applied to a large variety of conditions, and even bronchial asthma is etiologically not a single entity but is produced by a great many factors, it was natural to find that not all cases of asthma responded to the treatment. It may be stated, however, that wherever there were signs of bronchial constriction or spasm, benzyl therapy produced relief in almost every case. I collected records of at least 200 such cases. A fuller paper on the subject is published elsewhere.[10]

While the indications for the exhibition or administration of the benzyl esters, as described above, are manifold, it will be seen that the rationale of the treatment in all the cases is fundamentally one and the same, namely, that it is due to the inhibitory and tonus-lowering or spasm-relaxing action of the benzyl radical on smooth muscle. A complete pharmacologic study of he benzyl esters, with further therapeutic observations, was published in the *Journal of Pharmacology and Experimental Therapeutics* for June and July, 1918. Since the publication of those papers, I have collected a great deal of additional data, both in Baltimore and from different parts of the United States and abroad, which have fully corroborated the original findings and, indeed, have exceeded my expectations.[11]

ABSTRACT OF DISCUSSION

Dr. Douglas Vanderhoof, Richmond, Va.: Would you use his drug in hiccup?

Dr. David I. Macht: I would not. Our perfection of it s not that far advanced.

Dr. W. A. Bastedo, New York: Dr. Macht, is the dose in drops? Has it abolished peristalsis in the alimentary tract?

Dr. David I. Macht: It does not abolish peristalsis completely. The only case of this kind that I had was in a child, and the patient got well. In regard to the dose, I meant drops.

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[10] Macht, D. I.: South. M. J. **12**: 367 (July) 1919.

[11] Macht, D. I.: J. Pharmacol. & Exper. Therap., Proceedings to be published.

The Changing World.—One of the signs of the times is hat Arthur Schnitzler's "Professor Bernhardi" has recently been having a run at a theater in Vienna. It was published n book form several years ago but the censor would never allow it to be given on the stage as it protrays the conflict between the priest, who insists on the religious rites for the dying, while the physician tries to save the patient—who does not know that he is dying—the anguish of the knowledge of his fact. The play brings in fifteen physicians. Schnitzler s the son of a Vienna physician and first studied medicine, graduating in 1885 and holding the post of second physician to the General Hospital in Vienna from 1886 to 1888. The *Fortnightly Review* once said of him, "No dramatist has written tragedy with so light a hand or comedy with so ironically pathetic a smile as Arthur Schnitzler."

THE USE OF BENZYL BENZOATE IN DYSMENORRHEA *

JENNINGS C. LITZENBERG, B.S., M.D.
MINNEAPOLIS

It requires no little temerity to favor the addition of another drug to the already too lengthy list of medicines used for the relief of dysmenorrhea, but the logic of Macht's paper[1] recommending the use of benzyl benzoate in all painful spasmodic conditions of smooth muscle organs was too compelling to be resisted. Therefore, when my attention was called to this article by my colleague, Professor Hirschfelder, we determined to make a clinical study of this new antispasmodic, or rather this newly discovered action of a well known substance. This study is not based on the general run of cases as they come in private and dispensary practice, but on cases deliberately selected from among college women and nurses, because of their high intelligence and ability to cooperate in following directions and answering necessary questions under circumstances known to be experimental.

This so-called minor gynecologic condition has great import because of its frequent ocurrence, its economic influence, its unknown etiology and the very unsatisfactory results of its treatment. Tabler and Engelman (Block)[2] say that from 50 to 80 per cent. of American girls suffer from dysmenorrhea. Be the percentages what they may, there is scarcely a school, store, office, factory or home that is not interfered with on account of young women being either reduced in efficiency or entirely incapacitated.

CLASSIFICATION OF DYSMENORRHEA

Of the etiology of dysmenorrhea we know little, and none of the many theories has been incontrovertibly established; although the following classification of Block,[3] based on theories of cause, comes nearer being really logical than most others:

1. Obstructive. These cases are usually operative.
2. Ovarian, due to an increase of ovarian secretion; treated by inhibiting the hyperactivity of the ovary by cocainizing or cauterizing the "genital spots" on the nasal septum or by neutralizing the excessive secretion with epinephrin.
3. Vagotonic, due to irritability or increased tonus of the autonomic nervous system. This type is usually called spasmodic, or essential dysmenorrhea; treated by an antispasmodic like atropin which diminishes the irritability of the autonomic nerves, thereby relaxing the uterine musculature, thus relieving the colic.

The pelvic division of the autonomic system supplies the uterus, and there are also fibers from the antagonistic sympathetic system.

In women with vagotonia, which is an increased irritability of the autonomic system, the uterus is spastic; the control by the sympathetics having been in some way overbalanced so that at the menstrual period spasmodic or essential dysmenorrhea results.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

[1] Macht, D.: J. Pharmacol. & Exper. Therap. **11**: 419 (July) 1918.

[2] Tabler and Engelman (Block), quoted by Doederlein, T. J.: Surg., Gynec. & Obst. **19**: 165-168, 1914.

[3] Block: Am. J. Obst. **72**: 945 (Dec.) 1915.

VALUE AND EFFECT OF ATROPIN CONTRASTED WITH THAT OF BENZYL BENZOATE

As atropin paralyzes the autonomic group, it is a logical treatment for this type of painful menstruation.

Novak of Baltimore[4] called attention to the atropin treatment and reported good results in about thirty cases and he quoted Novak of Vienna,[5] who had used it for many years.

For some time I have used atropin in doses of from $\frac{1}{150}$ grain to $\frac{1}{50}$ grain, according to the severity of the attack, with very satisfactory results; but I must confess to a reluctance to use it extensively because it is too potent a drug to place in the hands of every patient fourteen times a year and, furthermore, it frequently must be given in dysmenorrhea to the point of tolerance in order to get the desired antispasmodic effect.

The favorable reports on the use of atropin, the logical basis for its use and the good results obtained convinced me that an antispasmodic was certainly indicated in essential or spasmodic dysmenorrhea, which conclusions prepared me for a ready acceptance, for trial at least, of the benzyl esters as antispasmodics in place of atropin.

Macht showed by animal experiments and clinical trial that benzyl benzoate had the same antispasmodic action on smooth muscle organs as certain opium alkaloids of the papaverin type, this action being due to the benzyl component of the molecule in these substances; benzyl benzoate, however, having the advantage of being practically nontoxic.

Atropin produces its antispasmodic effect by paralyzing the autonomic nerves supplying unstriped muscle, but the benzyl esters seem to *act only on the muscle cell itself*.

Macht tried benzyl benzoate with beneficial results in gastro-intestinal colic, renal and ureteral spasm, biliary colic, dysmenorrhea, angiopastic conditions and bronchial spasm. He reports 300 cases, in some of which benzyl benzoate was continued over long periods with no dangerous or toxic symptoms.

SIZE OF BENZOATE DOSE

Macht used a 20 per cent. alcoholic solution of the drug flavored with some carminative, giving a dose of from 10 to 30 drops in cold water.

Our first patients complained bitterly of the unpleasantness of this solution, especially the aftertaste, so Professor Hirschfelder made up a 20 per cent. emulsion with acacia in aromatic elixir of eriodictyon which proved a much more pleasant medicine to take.

In dysmenorrhea we did not get quite as complete relief as desired with the dosage recommended by Macht, so we increased the dose to 1 teaspoonful and finally to 2 drams given every two hours. We observed no bad effects from this greatly increased amount, unless an occasional case of vomiting and rarely a feeling of weakness might be so attributed. We used several other preparations, but none of them were as pleasant to take as the emulsion in elixir of eriodictyon.

We shall endeavor in our future study to determine the minimum dose required and the best method of giving it.

SUMMARY REPORT OF CASES

Of forty-three patients there were thirty-five, o 81.3 per cent., who were relieved of pain. I twenty-seven cases, or 62.7 per cent., the pain wa completely stopped, and in eight cases, or 18.5 pe cent., the suffering was greatly relieved but no entirely eliminated.

In two cases, or 4.6 per cent., the pain was somewhat relieved, but to no great extent.

In six cases, or 13.9 per cent., there was no benefi whatever.

This study will continue as originally intended ove a long period so that the volume of cases and repeate trials may give us sufficient basis for final conclusions but the early results were so striking that we though a preliminary report should be made in order tha the value of benzyl benzoate might be tried out b the profession at large.

We hope that the promise of this drug may lea many physicians to try it and that we may soon hav numerous reports, for it is only by an analysis of very large number of cases that we can determine th real value, and fix the limitations of benzyl benzoat as an antispasmodic in painful menstruation.

PATIENTS' TESTIMONIES

The most striking sidelight encountered was th answer to the question, "Does menstruation interfer with your usual duties?" Thirty-five, or 81.3 pe cent., answered in the affirmative. To the question "Must you go to bed?" twenty-nine, or 67 per cent. said they were compelled to do so, illustrating th economic value to be obtained by the relief of dysmenorrhea, to say nothing of the human suffering.

Thirty-three patients, or 76.7 per cent., had trie other treatment, but only eight, or 24.2 per cent., ha obtained any relief. One of these I had dilated wit absolutely no relief; however, one dose of benzy benzoate stopped her pain entirely.

Fifteen cases were completely relieved of pain afte one dose (2 teaspoonfuls of a 20 per cent. emulsion) twelve, after two doses at two hour intervals; on required three doses and one four doses and one fiv doses; those who obtained no relief took from two t six doses.

Other symptoms, headache, backache, etc., wer not uniformly benefited.

The testimony of the patient in a condition like thi is the only thing we have to go by in determining it efficacy; therefore a few statements by these youn women will not be out of place. One said she coul carry on her work with less difficulty and discomfor than usual, saying that "it took away that awfull oppressive feeling, and interference with duties wa less in quantity and duration," and her headache were much relieved.

Another, Patient 7, asserted that she "was relieve entirely after the second dose and was able to ea during the first twenty-four hours," which she ha been unable to do for several years.

Patient 13 was a woman, aged 40, with acut gonorrhea accompanied by cramps throughout th pelvis, which had lasted for two weeks. She was completely relieved after one dose.

Patient 16 said that after taking the medicine sh "could do a good day's work, and life was wor living."

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[4] Novak, Emil: The Atropin Treatment of Dysmenorrhea, J. A. M. A. **64**: 120 (Jan. 9) 1915.

[5] Novak, J.: Wien. klin. Wchnschr. **26**: 671, 1913.

Patient 20 averred that for the first time she was not compelled to go to bed, and that the usual faintness and weakness were absent.

Patient 29 was one of the few persons not within the class of college women and nurses especially selected for study. She was a forewoman in an iron factory, compelled to be on her feet all day; but after taking the benzyl benzoate she was "able to keep working throughout the menstruation, which had never happened before."

RESULTS IN ESSENTIAL DYSMENORRHEA

We have obtained excellent results in all three of the classes set forth by Block: namely, obstructive, ovarian and vagotonic or spasmodic dysmenorrhea, and we also have had favorable reports in the so-called acquired type due to some demonstrable pelvic pathologic condition and even in the inflammatory type.

However, the most reliable results were obtained in the spasmodic type or essential dysmenorrhea, where benzyl benzoate has a distinct advantage over atropin, on account of its very low toxicity; furthermore, there are no drugs other than atropin and morphin which give so much promise of relief. Morphin we dare not use; and if we have a nontoxic antispasmodic, it should certainly replace atropin, which is not entirely devoid of danger.

To be sure, benzyl benzoate only relieves a symptom and does not get at the underlying cause of painful menstruation; but dysmenorrhea is only a symptom after all, so until we have solved the problem of the etiology of painful menstruation we must continue to aim our shafts at the symptom. Wherever a cause can be found, of course, it should be removed; any pathologic condition of the pelvis must be corrected; but anteflection of the uterus as a real cause of obstruction is very doubtful in spite of the fact that many patients are relieved by dilatation. Far too many cervices are dilated.

Benzyl benzoate should be tried before dilatation or other pelvic operations are advised; and if it eventually proves to have the value it promises, many a woman will be saved an operation and more women will seek relief if surgery is not the only avenue of escape from suffering.

If this drug, in the final analysis, fulfils its promise, the sum of human suffering will be greatly reduced and a great economic asset acquired.

The prescription used is given herewith.

		Gm.
℞	Benzyl benzoate	10
	Mucilage of acacia	5
	Aromatic elixir of eriodictyon	35

Give from one-half to 2 teaspoonfuls, according to necessity.

CONCLUSIONS

1. The cause of dysmenorrhea is still unsettled.
2. The treatment has been unsatisfactory.
3. Antispasmodics are logically indicated, for in spite of doubtful etiology the painful spasm of the uterine muscle is incontrovertible.
4. Benzyl benzoate has an antispasmodic action and is practically nontoxic, which gives it preference over atropin.
5. This series is too small to permit conclusions, but is given for what it may be worth. Of the forty-three cases presented, in 81.3 per cent. the patients were relieved of painful menstruation.
6. Pain was absolutely eliminated in 62.7 per cent.
7. Pain was greatly relieved in 18.5 per cent.
8. Pain was slightly benefited in 4.6 per cent.
9. Pain was not relieved at all in 13.9 per cent.
10. These results, while not conclusive, warrant a thorough test, by the profession, of the value of benzyl benzoate in dysmenorrhea.

119 Institute of Anatomy, University of Minnesota.

ABSTRACT OF DISCUSSION

Dr. Emil Novak, Baltimore: While we do not know the cause of spasmodic dysmenorrhea, it seems fairly certain that the actual pain in these cases is due to spasmodic contraction of the uterine musculature. The logical symptomatic treatment, therefore, is the use of antispasmodic drugs. The two drugs which are most efficacious as antidysmenorrheics are the very two which should not be used, morphin and alcohol. Aside from these two, the drug which has in my hands been most valuable is atropin, to which Dr. Litzenberg has alluded in his paper. The general effect of benzyl benzoate would seem to be similar to that of atropin, and, if it is much less toxic than the latter, it would seem to be preferable to it. Such drug treatment of dysmenorrhea, however, is, after all, only a makeshift, and we should continue our effort to achieve a more rational therapy, which, I am convinced, will be along the lines of organotherapy. In practically all of these cases the uterus is the seat of defective development, in some cases very marked, in other cases slight. It is interesting to note that where the anatomic defect is least conspicuous, that is, in the so-called subpubescent cases, the dysmenorrhea is apt to be most severe, as I emphasized in a paper presented before this section last year. These developmental disorders are undoubtedly due to endocrine disorders which as yet are not well understood, but the problem is sure to be worked out sooner or later. Until this is done, the only course left for us in the management of these cases is the makeshift treatment of drugs, and the remedy advocated by Dr. Litzenberg should, therefore, constitute a valuable addition to our armamentarium.

Dr. J. C. Litzenberg, Minneapolis: I believe with Dr. Novak that we should not shirk treatment just because we have not found the cause of the condition. Neither should the obtaining of relief for pain lead us to relax our efforts to find the cause. Of course, our remedies are makeshifts. We can aim at the symptom because we do not know the cause. The use of epinephrin is along the line of counteracting the ovarian type of dysmenorrhea. The profession generally neglects the ordinary means of treating dysmenorrhea. The superintendent of the University Hospital told me that more than 50 per cent. of the nurses lose their dysmenorrhea when they get on the floors of the hospital. The physical exercise, interest in their work and the hygienic living correct a large part of the difficulty. In the treatment of this condition, physical exercise and hygienic treatment are neglected. The majority of young women do not come for treatment. Many suffer in the privacy of their own homes because of innate modesty or because of their desire to play the game of womanhood bravely. They get a prescription, not a study, and I want to emphasize the idea of study brought out by Dr. Novak. The cases should be classified and treated according to the class in which they may fall. Of course, this is only a theoretical classification, but if they are studied and the hygienic measures alone are used one half of these women would be relieved. In those cases with very great pain, this newly discovered action of a well known substance certainly ought to be used because it is a substitute for three dangerous drugs—morphin, alcohol and atropin.

Child Welfare.—Juvenile courts occasionally have to deal with cases where delinquency is just the result of a spirit of adventure. The child is starved for something that appeals to his imagination. Neither home nor school makes provision for this necessary element in human experience, so the young adventurer seeks it himself on nocturnal journeys.—*School Life* **2**:2 (May 16), 1919.

FATALITIES IN HOSPITALS CAUSED BY PATIENTS FALLING FROM WINDOWS

FROM THE RECORDS OF THE CORONER'S OFFICE, COOK COUNTY, ILLINOIS *

EDWARD H. HATTON, M.D.
CHICAGO

Fatal results ensuing from patients of hospitals and sanatoriums falling or jumping from windows are of such frequent occurrence in Cook County, Illinois, that the matter is deserving of attention, with a view to ascertaining the causes and providing a remedy. Between the beginning of the year 1907 and the end of 1918, there are forty-nine such deaths recorded in the coroner's office. Thirty-one different hospitals are concerned, and ten of the forty-nine patients so killed were in public institutions, that is, those under the control of the city, county or state.

Twenty hospitals had only one such death each, eight had two, two had three, and in one large hospital there were seven. In the nine years 1907 to 1916 there were twenty-six deaths so recorded, an average of nearly three a year, and the largest number for any one year in that period was five in 1908. Again, in 1916 there were five deaths; in 1917, eight, and in 1918, ten.

MULTIPLE CASES IN CERTAIN HOSPITALS

It is noteworthy from the foregoing that one such death has not prevented repetitions, for in eleven hospitals there have been multiple cases. In large hospitals more than one has occurred in the same year in three instances, and in two others within less than two years. In the last three years there has been a tendency for the number to increase, partly because the hospitals are becoming larger and the number of used beds is steadily growing. Other reasons perhaps are the decrease in the number of interns, nurses and attendants, and a falling off in efficiency, as the results of war activities.

In Table 1 these accidents are grouped according to the situations that seem most prone to lead to such catastrophes. All were adults; thirty-four were men, fifteen were women.

TABLE 1.—STATISTICAL DATA

	No.
Patients in private rooms at time of accident	25
Patients in wards at time of accident	19
Patients with special nurses	8
Patients with attendants present when accident occurred	4
Patients with delirium previous to accident	11
Patients who had previously attempted self violence	5
Patients under mechanical restraint from which they escaped	2
Native-born patients (including Canada)	13
Foreign born patients	24

CONDITIONS AS THEY OBTAIN

The height of the window sills varied from 2 to 5 feet from the floor. In some instances the windows were open, in others closed; and in some cases not only were the windows closed and fastened, but the screens were in place with fixed attachments. The patients then unfastened windows and screens or threw themselves through the glass and screen. With attendants or nurses in charge, they sometimes took advantage of their temporary absence from the room. In one case a male patient held off two interns and two nurses with a chair used as a weapon until he could smash the window and effect his escape. In another instance the attendant's cot was placed in front of the door, but the man made his escape across this cot into the corridor and thence to an open window and a fire escape from which he fell to the ground. Foreigners are much more given to trying to make such escapes from hospitals than the native born, especially when delirious, probably because of the strangeness of their surroundings and the absence of attendants of their own race who speak their language. Two patients made their way to fire escapes, and the accidents occurred in connection with the openings provided for fire emergencies. Three men went to toilet rooms and made their way out of windows in those rooms.

TIME OF OCCURRENCE OF FATALITIES

It is also important that three fifths of these deaths have taken place in the afternoon and the first half of the night. More accidents occurred between the hours of 9 and 10 p. m. than at any other time of the day. It seems fair to relate this to the daily activities of the hospitals. Most of the hospital work is crowded into the forenoon and the early afternoon; there are more nurses on duty; this is the time that the majority of the attending men chose for their rounds; opportunities for escape are remote. On the other hand, after midnight the hospital quiets down and most of the patients are asleep. The external stimuli are reduced to a minimum. Even delirious patients are quieter.

TABLE 2.—CLINICAL DIAGNOSIS OF THE DISEASES FOR WHICH THE PATIENTS WERE HOSPITALIZED

	No.		No.
Alcoholism	9	General paresis	2
Melancholia	5	Puerperium	2
Postoperative delirium	5	Tuberculosis	1
Heart disease	3	Burns	1
Sepsis	3	Prostatic hypertrophy	1
Suicidal mania	5	Epilepsy	1
Pneumonia	4	Varicose ulcer	1
Acute nephritis	2	Old age	1

TYPES OF PATIENTS CONCERNED

In this variety of diseases, two types of patients are prominent: Those in whom there is a tendency to delirium, and those in whom there is some mental derangement or on which discouragement weighs heavily because the prognosis is bad. Patients suffering from influenza and the attendant bronchopneumonia seem particularly liable to mental derangement or delirium which may result disastrously in this way. Delirium tremens and melancholia are also conspicuous.

PREVENTIVE MEASURES

It may be that greater care and especially more aggressive action in the face of emergencies would have prevented some of these accidents. Yet many of them were unavoidable except by removal of access to the windows or the possibility of breaking through them. The use of bars or gratings has been objected to on the ground of its being offensive to the patient or from the standpoint of the practical management of hospital affairs; that is, because of hindrance in the washing of windows, blocking of entrances to fire escapes, and interference with ventilation or the attachment of screens. It is with the improvement of such details of hospital construction that the pre-

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* This article was suggested and the statements are authorized by Peter M. Hoffman, coroner.

ention of such deaths will be attained most effectually, nd this report is made with the hope that with full ealization of the need, serious consideration of such letails will be undertaken, for to a large degree such leaths are preventable.

CONCLUSIONS

In view of the facts as stated these conclusions seem ustified:

1. A concerted effort should be made toward lesigning a standard hospital window and screen vhich would absolutely prevent such accidents from ccurring and yet be satisfactory from the mechanical tandpoint, as regards convenience in washing, use of ire escape, ventilation and lighting.
2. Nurses and attendants, especially those on duty luring the afternoon and the first half of the night, hould be continually warned of the possibility of uch accidents occurring and should be prepared to act uickly and wisely in emergencies.
3. Every toilet room used by patients should be rotected by bars or gratings across the windows.
4. Special precautions should be taken not only s regards those who are actually delirious but also vith respect to others who from the nature of their ickness may become delirious.
5. With regard to foreigners as patients an effort hould be made to have with them, from time to ime, if not regular attendants, at least others who peak their language.

MASTOIDECTOMY

POSTOPERATIVE TREATMENT BY USE OF SURGICAL SOLUTION OF CHLORINATED SODA AND MODIFICATION NECESSARY TO SECURE THE BEST RESULTS *

JOHN B. POTTS, M.D.
OMAHA

This paper is not given as an original contribution, ut as an adaptation of the Carrel-Dakin treatment to ostoperative mastoid wounds.

There are several methods of closing the wound fter a mastoidectomy. This very fact is evidence hat we have not as yet an entirely satisfactory method, nd I am taking the liberty of presenting this method o the section in the hope that it or some modification f it may aid in a solution of our difficulties.

The ideal we are striving for is for a method that vill fulfil the following conditions:

1. The maximum safety for the patient.
2. The minimum time of convalescence.
3. The minimum deformity.

AUTHOR'S METHOD

In order that any method of closing the mastoid vound may be uniformly successful, a thorough masoidectomy must be done. Considering now that this peration has been done, a Carrel Dakin tube is placed n the excavated mastoid cavity, starting at the tip of he mastoid and having its exit at the upper angle of he wound. A second tube is adjusted so that it lies n the opening of the antrum and has its exit in the ower angle of the wound. These tubes are brought forward and upward and fastened with a strip of adhesive plaster to a point on the temporal region of the forehead. The wound is closed with the usual catgut sutures, care being taken to carry them through all the layers of tissue. It is well not to place the stitches closer than three-sixteenths inch to each angle of the wound in order that a little space may be left for drainage around each tube. This precaution adds greatly to the comfort of the patient at the time of irrigation. A small sponge is placed directly over the mastoid cavity and pressed down firmly so as to obliterate as much dead space as possible. A cotton pack about 8 inches square enclosed in gauze is placed over the ear, and the head is bandaged in the usual way. It is very essential for the comfort of the patient that the cotton pack be sufficiently thick to absorb all the moisture from the irrigations. In applying the bandage, from one-half inch to 2 inches of the tubing is left free. These ends are wrapped in sterile gauze, and care should be taken that they be kept sterile.

Irrigations are begun at once with a properly prepared and carefully titrated surgical solution of chlorinated soda (Carrel-Dakin solution) about 1 ounce to each tube every two hours. The dressings are replaced every twenty-four hours. The condition of the wound and discharge governs the frequency and amount of solution to be used during the ensuing twenty-four hours. Ordinarily no change is made in the orders for the first two days. After this the irrigation is continued every two hours during the day, but the night period is extended to four hours. As the secretion decreases, the frequency of irrigation is diminished. Usually in from four to eight days the wound is sterile. If one has access to a laboratory, this can be ascertained by removing one of the tubes and taking a culture by the ordinary method with a platinum loop. If the laboratory is not available, one will have to use his judgment and be guided by the appearance of the wound, and the amount and character of the secretion. The latter when sterile is of a serous nature and should only slightly stain the dressing. I have frequently found it unnecessary to retain both tubes longer than three days. The upper tube was then removed, the lower being retained as it better facilitated drainage. In some cases after four or five days the secretion instead of diminishing became more or less profuse and of a thick, slimy consistency and brownish color. When this occurred, I removed both tubes, cleansed them thoroughly, resterilized, and before reintroducing them thoroughly cleansed the wound with a hot saturated solution of boric acid or hydrogen peroxid. The tubes were then introduced to their original positions and a solution of mercuric chlorid 1 : 5,000 used in the same manner as the Carrel-Dakin for a twenty-four hour period. In some cases it was necessary to repeat the mercuric chlorid for two or three twenty-four hour periods. When using the mercuric chlorid I always protect the skin by covering it with a layer of gauze saturated with zinc oxid ointment. This protection was necessary also in some cases as a protection from the Carrel-Dakin solution.

In performing the operation we found it an advantage not to extend the incision upward into the temporal muscle. In those cases in which the temporal muscle was injured, there was liable to be some edema over that area.

Following the removal of the tubes, in cases in which there has been a large mastoid there is sometimes an

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* Read before the Section on Laryngology, Otology and Rhinology t the Seventieth Annual Session of the American Medical Associaion, Atlantic City, N. J., June, 1919.

accumulation of fluid. When this occurred, we thought it was an advantage to cleanse the cavity once daily with a hot saturated solution of boric acid.

The irrigation with the Carrel-Dakin solution had one advantage which we had not anticipated. The solution passed through the antrum into the middle ear and out through the membrana tympani, thus cleansing and sterilizing this tract.

The stitches were usually removed on the sixth day. In order that the cavity may not be infected by extraneous bacteria, it is necessary that the nurse exercise great care in her asepsis when giving the irrigations.

RESULTS

In a series of fifty cases in which we kept accurate data in the University of Nebraska Red Cross Base Hospital 49, Allerey Hospital Center, France, the average time in which the wound became sterile and the tubes could be removed was 9.35 days. All secretions had ceased and the wound was entirely healed in most of these cases by the fourteenth day, and none longer than the eighteenth day. The shortest time in which the tubes were removed was four days and the longest time was eighteen days. The discharge from the external auditory canal ceased in from one to twenty-one days.

COMPLICATIONS

One patient had marked swelling, and the stitches were removed on the second day. This was an early case in the series and did not have sufficient irrigation.

One patient developed infection of the neck below the mastoid.

ADVANTAGES

The principal advantages this mode of treatment has are:

1. It enables the operator to close his wound and still feel that he has as perfect drainage as it is possible to secure.
2. Exposure of the sinus or dura is no contraindication to closing the wound.
3. The ultimate result is a smooth, clean scar without depression.

ABSTRACT OF DISCUSSSION

Dr. Ewing W. Day, Pittsburgh: At different times different methods have been brought forth to produce rapid healing of the mastoid. We all remember the blood clot. Its failure was the inability to obtain a sterile cavity. Anything that will produce a sterile cavity will bring quicker healing. The surgical solution of chlorinated soda is one of the best. Shortly after this solution was introduced in Europe, the Carnegie Steel Company sent Dr. W. O'Neil Sherman, the chief surgeon of that company, to Europe to study this method. On his return we tried it out in the Eye and Ear Hospital to a considerable extent and found it to be surer and quicker than any other. Some patients complain of the irritating influence of the solution on the skin, and especially the external auditory canal, for some of the solution will get through in spite of gauze shields and ointments. Since my return home I have adopted a slightly different procedure. I never like to quite close a mastoid until it is sterile, although I do have free drainage. Instead of using the surgical solution of chlorinated soda immediately after an operation I pack the wound rather tightly with a piece of gauze which has been saturated in a 3.5 per cent. tincture of iodin. The next morning I commence cleansing the wound every four hours, using a good green soap and washing it out and drying it thoroughly and redressing it. Do this every four hours during the day. Beginning on the third day, I take cultures to see when the wound is sterile. As soon as the wound is sterile, close it by freshening the edges of the wound, which can be done quickly, elevate the flaps a little and let the blood run in; close it with metal clamps, and your work is practically done. Within a few days I send the patient home, and he reports back in one week. I have had complete closure and practically healing of the wound in fourteen days. It is utilizing the blood clot, which I formerly opposed, but using it in a sterile cavity. You can follow the same procedure if you do not want to do the primary suture. You can do it without cocain, the patient does not mind it, and the results have been good in my cases.

Dr. Arthur C. Stokes, Omaha: I was chief of the surgical service in Base Hospital No. 49, during the time in which Dr. Potts was engaged in this work at Allerey, France. His results seemed to be phenomenal. I had been accustomed in my general observation to see cases go on weeks discharging and granulating and finally healing with large and ugly scars. These cases did not do this. The tubes were put in as the doctor has described and the wound closed. It healed in three or four days and the patients were walking around the hospital. One point the doctor did not mention, and that is, that instead of using petrolatum for his protecting ointment around the wound, he used zinc oxid on gauze. This seemed to be an improvement on the ordinary method of protecting the skin around the wound. It stuck to the wound better and protected it better. The surgical solution of chlorinated soda certainly does excoriate the skin at times. Of course, the nearer neutral the titration, the less frequently excoriation follows, but the value of the solution, if it has any value, depends on the free chlorin present, and that is bound to irritate at times. We learned that if the solution is of any value at all—I am not discussing that question—it is in cases of acute wounds. I am opposed to packing all kinds of wounds, everywhere and anywhere, with tight gauze, where there is pus, and this method makes packing unnecessary. To pack a wound with pus in it seems to be a bad proposition. In general surgery we do not pack infected wounds with gauze. It has been hard for surgeons to learn that gauze does not drain pus. We have gone through that until we know it does not. One more point is the use of mercuric chlorid. It is interesting to see how after using surgical solution of chlorinated soda for a time and then changing to mercuric chlorid, there was in some cases a very sudden reduction in the bacteriologic count. There must then be certain organisms or relations in wounds in which mercuric chlorid is of more value than surgical solution of chlorinated soda.

Dr. Francis P. Emerson, Boston: I have been very much interested in this paper. I hoped that in our surgical mastoid work we were getting away from complicated methods to a more simple technic. In any surgical procedure there should be some definite reason for every step we take, and in the mastoid operation the first indication is the removal of diseased tissue and drainage. After you have done a complete and thorough mastoid operation, you pack the cavity to stop bleeding and set up reaction. In the procedure which I have adopted, and which is used in the hospital with which I am connected, we rarely disturb the packing until the fourth day. At the end of the fourth day the packing is removed. After removing the packing we want to keep control of the middle ear until it is dry. A simple drain carried up to the aditus will control the middle ear until it is dry. Then after the middle ear is dry and the aditus has been walled off, there is no danger whatever in letting the whole mastoid cavity close by what you might call a modified blood clot method. In the last series of seven cases in which I operated, the middle ear was dry, with the exception of one case, on the fourth day. That means that the operation has been radical enough to remove the diseased tissue, and that the mastoid cavity is free from necrotic areas. There is no one principle in surgery more important than to let Nature alone when she is doing all right, and to wipe out a cavity when it is granulating normally is bad practice; to irrigate a cavity when it is granulating normally is also bad practice. In fact, to do anything that is meddlesome when the cavity is in good condition is bad surgery. If you have excessive granulations, remove them; if you have a septic wound, use surgical solution of chlorinated soda; nothing is better. But if you have done a radical thorough operation and the middle ear is dry, let it alone, unless you know that there is a septic cavity, and if so, the use of the surgical solution of chlorinated soda is one of the best measures that we have at our command.

Dr. C. J. Swan, Evanston, Ill.: In our experience at Camp Wheeler, those mastoids which where found at the operation to contain much pus, where the necrotic process had gone far, were those that healed the most readily. Cases in which operation was done very early and which were infected with streptococci were the cases that continued to suppurate and were slow to heal. They were operated early, the necrotic process had not been delimited, and the patient apparently had not set up a resistance to the infection. On the other hand, cases that had gone far and that we did not see until they had had the mastoid infection for weeks, healed very quickly. We tried the Carrel treatment in ten cases that were sent directly from the operating room to the Carrel treatment ward. We controlled these cases by ten other cases in which we used a treatment similar to the one Dr. Emerson described. We sewed the wound primarily down to about two-thirds of the way with three sets of stitches, one through the pericranium, one through the subcutaneous tissue and then a skin suture. We packed the cavity and left the packing in for three or four days, then removed it, and maybe packed it once or twice more. Healing was accomplished in the favorable cases in a little over two weeks. We had one case, a very necrotic case, that healed in ten days. With the Carrel treatment we had more scar, and the average time of healing was about a week longer. The cases that were suppurating very much did better with this treatment. The favorable cases did better with the simple treatment. In other words, there is no one method of treatment applicable to all cases. Each case should be treated according to the condition presented.

Dr. Wendell C. Phillips, New York: I have been very much impressed with the aggressive work that has been accomplished by Dr. Potts and by those who have taken part in the discussion. But I think there are one or two words of caution that may well be mentioned at this point. Evidently in the case of those who have fallen into the hands of the men who have been doing this operation, their "lines have fallen in pleasant places," because the experiences that some of us have in hospital work in great cities would not bear out the testimony that has been given here today. If the method of treatment that the surgical solution of chlorinated soda offers means the results given in this paper, there is no question that its adoption will be warranted. I do think, however, that if you use it in the ordinary run of cases seen in the large hospitals, the results could not possibly be the same. The word of caution I wish to give is this, that unless the discharge from the external auditory canal ceases entirely after a few hours or days of use of the Carrel treatment, the case should not be reported cured even if the postauricular wound is healed, for otherwise a recurrence may be expected. Closing the posterior wound before the discharge has ceased from the external auditory canal means trouble. A case is cured only when the mastoid is healed and when the discharge has ceased from the external auditory canal, and if the cases reported at this time have not had that course they are not cured. In the care and treatment of patients, a dressing every four hours may be very easy where there are not very many mastoid patients to care for, but if you take them in a hospital where you have from forty to eighty such patients under treatment all the time, postoperative cases, and you dress them every four hours, it will require an increase in the hospital staff, because you cannot trust the nurses to make these dressings, and I can see where there will be an enormous amount of labor.

Dr. Edward J. Bernstein, Detroit: I would like to add a word of caution about the use of iodin gauze. I used it in one case and in a very short time it set up a meningeal irritation which was not relieved until I took out the gauze. It seems to me we ought to be very cautious about putting iodin solution into mastoid wounds.

Dr. John B. Potts, Omaha: In this series of cases we had an acute *Streptococcus hemolyticus* infection following influenza. We had some cases of fracture of the mastoid following accidents with high explosives. Three cases that had had an old otitis media and which was stirred up again, and we had cases that had been dragging along for weeks and even months. The boys at the front did not stop fighting for a little thing like a running ear; they had to be really hurt. It was very interesting to see how the different cases responded to treatment. The time in which we could get an ear sterile depended somewhat on how long it had been discharging. In some old cases the discharge did not cease as promptly as in acute cases. In answer to Dr. Phillips, I think his criticism is very just. You will find, however, as you develop your technic that you can instruct one or two nurses to carry out this dressing, and it becomes a simple matter. The dressing is only done once in twenty-four hours. In other words, the doctor or intern only sees the patient once in twenty-four hours. The introduction of the surgical solution of chlorinated soda can be done rapidly by the nurse if she is careful. She can go about with a sterile syringe, we use a little gynecologist's syringe, the kind that were shipped in great quantities to France, and it works very well. The dressings do not take really as much time as when done in the other way.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

BARBITAL SODIUM (See N. N. R., 1919, p. 83).

Barbital Sodium-Abbott.—A brand of barbital sodium complying with the N. N. R. standards.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 782,739 (Feb. 14, 1905; expires 1922); by license of the U. S. Federal Trade Commission.

OVARIAN SUBSTANCE-HOLLISTER-WILSON.—The entire, fresh ovaries (including the corpora lutea) of the hog, cleaned, freed from fat, dried and powdered. It contains no diluent or preservative.

Actions and Uses.—See Ovary (New and Nonofficial Remedies, 1919, p. 202).

Dosage.—From 0.06 to 0.2 Gm. (1 to 3 grains).

Manufactured by the Hollister-Wilson Laboratories, Chicago. No U. S. patent or trademark.

Ovarian substance Hollister-Wilson is a yellowish powder, having a characteristic odor. It is partially soluble in water.

One part of ovarian substance Hollister-Wilson represents approximately seven parts of the fresh ovary. When incinerated, it yields not more than 7 per cent. of ash.

DESICCATED CORPUS LUTEUM-HOLLISTER-WILSON.—The fresh substance from the corpora lutea of the hog, dried, freed from fat and powdered. It contains no diluent or preservative.

Actions and Uses.—See Ovary (New and Nonofficial Remedies, 1919, p. 202).

Dosage.—From 0.03 to 0.12 Gm. (½ to 2 grains).

Manufactured by the Hollister-Wilson Laboratories, Chicago. No U. S. patent or trademark.

Desiccated corpus luteum Hollister-Wilson is a yellowish powder, having a characteristic odor. It is partly soluble in water.

One part of ovarian substance Hollister-Wilson represents approximately 5 parts of the fresh corpus luteum substance. When incinerated, it yields not more than 6 per cent. of ash.

SODIUM PEROXIDE (See N. N. R., 1919, p. 216).

Sodium Dioxide, Dental-R. and H.—A nonproprietary brand of sodium peroxide complying with the N. N. R. standards, but containing at least 90 per cent. of sodium peroxide, and iron not to exceed 0.006 per cent.

Manufactured by Roessler and Hasslacher Chemical Co., New York. No U. S. patent or trademark.

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SATURDAY, AUGUST 23, 1919

FATTY ACIDS AS FOODS

When the world war threatened the integrity of the food supplies of a large part of the nations more intimately concerned in the great conflict, both physiologists and economists began to ask what limits of restriction could safely be endured. It is doubtful whether the nutritive needs of man have ever before been considered so critically as they have been since 1914. Proteins and fats and other nutritive ingredients began to be estimated in calories and grams with profound regard for economy of consumption and prevention of unnecessary waste. National committees and international commissions devoted their best energies to the determination of what the safe minima of food allowance for various classes of the populations under consideration might be. It was a time when waste might mean defeat.

With respect to the human requirement for protein there is a considerable body of evidence of both a statistical and experimental character, sufficient at least to serve as a reasonably safe guide to the limits of husbanding this foodstuff. Much less is known with regard to the absolute needs for fats in the physiologic economy of man. Older "standards" regarded about 50 grams, or somewhat less than two ounces a day, as a possible minimum. The Interallied Scientific Commission on Alimentation, at its second meeting at Rome in April, 1918, fixed 75 grams (2⅝ ounces) as a desirable daily minimum ration of fat.[1]

In many of the countries the fat supply became unduly reduced because of two factors which did not militate against it in peace time. The interference with free shipping prevented importations of fat in places where the stock was normally replenished from elsewhere. Then, fats formerly used as foods were diverted to the preparation of glycerol for the manufacture of explosives. What this meant in England can now be authentically stated from a report of the Royal Society's Food (War) Committee.[2] It is admitted that in the last months of 1917 the marked shortage in the supply of fats led to a reduction of the fat ration per week per person to about 3⅕ ounces (as derived from butter, margarin and lard), while the limitation in the meat ration reduced the fat supplied in this way to some 3½ ounces or less. At most, therefore, even allowing for fat in milk and other foodstuffs, probably only about 7 or 8 ounces per week were available.

When fats are chemically disintegrated by hydrolysis to prepare glycerol, fatty acids are formed as a by-product. The reaction is comparable to what occurs in the digestive hydrolysis of fats in the alimentary tract. In the latter case the absorption of the products of digestive cleavage is followed by a resynthesis of fat, as is indicated by the appearance of neutral fats only in the thoracic duct lymph which carries the products from the alimentary epithelium to the general circulation. It has long been known that fatty acids can be absorbed and utilized, i. e., resynthesized into neutral glycerids or fats even when no glycerol is actually available in the digestive tract. The physiologist I. Munk[3] clearly demonstrated this fact on man as early as 1890. Not long ago Lyman[4] demonstrated, with animals, a utilization value of 82 per cent. for palmitic acid fed as such, in contrast with from 95 to 97 per cent. for the fat glyceryl palmitate and for lard fats. Lyman also demonstrated that after feeding free palmitic acid, glyceryl palmitate, or ethyl palmitate to white rats, essentially the same kind of fat is stored in the fat depots, and it consists largely of tripalmitin. Neither free palmitic acid nor ethyl palmitate in appreciable amounts is deposited unchanged in the fat depots.

In view of the foregoing facts the London Royal Society's experts seriously considered the possibility of applying to nutritive purposes the great stocks of fatty acids liberated from fats in the manufacture of explosives. According to their report it was estimated that some 100,000 tons a year of these fatty acids could be set free for the purpose, if they were found to be suitable. This would mean a substantial gain to the fat supply of the nation, which in prewar times was estimated at 1,651,000 tons, an amount far above the actual requirement; for fat more than any other food constituent was extensively wasted. Even if the products could not be used by man, so the experts argued, it was possible that they might be used by animals, and thus fat suitable for human food would be set free.

The new war-time human experiments, conducted at the University of Glasgow, at King's College and at the Cancer Hospital in London, by well-known physiologists,[2] leave no doubt that fatty acids can be used as a source of fat in the diet of man. The fatty acids of hardened whale oil in amounts of 36 gm. per diem, or more than one third of the usual intake of fat, were as thoroughly digested and absorbed as was the hardened oil from which they were prepared. Their administration for a period of six days caused no disturbance in the absorption of the other constituents of the food, as is indicated by the nitrogen and energy balances, nor any other disturbances in health.

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[1] Food and the War, U. S. Food Administration, Boston, Houghton, Mifflin Company, 1918, p. 111.

[2] Food (War Committee of the Royal Society: Fats and Fatty Acids as Food), J. Physiol. **52**: 328, 1919.

[3] Munk, I.: Arch. f. Anat. u. Physiol., 1890, pp. 376, 581.

[4] Lyman, J. F.: Metabolism of Fat, I, Utilization of Palmitic Acid, Glyceryl Palmitate, and Ethyl Palmitate by the Dog, J. Biol. Chem. **32**: 7, 1917; II, The Effect of Feeding Free Palmitic Acid, Glyceryl Palmitate, and Ethyl Palmitate on the Depot Fat in the White Rat, ibid., p. 13.

In the more recent discussions of the value of fats in the dietary, some emphasis has generally been placed on the presence of a fat-soluble accessory factor or vitamin (fat-soluble A) in certain of the edible fats in contrast with other food fats, notably those from vegetable sources. It must not be assumed that fatty acids obtained as the result of drastic chemical processes can supply such factors. Fats or fatty acids may have a high calory value, be thoroughly digestible and highly palatable, without having the unique nutritive value that attaches to the vitamin-containing fats of milk and egg. Drummond[5] looks on the extensive use of vitamin-free fats as a national menace. He writes:

> One result of war conditions has been the disappearance, to a large extent, of the old prejudice against margarine. This, however, is a circumstance that is not free from danger to the community, especially as the present day margarines, though in some cases of satisfactory flavor, are mainly made of vegetable fats. It should in the future be compulsory that all margarines should contain a sufficient amount, either of real butter, of egg-yolk, or of oleo-oil (beef fat) in order that they may be more adequate sources of the fat-soluble accessory factor. Otherwise serious damage to the health of the population, particularly of young children, will be the inevitable result.

It must be remembered, however, that the fat-soluble vitamin has been demonstrated to occur in green leaves and certain animal tissues which enter into the human dietary.[6] Without consideration of the diet as a whole, it may be premature to advise drastic procedures against otherwise wholesome fats merely because they cannot entirely replace milk or egg fats. In any event, however, the true composition of so-called butter substitutes ought to be clearly indicated and understood, so that responsibility for their use as nutrients may be founded on physiologic intelligence.

THE TREATMENT OF LEPROSY

For many ages, leprosy has been symbolic of the maximum of physical affliction, being regarded as the most abhorrent and hopeless of diseases. Even physicians have at times been guilty of a cruel and unscientific attitude toward the disease or, more particularly, toward the social problems that confront the leper as a result of the grotesquely distorted view of the disease held by the public at large, a view doubtless gained from biblical reading. Therefore, to record progress in the therapy of leprosy is especially gratifying. The progress has resulted from the convergence of two lines of clinical research, one wholly empiric, the other resting on an immunologic basis. Both had in the past given some evidence of effectiveness in cases of leprosy.

Chaulmoogra oil (oleum gynocardiae, from the seeds of *Gynocardia odorata* and several varieties of *Hydnocarpus*), gurjun oil (gurjun balsam, from *Dipterocarpus laevis*) and cashew-nut oil (from *Anacardium occidentale*) have been used both internally and externally for a long time, chaulmoogra oil being in greatest favor. The internal use of the oils has been limited by the gastro-intestinal disturbances caused by the large doses required by such medication, if it is to be effective. To overcome this, a number of modifications have been suggested. Unna, for instance, used the sodium soap of gynocardic acid (isolated from chaulmoogra oil) in the form of a coated pill for internal medication. By combined internal and external medication, improvement in a number of cases was noted.

Later Deyke prepared a neutral fat obtained from a common streptothrix that had been isolated from a leproma. This substance was used for subcutaneous inoculation, and gave at times a considerable local as well as constitutional reaction. The effect on the leprous nodules was, however, quite manifest, resembling in a measure the effect of tuberculin on the tubercle. Its use was, as a matter of fact, extended to the treatment of tuberculosis, and formed part of the method of immunization advocated by Deyke and Much.

Now we find that the subcutaneous method of medication has been applied to a sodium salt of gynocardic acid, the results of which treatment, as described by Muir[1] and Rogers,[2] are most encouraging. Muir has treated fifty cases by the subcutaneous and intravenous method, in most of which definite improvement was noted. In Rogers' series, thirteen out of fourteen patients made steady progress toward recovery, and in several cases apparently the disease was completely arrested and clinically cured. The use of sodium gynocardate A is interfered with by a rather severe local reaction on subcutaneous injection and injury to the veins on intravenous use, so that both Rogers and Muir have substituted a sodium salt of the fatty acids of cod liver oil, with seemingly equally good results, so far as the therapeutic effect can be judged in a relatively short period of time.

Just what mechanism is involved in the beneficial action that is said to follow the injection of these unsaturated fatty acids is not clear, although a number of suggestive possibilities present themselves. In both leprosy and tuberculosis we are dealing with infecting organisms that are rich in fats and lipoids (from 35 to 45 per cent. of the dried weight of the tubercle bacillus consists of neutral fat, fatty acids, waxes and lipoids); both live in close adaptation to the tissues of the host, and the tissues react to them rather as they do to foreign bodies than to direct acute intoxication. These fat and lipoid rich bacteria are probably susceptible to the action of fat-splitting enzymes of the body, and we must consider the possibility that the therapeutic injections may stimulate this lipolytic activity of the tissues.

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[5] Drummond, J. C.: The Fat-Soluble Accessory, J. Physiol. **52**: 344, 1919.

[6] McCollum, E. V.: The Newer Knowledge of Nutrition, 1919. Osborne, T. B., and Mendel, L. B.: The Vitamines in Green Foods, J. Biol. Chem. **37**: 187, 1919.

[1] Muir, E.: Treatment of Lepers with Gynocardate of Soda A, Indian M. Gaz. **54**: 130 (April) 1919.

[2] Rogers L.: Sodium Hydnocarpate (Sodium Gynocardate A) and Trial of Sodium Morrhuate in Leprosy, Indian M. Gaz. **54**: 165 (May) 1919.

Closely related is the effect on the lymphocytes, which contain lipase in considerable amount. The injection of fats and lipoids is said to be followed by a distinct lymphocytosis. Is the beneficial effect brought about by these cells as intermediaries? Or are we concerned with a more or less specific fat immunization proper, in the sense that Deyke suggested, or such as has been studied more recently by Warden? According to this conception, fats and fatty acids and lipoids in a variety of combinations are capable of acting in a specific antigenic capacity.

While the direct bactericidal action of the unsaturated fatty acids and their soaps cannot be excluded, nevertheless it seems more probable that their effect partakes rather of the nature of an "ergotropie," the term coined by von Groer to express the therapeutic effect of substances which, when injected in infectious diseases, act by altering the reactivity of the host rather than by acting directly on the invading parasite.

THE COLON AND SALINE CATHARSIS

The mode of action of purgative salts is not as well understood as it ought to be. Certain more recent discoveries of the action of substances used as laxatives have tended to confuse the situation still more. For example, magnesium sulphate (Epsom salt) exhibits a striking anesthetic effect when introduced into the circulation. Hence more than one physician has asked himself why such inhibition of the nervous functions and muscular relaxation do not manifest themselves in any of the multitudes of instances in which this chemical compound is ingested in order to empty the bowel. Again, if the laxative action of Epsom and Glauber's salt, of magnesium citrate and Rochelle salt, is a "salt effect," why is it missed when common salt—sodium chlorid—is employed instead? To these queries the investigation of the actual behavior of the different salts within the lumen of the bowel gives an intelligent answer. The saline laxatives represented by Epsom and Glauber's salts are not readily absorbed. The intestinal wall is not permeable to them, but behaves—to use the designation of the physical chemist—as a semipermeable membrane. Sodium chlorid and water can readily traverse the intestinal epithelium in either direction; in fact, they invariably tend to do so in a way that will promote osmotic equilibrium on the two sides of the intestinal wall. Sulphates fail to pass in the same manner; they accumulate in the bowel; water is retained therein or actually enters until the osmotic pressure practically equals that of the blood; and the distention of the intestine by the fluid volume is an immediate provocative of evacuation.

Most of this has long been well demonstrated though little appreciated. Recent studies by Goldschmidt and Dayton,[1] in the Hunterian Laboratory of Pathology at the Johns Hopkins University, have emphasized anew this characteristic behavior of the colon. Solutions of sodium chlorid introduced into the colon above or below the concentration level of this salt in the blood come into a chlorid partial pressure equilibrium with the blood. There is an attempt at total osmotic pressure equilibrium between the colon contents and the blood. The behavior of chlorids in traversing freely in either direction indicates that the colon is not characterized by a strictly one-sided permeability.

On the other hand, the colon behaves toward solutions of sodium sulphate essentially as does a semipermeable membrane. Magnesium sulphate shows even less absorption from the colon than sodium sulphate. From hypotonic solutions water is absorbed until the osmotic pressure increases to that of the blood. With hypertonic solution the volume increases through absorption of water until the same blood level is attained. In other words, "there is free passage of water with practically no diffusion of sulphate."

The Baltimore investigators point out that the failure of absorption of Epsom and Glauber's salts from the colon emphasizes the specific importance of the large intestine in saline catharsis. Hay,[2] to whom we owe classic researches in this field, supposed that sulphate was absorbed from the small intestine and then reexcreted into the large bowel, thereby explaining its undoubted accumulation in the colon. Goldschmidt and Dayton,[1] on the other hand, believe that the salt in the latter portion of the intestine is derived directly from the small intestine. Provided the cathartic salt reaches the colon in sufficient amount, they argue, so that by osmotic interchange between the blood and the colon contents enough fluid is introduced to increase the bulk and fluidity of the colon contents, catharsis will be assured. This might occur independent of the volume of fluid reaching the colon from the small intestine. The determining factor will be the amount of the salt which reaches the large intestine;

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[1] Goldschmidt, S., and Dayton, A. B.: Studies in the Mechanism of Absorption from the Intestine, I, The Colon: A Contribution to the One-Sided Permeability of the Intestinal Wall to Chlorides, Am. J. Physiol. **48**: 419, 1919; II, The Colon: On the Passage of Fluid in Two Directions Through the Intestinal Wall, ibid., p. 433; III, The Colon: The Osmotic Pressure Equilibrium Between the Intestinal Contents and the Blood, ibid., p. 440; IV, The Colon: The Behavior of Sodium and Magnesium Sulphate Solutions, ibid., p. 450; V, The Colon: The Effect of Sodium Sulphate upon the Absorption of Sodium Chloride when the Salts are Introduced Simultaneously into the Intestine, ibid., p. 459.

[2] Hay: J. Physiol. and Anat. **16**: 243, 391, 568, 1882; ibid., **17**: 62, 222, 405, 1883; Brit. M. J., p. 1204, 1882.

and since little is absorbed, this will be cumulative. Furthermore, once enough of an isotonic or hypertonic solution has reached the large intestine to increase the bulk and fluidity of the colon contents, catharsis is assured; for Goldschmidt and Dayton have shown that only a small quantity of the salt is absorbed in ten hours.

THE RELATION OF FORAGE POISONING TO BOTULISM

According to recent observations summarized by Dickson,[1] the variety of bacterial food poisoning known as botulism is not unusual in this country, being relatively common in the Pacific coast states. It has been found, further, that meat and meat products are by no means, as once believed, the exclusive, if even the main, source of the poison in question, which may occur also in canned vegetables and fruits, being produced by the growth of the anaerobic *B. botulinus.* The normal habitat of this bacillus is not known, and the exact manner in which vegetables and other food substances become contaminated is still a mystery. Botulism is not limited to human beings; it is a frequent cause of so-called limber-neck in the domestic fowl, and it may be responsible for certain forms of paralysis in various domestic animals. The toxic agent, which is a true toxin in the strict immunologic sense and consequently neutralizable by specific antitoxin, appears to have a rather wide range of action, and is peculiar in that it resists digestion and is absorbed from the digestive tract.

It has been suggested by Dickson that the occurrence of limber-neck in fowls eating refuse from the kitchen may prove of great diagnostic value in cases of suspected poisoning of human beings. The most recent development in connection with botulism is the demonstration that, in certain instances at least, outbreaks of so-called forage poisoning ("epidemic meningitis," "staggers," etc.) in horses and mules are in reality due to the toxins of *B. botulinus* or of very closely related bacilli. As long ago as 1901, Leonard Pearson pointed out the clinical analogy between forage poisoning in domestic animals and botulism in man, and more recently actual botulism seems to have been produced experimentally in horses and in donkeys.[2] Then Graham and his co-workers at the Kentucky Agricultural Experiment Station[3] became interested in the question, and started investigations in forage poisoning that appear to be yielding results of great interest and value. In connection with a sporadic outbreak of forage poisoning from oat hay, these workers recovered a bacillus like *B. botulinus* in growth, form and action in animals. Botulinus antitoxin—the serum of goats, sheep or cattle immunized with *B. botulinus* and its products—protected horses, mules and guinea-pigs against the forage bacillus and against sterile filtrates of both cultures of this bacillus which otherwise would produce symptoms that were indistinguishable from those produced by the typical botulinus bacillus. This work, consequently, goes far to establish definitely that anaerobic bacilli like *B. botulinus* may cause the condition known as forage poisoning. In another outbreak, this time in Illinois, Graham and Brueckner[4] recovered a similar bacillus from the incriminated corn ensilage. In this case, they were able to demonstrate that antibotulinus serum agglutinated the ensilage bacillus and protected animals when injected with the bacillus in otherwise fatal doses, while the serum of animals immunized with the ensilage bacillus, in its turn, had agglutinative and protective effects with respect to the typical botulinus bacillus.

Close comparative studies of the different strains of these toxin-producing bacilli from different sources do not seem to have been made as yet; but the fact that they appear to be susceptible to the actions of the same immune serums indicates clearly a very close relationship if not complete identity. The symptoms of poisoning in horses and other animals strongly resemble those of botulism. After a variable incubation period the animals develop a general depression, progressive muscular weakness, incoordination, paresis of the pharyngeal and intestinal walls, impairment of vision, and ptyalism. The only apparent real difference from the symptoms of botulism is that in man there is, as a rule, extreme dryness of the mouth, pharynx and nose; occasionally, however, the amount of saliva is increased, according to Dickson. Many questions are still unsolved: the mechanism of the production of the symptoms and how the toxin causes paralysis, impaired vision, etc., are as obscure as ever; the lesions, particularly in horses and other animals, have not been studied thoroughly; and the preventive and curative value of specific antitoxic serum in man and in animals remains to be determined. It is of special interest that in a desperate case of botulism described by McCaskey[5] in his recent report of an outbreak at Decatur, Ind., recovery followed the injection of antibotulinus serum prepared by Graham,[6] now of the University of Illinois. The free use of such serum in cases of botulism is a perfectly logical procedure warranted by the unequivocal results of experiments. For the present we must look to state and other experiment stations for antibotulinus serum, which is not yet an article of commerce. McCaskey urges that the serum should be used early in suspicious food poisoning, as then "it should be entirely possible to prevent such tragedies" as the one he records. The hope arises that the demonstration of the relationship of forage poisoning to botulism may result in available supplies of potent antibotulinus serum for man and beast.

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[1] Dickson, E. C.: Botulism: A Clinical and Experimental Study, Monograph 7, Rockefeller Institute for Medical Research, 1918.

[2] Curfman, G. H.: Botulism, Colorado M. J. **14**: 35 (Feb.) 1917. Buckley, J. S., and Shippen, L. P.: Preliminary Report on the Relation of Anaerobic Organisms to Forage Poisoning, J. Am. Vet. Assn. **1**: 809, 1917.

[3] Graham, Robert; Brueckner, A. L., and Pontius, R. L.: Studies in Forage Poisoning, Bulls. 207 and 208, Kentucky Agric. Expt. Station, 1917.

[4] Graham, Robert, and Brueckner, A. L.: Studies in Forage Poisoning, J. Bacteriol. **4**: 1 (Jan.) 1919.

[5] McCaskey, G. W.: Bacillus Botulinus Poisoning; with a Report of Seven Cases, Four of Which Proved Fatal, Am. J. M. Sc. **158**: 57 (July) 1919.

[6] Compare Footnotes 3 and 4.

NUTRITION AND SEX EXPRESSION

The world-wide campaigns for the control of venereal disease have brought the social relations of individuals and their sex expression into a peculiar prominence. Experience has shown the necessity of a changed attitude toward the problems of the sexual life. A few years ago no group of persons outside of the medical profession treated the subject in a frank manner; but today the champions of so-called social prophylaxis are ready to adopt a straightforward view in relation to the sexual instincts and to plan their campaigns for betterment with due consideration to physiologic and environmental factors as well as to purely moral or ethical tenets. A recent writer[1] has remarked that the physical, the mental and the moral being is the result of heredity, environment and education. Science, he adds, does not take cognizance of sentiment, for that is the product of culture, and they who permit themselves to be governed by a sentimentality that ignores or conflicts with the established inexorable laws of nature must inevitably meet disaster.

A sane hygiene of sex must strive to learn what these "inexorable laws" of nature are. It is generally recognized that sexual emotions can be awakened or intensified by a variety of stimuli which affect the senses. The imagination undoubtedly plays a conspicuous part in many instances; nevertheless, aside from the more purely mental processes the sex expression finds its genesis in no small measure in the contributions of the special senses thereto. Sight and sound and touch enter into the peculiar complex in which physiologic and psychologic factors are mingled to give rise to the unique manifestations of sexual emotion.

Little is known and less has been taught regarding the purely physiologic background of these manifestations. It is understood, or at least assumed in a general way, that disease of the body as a whole may decrease or even abolish the sex expressions; thus, diabetes and extreme obesity are included among causes of sexual impotence. It has been very difficult, however, to secure definite information regarding possible relationships between the emotions of sex and special physical or metabolic functions of the organism. The topic is repulsive to those competent to furnish the facts; and even when they might be secured, introspection and suggestion combine to make them of questionable value for a strictly scientific analysis. An exceptional instance for securing reliable information seems to have been afforded by the investigations of the Boston Nutrition Laboratory of the Carnegie Institution of Washington on the effect of a prolonged restricted diet on human vitality and efficiency.[2]

Editorial reference has already been made in The Journal to the outcome of these human experiments. Briefly, the basal metabolism of the students living at decidedly reduced weight level brought about by a diet representing from two thirds to one half of their supposed calorific requirement was about 18 per cent. lower per kilogram of body weight than prior to reduction. The systolic and diastolic blood pressures were lowered to about 90 and 65 mm., respectively. The pulse rate showed a marked drop. For example, five of the subjects showed many pulse rates 35 beats or below, and one man gave seven counts at 29 beats per minute. Body temperature, measured rectally, was normal, but the men complained of feeling the cold and wore more clothing. Neuromuscular coordinations presented some decrement; not enough, however, to interfere seriously with the duties of everyday life. There was no falling off in the quality or amount of the scholastic work. Strength tests indicated some decrease, but the normal amount of common physical activity appears to have been maintained. The men were not apparently lacking in vitality, nor were they inefficient. When engaged in vigorous athletics with their fellows, a stranger could not have picked them out.

Information cautiously acquired from the twenty-four young men who may be assumed, because of their training at the International Y. M. C. A. College at Springfield, Mass., to have a sound and wholesome attitude regarding these matters, reveals the circumstance that associated with the physical condition resulting from the low diet there was a diminution in sex activity.[3] It is needless to reiterate here the correlated opinions on which this conclusion was based. Miles[3] has called attention to the fact that, in these undernourished students, decreased sex expression accompanied a diminished rate of basal metabolism; and he ventures to remind us that the sex instinct is commonly stronger in men than in women, who have a lower basal level of metabolism. It is not on this ground illogical, Miles writes, that a lowered metabolism in men might reduce the manifestations of the sex instinct. Nature may require a high metabolic level for purposes of race propagation.

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[1] Malchow, C. W.: The Sexual Life, St. Louis, C. V. Mosby Company, 1917.

[2] Benedict, Miles, Roth and Smith: Human Vitality and Efficiency Under Prolonged Restricted Diet, Pub. 280, Carnegie Institution of Washington, 1918; Benedict, Miles, Roth and Smith: The Effects of a Prolonged Reduced Diet on Twenty-Five College Men, Proc. Nat. Acad. Sc. **4**: 149, 1918.

[3] Miles, W. R.: The Sex Expression of Men Living on a Lowered Nutritional Level, J. Nerv. & Ment. Dis. **49**: 208 (March) 1919.

Miles' conclusion from his most unusual study has a direct interest for medical practice:

> Any dietetic régime which, even though it affects the external appearance and performance of an individual but little, definitely lessens the expression of the sex instinct, causing one sex to take but little interest in the other, would seem to be disadvantageous to the species if indefinitely prolonged and if the instinct made no adjustment thereto. Any general conclusions regarding a lowered nutritional level produced by prolonged reduction in diet may not disregard the effect on the sex instinct or its manifestations. On the other hand, the results clearly indicate a method of treatment for achieving restraint of sexual tendencies in pathologic cases of sexual dissipation.

Current Comment

THE UTILIZATION OF MILK FAT BY INFANTS

The study of the feces is fundamental to the interpretation of the results of infant feeding. Mere inspection of the stools, without a first hand appreciation of the chemical significance of the pictures which they present, has often led to erroneous deductions. Only a few years ago, curdy masses in the feces of the young might have been reported as mucus, casein flocks, or residues of soap, according to the conjecture of the untrained observer. The advent of physiologic chemistry as a part of the clinical routine has helped to establish more rigorous criteria. Haphazard guesses are no longer justified when facilities for chemical control are available. The new point of view—the demand for exact information as to the make-up of the feces—has helped to secure new data of interest in the physiology of digestion during infancy. Not long ago we reported the experience of Holt, Courtney and Fales[1] at the Babies Hospital, New York, who found that the stools of breast-fed infants receiving an average intake of 28 gm. (1 ounce) of fat daily contained not more than 1.1 gm. of this amount. This retention of fat to the extent of 95 per cent. corresponds very favorably with a "coefficient of digestibility" of from 90 to 95 per cent. for fat used in the mixed diet of an adult man. In the infants, the excreted fatty material comprises about half of the dry matter of the entire feces, and consists largely of soaps. Quite similar results have since been recorded for infants fed on modifications of cow's milk.[2] The average proportion of the fat of the diet retained with normal stools was 91 per cent. of the intake. The retention was little lower when the stools were somewhat harder or softer than normal, or were not homogeneous, or contained more or less mucus without being distinctly watery. As the water in the stools increased, the degree of fat retention decreased markedly, reaching in severe diarrhea 58 per cent. of the intake. Hence the digestion by infants of cow's milk and its modifications need not be essentially poorer than is the utilization of the same ingredients of breast milk. The nutritive comparisons belong, perhaps, on a qualitative rather than a quantitative basis.

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[1] Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: Fat Metabolism of Infants and Young Children, I, Fat in the Stools of Breast-Fed Infants, Am. J. Dis. Child. **17**: 241 (April) 1919; Fat Absorption in Infancy, editorial, J. A. M. A. **72**: 1848 (June 21) 1919.

[2] Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: Fat Metabolism of Infants and Young Children, II, Fat in the Stools of Infants Fed on Modifications of Cow's Milk, Am. J. Dis. Child. **17**: 423 (June) 1919.

THE HOSPITAL INTERNSHIP

For many years the importance of a hospital internship as an essential part of a physician's training has been recognized. During the last twenty-five years medical graduates, in steadily increasing numbers, have voluntarily secured such training. At the present time the percentage of graduates so trained is 90 per cent. That a larger proportion did not secure such internships in the past was due, on the one hand, to the unusually large number of graduates turned out from the medical schools, and, on the other hand, to the limited number of hospitals that were willing to make use of interns. This condition has been corrected in both directions. Through the higher preliminary qualifications required for admission to medical schools, the unusually large number of graduates was reduced to more normal numbers, and the improved qualifications possessed by these graduates induced a larger number of hospitals to utilize their services as interns. The time has arrived when all medical colleges should require the internship as an essential for graduation. Eight medical schools have already taken such action,[1] and four of these have enforced the requirement with respect to graduating classes. The method of procedure was described in an article by Dr. John M. Dodson[2] published last week. Although the general adoption of the requirement will be hastened by the action of state licensing boards[3] in requiring an internship as an essential for the license, it is the medical school that is in the best position to insure that the intern training shall be of high quality. The intern training, as an important part of the physician's instruction, comes within the function of the medical school. The medical school best knows the clinical needs of the students and can best supervise this training in a group of selected hospitals. Since there are now more than enough hospitals to provide internships for all graduates, and since nearly all graduates are voluntarily securing such internships, it will not be a hardship to require it as an essential for both the M.D. degree and for the license to practice. On the contrary, it will result in improving the quality of the intern's training; it will stimulate an interest in modern methods on the part of the attending staff; it will improve the records and routine methods employed in the hospitals and, finally, it will result in far better care and treatment of the patients.

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[1] A list of these colleges appeared in The Journal, Aug. 16, 1919, p. 521.

[2] Dodson, J. M.: The Fifth, or Intern Year, J. A. M. A. **73**: 469 (Aug. 16) 1919.

[3] Nine state boards, listed in The Journal, Aug. 16, 1919, p. 521, are now requiring a year of intern training as an essential for the license.

GENEALOGY AND POPULATION

The testing of old and familiar hypotheses and general impressions by scientific methods is frequently possible by the application of statistics. A recent genealogical study of population[1] presents some results of general interest. Five genealogies were used, extending over a period of 250 years and furnishing more than 20,000 individuals. Distinct correlation between longevity and fertility in both mothers and fathers is shown; in addition, of course, to the fact of a longer period of reproductive capacity. There is also clear evidence of correlation between age at marriage and fertility, the lowest ages at marriage being associated with the greatest fertilities. Tabular presentation of the fecundity of first-born children showed no appreciable variation from that of the total stock. The data for twinning are strikingly definite, for out of eighty-seven cases of twinning, fifty-six occurred at the end of the mother's reproductive period, and of the five genealogies of approximately equal size, two provided fifty-seven of the occurrences of twins. In connection with the general population question it is noted that the average number of children per married couple was 5.8 for the period 1651-1700; rose to 6.1 for the last fifty years of the eighteenth century, and fell to 3.0 for 1851-1900. Corresponding to this change was a lengthening of the average interval between births from about 2.5 years in the first two periods to 3.41 years in the last.

PHYSICIANS AS UNPAID COLLECTION AGENTS

Physicians in different parts of the country have received letters addressed, not to them personally, but to them as "Town Physician" of the city or village in which they live. These letters, typewritten and obviously "form letters," read:

> *Dear Sir:*—Recently I wrote JOHN DOE of your city but my letter was returned to me by the postoffice undelivered which leads me to believe that the family has moved to some other address without letting me know. If it is not asking too much of you, I assure you it would be a great favor if you could advise or find out for me without putting yourself to too much trouble where a letter can reach this party. It is a matter of considerable importance.
>
> Thanking you for your kindness and assuring you of my appreciation, I remain Yours very truly, HELEN TAYLOR.

The name of the person inquired about, of course, varied; so, may it be said, did the name of the person from whom the letter purported to come. Instead of being a letter from "Helen Taylor" it might be from "W. J. Mitchell" or from some other party, although the handwriting of the signatures was suspiciously similar. In every case a stamped envelop directed, as the case might be, to "Helen Taylor," "W. J. Mitchell," etc., accompanied the request for information. In every instance, too, this envelop was addressed to 146 W. 40th St., Chicago. THE JOURNAL'S investigators found that there is no 146 W. 40th St., and, in fact, could not be, as this address would come at a place that is occupied by railroad tracks. It became obvious, therefore, that these various form letters, evidently from a common source but sent out under different names, were being delivered through the connivance of a postoffice employee. THE JOURNAL laid the matter before the chief inspector of the Postoffice Department at Washington with a request for information. In due time the inspector reported that:

> It was ascertained that the communications in question were form letters sent out by the Hartman Co. of Chicago, Ill., with a view to locating persons who owed them accounts.

The concern referred to in the Inspector's report is the Hartman Furniture and Carpet Company, which sells house furnishings on the instalment plan. Its advertising slogan is "Let Hartman Feather Your Nest." So long as physicians remain good-natured and "easy," the Hartman concern is presumably not going to let a chance to feather its own nest go by. Why pay a collection agent when "Town Physicians" are so accommodating? We might add that the most recent letter of this sort that we have seen was addressed to "Minister of Gospel or Town Physician." Religious papers please copy!

WAR RISK INSURANCE

It is reported that more than 50 per cent. of the soldiers and sailors carrying war risk insurance have discontinued their payments; that—almost unbelievable as it may seem—the War Risk Insurance Bureau has not even the addresses of 50 per cent. of its former clients. If this is true it is greatly to be regretted, since the government insurance policies offer to the insured many advantages not available through private insuring companies. In accordance with the terms of the law, the war policies are now being converted to peace-time rates. The latter are considerably less than rates for similar policies given by private companies. The convenience of payment, safety of investment, and other factors tend to make this insurance superior to any private insurance that may be carried. Furthermore, the government is anxious to meet the views and wishes of the insured in every way: for example, some of the insured objected to the method of payment of policies by monthly payments. In an endeavor to satisfy all the insured, a commission has recently been appointed, under the chairmanship of Charles E. Hughes, to make a survey of the situation with a view to making the government insurance even more satisfactory than it now is. A recent decision of the Secretary of the Treasury is to the effect that discharged soldiers, sailors and marines who have dropped or canceled their insurance may reinstate it within eighteen months after discharge, without paying the back premiums. They will be asked to pay only the premiums for two months on the amount of insurance desired. The only stipulation is that the former service man be in as good health as at the date of his discharge. A special form (No. 742) has been prepared by the Bureau of War Risk Insurance to permit application for reinstatement. It can hardly be conceived that any medical officer entitled to this insurance should fail to avail himself of its full benefit. It has been repeatedly asserted that the physician is a poor business man and an easy prey for the canny purveyor of fake investments. It is to be hoped that there are but few physicians included among those who have failed to take advantage of what the government has offered them through its insurance department. If they have, the new decision on reinstatement gives them time for thought and an opportunity to restore themselves to their original enviable status.

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[1] Jones, C. E.: A Genealogical Study of Population, Publications American Statistical Association **16**: 201 (Dec.) 1918.

ADROITNESS IS CORRECT

Gentlemen who are engaged in the chiropractic trade —we use the word "trade" advisedly—are furnished Helpful Hints for Ambitious Advertisers by an Indianapolis concern that makes a specialty of this line. In one of the numerous leaflets sent out from this source to "Chiropractors" they are urged to "employ an advertising man" and not attempt to write their own copy. It is pointed out that there are in many states laws prohibiting fraudulent advertising, and "today the liar in print is soon run to earth." While we are unable, regretfully, to agree with the last statement, the conclusions drawn from this premise are more easily accepted:

> ". . . to advertise inside the chiropractic, medical and truth laws, requires some adroitness, some ingenuity of expression, some more than common ability as a wordsmith."

We'll say it does!

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending August 15, there were 8,895 officers in the Medical Corps, a decrease of 766 from the previous week. The Medical Reserve Corps contained 3,231. The total number of physicians discharged since the beginning of the war is 23,463.

Naval Officers Promoted to Rank of Commander

The Navy Department announces the promotion of the following reserve officers to rank of commander:

Robert G. LeComte, Philadelphia; William B. Brinsmade, Brooklyn; Stanley Stillman, San Francisco; Eugene F. DuBois, New York; Rea Smith, Los Angeles; John C. DaCosta, Philadelphia; Milton J. Rosenau, Boston; George G. Ross, Philadelphia; Albion W. Hewlett, San Francisco; Hobart A. Hare, Philadelphia; Robert B. Greenough, Boston; Judson Daland, Philadelphia; James F. Talley, Philadelphia; Edward M. Foote, New York; Paul A. Lewis, Philadelphia; Guy Cochran, Los Angeles; Verne A. Dodd, Columbus, Ohio; Edgerton L. Crispin, Los Angeles; John A. McGlinn, Philadelphia; LeRoy G. Crandon, Boston; Harold D. Meeker, New York; Nelson H. Clark, Pittsburgh; Halsey DeWolf, Providence; Charles W. Moots, Toledo, Ohio; George A. Matteson, Providence; James T. Hanan, Brooklyn; Francis J. Dever, Philadelphia; Frank C. Gregg, Manor, Texas; Clifford E. Henry, Minneapolis; Porter B. Brockway, Toledo, Ohio; Clinton C. Tyrrell, Minneapolis; Frederick O. Williams, Columbus, Ohio; Harvey M. Righter, Philadelphia; Zachary T. Scott, Austin, Texas; William C. Newton, Revere, Mass., and William H. Areson, Upper Montclair, N. J.

Awards of Distinguished Service Cross

The distinguished service cross was awarded by the commanding general, American Expeditionary Forces, for extraordinary heroism in action in Europe to the following named officers of the American Expeditionary Forces and of the Allied armies:

RAY H. HUMPHREY, Major, Medical Corps, Union, N. Y., 130th Inf. For extraordinary heroism in action near Bois de Septsarges, France, Oct. 4, 1918. Having just been transferred to the 130th Inf., Major Humphreys (then captain) was seriously wounded in the head while on his way to take up his work at the regimental aid post. He nevertheless refused to be evacuated, but continued on duty caring for the wounded at this place. He later procceded under severe artillery fire to the battalion aid post, where he continud his work under most trying conditions.

ERNEST W. SLUSHER, Major, Medical Corps, Kansas City, Mo., 140th Inf. For extraordinary heroism in action near Charpentry, France, September 29-30, 1918. Although severely gassed, he continued on duty until he collapsed twice, and was carried each time to a dressing station. Advised to go to a Field Hospital for treatment, he waited until he had partially recovered and then returned to duty in the field, working continually among the wounded and exposing himself to hostile fire.

ALBERT W. LINDBERG, Captain, Medical Corps, Wellsboro, Ill., 2d Machine Gun Battalion. For extraordinary heroism in action near Exermont, France, October 8, 1918. Crawling out over shell-torn ground and in face of direct machine gun fire, he rescued a soldier whose leg had been shattered by shell fire. By performing an amputation while constantly exposed to sniping and machine-gun fire he made it possible to evacuate the soldier to safety a few hours later, when the infantry moved forward.

SAMUEL J. MARKS, 1st Lieut., Medical Corps, Philadelphia, 314th Inf. For extraordinary heroism in action near Malancourt, France, Sept. 27-29, 1918. Lieut. Marks advanced with the foremost elements of his battalion, dressing and evacuating the wounded under machine gun fire for a period of 12 hours. On September 29, when his aid station was shelled, several patients and attendants being killed and wounded, remained at his post caring for patients who had received fresh wounds and assisted in their evacuation.

CHAUNCEY E. DOVELL, first lieutenant, Medical Corps, 371st Infantry. For extraordinary heroism in action near Bussy Farm, Ardeuil, Montfauxelles, and Trieres Farm, France, Sept. 28-30, 1918. Throughout three days of most intense action Lieut. Dovell worked unceasingly in caring for the wounded, disregarding a severe wound which he himself received in the neck by a shell fragment. He remained continuously on duty giving an example of fortitude and courage to all about him.

Distinguished Service Medal Awarded

Major J. R. CUIKIN, Medical Corps, United States Army, for exceptionally meritorious and conspicuous service when in charge of Camp Hospital No. 1, at Camp Upton, N. Y., during the serious epidemic of influenza at this camp in September and October, 1918. Due to his great energy and good will, and unwillingness to meet defeat in any form, remarkable results were obtained at this hospital.

Croix de Guerre Awarded

William H. Holmes, Major, M. C., U. S. Army, Chicago, has been awarded the Croix de Guerre.

Citations for Bravery

The following officers have been cited for bravery:

Hubbard K. Hinde, Capt., M. C., U. S. Army, San Angelo, Texas, "for exceptional meritorious and conspicuous service while under shell fire on the Meuse-Argonne front, Oct. 26, 1918."

Ralph H. McFadden, Lieut., M. C., U. S. Army, Chester, S. C., has been awarded certificate of authorization to wear the arms of the city of Langres, France.

Arthur A. Law, Lieut.-Col., M. C., U. S. Army, Minneapolis, was cited by General Pershing, "for exceptional meritorious and conspicuous service" at Base Hospital No. 26, France.

Given British Military Cross

John M. Hayes, Capt., M. C., U. S. Army, Decatur, Ill., has been awarded the British Military Cross for valor in maintaining an advanced dressing station under fire at the Amiens front.

Receive Legion of Honor Decorations

Alexander Bruno, Capt., American Red Cross, New York City, has been awarded the cross of the Legion of Honor, by the French government.

Dr. William Palmer Lucas, San Francisco, who has been in charge of the rehabilitation work among French refugee children, has been made a Chevalier of the Legion of Honor and has also been given the Médaille d'Epidémie.

Gustavus M. Blech, Lieut.-Col., M. C., U. S. Army, Chicago, commander of U. S. Base Hospital No. 208, has been awarded the Legion of Honor by the French government.

Dr. William J. French, Washington, D. C., who went to France in 1918, and opened numerous nursing clinics in the densely settled districts of Paris, has been given the Cross of the Legion of Honor.

Citations with Palm

Dr. Mary L. Evans, Portland, Ore., who has been on duty with the French army for ten months as specialist in nervous and mental diseases, has received the citation with palm and the Mèdaille de Reconnaissance from the French government.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Alexander City—Allen, L. B. (C.)
Anniston—Underwood, S. S. (C.)
Birmingham—Wood, S. C. (L.)
Chatam—Kimbrough, W. E. (C.)
Furman—Perdue, J. D. (M.)
Gadsden—Shahan, J. (C.)
Huntsville—Caldwell, E. V. (C.)
Montgomery—Rush, R. C. (C.)
Sylacauga—Craddock, F. H. (M.)
Troy—Beard, R. B. (C.)
Hamil, J. Y. (C.)

ARIZONA

Miami—Miller, F. F. (C.)
Yuma—Knotts, R. R. (C.)

ARKANSAS

Bebbe—Jungkind, B. F. (C.)
Bonanza—Parks, R. F. (C.)
Clarendon—Thomas, P. E., Jr. (C.)
Evansville—Hiner, B. C. (C.)
Fort Smith—Eberle, W. G. (L.)
Little Rock—Gray, W. K. (L.)
Holmes, G. M. (M.)
Magnolia—Longino, H. E. (C.)
Mammoth Springs—Chapman, A. S. (L.)
Rusellville—Drummond, H. S. (L.)

CALIFORNIA

Brentwood—Cook, F. S. (C.)
Calipatria—Lindsey, L. L. (L.)
Covina—Reed, W. A. (L.)
Cudlow—Yager, W. L. (L.)
Fair Oaks—Bramhall, R. N. (L.)
Fresno—Crayercft, H. J. (M.)
Hawthorne—Kerr, A. N. (C.)
Hermosa Beach—McPheeters, E. R. (C.)
Los Angeles—Butka, H. E. (L.)
Nevius, J. W. (L.)
Spiers, H. W. (L.)
Oakland—Gregory, A. M. (C.)
Redlands—Burke, E. W. (C.)
Holmes, A. O. (L.)
Sacramento—Myers, O. R. (L.)
San Diego—Harding, M. C. (M.)
San Francisco—Catton, J. H. (M.)
Glover, C. A. (M.)
Harris, C. S. (C.)
Naffziger, H. C. (L. C.)
Quinan, C. (M.)
Wright, H. J., Jr. (L.)
San Leandro—Lynch, W. C. (M.)
Stanford University—Snow, W. F. (L. C.)
Vallejo—Peterson, E. A. (C.)
Venice—Smiley, A. C. (C.)

COLORADO

Breckinridge—Condon, C. E. (L.)
Buena Vista—Ayers, V. B. (C.)
Delta—Shaffer, E. G. (C.)
Denver—Garwood, H. G. (M.)
Fort Morgan—Bowie, R. C. (C.)
Holly—Broemser, M. A. (L.)
Pueblo—Streamer, C. W. (C.)

CONNECTICUT

Bridgeport—O'Connell, J. G. (C.)
Greenwich—Knapp, C. W. (M.)
Groton—Douglass, E. L. (L.)
Hartford—Whalen, E. J. (L.)
Mystic—Stillman, C. K. (L.)
Norwich—Driscoll, W. T. (C.)
Stamford—Smith, W. E. (L.)
Waterbury—Barber, W. L. (L.)
Willimantic—Keating, W. P. S. (C.)

DISTRICT OF COLUMBIA

Washington—Piggott, J. B. (M.)
Robbins, C. S. (C.)
Ryan, F. K. (C.)

FLORIDA

Bradentown—Hollingsworth, S. G. (C.)
Jacksonville—Peterson, C. A. (L.)
Peyton, H. A. (M.)
Loughridge—Greene, R. J. (L.)
Melbourne—Martin, E. H. (M.)
Millville—Nixon, J. M. (C.)
Nichols—Dickinson, W. P. (C.)
Plant City—Crum, J. W. (C.)

GEORGIA

Atlanta—Aycock, M. (C.)
Holton, C. F., Jr. (M.)
Jackson, T. F. (C.)
Jacobs, S. H. (C.)
Atlanta—Kelley, L. H. (C.)
Patterson, J. C. (M.)
Redd, H. L. (L.)
Remsen, C. M. (L. C.)
Rosenberg, H. J. (M.)
Stockard, C. (C.)
Weinkle, B. O. (L.)
Augusta—Shaw, H. W. (M.)
Bainbridge—Griffith, W. W. (L.)
Blairsville—Wellborn, C. J. (L.)
Blakely—Fitzgerald, P. H. (M.)
Campton—Everett, J. J. (L.)
Carrollton—Mullins, G. R. (C.)
Elberton—Mattox, B. B. (L.)
Ellenton—Whiddon, L. L. (L.)
Sylvania—Reddick, A. B. (L.)

IDAHO

Buhl—Randall, G. B. (C.)

ILLINOIS

Bloomington—Casner, A. J. (C.)
Canton—Scholes, P. S. (L.)
Champaign—Kariher, H. C. (C.)
Chicago—Beaton, L. A. (C.)
Burkholder, C. A. (C.)
Cohen, M. A. I. (C.)
Colebaugh, C. W. (C.)
Dwyer, H. J. (L.)
Dyas, F. G. (M.)
Eckwall, H. J. (C.)
Finegan, T. F. (C.)
Galgano, M. A. (L.)
Gauss, H. (C.)
Geehan, M. F. (C.)
Graf, J. P. (L.)
Griffin, G. D. J. (C.)
Lampert, M. (L.)
Lewis, D. D. (L. C.)
Luric, G. A. (L.)
Mathisen, G. B. (L.)
Moore, B. H. (M.)
Moss, E. B. (M.)
Packard, E. K. (C.)
Phillips, R. H. (C.)
Pohl, C. M. (C.)
Porter, J. L. (M.)
Rategan, E. H. (C.)
Riley, F. J. (C.)
Sandahl, A. P. M. (L.)
Sutton, D. C. (L.)
Tallerday, G. C., Jr. (C.)
Venable, G. L. (L.)
Ware, H. A. (C.)
Wright, R. F. (L.)
Danville—Babcock, H. S. (M.)
Dixon—Powell, G. P. (C.)
Galesburg—Bryant, J. H. (C.)
Ripley, C. B. (C.)
Grayslake—Palmer, J. M. (C.)
Harvel—Kilton, W. B. (L.)
Hillsboro—Douglas, E. I. (M.)
Hoopston—Earel, F. E. (C.)
Kankakee—Cannon, W. P. (C.)
Keysport—Welch, G. N. (L.)
McHenry—Mueller, A. F. (L.)
Monticello—Hawthorne, R. O. (L.)
Mount Carroll—Colcham, S. P. (C.)
Oblong—Griffy, R. (C.)
Taylorville—Herdman, S. B. (C.)
Tuscola—Ingram, G. R. (L.)

INDIANA

Claypool—Taylor, G. C. (C.)
Fairmount—Seale, J. P. (C.)
Indiana Harbor—Morris, F. H. (L.)
Indianapolis—Brayton, F. A. (L.)
Gutelius, C. B. (M.)
Hickman, W. F. (C.)
Stafford, L. H. (L.)
Stout, W. M. (C.)
Ingleside—Wright, E. L. (L.)
Knox—Bell, H. L. (L.)
Marion—Davis, A. T. (L.)
Martinsville—Robinson, F. C. (M.)
Monticello—Coffin, J. R. (M.)
Owensville—Montgomery, J. R. (C.)
Petersburg—Byers, O. A. (L.)
Rossville—Clark, N. W. (C.)
South Bend—Sensenich, R. L. (M.)
Wabash—Domer, W. A. (M.)
Warsaw—Anglin, G. W. (C.)

IOWA

Cedar Rapids—Zuercher, A. R. (C.)
Centerville—Blachley, T. W. (L.)
Dayton—Kiesling, H. F. (L.)
Glenwood—Lacey, T. B. (C.)
Hartley—Hand, W. C. (L.)
Knoxville—Cornell, C. S. (C.)
LeMars—Gottsch, E. J. (C.)
Ottawa—Trump, F. A. (L.)
Pacific Junction—Gaughlan, G. V. (L.)
Reinbeck—Bartruff, C. H. (L.)
Sioux City—Sheehy, J. (C.)
Vincent—Parsons, C. D. (C.)

KANSAS

Arcadia—Pettet, J. D. (M.)
Iola—Garlinghouse, O. L. (M.)
Lecompton—Kerr, C. C. (C.)
Mayetta—Bliss, C. J. (M.)
Norton, Kennedy, F. D. (C.)
Ottawa—Trump, F. A. (L.)
Parsons—Brady, W. R. (L.)
Seiden—Pope, W. H. (C.)
Topeka—Cahill, C. J. (C.)
Waterville—Thacher, G. I. (M.)
Wichita—Davidson, H. T. (L.)

KENTUCKY

Carrollton—Wheeler, J. P. (C.)
Lexington—Million, J. E. (L.)
Louisville—Allen, W. H. (L.)
Aud, F. G. (M.)
Bloch, O. E. (C.)
Brannon, H. S. (L.)
Bruce, J. W. (C.)
Eggers, H. S. (C.)
McCrocklin, W. F. (L.)
Rudell, L. C. (C.)
Schoonover, H. E. (L.)
Simpson, V. E. (M.)
Ludlow—McCord, H. E. (C.)
Newport—Krieger, W. A. (C.)
Paris—Orr, J. A. (C.)
Tompkinsville—Mars, J. F. (L.)

LOUISIANA

Amite—Smith, G. J. (L. C.)
Baton Rouge—Chamberlain, W. B. (C.)
Hosston—Collins, M. M. (C.)
New Orleans—Barkley, C. D. (C.)
Hummer, E. J. (M.)
Kinney, K. W. (C.)
Perkins, W. M. (M.)

MAINE

Damariscotta Mills—Clarke, W. E. (L.)
Enfield—Hammond, W. J. (C.)
Harrison—Sylvester, C. B. (C.)
Portland—Moulton, W. D. (C.)

MARYLAND

Baltimore—Ashbury, H. E. (M.)
Chesney, A. M. (M.)
Gott, E. F. (L.)
Hirschman, I. I. (C.)
MacCalman, D. (M.)

MASSACHUSETTS

Boston—Dahlen, C. A. (L.)
Levine, S. A. (C.)
Martin, D. L. (C.)
McGuire, J. H. (C.)
Salerno, L. F. (L.)
Scales, R. B. (M.)
Shields, W. S. (C.)
Wear, J. T. (L.)
Fall River—Neistadt, C. S. (L.)
Fitchburg—Grieumard, G. A. (C.)
Rice, R. A. (C.)
Gardner—Ellam, H. W. (L.)
Hingham—Whelan, C. (C.)
Lawrence—Murphy, T. W. (C.)
Leominster—Shaughnessy, T. A. (C.)
Malden—Burpee, C. C. (C.)
Newton—Eastman, L. G. (L.)
Northampton—Cooney, M. E. (L.)
Townsend—Chandler, C. L. (L.)
Wenham—Phillips, J. C. (M.)
Williamsett—Heywood, N. J. (L.)
Worcester—Falvey, H. J. (C.)

MICHIGAN

Albion—Chauncey, E. M. (L.)
Alma—Gardner, C. B. (C.)
Ann Arbor — Vaughan, W. T. (L. C.)
Detroit—Belknap, C. H. (C.)
Cole, F. H. (L.)
Danziger, S. S. (C.)
DuBois, C. F. (L.)
Harris, E. R. (C.)
Lee, E. C. (M.)
Marsden, T. B. (C.)
Plaggemeyer, H. W. (C.)
Stout, L. H. (L.)
Wall, J. A. (C.)
Wood, G. C. (L.)
Woodruff, C. A. (C.)
Escanaba—Olson, C. W. (L.)
Flint—Clark, C. P. (L.)
Evers, J. W. (C.)
Grand Rapids—Kinsey, F. C. (M.)
Miller, J. H. (C.)
Jackson—Hackett, T. E. (L.)
Mackinaw—Tiffany, A. C. (C.)
Mount Clemons—Heine, A. W. (L.)
Port Huron—Ryerson, W. W. (L.)
Wayne—Earle, R. H. (M.)

MINNESOTA

Bemidji—Sanborn, C. R. (L.)
Blue Earth—Chambers, W. C. (C.)
Brainerd—Berge, P. L. (L.)
Buhl—Johnson, S. M. (L.)
Duluth—Kuth, J. R. (C.)
Glenwood—Desmond, M. A. (L.)
Selleseth, I. F. (C.)
Minneapolis—Higbee, P. A. (C.)
Mintener, J. W. (C.)
Thompson, H. H. (C.)
Paynesville—Arndt, H. W. (C.)
Rochester—Mastin, E. V. M. (L.)
Russell—Hall, E. L. (C.)
Springfield—Meierding, W. A. (L.)
St. Paul—Doyle, J. B. (L.)
Waconia—Stock, W. J. (C.)
Wadena—Davis, L. T. (C.)

MISSISSIPPI

Bentonia—Henry, M. C. (C.)
Corinth—McRae, M. H. (L.)
Moss Point—Burnham, H. M. (L.)
Rockport—McCalip, H. L. (L.)
Vicksburg—O'Neil, R. T. (C.)

MISSOURI

Blackwater—Abney, W. L. (L.)
Carthage—Bryan, H. (C.)
Coffman—Hamilton, G. M. (C.)
Humansville—Russell, R. L. (C.)
Kansas City—Bryant, C. H. (C.)
Counsell, C. M. (L.)
Harris, B. F. (L.)
Hodge, R. L. (C.)
Miller, G. C. (M.)
Ransone, A. T. (L.)
Rush, G. A. (L.)
Maryville—Wallis, W. M. (C.)
Meta—Gaston, S. E. (C.)
Rockville—Powers, C. E. (M.)
Salisbury—Koenig, C. A. (L.)
Shelbina—Battersby, R. S. (L.)
St. Charles—Gossow, A. A. (M.)
St. Joseph—Conrad, H. S. (C.)
St. Louis—Creveling, H. C. (C.)
Happel, H. E. (C.)
Levy, A. (C.)
Lowenstein, P. S. (L.)
McClory, A. (L.)
McGennis, P. (L.)
Myers, G. M. (L.)
Short, U. S. (L.)

MONTANA

Billings—Arnold, S. G. (M.)
Thuerer, E. W. (C.)
Butte—Moore, T. V. (M.)
Scott, T. B. (L.)
Denton—Jenson, J. L. (M.)
Great Falls—Lakey, W. J. (C.)
Moore—Porter, E. S. (L.)

NEBRASKA

Haigler—Woods, R. (C.)
Hooper—Heine, C. D. (C.)
Neligh—Harrison, U. S. (C.)
Omaha—Anderson, W. N. (M.)
Everitt, N. J. (C.)

NEW HAMPSHIRE

Exeter—Perkins, R. S. (C.)

NEW JERSEY

Atlantic City—Hughes, J. W. (L.)
Camden—Casselman, A. J. (C.)
Cliffside—Schmidt, W. W. (L.)
East Orange—Rathgeber, C. F. (L.)
Hackensack—Essertier, E. P. (C.)
Longport—Greenwood, A. M. (L. C.)
Maplewood—Colsh, L. L. (C.)
Millville—Charlesworth, R. R. (L.)
Morristown—McMurtrie, W. A. (C.)
Newark—Conlon, P. J. (C.)
Fort, J. I. (C.)
Heller, N. (C.)
Meeker, J. L. (C.)
Pinneo, F. W. (M.)
Plainfield—Pratt, C. H. (L.)
West Hoboken—Ockene, A. (L.)

NEW MEXICO

Dedman—Lanford, A. E. (L.)
Gallup—Willson, H. G. (C.)

NEW YORK

Albany—VanderVeer, J. N. (M.)
Auburn—Bennett, F. J. (C.)
Bull, H. S. (L.)

Brooklyn—Fuhrman, H. C. (L.)
Gauch, F. (L.)
Ketterle, J. (C.)
Koven, M. T. (L.)
Meagher, J. F. W. (M.)
Plotz, H. (M.)
Ring, F. B. (L.)
Signorelli, G. J. (L.)
Stenbuck, J. B. (L.)
Wood, R. L. (C.)
Buffalo—Carr, J. H. (C.)
Critchlow, G. R. (C.)
Hensel, R. (C.)
Central Islip—Conlon, W. A. (M.)
Elmira—Harding, J. R. (C.)
Piper, S. S. (M.)
Endicott—Dudley, D. G. (L.)
Flushing—Hardegree, H. C. (L.)
Geneva—Snyder, F. H. (L.)
Mamaroneck—Cantle, W. H. (C.)
Middletown—Thorburn, G. (C.)
New York—Barrett. F. J. (L. C.)
DeYoe, L. E. (C.)
Gilchriest, B. F. (C.)
Glass, F. A. (L.)
Gluck, H. (L.)
Harkavy, J. (L.)
Herrman, C. (C.)
Jaches, L. (L. C.)
Knowles, F. (M.)
Larson, H. M., Jr. (C.)
Lorenze, E. J., Jr. (L.)
Lowry, R. C. (L.)
McCollom, L. R. (C.)
McGlade, J. J. (L.)
Morowitz, B. F. (L.)
Pemberton, R. (L.)
Seiff, H. J. (L.)
Sweetser, T. H. (C.)
Weitz, C. L. (L.)
Oneonta—Getman, N. W. (L.)
Mills, D. H. (L.)
Rochester—Barber, F. (L.)
Bradley, J. R. (M.)
Hoyt, C. W. (M.)
Newman, M. A. (L.)
Schaghticoke—Beecroft, M. B. (C.)
Schenectady—Purcell, P. F. (L.)
Smithtown Branch—Turrell, G. H. (M.)
South Otselic—Perkins, A. T. (L.)
Staten Island—Craig, H. A. (C.)
Pollack, M. L. (L.)
Severance, R. N. (M.)
Teague, O. (M.)
Syracuse—Corbett, J. J. (C.)
Troy—Shields, W. T., Jr. (C.)
Watertown—Pawling, J. R. (L.)
Webster—Foster, J. B. (C.)

NORTH CAROLINA

Asheville—Cheesborough, T. P. (C.)
Cocke, J. E. (L.)
Orr, C. C. (C.)
Ahoskie—Benthall, R. F. (L.)
Rockingham—Garrett, F. B. (L.)
Roxobel—Norfleet, E. P. (L.)
Swan Quarter—Swindell, L. H. (L.)
Wilmington—Peterson, W. C. (L.)
Zubulon—Horton, A. G. (L.)

NORTH DAKOTA

Bismarck—Quain, E. P. (L. C.)
Rugby—Crammond, J. E. (C.)

OHIO

Batavia—Griffith, M. S. (L.)
Cincinnati—Kelly, T. H. (M.)
King, E. (L.)
Lee, H. M. (L.)
Maddox, R. D. (M.)
Rowe, J. W. (M.)
Stanbery, H. (M.)
Cleveland—Caine, W. H. (C.)
Geraci, F. P. (L.)
Konrad, E. C. (C.)
Newbauer, B. B. (C.)
Sloan, H. G. (C.)
Thomas, R. L. (C.)
Columbus—Markwith, R. H. (L.)
Vorhes, J. H. (L.)
Wilson, P. D. (M.)
Convoy—Sidle, C. D. (L.)
Dayton—Reck, H. W. (L.)
Eaton—Silver, H. Z. (M.)
Fort Washington—DeMuth, W. F. (C.)
Hamilton—Grafft, J. A. (L.)
Leesburg—Lowe, H. H. (L.)
Norwood—Klein, E. A. (C.)
Port Clinton—Brindley, A. A. (L.)
Portsmouth—Keil, H. M. (C.)
Springfield—Ultes, W. P. (L.)
Toledo—Hunter, I. E. (C.)
Lehman, F. J. J. (L.)
Ricard, W. A. (C.)
Sinkey, R. E. (L.)
Utica—Cass, E. M. (M.)
Wauseon—Maddox, W. H. (C.)
Xenia—McPherson, C. G. (L.)
Youngstown—Ranz, W. E. (M.)

OKLAHOMA

Blackwell—Hawkins, J. C. (C.)
Collinsville—Presson, L. C. (C.)
Dill—Weaver, E. S. (L.)
Drumright—Thomason, F. (L.)
Durham—Payne, J. H. (C.)
El Reno—Hovenden, O. (C.)
Enid—Francisco, F. G. (L.)
Hugo—Johnson, E. A. (C.)
Nowata—Kurtz, R. L. (M.)
Oklahoma City—Lee, C. E. (C.)
Sackett, L. M. (L.)
Yeakel, E. L. (L.)
Sallisaw—Cheek, J. A. (L.)
Shawnee—Rowland, T. D. (C.)
Tulsa—Irvan, H. D. (L.)

OREGON

Buxton—Page, P. C. (C.)
Medford—Saunders, C. E. (C.)
Portland—Wade, B. N. (C.)
Roseburg—Houck, G. E. (M.)
Scio—Potter, W. H. (C.)
Seaside—Van Doren, F. (M.)

PENNSYLVANIA

Allentown—Rogers, C. C. (L.)
Beaver Falls—Jackson, J. M. (C.)
Berwick—Davis, E. L. (C.)
Bethayres—Coley, T. L. (M.)
Bloomsburg—Montgomery, J. R., Jr., (C.)
Chester—Murray, F. H. (C.)
Du Quesne—Mills, W. W. M. (L.)
East Brady—Wallace, W. S. (L.)
Edinburg—Wright, W. W. (C.)
Greensburg—Bailey, L. J. C. (L. C.)
Lancaster—Hassenplug, H. G. (L.)
Seibert, W. E. (L.)
Marcus Hook—Crothers, G. F. (C.)
Monessen—Wilson, A. R. (C.)
Mont Alto—Woods, W. W. (C.)
Oberlin—Byrod, F. W. (L.)
Philadelphia—Arnett, J. H. (C.)
Bowen, C. R. (C.)
Cornell, W. S. (M.)
Curran, J. D. (C.)
Dannenberg, A. M. (C.)
Flannery, L. G. (L.)
Fogarty, C. A. (C.)
Gottschall, A. W. (L.)
Heilemann, H. (C.)
Martin, J. R. (C.)
McKenzie, B. W. (L.)
Pessolano, J. A. (L.)
Tassman, I. S. (L.)
Trasoff, A. (C.)
VanDolson, W. W. (C.)
Pitcairn—Thompson, M. M. (L.)
Pittsburgh—Cave, W. A. (L.)
Gardner, W. E. (L.)
Goldstein, J. H. (L.)
Graver, E. (L.)
Hamilton, S., Jr., (M.)
Harvey, W. B. (C.)
Hicks, A. V. (C.)
Jones, H. L. (C.)
Leslie, E. C. (L.)
Mateer, H. O. (C.)
McCormick, B. (L.)
Palchanis, W. T. (L.)
Silman, C. N. (L.)
Van Gorder, G. W. (C.)
Scranton—Davis, F. W. (C.)
Selinsgrove—Decker, E. R. (M.)
Waynesboro—Shoemaker, D. M. (C.)
Wilkes Barre—Yeager, C. H. (M.)
Williamsport—Myers, M. W. (L.)

RHODE ISLAND

Pawtucket—Holt, C. H. (M.)
Providence—Cameron, E. S. (L.)
Danforth, M. S. (M.)
Hawkins, J. F. (M.)
Wilcox, R. S. (C.)
Woonsocket—Barry, C. B. (C.)

SOUTH CAROLINA

Columbia—Harrison, E. M. (M.)
McConnellsville — Moore, J. W. (M.)
Newberry—Mower, F. D. (M.)
Oswego—Wyman, B. F. (C.)
Union—McElroy, A. P. (C.)

SOUTH DAKOTA

Belle Fourche—Fasser, A. O. (C.)
Bruce—Edward, G. (C.)
Madison—Goldman, E. W. (C.)
Mitchell—Gillis, F. D. (L.)
South Shore—Read, F. T. (L.)
Yankton—Stiffler, M. L. (L.)
Morehouse, E. M. (C.)

TENNESSEE

Bellwood—Campbell, M. B. (L.)
Bristol—Booher, W. C. (C.)
Chattanooga—McPheters, J. D. L. (C.)
Lynchburg—Cooley, J. L. (L.)
Memphis—Burchart, S. (L.)
Perkins, P. A. (M.)
Ragsdale, J. W. (L.)
Wadley, S. L. (C.)
Nashville—Deathridge, O. S. (C.)
Paris—McSwain, G. R. (C.)
Rockwood—Clack, W. S. (C.)

TEXAS

Angleton—Motheral, J. D. (C.)
Brownwood—Paige, W. A. H. (L.)
Dallas—Straub, G. L. (L.)
Strong, S. (C.)
El Paso—Lynch, K. D. (C.)
Fulshear—Harris, R. D. (C.)
Honey Grove—Wimer, W. W. (L.)
Houston—Moore, C. L. (L.)
Park, J. H., Jr. (L.)
Lamesa—Bennett, W. H. (C.)
Mesquite—Bruton, E. B. (C.)
Port Arthur—Mahry, F. D. (L.)
Rosenberg—Balke, J. W. (C.)
San Angelo—Miller, C. R. (L.)
Sherman—Venable, D. R. (C.)
Sulphur Springs—Johnson, J. J. (L.)

UTAH

Devils Slide—Dorland, C. E. (C.)
Salt Lake City—Tyree, J. E. (C.)

VERMONT

Burlington—Adams, B. D. (C.)
Frank, B. (L.)
McKenzie, W. F. (C.)
Windsor—Burnham, A. W. (C.)

VIRGINIA

Chilhowie—Neff, E. E. (C.)
Clinchport—Cox, E. P. (L.)
Kents Store—Lee, B. (L.)
Randolph—Thornhill, R. F. (L.)
Richmond—Sinclair, F. A. (L.)
Tangier—Gill, G. B. (L.)

WASHINGTON

Grand Ronde—Schmidt, R. E. (L.)
Seattle—Chesman, F. N. (C.)
Edson, E. R. (M.)
Spokane—Graves, J. C., Jr. (L. C.)
Tacoma—Monroe, W. A. (L.)

WEST VIRGINIA

Douglas—Ellison, R. F. (L.)
Huntington—Shafer, E. E. (C.)
Raleigh—Banks, M. C. (M.)
Ripley—Kessel, R. (C.)
Wheeling—Coyle, A. L. (L.)

WISCONSIN

Delafield—Pleyte, A. A. (L.)
Green Bay—McGinnis, J. E. (C.)
Madison—Carter, H. M. (C.)
Dean, J. P. (C.)
Manawa—Fowzer, L. R. (L.)
Marshfield—Sexton, W. G. (L.)
Milwaukee—Carroll, J. H. (L.)
Mukwonago—Youmans, L. E. (L.)
Oconomowoc—Miller, T. (L.)
Sheboygan—Bachmann, H. A. (L.)
Wausau—Jones, R. W. (C.)

WYOMING

Evanston—Holland, J. H. (C.)
Kemmerer—Sanders, R. H. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

San Diego—Thomas, G. N.

COLORADO

Denver—Cohenour, L. B.

CONNECTICUT

New Haven—Wright, L. H.

DISTRICT OF COLUMBIA

Washington—Copeland, E. P.

INDIANA

Decatur—Fulk, M. E.
Evansville—Yeck, C. W.
Indianapolis—Kuebler, L. W.

IOWA

Dallas Center—Burns, H. B.
Lansing—Fellows, B.

KANSAS

St. Mary's—DeBacker, L. J.

LOUISIANA

New Orleans—Perret, J. M.

MASSACHUSETTS

North Adams—Higley, C. J.

MICHIGAN

Hancock—Axelson, A. U.
Ironwood—Anderson, C. E.

MINNESOTA

Litchfield—McCusker, A. J.

MISSISSIPPI

Gloster—McLain, J. H.

NEW JERSEY

Camden—Moore, F. F.
Frehold—Clayton, J. C.

NEW YORK

Brooklyn—Weinstein, I. S.
New York—Brewster, G. F.

NORTH CAROLINA

Raleigh—Judd, E. C.

OREGON

Portland—Murphy, J. M.

PENNSYLVANIA

Clifton Height—Hawke, W. W.
Dallas—White, H. C.
Philadelphia—Craif, E. B.

TEXAS

Galveston—Braun, I.

VIRGINIA

Richmond—Wescott, H. H.

United States Maximum Opium Consumer.—As the result of investigations made by a committee appointed by the secretary of the treasury, March 25, 1918, to investigate the traffic on narcotic drugs, it has been determined that from ten to sixty times as much opium per capita is consumed annually in the United States as in any other country from which reliable records can be obtained. The investigations included simply the traffic in opium and coca leaves, their preparations, and habit-forming alkaloids. The following table shows the per capita consumption of opium by the United States and certain foreign countries:

Country	*Population	Total Annual Consumption, Pounds	Consumption per Capita, Grains
Austria	46.000,000	3,000-4.000	½ to ⅗
Italy	33,000,000	6,000	1
Germany	60.000,000	17,000	2
France	40,000,000	17,000	3
Portugal	5,500,000	2,000	2½
Holland	6,000,000	3,000	3½
United States	92,000,000	470,000	36

* The population is that given for 1910.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Unlicensed Practitioners Arrested.—A. E. Mohr, Pasadena, and G. G. Sanchez and Donald Donovan of Los Angeles were arrested by an inspector of the State Board of Medical Examiners on the charge of practicing medicine without a license.

"Cancer-Cure Expert" Arrested.—M. M. Winchell of Los Angeles has been arrested on the charge of responsibility for the death of Mrs. Nettie Daniels who, it is alleged, died a few minutes after Winchell had injected a solution of his "cancer-cure" into her arm. Winchell was released on bail of $5,000.

Woman Physician Charged with Murder.—Dr. R. May Minaker, San Francisco, was rearrested and charged with murder on account of the death of Mrs. Jadriga Jazwicz, victim of an illegal operation. She was released on $10,000 bail. Several weeks ago Dr. Minaker was in the police court on the same charge but after a hearing was dismissed.

Card Sentenced to San Quentin.—Dr. William S. Card, San Francisco, recently convicted of second degree murder as a result of the death of a young woman on whom he had performed a criminal operation, was taken to San Quentin to begin the service of a sentence of from ten years to life. He has been arrested forty-two times but almost invariably managed to escape punishment.

Physician Indicted on Seventeen Fraud Charges.—Dr. George F. Brackett, San Francisco, former federal and county physician at the county jail, San Francisco, has been arrested on the charge of defrauding the government out of thousands of dollars while employed to care for prisoners at the county jail. The indictment contained seventeen charges of fraud. Dr. Brackett was released on bail of $5,000.

Personal.—Dr. Etta G. Gray, Los Angeles, president of the war work committee of the National Women's Association, sailed for Europe, August 4, for a year of service in France and Serbia. Her first work will be the establishment of a chain of hospitals in Serbia.——Dr. John Mark Lacey, Los Angeles, medical director of the Los Angeles County Hospital, has resigned.——Dr. Herbert R. Stolz, medical adviser to the male students of Stanford University, has resigned.——A dinner was given by the public health department of Oakland and the public health center of Alameda County at Oakland, August 7, in honor of Drs. William Thompson Sedgwick, Boston, and Richard A. Bolt, Cleveland. The topic for discussion was the prevention of disease.

ILLINOIS

Personal.—Health Commissioner John D. Robertson, Chicago, was reelected chairman of the city morals commission, August 11.——Dr. Charles A. Johnson, Barry, has been commissioned captain, M. C., Ill. N. G., and assigned to the depot organization of the Eighth Infantry.

Scale for Telephone Advice Raised.—The secretary of the Kane County Medical Society announces that in the medical news for August 16 the item which stated that Kane County physicians will charge 50 cents for telephonic information hereafter is incorrect. The fee for such advice is to be $1.

Sanatorium Opened.—The McLean County Tuberculosis Sanatorium at Bloomington was dedicated with impressive ceremonies, August 17. The principal address was delivered by Dr. George T. Palmer, Springfield, president of the Illinois Tuberculosis Association. The sanatorium has been erected at a cost of $50,000, and will accommodate 250 patients.

Violators of Drug Law.—Dr. Thomas Roberts, said to have been at one time a well known physician of Chicago, was arrested, August 16, by federal agents, charged with violation of the Harrison Narcotic Law, and held in bonds of $2,000. He is accused of having given narcotic prescriptions to drug addicts and of having himself made sales of habit-forming drugs.

New Officers.—The Medical Women's Club, at its August meeting, elected the following officers: president, Dr. Grace H. Campbell; vice presidents, Drs. Cecelia P. Kimball and M. Osborne Lichner; secretary, Dr. Adelaide M. Tyrrell, and treasurer, Dr. Emma H. Salisbury Peterson, all of Chicago.——Arthur E. Gammage, Capt., M. C., U. S. Army, Chicago, has returned from overseas, and has accepted an appointment as acting chief of the bureau of hospitals, under the department of health.

Licenses of Four Physicians Revoked.—The Illinois State Department of Registration and Education has revoked the following physicians' licenses for the reasons given: Dr. Henry G. Meyer of Chicago for unprofessional and dishonorable conduct; Meyer at present is serving a sentence in the Cook County Jail on the charge of pandering. Dr. Joseph M. Moses for seeking to obtain money and practice in his profession under false pretenses; he was arrested for this in the spring of 1917 and was sentenced to eighteen months in the penitentiary, and carried his case on appeal to the supreme court which, in June, 1919, sustained the action of the lower court; Dr. Moses is confined in the Joliet Penitentiary. He is said to have represented himself as an officer of the state board of health in connection with the case for which he was punished. Dr. John D. Young of Brookport, Ill., on the ground that he "is a person addicted to the use of morphin, opium, cocain or other drugs having a similar effect." Dr. Arthur L. Blunt of Chicago for unprofessional and dishonorable conduct in violation of the United States laws governing the use and dispensing of narcotic drugs. A previous action of the department revoking his license had been set aside by the court after the case had been carried to the supreme court of the state. Dr. Blunt at present is a prisoner in the federal penitentiary at Fort Leavensworth, Kan.

INDIANA

Held Under Charges.—Dr. Joseph H. B. Adams, Indianapolis, is reported to have been arrested, August 2, charged with having performed an illegal operation which caused the death of Mrs. Edna Bartrand. Dr. Adams was released under bonds of $1,000.

Tuberculosis Activities.—Dr. Marion A. McDowell, Peru, was elected president of the Miami Tuberculosis Society at the meeting, held August 3.——Irene Byron County Tuberculosis Hospital, near Fort Wayne, was dedicated with impressive ceremonies, August 10. The principal address was delivered by Dr. John N. Hurty, Indianapolis, secretary of the state board of health.

Overcharges by Druggists.—Dr. Hugo O. Pantzer, chairman of the committee formed by the Indianapolis Medical Society to investigate alleged exorbitant charges for prescriptions by Indianapolis druggists, reported that the committee had found cases of extraordinary prices, but that this was not general, and that the high prices now being charged are justified in many instances.

Personal.—Dr. Sterling P. Hoffmann, Decatur, has been appointed medical director of the Lincoln Life Insurance Company, Fort Wayne.——Dr. Horace C. Martindale, Pendleton, is under treatment in a hospital in Indianapolis.——Dr. Frank E. Wolfe, New Albany, has been appointed medical examiner of the Modern Woodmen of America, for Indiana, succeeding his father, Dr. Zelotus C. Wolfe, Corydon.——Dr. Lewis N. Geisinger, Auburn, has been reappointed surgeon of the Michigan division of the P. C. C. and St. L. Railroad.——Dr. Cyrus W. Campbell, Hammond, is convalescent after a surgical operation.

MARYLAND

Physicians and Druggists in Raid.—In a raid made in Baltimore, August 9, in an effort to stamp out the illegal traffic in narcotic drugs, United States internal revenue officials and deputy marshals arrested seven physicians and three pharmacists.

Sanatorium Loses Site.—The opposition by the residents of Towson and vicinity to the proposed hospital for tuberculous negroes has been successful and it has been definitely stated that the hospital will not be located in that town. The option on the property held by the state, which adjoins the Eudowood Sanatorium, has lapsed and as yet no plans have been made to secure a new site.

Drug Clinic Urged.—Nothing but the inadequacy of the law stands in the way of solving the drug evil in Baltimore, according to the health officials, who are daily advocating a municipal clinic, with laws empowering magistrates to commit addicts to the ward. Medical men, including hospital superintendents and specialists, and private practitioners have been clamoring for such an institution for months. United States authorities, especially those in charge of the prosecution of the violations of the Harrison Act, are unanimous in the belief that a city clinic would eventually end their troubles with drug cases. Addicts themselves want the hospital more than all the officials combined, for they want to be cured and realize that real cure lies only in a municipal institution. The drug evil in Baltimore has been brought to the attention of the public forcibly lately by the raids of the Federal authorities and by suicides because of the shutting down of the supply.

Personal.—Harry S. Purnell, Lieut.-Col., M. C., U. S. Army, former commandant at U. S. Army General Hospital No. 2, Fort McHenry, who established U. S. Army General Hospital No. 2 in August, 1917, and was in command until July, 1919, when he was succeeded by Col. Henry Page, has been ordered to Camp Custer, Battle Creek, Mich., where he will assume the duties of camp surgeon.——Dr. William S. Archer, Bel Air, sustained severe bruises and two fractured ribs when the buggy in which he was riding collided with an automobile bus near Bel Air, recently.——Dr. Henry O. Reik, Baltimore, has been secured as executive secretary of the New York Association for Medical Education and will devote his entire time to the development of the project.——Dr. Emil Goetsch, Baltimore, associate professor of surgery in Johns Hopkins University and surgeon to Johns Hopkins Hospital, has been appointed professor of surgery and visiting surgeon to the Long Island College Hospital, Brooklyn, director of the surgical service and head of the department of surgery throughout the college, hospital and dispensary.——Cranford H. Douthirt, associate professor of bacteriology at the University of Maryland, has been discharged from the army after two years' service at Fort Bayard, New Mexico.——Dr. Charles B. Ensor, who served as major in the medical corps in France, recently returned home.——Dr. Edward A. Luper, who recently returned after a year's service with the American Expeditionary Forces, has resumed his duties at the University Hospital.

NEW JERSEY

Personal.—Dr. John S. Conroy, Burlington, who went overseas with the 114th Ambulance Corps, was promoted to the rank of captain.——Thomas L. Rhoads, Col., M. C., U. S. Army, recently division surgeon of the Eightieth Division and head of the department of sanitation and civil affairs at the advance headquarters of the army of occupation, has taken over the duties of camp surgeon at camp Dix.——Mr. Frederick L. Hoffman, third vice president and statistician of the Prudential Insurance Company, Newark, sailed, August 2, for England, for the purpose of making an intensive investigation into the effects of war on insurance, including the methods and results of national health insurance in Great Britain. He expects to attend the annual meeting of the Eugenic Educational Society at Cambridge, and the meeting of the British Association for the Advancement of Science at Bournemouth, will represent the Eugenics Research Association in the interest of the forthcoming eugenic congress, will also, on behalf of the National Safety Council, visit the London Safety Council. He expects to return early in December.

NEW YORK

Sued for Typhoid Outbreak.—Seven suits for damages, aggregating $125,000, have been brought against Francis P. Garvan and his wife, Mrs. Mabel Garvan of New York, by residents of Saranac Lake, Tupper Lake, Malone and Plattsburg, because of an epidemic of typhoid fever among the men employed in the construction of Kamp Kill Kare on Nacquette Lake early in the summer of 1916. The men became ill between April 1, 1916, and July 5 of the same year. There were 129 men employed when the epidemic started and a number of them died.

New Hospital Buildings.—Contracts totaling $3,302,750 for new construction at state institutions for the insane and feebleminded are being let by the state this summer. Of this $1,100,000 will be spent at the Utica State (Marcy Division); $420,000, at the Middletown State Homeopathic Hospital; $478,330, at the Central Islip State Hospital; $350,000, at the Kings Park State Hospital; $175,000, at the Brooklyn State Hospital; $67,000, at the Hudson River State Hospital; $647,000, at Letchworth Village, and $65,420, at the Newark State School for Mental Defectives.

New York City

Narcotic Society Officer Held.—Christian F. J. Lasse, secretary of the American Medical Society for the Study of Alcohol and Other Narcotic Drugs, is reported to have been arraigned before State Commissioner Hitchock, August 9, and held under $5,000 bail, charged with trafficking in habit-forming drugs.

Personal.—Dr. S. Josephine Baker, director of the bureau of child hygiene, has been appointed a member of the advisory committee for the Federal Children's Bureau, Washington, D. C., and a special agent for the children's bureau in New York City.——Dr. Alphonse Raymond Dochez of the Rockefeller Institute for Medical Research has been appointed associate professor of medicine at the Johns Hopkins University.

Drug Addiction Made Reportable.—At a meeting of the board of health, held July 22, 1919, the following resolution was adopted: "Resolved that Section 1 of the Sanitary Code be and the same is hereby amended by adding thereto, a new subdivision, to be known as Subdivision 47, to read as follows: 'Pestilential Disease: Shall be deemed to include the conditions and symptoms resulting from the habitual use of habit-forming drugs, and known as drug addiction.'"

New Building for Health Department.—The erection of a new building for the health department has been made possible by an appropriation of $1,000,000 granted by the board of estimate. The new building will be brick, twelve stories high, and will occupy almost the entire area of the plot, 100 by 100 feet, in West Thirtieth Street between Seventh and Eighth Avenues, now occupied by the old Thirtieth Street Police Station. This building will permit the centralization of the health department under one roof and will make possible a closer coordination of effort and increased efficiency. Three or four floors of the new building will be given over to the work of the bureau of laboratories which is now scattered among a number of institutions. The building will have a large auditorium, and one floor will be devoted to a medical library.

Imported Smallpox Discovered.—A man having smallpox recently presented himself at one of the venereal clinics of the health department. He was found to be a member of the crew of a fishing vessel that recently discharged a cargo at Promised Land, L. I., and subsequently came into New York Harbor. Investigation revealed that another member of the crew was ill in Jersey City, and his case had been diagnosed as chickenpox. Two other members were ill at Promised Land. A committee appointed to investigate the situation found all these men suffering from smallpox. Since then eight additional cases have developed among the crews of this and a sister vessel. The United States Public Health Service has been advised of these facts with a view to having action taken that will bring to light the true situation in Nova Scotia from whence the vessels came and where it is reported smallpox is prevalent.

The Health Department and the High Cost of Living Crisis.—Health Commissioner Royal S. Copeland has issued a warning statement that the board of health would revoke the permit of any dealer in dry eggs, liquid eggs, or frozen eggs, or the proprietor of any slaughter house, caught hoarding food or profiteering. The board of health issues permits for such business and hence can revoke licenses "provided it does not act unfairly, tyrannically, unreasonably, or on false information and without reasonable ground for apprehending that the public safety, health, or welfare may be in danger." Governor Smith has expressed the opinion that the board of health should be placed in charge of all measures regulating the sale of foods and other necessities of life in this city. He states that "surely an insufficiency of food from whatever cause is a matter of public health" and is of the opinion that "through the board of health we may come on a solution of the problem."

Department Takes Sea View Hospital.—The health department has taken formal possession of the Sea View Hospital as a home for the treatment of drug addicts. Commissioner Royal S. Copeland estimates that there are about 2,000 addicts in urgent need of care and treatment and in order to provide such treatment he believes the use of the institution will be required until the first of the year. The tuberculous patients at the institution are being classified and transferred to other institutions. The taking over of the Sea View Hospital for the use of drug addicts does not meet with the approval of the committee on tuberculosis of which Dr.

James Alexander Miller is chairman. The committee has adopted resolutions protesting against the opening of this institution to drug addicts and copies have been sent to the mayor, Health Commissioner Copeland, Charities Commissioner Coler and members of the board of estimate. The communication expresses sympathy with Dr. Copeland's work in caring for drug addicts, but bases its protest on the ground that this use of the Staten Island hospital will deprive tuberculous patients of the superior advantages of Sea View. The Staten Island Civic League is taking drastic measures to prevent the treatment of addicts in the Staten Island institution.

OHIO

Smallpox at Youngstown.—The number of smallpox cases for Youngstown shows a decrease, as only eighteen were under quarantine, August 6, and as no new cases have been reported since July 21.

New Quarters for State Board.—The state department of health has leased the entire top floor of the Clinton Building, Columbus, and will transfer to its new locations all its offices, excepting the laboratory, which will remain on the university campus.

Selection of District Boards.—Meetings are being held throughout the state for the organization of local health administrative agencies. At the preliminary meetings the mayors of cities and chairmen will organize themselves into a district advisory council, and elect a board of health of five members, two of these members must be physicians, one a farmer and one an attorney.

Scientific Sessions of State Society.—The Ohio State Medical Association is holding a series of meetings throughout August and September. Meetings have already been held at Chillicothe, Bucyrus, Cedar Point, Bellefontaine, and Portsmouth, and will be held at Canton, August 26; Zanesville, August 27; Athens, September 2; Marysville, September 4; Marion, September 11; Dayton, September 23, and Youngstown, September 25.

Physicians Under Charges.—Dr. W. G. Hamlin, Bloomdale, charged with practicing medicine without a license, is said to have pleaded guilty to three charges and to have been fined $25 and costs in each case. The fine is to be suspended in two cases providing the defendant quits the practice of medicine.——Dr. Robert S. Dunlap, Columbus, is said to have been arrested, July 30, on a warrant signed by Thomas Robinson, state drug department inspector, charged with the unlawful disposal of morphin.

Legal Duties of Physicians.—The state board of health is sending out information to all newly licensed physicians calling attention to the necessity of reporting all cases of inflammation of the eyes of the new-born, and of complying with the venereal disease regulations, which require reporting of all cases of venereal disease and instruction of all patients in the importance of guarding other persons against infection. The letter also gives full details in regard to the reporting of communicable and other diseases and outlines the free diagnostic facilities offered by the department laboratory.

Personal.—Dr. Harry H. Snively, Columbus, who was in charge of two base hospitals at Kiev, Russia, in 1915-1916, is a member of the Army Medical Expedition which has gone into Poland to combat typhus fever.——Charles W. Moots and P. Bruce Brockway, Toledo, and Verne A. Dodd and Frederick O. Williams, Columbus, Lieut.-Coms., U. S. Navy, have been promoted to the rank of commanders.——Dr. Arthur C. Taylor, health officer of East Cleveland for three years, has resigned.——Dr. Harold N. Cole, director of the bureau of social diseases of the department of health, Cleveland, has resigned, but will continue to serve in an advisory capacity.——Dr. Frances M. Hollingshead, Columbus, of the children's bureau of the state board of health has returned after service with the Child Welfare Bureau of France.——Dr. H. Nelson Amidon, Painesville, has been appointed coroner of Lake County succeeding Jotham F. Black, deceased.

PENNSYLVANIA

Personal. — Dr. Joseph A. Buckwalter, Royersford, was elected member of the board of directors of the Pottstown Homeopathic Hospital.——Dr. Edward E. Marsh, Centralia, recently returned, after service in Italy and France, has been elected superintendent of the Pottsville Hospital.

Measles Epidemic.—Jamison City, Columbia County, has an epidemic of measles. Two weeks ago every house in the village was placarded. Physicians thought they had the disease under control and a number of the quarantines were lifted, but August 14, eighteen new cases developed.

Tuberculous Suffer from Lack of Milk. — Claiming that more than 300 tuberculous patients are being treated at the local state dispensary, and that many are in need of milk because the state appropriation is inadequate to furnish a sufficient supply, Dr. Christian Gruhler, Shenandoah, made an appeal for the establishment of a fund to provide milk for about forty poor patients. The district comprises all towns north of the Broad Mountain. The work of the dispensary is handicapped by a shortage of milk, due to the inadequate state appropriation.

Philadelphia

Personal.—George S. Crampton, Lieut.-Col., M. C., U. S. Army, after fourteen months' service with the twenty-eighth division overseas, returned home, August 12.——Dr. Robert G. LeConte has received the cross of the Legion of Honor conferred on him by the French government.

Refuses State Funds.—Refusing $22,000 appropriated by the state, the Frederick Douglas Memorial Hospital has opened a campaign to raise $50,000. The recent legislature made the appropriation with the provision that Dr. Nathan F. Mossell, the founder, resign as superintendent and medical director. The board of directors refused to accept this condition.

Baby Welfare Workers Plan Convention.—A convention of baby welfare workers is being planned for the opening of the new dispensary and social service center of the Babies' Hospital of Philadelphia on the completion of the new building at Seventh and DeLancey Streets. In the new building there will be a few hospital beds for emergency cases, but the scheme of the center is to have a dispensary and hold daily clinics. Laboratories for experimental and research work, social service rooms and a complete roof garden for the use of mothers and their infants during the hot season are parts of the plan for the new building. Dr. Charles A. Fife is president.

New Department of Public Health.—The new charter has so affected the department of public health and charities as to separate the health work from its charity functions. Under the terms of the new law, there is a department of public health of which the director of public health is the head, appointed by the mayor with the advice and consent of the council. He is to have the power to appoint an assistant director, and such other officers and employees as may be provided for. The department has the care, management, administration and supervision of city activities relating to public health including hospitals, control of housing and sanitation, and collection of vital statistics. The board of health is to consist of the director of public health, as president, and two other members, who shall be appointed by the mayor with the consent of the council. Two of the members of the board must be physicians.

TEXAS

Quarantine Station Transferred.—The state quarantine system of Texas will be transferred to the United States Public Health Service this month. The original proposition of the state fixed a minimum price of $200,000 for the state quarantine property, but the individual appraisement made by the several state quarantine officers at their respective plants made an aggregate of $166,000. This includes all quarantine property, including the buildings, ground, and the equipment for disinfecting and detention. Improvements to the station at Galveston are being made which will cost about $40,000.

Personal.—The Hunt County Medical Society has adopted resolutions commending the labors of Major Charles E. Cantrell, Greenville, who was recently appointed district inspector-instructor in the United States Public Health Service with station at Corpus Christi. Major Cantrell was also presented with a gold headed umbrella. Major Cantrell's district includes the states of Texas, Oklahoma, Arkansas and Louisiana.——Dr. William P. Meredith has been appointed resident physician at the new Houston City Hospital.——Dr. Abner P. Howard has resigned as health officer of Vernon, and has been succeeded by Dr. Sumrow S. Greene.——Dr. H. C. Hall, acting assistant surgeon, U. S. P. H. S., Austin, has resigned as director of the bureau of venereal disease of the Texas Board of Health.——Dr. Frank N. Haggard, San Antonio, who recently returned from France, has been appointed surgeon for the International and Great Northern Railroad for the Taylor and Laredo districts.——Dr. Herbert F. Gammons has been appointed superintendent and medical director of Woodlawn Hospital, Dallas, the county sanatorium for Dallas County.

CANADA

Medical Associations.—The fourteenth annual meeting of the Alberta Medical Association will be held in Calgary, September 1 to 3, under the presidency of Dr. Daniel G. Revell, Edmonton.

Appeals from Action of Society.—On the ground that there is no evidence that he was convicted of an indictable offense, Dr. L. N. Cherniak, Windsor, whose name is said to have been stricken from the rolls of the Ontario Medical Society on account of having been fined for illegal use of liquor prescriptions, has taken an appeal against the action of the society.

Hospital News.—A medical clinic has been established at Dauphin, Man. It is the only medical clinic in Manitoba in which all the medical men are united.——Calgary, Alta., has planned a hospital scheme to cooperate with the militia of Canada. The hospital building at present under construction in Calgary is to cost about $20,000. The city will build another extension if the government will cooperate, and is prepared to go to the extent of $60,000. Should the government join in, Calgary will have its soldiers' hospital benefits centralized.——A new $250,000 union hospital scheme is on foot for Moose Jaw, Saskatchewan, which is provided for in the Union Hospital Act of that province.

Public Health.—Edmonton, Alta., has been chosen as the place for the 1920 convention of the Canadian Public Health Association and Ontario Health Officers' Association. Dr. Heber C. Janieson, Edmonton, speaking recently on child welfare work, said that Alberta had considerably more trouble with the 33.6 per cent. of foreign-born children than with the remaining 66.4 per cent. British born, owing to the foreigners of that province holding to their traditions and refusing to adopt the methods in vogue in Canada.——Sixty per cent. of the inmates of jails in Manitoba are feebleminded, according to a report of Dr. Clarence M. Hincks, Toronto, of the Canadian Mental Hygiene Commission. It is estimated that every incurable patient detained in the hospitals for the insane in that province costs the Manitoba government from $5,000 to $7,000.

Personal.—Col. Evans G. Davis, C. M. G., London, Ont., has been appointed A. D. M. S. for the Canadian Soldiers' Civil Reestablishment, in the place of Lieut.-Col. F. McKelvey Bell, Ottawa, Ont., resigned.——Major Thomas D. Archibald, recently in command of the Toronto Military Base Hospital, has reentered private practice in Toronto and will devote his attention to anesthetics.——Lieut.-Col. John M. Nettleton is now in charge of the Spadina Military Hospital, Toronto, but will shortly joint the medical staff at Ottawa.——Brig.-Gen. Ernest C. Ashton, Brantford, Ont., is moving to Ottawa, where he has been appointed to a permanent position in the C. A. M. C.——Col. William B. Hendry, Toronto, lately in command of the University of Toronto Base Hospital, has been appointed associate professor of obstetrics and gynecology in the University of Toronto.——Prof. Andrew Hunter has been appointed professor of biochemistry in the University of Toronto, vacant through the resignation of Professor Robertson.

GENERAL

Personal.—Major-Gen. William C. Gorgas, U. S. Army, retired, chairman of the yellow fever commission of the Rockefeller Foundation, arrived in New Orleans, August 6, on his way to Salvador, Central America, where cases of yellow fever have been reported.

Missouri Valley Physicians to Meet.—The thirty-second annual meeting of the Medical Socity of the Missouri Valley will be held in Des Moines, Iowa, September 18 and 19, under the presidency of Dr. Charles Wood Fassett, Kansas City, Mo. Headquarters will be at the Hotel Fort Des Moines.

New Naval Hospital.—July 24, the new Naval Hospital at Charleston, S. C., was thrown open for inspection. The hospital is situated north of the Navy Yard reservation, overlooking Cooper River, and has a capacity of 1,000 beds. The hospital was constructed under the supervision of Will M. Garton, Com., M. C., U. S. Navy, and has cost more than $1,000,000.

Public Health Association Meeting.—The annual meeting of the American Public Health Association will be held in New Orleans, October 27 to 30, under the presidency of Dr. Lee K. Fraenkel, New York City. The central themes taken up will be, southern health problems, including malaria, typhoid fever, hookworm, soil pollution and the privy, etc., and there will also be discussions on the attitude of legislators toward public health, the securing of appropriations and cooperation for women's clubs, health organization, and the organization of health centers, and two special programs will also be presented on various phases of child hygiene and personal hygiene.

Bequests and Donations.—The following bequests and donations have recently been announced:

Jewish Hospital Association, Philadelphia Jewish Sanitarium for Consumptives and the Federation of Jewish Charities, each $500 by the will of the late Emma T. Lesen.

Society for Improving the Condition of the Poor of New York, and Orphaned Chidren's Home, Utica, each $1,000 by the will of Dr. John Henry Thompson, New York City.

Weseley Memorial Hospital, Chicago, $5,000 by the will of Mrs. Sarah A. Pond, in memory of her late husband Walter M. Pond.

The creation of the Rosa Spang Foundation for the Relief of Poverty and Disease, and especially for the benefit of abandoned babies, $1,000,000 by the will of Mrs. Rosa B. Spang, New York City.

Visiting Nurse Association of Chicago, to be used for the employment of nurses, a donation of $12,500, by Bernard A. Eckhart.

License to Practice in All States.—A bill to license physicians under the federal government to permit them to practice in any state of the Union has been introduced by Representative Mason. The measure provides that any person who has taken a full four years' course in a professional medical school and who has been granted a state license, or any person who has been admitted to practice medicine and has practiced for at least five years, may obtain a license to practice in any state in the Union by paying a fee of $10 to the Secretary of the Interior. The licentiate must have his license recorded with the department of health in the state in which he intends to practice. The bill is numbered H. R. 8313, and it has been referred to the House Committee on Interstate and Foreign Commerce for consideration.

The Care and Treatment of Drug Addicts. — A measure appropriating a total of $5,000,000 for federal assistance to the state health agencies for caring for and treating drug addicts has been introduced by Senator Joseph I. France, chairman of the Senate Committee on Sanitation and Public Health. The Secretary of the Treasury is authorized to divide the appropriation among the states, to be payable only if the respective states by official or private subscription raise a similar amount. The sum of $3,000,000 is authorized to be expended before July 1, 1920, and $2,000,000 is made available for the following year. One fifth of this amount may be expended to collect and spread information regarding the care and treatment of drug addicts. Any hospital equipment held by the army and navy which is not in use is to be transferred to the Treasury Department for the use of drug addicts. The Secretary of the Treasury is charged with the enforcement of the act.

FOREIGN

Hospital Opened in Siberia.—To meet an emergency of hospital work, for wounded Russians, the American Red Cross has opened a large hospital at Cheliabinsk under the care of Dr. Henry W. Newman.

Tuberculosis in French Soldiers.—In a discussion in the French Senate, July 12, it was stated that 25,000 French soldiers had died from tuberculosis during the war, and that 120,000 men had been exempted from service because of the disease.

Influenza in Portugal.—The *Medicina Contemporanea* of June 1, just received, states that the deaths from influenza at Lisbon during the preceding two weeks had been more than the total deaths from all causes during the preceding four months.

Achúcarro Prize Awarded.—The foundation of the prize in memory of Achúcarro, the Spanish histologist, was mentioned recently, June 7, 1919, p. 1690. As the first award, it has been given to the director of the laboratory of histopatology connected with the Junta de Ampliacion de Estudios at Madrid, Dr. Pio del Rio Ortega. The prize is to be awarded every two years and alternately to a Spanish and foreign histologist for the best work during the preceding four years.

Typhus Train.—A report of the Allied Antityphus Train, which has been operated in Siberia under the charge of Capt. Rudolph Bukely, under the direction of the American Red Cross, states that it has handled 20,000 men during the six months the train has been in operation. The reputation of the train as an effective weapon in fighting typhus is widespread.

Serbian Relief.—The medical section of the Red Cross Commission in medical and general relief work in Serbia is composed of eighteen physicians of the Medical Corps and Sanitary Corps of the Army under the direction of Lieut.-Col. Edgar E. Hume, M. C., U. S. Army, Frankfort, Ky. One of the medical members of the commission died from pneumonia while on duty at Semendria.

Earnings of German Manufacturing Chemists. — The *Riforma Medica* states that the Farbwerke vorm. Meister, Lucius and Brüning firm at Höchst on the Main paid a dividend of 12 per cent. in 1918; in 1917 the dividend was 18 per cent., and in 1916, 25 per cent. The corresponding firm at Ludwigshafen paid out a dividend also of 12 per cent. in 1918; in 1916 the dividend rate was 20 per cent.

Relief Commission to Kuban.—A relief commission in charge of an American Red Cross unit has left St. Nazaire for the Kuban district of Russia to carry medical supplies, food and clothing for the needy civilians and soldiers in that district. The commission will carry a complete equipment for an army field hospital, and will be headed by Major Robert Davis, New York, and Capt. Henry Adams, Boston.

Fellowship of Medicine Forms Committee for Literature Interchange.—Under the authority of the Fellowship of Medicine of Great Britain, an Anglo-American committee has been formed, whose chief aim is to bring about a better interchange of medical literature of both countries. A committee has been formed in London to secure publication of American articles and to send British articles to American publications. It is announced that a similar committee is to be formed in America.

American Hospital in Great Britain.—The American Hospital for Great Britain was founded July 17 at a special meeting, in the Royal College of Physicians, the Earl of Reading presiding. A governing council with the American ambassador as chairman, was appointed, and two medical committees—one for Great Britain and the other for the United States—were constituted. The committee for the United States consists of Drs. George W. Crile, William J. and Charles H. Mayo, Albert J. Ochsner, Rudolph Matas and Franklin H. Martin.

The Army Medical Department in the Victory Parade at Paris.—The *Bulletin Médical* of Paris relates that, for the first time in history, the chief of the medical department of the army was called to a place with the commander-general in the great victory parade. Médecin-inspecteur Toubert, aide-major général du Service de Santé, rode with the group of aides-majors généraux immediately following Maréchal Petain. The students of the Military Medical Academy marched beside the students of the Saint-Cyr Academy, an institution like our West Point. Among the twenty-four medical students were many decorated with the insignia of the Légion d'honneur and all wore the fourragère with palms and stars. All these medical students had served in the front lines.

Congress of French Gynecologists and Accoucheurs.—For the second time, the official announcement is published that the First Congress of the Association des gynécologues et obstétriciens de langue française is to be held in the fall. The first time the date was set for Oct. 1, 1914, and the addresses had already been printed when the war broke out, and all not connected with the war was dropped. The approaching meeting is to be held at Brussels, September 25, and the same subjects as before have been appointed for discussion. Every city in France with a medical school has a local society of gynecologists and obstetricians, and the federation of these societies with those of Latin Switzerland and Belgium forms the Association of French-Speaking Gynecologists and Accoucheurs. The subjects to be discussed are the biologic diagnosis of pregnancy; early release from bed after childbirth and operations; uterine cancer; preferred incision for laparotomies; indications and technic for hysterectomy in treatment of suppuration in the adnexa; and welfare work for pregnant and nursing factory workers.

LATIN AMERICA

Friction Between Druggists and Pharmacists.—Friction has been aroused between drug store owners and graduate pharmacists of Chile over a sanitary law pending in the chamber of deputies, under which the owners would be permitted to operate their business without the control of the pharmacists.

Yellow Fever.—Strict sanitary regulations and the prohibition of maritime traffic between the two towns and other ports, at La Union, and San Miguel, San Salvador, have apparently checked an outbreak of yellow fever.——Because of reports of the prevalence of yellow fever in Northern Peru, the board of health of Ecuador has closed all ports of that republic to vessels arriving from northern Peru.——An outbreak of yellow fever is reported from Piura, Northern Peru.

New Disease in Peru.—In the city of Piura there have occurred recently a number of cases of a suspicious disease. The cases so far have all occurred in the jail and there have been five deaths. There is some discrepancy of opinion among the local physicians, some of whom believe it is yellow fever while others think it is a new disease. All the patients have been isolated and the American physician who is in charge of the sanitary campaign at Lima has been requested to assume control of the epidemic.

PARIS LETTER

Paris, July 24, 1919.

Congress of French Surgeons

The twenty-eighth congress of the Association française de chirurgie will open at Paris, at the Paris School of Medicine, Oct. 6, 1919, under the chairmanship of Dr. C. Walther. The questions proposed for discussion at the congress are: (1) closed traumatic lesions of the wrist; (2) surgical treatment of cancer of the tongue, and (3) paranephric tumors.

Decrease in the Birth Rate

In his report on the number of children receiving charitable assistance in the department of the Seine, M. Rebeillard has pointed out the lamentable decrease in the birth rate. The number of births in the department of the Seine has decreased from 73,599 in 1911 to 47,480 in 1918. During the past year the number of abandoned children reached 3,149. Furthermore, the percentage of children turned over to the Assistance publique, according to the birth rate reports, has increased from 4.9 per cent. in 1911 to 6.63 per cent. in 1918, having reached the highest mark, 6.9 per cent., in 1916.

The situation is all the more grave owing to the fact that, at the same time, almost all the wetnurses have disappeared, which exercises a paramount influence on the increase in infant mortality, which for babes under 1 year has jumped from 10.66 per cent. before the war to 40 per cent. in 1918. The number of nurses that the Assistance publique was able to secure from the rural districts during the year decreased from 1,353 to sixty-five. In order to make up for this dearth of nurses, centers for artificial feeding have, to be sure, been established; but conditions are considered so deplorable that the government has begun on a new basis the rational organization of the feeding of infants.

With a view to bringing about an increase in the birth rate, the general council of the department of the Seine, at the instance of M. Emile Desvaux, has submitted the request that the legislature lower to 25 the age for attaining full matrimonial majority. (By matrimonial majority is meant the age at which one acquires the right of marrying without the consent of one's parents. In some countries, a written refusal signed by the parents is still required after one attains matrimonial majority, provided the marriage is opposed by the parents, before one is permitted, according to law, to proceed with the nuptials.—Ed.)

Congress of French-Speaking Gynecologists and Obstetricians

The Association des gynécologues et des obstétriciens de langue française will hold its first congress in Brussels, Sept. 25-27, 1919, under the patronage of the king and queen of Belgium. The meetings will be held in Parc Léopold, at the Institute of Physiology.

The Organization of Physical Education

In order to promote the use of gymnastic exercises among the youth of the land, the president of the Conseil des ministres has adopted various measures with a view to securing the cooperation of the army and the heads of public instruction. With this idea in mind the council has addressed a circular to the regional commanders and to those in charge of centers for physical instruction, including military preparatory schools. In this circular the order is given to grant to teachers and pupils free access to regional centers, and provision is made for the installation of vacation camps and for the organization throughout the entire territory of vacation courses in physical education.

Vaccination Against Smallpox

In a preceding letter I called attention to the epidemic of smallpox which occurred recently in Paris (The Journal, Aug. 2, 1919, p. 350). The prefecture of the department of the Seine has again called the attention of the public to the necessity of being vaccinated against smallpox. Every week, in the different sections of Paris, free vaccination is offered. Posters about the city indicate the time and place for securing vaccination.

A Gift to the Museum of Natural History

The Jardin des plantes de Paris and the Muséum d'histoire naturelle, owing to the lack of sufficient appropriations, have not kept pace with the needs of the times, and the buildings at their disposal are unworthy of their renown and of the place that they hold among scientific institutions by reason of their rich collections. The Société des amis du muséum, the president of which is M. Léon Bourgeois, former president of the Conseil des ministres, has been founded for the purpose of working toward the rehabilitation of the Jardin des plantes, the adjoining museums, the galleries, the research laboratories and the courts which go to make up this grand national institution. M. Basile Zaharoff, desiring to aid in this work of rehabilitation, has made a gift of 500,000 francs to the Muséum d'histoire naturelle, to be used in its restoration, enlargement and improvement.

An American Woman the Recipient of the Decoration of the Legion of Honor

Dr. Louis Mourier, undersecretary of state for the army medical department, has bestowed on Miss Bishop the cross of a knight of the legion of honor. Since the beginning of the war this energetic American woman has given France unlimited proof of her intelligence in the administration of welfare work. Since 1916 she has been employed in the hospitals outside of Paris in the care of the wounded. In 1917 she established in Paris a foyer du soldat for the "on leave" men from the invaded districts. At Soissons she was instrumental in installing a hospital under a terrible bombardment. After the signing of the armistice she organized relief stations at Cambrai. At the present time she is still engaged in the devastated regions relieving, where possible, misery and distress.

Death of Dr. Demoulin

From Saint-Lon (department of Landes) news has come of the death of Dr. A. Demoulin, a Paris hospital surgeon and consulting expert of the tribunal civil de la Seine.

Personal

Dr. Maillard, professor of pathologic chemistry at the Paris School of Medicine, has been appointed professor of biologic chemistry at the Alger School of Medicine and Pharmacy.

M. Paul Appell, dean of the Faculté des sciences de Paris, has just resigned the duties of the office that he has held for sixteen years. He has been succeeded by M. Houssay, professor of zoology of the Faculté des sciences de Paris.

Dr. Policard, professor on the faculty of the Lyons School of Medicine and Pharmacy, has been appointed professor of general anatomy and histology in the same institution, in place of Professor Renaut, who has been allowed to take advantage of his right to retire.

Dr. Mouriquand, professor on the faculty of the Lyons School of Medicine and Pharmacy, has been appointed professor of general pathology and therapeutics in the same institution, in place of Professor Lesieur, deceased.

American Students in French Universities

More than 5,000 American officers and private soldiers have pursued courses in French universities during the past few months. The American soldier-students have recently given expression, in a delicate manner, to their gratitude to their French instructors. They have raised by subscription among their number more than 70,000 francs. This sum is to be divided among the fourteen French universities that have received American students. At the opening of school in the fall fourteen French students will sail for the United States, where they will pursue a course of study for a year at some American university.

Child Welfare

L'Institut de puériculture, of the founding of which I have already spoken in a previous letter, a project which owes its origin to the gift of 1,000,000 francs from the American Red Cross and a like sum raised by subscription in Paris (The Journal, June 14, 1919, p. 1781), met recently at the Paris School of Medicine for the purpose of organizing a permanent society. M. Lucien Poincaré, rector of the University of Paris, presided at the meeting, being assisted by Professor Roger, dean of the Paris School of Medicine, M. Mesureur, director of the Assistance publique, and nearly all of the faculty of the Paris School of Medicine. Dr. Kennett Wygatt represented the American Red Cross. After an address by Professor Roger, in which he pointed out what part the School of Medicine was expected to play in this undertaking, Professor Pinard, in a few words, gave expression to his great joy in seeing realized an idea which he, conjointly with all the gynecologists and pediatricians of France, had supported for so long. It should be stated in this connection that the Children's Welfare League of America has contributed to the institute the sum of 500,000 francs.

The Campaign Against Tuberculosis

The senate has recently passed the bill establishing special sanatoriums for the treatment of tuberculosis and fixing the conditions for the admission of patients (The Journal, April 12, 1919, p. 1092). The bill provides that the state, under certain guaranties, will assume the expense of establishing these sanatoriums, and it is thought that these state establishments will set a good example for private institutions.

LONDON LETTER

London, July 25, 1919.

British Versus German Science

At the annual meeting of the Society of Chemical Industry, Prof. H. Louis, the president, stated in his address that the one great fact that emerged from the war was that our chemical industry had shown itself capable of sustaining successfully the fiercest and most strenuous competition. Utterly unprepared for war conditions, it had shown itself more resourceful, more energetic, and more successful than any had dared to hope. We could never have built up so rapidly this vast edifice of chemical industry if the foundations on which we had to build had not been thoroughly sound. He saw in these results a triumphant vindication of the thesis that in the teaching of science, and more particularly of scientific technology, we were quite on a par with any other nation. It had often been urged by those who looked on German educational methods as the acme of perfection that we ought to model our methods of technical teaching on German lines. This war had shown that our teachers, who had stedfastly adhered to the methods that suited our national idiosyncrasies, were justified. We could certainly learn much of the organization of scientific education and much of the respect due to science from our enemies, but we should adhere to our own essentially British methods of technical education. Germany had for forty years been applying her science to warfare, but the science which we possessed available for such application was of a far higher order, and we had been able to beat our enemies at all points. We had beaten Germany in war because of our superior productivity; we produced more of the essentials needed in warfare than did our enemies—more ships, more guns, more explosives. What was true of warfare was equally true of the less spectacular but no less severe competition of peace; if we were to hold what we had gained, it could only be by maintaining our productive capacity and increasing our outputs. This was a task that could not be accomplished by scientists and technologists alone; they could but devise and organize the methods by which the work was to be done; but they must call on the body of workers of the country to execute them. He had worked in many lands and had employed men of many different races and different nationalities, and he could say without hesitation that the British working man had no superior as a workman, if he only chose to work, and he therefore saw no reason why he should produce less effectively than any of his competitors.

Mothercraft

At the National Birth Rate Commission, Dr. Eric Pritchard gave evidence that 26 per thousand infants were born with malformations and physical defects of development which rendered the satisfactory carrying out of the functions impossible. The remaining deaths out of the total number, namely, 70 per thousand births, were due to causes that could not be referred to any demonstrable defects at the time of birth. About 40 deaths per thousand births were attributed to infectious diseases of one kind or another. The remaining deaths were due to miscellaneous diseases, including a large number under the classification of wasting, debility and marasmus. Infections were responsible for much the largest number of the deaths during the first year of life. A much larger number of infants died from unrecognized infections than was usually believed. New-born infants could not defend themselves against a large number of quite simple organisms to which older individuals were completely immune, or of which they might be the "carriers" without detriment to themselves.

Good mothercraft, which practical experience proved to be efficacious in preserving the life of the infant, was knowingly or unknowingly designed to preserve the natural defenses of the body against bacterial invasion, or to maintain or raise the degree of tissue immunity. The artificially fed infant more easily fell a victim to vicarious infection. Further, by the damage inflicted on the digestive tract by unsuitable foods, before the digestive organs had developed their normal functions, the infant was exposed to the entrance of organisms through the areas of lessened resistance. Artificially fed infants, and especially those fed on patent foods containing a great excess of sugar, were notoriously nonresistant to infectious disorders. The sources of infection were even in the best circumstances manifold, but in slum areas where the infants shared the same room with several other individuals, these dangers were greatly magnified.

Dr. Halford Ross, late health officer, Suez Canal Zone, also gave evidence. He said that from observations in that zone it would seem that there was a constant correlation between birth rates and death rates. As one increased, the other increased; if one was reduced, the other fell. In a certain place a serious epidemic of plague occurred in 1907. The death rate rose higher than the birth rate for three weeks, but soon the birth rate rose and regained its former relation with the death rate, which remained high for a time. Then both fell together to their original level as soon as the plague disappeared. A similar correlation of birth rate and death rate was noticed in Cairo in 1910 during a severe fatal outbreak of smallpox. This correlation of births and deaths made any measures taken to modify their rates appear futile, because their relation seemed to follow a natural law, which at present was not understood. Our aim, then, should be to prevent all disease, so that infants when born were healthy and remained healthy through life. In that way the most efficient population could be obtained.

Medical Certificates of Fitness for Marriage

At a conference on public health, Sir Malcolm Morris recently expressed the view that no marriage ought to take place without a medical certificate on both sides. But it is doubtful whether prevailing sentiment would allow this to be carried out. Interviewed on the subject by a representative of the *Daily Sketch,* Sir Malcolm stated that to a certain extent it was adopted in America, and that there were few instances of the kind in this country. But if public opinion set up such a custom in this country, then the medical profession would require legislative protection. If a physician, after examining a patient, had to advise the parents of a girl that it was not advisable for her to marry him, then protection by law would be necessary.

Although Sir Malcolm Morris does not suggest that there should be legal enactment, making the issue of such certificates imperative, Dr. Neal, the secretary of the Medical Defense Union, thinks it would be utterly impossible to bring about legislation of this kind. "While from a medical point of view such a step might be desirable, on sentimental and other grounds, there is something very repugnant about the idea," he remarked. "Just imagine the feelings of a decent young man at the very suggestion, on the part of his parents, that he must obtain a certificate that his prospective bride is free from disease! It would not be merely a gross reflection on her purity, but would imply that she was a woman of very abandoned type."

Experimental Medicine and the War

At the annual meeting of the Research Defense Society, Sir Anthony Bowlby, consulting surgeon to the British armies in France, spoke on experimental medicine and the sick and wounded in war. The British army had been the healthiest of all the armies engaged; its sick wastage was less than any other. The reasons were, in the first place, that the average man in this country was a cleanly animal, and understood and followed advice which was evidently reasonable; and, in the second place, the army medical service, as a body of experts trained in hygiene and preventive medicine, was unequaled in any country. Every one was aware of the small incidence of typhoid fever in the war, but there were people who were trying to explain away the value of the prophylactic inoculation by saying that the comparative freedom from typhoid was due to improved hygiene. Even were this true, the fact would remain that the hygiene of today was based on the experimental medicine of yesterday; but preventive inoculation was to a large extent the real cause of the immunity. This was proved by the unfortunate instance of the French troops who, in the early days of the war, hurrying to save their frontier, went out uninoculated. The result was that between August, 1914, and the following April there were as many cases of typhoid in the French army as were recorded in the South African war. The strength of the army was wasted to the extent of 60,000 men. The great prevalence of tetanus was not anticipated at the beginning of the war, so that at first the supply of prophylactic serum was not proportionate to the number of troops. Supplies of antitetanic serum were obtained as quickly as possible, and by the end of October, 1914, large quantities became available. Its value was shown by the fall in the ratio of tetanus cases to the number of wounded. The ratio in September, 1914, was six times as high as it became in November, and nine times as high as it became in December. A book might be written on experimental medicine which had been actually developed during the war. A great deal had been learned with regard to gas gangrene, in particular that three organisms were concerned, which accounted for the comparative failure of serum treatment. Toward the end of the war a trivalent serum was produced which, in the opinion particularly of the French authorities, was of great value, although it did not do enough. Valuable work on the mode of dissemination of trench fever was done as a result of the action of British and American volunteers, who subjected themselves to the attack of infected lice. Much had been learned also with regard to dysentery, both the amebic and the bacillary form; it was found possible to prevent spread and to expedite cure. Dysentery first developed in the British army as a result of the success of the Battle of the Somme in 1916, when the men entered the territory which had been occupied by Germans suffering from the disease. In conclusion, Sir Anthony mentioned the discovery of filter-passing organisms by Sir John Rose Bradford and Captains Wilson and Bashford. He had no doubt whatever that this discovery would throw a flood of light on the whole of the zymotic diseases encountered in civil life.

Army Medical Memorial Service

A service in memory of the 568 officers and 4,634 other ranks of the Army Medical Corps who gave their lives in the service of the country during the war has been held at St. Paul's Cathedral. Among those present were Princess Helena (representing Princess Christian); Princess Louise, Duchess of Argyll; Princess Beatrice; Col. Sir H. Streatfeild (representing Queen Alexandra); Sir John Goodwin (Director-General); Lieut.-Gen. Sir Alfred Keogh; Lieut.-Gen. Sir Lancelot Gubbins, and Lieut.-Gen. Sir Arthur Sloggett. Selections played by the Grenadier Guards included the "Marche Funèbre et Chant Séraphique" (Guilmant); the "In Memoriam" Overture; Massenet's "Bénédicta," and Beethoven's "Equale." The buglers of the Army Medical Corps sounded the "Last Post" and the "Reveille."

Marriages

Edward Augustine Stapleton, Albany, N. Y., to Miss Sarah Gertrude McGoarty of Wilkes-Barre, Pa., at Greenwich, August 2.

Robert Finley Gayle, Jr., Lieut., M. C., U. S. Army, New York City, to Miss Elizabeth Marshall Cole of Raleigh, N. C., August 16.

Fred DeForest Streeter, Central Islip, N. Y., to Miss Alice Sherwin of Manchester, Vt., July 25.

Herman Carl Jungblut to Miss Johanna Stehn, both of Tripoli, Iowa, recently.

Richard Ambrose Roche to Miss Ruth Wilkie, both of Chicago, August 6.

Deaths

Otto Augustus Wall, Jr. ⊕ St. Louis; Missouri Medical College, St. Louis, 1898; aged 45; associate professor of materia medica and pharmacognosy and lecturer on accidents and emergencies in the St. Louis College of Pharmacy; associate medical director of the International Life Insurance Company, St. Louis; at one time editor of the *Weekly Bulletin of the St. Louis Medical Society;* died in Barnes Hospital, St. Louis, August 4, from heart disease.

Henri Michel Auger, Jamaica, N. Y.; University of Buffalo, N. Y., 1886; aged 62; for several years physician to the Jamaica Board of Health and assistant medical examiner for the Long Island Railroad; one of the founders of St. Mary's Hospital, Jamaica, and a member of the staff of the Jamaica Hospital; died at his home, August 5, from rheumatism.

John Francis Bourke ⊕ **Lieut., M. C., U. S. Army,** Jamaica, N. Y.; College of Physicians and Surgeons in the City of New York, 1905; aged 39; post surgeon at Souther Field, Americus, Ga.; formerly instructor in diseases of the digestive system in Fordham University, New York City; died in his office at Souther Field, July 28, from cerebral hemorrhage.

Franklin S. Bower, Philadelphia; College of Physicians and Surgeons, Baltimore, 1881; aged 60; first president of the North Philadelphia, afterward the Samaritan Hospital, Philadelphia; a member of the Medical Society of the State of Pennsylvania; died at his home in North Philadelphia, August 1, from nephritis.

Joseph W. Applegate, Green Cove Springs, Fla.; Jefferson Medical College, 1862; aged 84; surgeon of U. S. Volunteers during the Civil War; for many years a druggist of Franklin, Ind.; for thirty-five years owner and manager of a hotel at Green Cove Springs; died at his home from ciliary dysentery.

William H. Aber, Aullville, Mo.; Beaumont Hospital Medical College, St. Louis, 1897; aged 49; a member of the Missouri State Medical Association; while driving his automobile over a grade crossing at Higginsville, Mo., August 2, was struck by a Chicago and Alton train and instantly killed.

J. Lindsey Hill, Albany, Ore.; Willamette University, Salem, Ore., 1871; aged 74; for several years an instructor in his alma mater; at one time mayor of Albany; founder and president of a local insurance society known as the "Twenty-Five Hundred"; died at his home, August 3.

Charles E. Hansel ⊕ South Bend, Ind.; University of Illinois, Chicago, 1897; aged 45; a member of the Central Pediatric Society; president of the board of health of South Bend; died suddenly at the South Bend Country Club, August 3, from heart disease.

Daniel F. Gleason, Brooklyn; Jefferson Medical College, 1875; aged 62; formerly chief inspector for the Brooklyn Board of Health; for the past fifteen years a detective for the Pinkerton Agency; died at his home, August 3, from heart disease.

William Cecil Leavenworth ⊕ Augusta, Ga.; University of Virginia, Charlottesville, 1917; formerly acting superintendent of Johns Hopkins Hospital, Baltimore; superintendent of the University Hospital, Augusta; died, July 29.

Jacob F. Marchand ⊕ Canton, Ohio; University of Pennsylvania, Philadelphia, 1887; aged 61; surgeon to the Aultman Hospital for twenty years; consulting surgeon to Mercy Hospital; died at his home, July 31, from diabetes.

Mary Elizabeth Stanford, Chicago; Chicago Physio-Medical College, 1897; aged 53; professor of physiology in the Chicago College of Medicine and Surgery; died at her home, August 14, from myocarditis.

Charles Frederick Miller, Los Angeles; University of California, San Francisco, 1874; aged 71; a member of the Medical Society of the State of California; died at his home, July 22, from senile debility.

Samuel Trimble, Lima, Pa.; University of Pennsylvania, Philadelphia, 1867; aged 76; a member of the Medical Society of the State of Pennsylvania; died at his home, August 7, from disease of the kidney.

Frederick Chandler, Mechanic Falls, Me.; Bowdoin Medical Schoool, Brunswick and Portland, Me.; 1877; aged 67; died at his home, June 10, from arteriosclerosis.

Thomas Mutter Allison, Kittanning, Pa.; Jefferson Medical College, 1872; aged 70; a member of the Medical Society of the State of Pennsylvania; died at his home, June 3, from pulmonary tuberculosis.

Edric Allen Wade, Salem Depot, N. H.; Harvard University Medical School, 1879; aged 68; died in the Massachusetts General Hospital, July 16, following operation for the removal of gallstones.

Clarence T. Lewis, Staunton, Va.; George Washington University, Washington, D. C., 1878; aged 66; a member of the Medical Society of Virginia; died at his home, July 19, from tuberculosis.

John Howard Sherman, Boston; Castleton (Vt.) Medical College, 1857; aged 88; for several years medical inspector in the public schools of Boston; died at his home in South Boston, August 2.

James Moon Salmon, Simcoe, Ont. (qualification, 1847, medical board, Kings College, Toronto, Ont., license, Toronto, 1866); aged 95; died at his home, June 17, from arteriosclerosis.

Algernon M. Sargent ⊕ Lincoln, Ill.; Medical College of Ohio, Cincinnati, 1880; aged 62; a director in the Lincoln National Bank; died at his home, August 3.

James E. Glenn ⊕ Fairfield, Pa.; College of Physicians and Surgeons, Baltimore, 1891; aged 53; died at his home, August 4, from cerebral hemorrhage.

Lauren Milton Lindenberger, Troy, Ohio; Bellevue Hospital Medical College, 1880; aged 69; died at his home, in Troy, July 23, from angina pectoris.

George M. Ross, Schell City, Mo.; Missouri Medical College, St. Louis, 1883; aged 58; died in Moundville, Mo., May 23, from cirrhosis of the liver.

Aaron C. Vaughan, Rockford, Ohio; University of Pennsylvania, Philadelphia; 1858; aged 83; died at his home, about July 17, from senile debility.

George Gregg, Ashland, Ohio; Western Reserve University, Cleveland, 1868; aged 80; died at the home of his daughter in Ashland, August 3.

Rufus Henry Allen, Nashville, Tenn.; University of Nashville, Tenn., 1900; aged 46; died in an infirmary in Nashville, August 5, from pneumonia.

William Smith Mecklem ⊕ Mansfield, Ohio; University of Wooster, Cleveland, 1880; aged 57; died at his home, July 28, from cerebral hemorrhage.

Frederick John Kruell ⊕ Hollywood, Los Angeles; Rush Medical College, 1881; aged 66; died at his home, July 29, from cerebral hemorrhage.

James A. Houser, Indianapolis; Toledo (Ohio) Medical College, 1886; aged 72; for forty-five years a practitioner; died at his home, July 29.

John Newton Moorman, Cross Plains, Texas; University of Nashville, Tenn., 1860; aged 82; died at his home, April 30, from senile debility.

Daniel Graham Carey, Elmira, N. Y.; Eclectic Medical College of Pennsylvania, Philadelphia, 1870; aged 79; died at his home, August 2.

John W. Moose, Agnes, Texas; College of Physicians and Surgeons, Baltimore, 1880; aged 66; died at his home, May 12, from diabetes.

Martin J. Crockett, Sylvester, Ga.; Eclectic Medical Institute, Cincinnati, 1870; aged 72; died at his home, May 2, from epithelioma.

Eli Edwin Graves ⊕ Penacook, Concord, N. H.; University of Vermont, Burlington, 1868; aged 72; died at his home, August 5.

James F. Lockett, Ochelata, Okla.; Iowa Medical College, Keokuk, about 1859; aged 86; died at his home, June 25, from senile debility.

John L. Buxton, Bell City, Mo.; Eclectic Medical Institute, Cincinnati, 1888; aged 58; died at his home, July 25, from tuberculosis.

Lauren A. Stillman, Chicago; Loyola University, Chicago, 1891; aged 62; died at his home, August 8, from arteriosclerosis.

Samuel C. Moore, Urbana, Ohio; Cincinnati College of Medicine and Surgery, 1870; aged 74; died at his home, July 27.

William H. Sampsell, Ashland, Ohio; Jefferson Medical College, 1876; aged 69; died at his home, July 23, from uremia.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CAPELL'S UROLUETIC TEST

U. S. Marine Hospital, Chicago.

To the Editor:—A member of the consultant staff of this hospital recently referred to us a "Doctor" H. F. Matthews, who was supposed to give demonstrations of a new test for syphilis—"Capell's 'Uroluetic' Test." The test was to be made of the urine of the patient. The above mentioned consultant was under the impression that the said "Doctor" Matthews was a graduate physician.

"Doctor" Matthews came to the hospital according to the appointment made by the consultant, and proceeded to give his demonstration. Several of the junior officers and interns were present to witness it. He was asked questions in an attempt to determine the scientific status of the test which he was demonstrating. His answers were always vague and indefinite and not clothed in scientific words.

We became suspicious of him, and he was asked if he was a graduate physician. He admitted that he was not. He was further asked if he had studied chemistry and bacteriology; he stated that he had in 1888. Inquiry was made as to where; he replied that it was at the University of Illinois. He was further asked if he was familiar with the Wassermann reaction. He stated that he was not.

This man is going around representing himself as a physician who has a new test which he claims is superior to, and more delicate than the Wassermann test; yet he knows nothing whatever of the technic of the Wassermann reaction.

In one case, we gave him the same specimen of urine in four different containers. He read a different degree of reaction for each of them. In other words, in a specimen from the same patient, his four different tests showed, respectively, a +, a + +, a + + + and a + + + + reaction.

It occurred to me that it might be well to inform you of this man's methods, as he told us that he had been to a good many institutions, and I am sure he will soon start a plan to systematically force his pseudoscientific test on credulous physicians everywhere.

J. O. Cobb, M.D., Senior Surgeon in Charge.

The Propaganda Department has in its files a business card reading: "Capell's Laboratories, Room 1510 Masonic Temple, Chicago. Dr. H. F. Matthews, Special Representative." Capell's Laboratory has its headquarters in Omaha, and is apparently conducted by Dr. W. L. Capell, who, for many years, seems to have been more or less interested in proprietary medicines. Some years ago he was connected with a concern known as "Acneine Pharmacal Company," which, apparently, was dissolved some time in 1910, and soon thereafter a new company was organized known as the LeRoy Drug Company. In 1917 W. L. Capell was connected with the Capell, Cameron Co., Inc., of Lincoln, Neb., which was selling "Capell's Uroluetic Test," "Capell's Treatment for Syphilis" and other remedies. The "Treatment for Syphilis" was said to be

> "Painless, Pleasant, Harmless, Efficacious, and requires usually from 30 to 90 days only to eradicate the disease."

The name of the treatment is "Mercarodin"—earlier it was called "Camit"—and it is now being sold from "Capell's Laboratory," Omaha. In addition, Capell's Laboratory sells Acneine, which apparently is the same product that was sold in 1906 and 1907 under the name of "Sambu-Co" by the Holtman-Stringer Co. of Omaha and later was put out by the Acneine Pharmacal Company of Omaha.

While Capell's Laboratory sells proprietary remedies, it is the "Uroluetic Test" which the concern now seems to be featuring. The claims made for this are:

> "This test requires no expert knowledge, is inexpensive, and can be made in a few minutes, and is so plain that it cannot be mistaken."

The idea of being able to determine the absence or presence of syphilis by a simple color test of the urine, is a fascinating one. The present reliable diagnostic tests are, as Capell's Laboratory so plausibly emphasizes, somewhat involved, and call for rather delicate technic. But there are no short-cuts to knowledge.

A physician who ordered Capell's Uroluetic Test some weeks ago received with the bill the letter that follows: It is given not so much for what it says, as for how it says it. It is copied *verbatim et literatim:*

> "Your letter received, and we have mailed you as per your letter 1 Doz. of Capell's 'Uroluetic' Tests. In close find statement and instructions, for same.
>
> "The 'Uroluetic' Test is meeting a far greater approval from the Medical profession than we had expected, while we do not claime that it is perfect, yet we have only received one unfavorable report, and we daily feel incuraged in its efficacy.
>
> "You know Doctor that there are two dangerous elements in this world, one is the extreme pessimist and the other is the extreme optimist. The immoral Lincoln said, 'That there was nothing that was wholly good or wholly evil,' and we presume that this is equally true of the 'Uroluetic' test. But we want the truth no matter what it is."

"Capell's Uroluetic Test" would be "important if true." Unfortunately, its scientific value to the sufferer is negligible compared with its economic value to the exploiter. It is not so much a test for lues in the patient as of credulity in the doctor.

Correspondence

"H. M. C." AND DRUG ADDICTION

To the Editor:—The more or less discredited "twilight sleep" has been largely applied in this country through the medium of a proprietary tablet known as "H. M. C." and composed of "hyoscin" (scopolamin) morphin and cactin. The cactin is negligible in the formula, and the product would probably be improved were it omitted from the mixture; but "H. M. C." is a name readily remembered, and the product must be credited with marked activity.

That this proprietary might be habit-inducing did not occur to me until recently, when I noticed from our drug reports how frequently prescriptions for original packages of it appear. A certain degree of tolerance to scopolamin is produced, but it is not generally regarded as habit-inducing. It appears in our work, however, that an addict to heroin will readily come to tolerate quite considerable doses of scopolamin and, indeed, the heroin addicts when deprived of their drug are fairly well content with scopolamin as a substitute. Both drugs depress the respiratory center very markedly and often lead to collapse.

Western Pennsylvania seems to have a great incidence of asthma, and it is here and in this disease that "H. M. C." tablets are coming into vogue, I believe very unwisely.

I have noted eight cases in the city of Erie in which prescriptions of original packages of "H. M. C." have been given—six of the patients being men and two women, and the quantities ranging from twenty-five to 100 tablets. Doubtless some of the smaller prescriptions were written by physicians when in attendance in obstetric cases, a proper number being used and the physician taking the remainder back to his office; but 100 would hardly be prescribed under such circumstances.

I believe this was the disposition of prescriptions noted as written in Corry and also in Washington, though in the latter place one woman had prescribed for her 183 tablets in the course of three months. Scattered reports throughout western Pennsylvania show many persons receiving from fifty to 200 tablets. Most of them are sufferers from asthma of some type.

In a most distressing case of chronic asthma, in the family of a physician in Lawrence County, the patient some weeks requires one tube of "H. M. C.," and the good doctor writes me: "We have sent her to the following cities: Pittsburgh, Cleveland, Elwood, Youngstown and Kane, to the best physicians; and always it was the same old treatment, viz., 'H. M. C.'" This report leads me to believe that the use of these tablets in asthma is rather common.

But the most striking case is reported from Jefferson County. The patient, a male morphin addict, somewhat advanced in years, has taken "H. M. C." for four years, gradually running up the dosage. He also has asthma. In the course of a long letter this man writes: "I have far over one hundred dollars' worth of tubes that Dr. ——— prescribed here now empty, and Lord only knows how many more I threw away."

Some of the cases we encounter tend to show that marked tolerance can be established to scopolamin, especially in a morphin or heroin addict; and, without implying any belief that the makers of the "H. M. C." tablet would promote its improper use, I believe that physicians should be most careful in supplying this potent alkaloidal mixture to their patients.

Thomas S. Blair, M.D., Harrisburg, Pa.
Chief, Bureau of Drug Control, Pennsylvania Department of Health.

RELATIONSHIP OF INFLUENZA BACILLUS TO INFLUENZA

To the Editor:—The relationship of *Bacillus influenzae* to influenza is, at present, a subject of such great importance that I trust you will permit me to draw attention to a statement of Dr. W. H. Park in his article on "Bacteriology of Recent Pandemic of Influenza and Complicating Infections" (The Journal, Aug. 2, 1919, p. 318). Dr. Park says: 'Although Keegan, Opie and their associates believe that the influenza bacilli are the causative agent, they present no real evidence." I have published no dogmatic opinion concerning the relationship of *Bacillus influenzae* to the disease because I have not believed that the data available justified a definite conclusion. The report of the commission of which I was a member (The Journal, Feb. 22, 1919, p. 556) contains evidence that *Bacillus influenzae* has been found in every instance of influenza which the commission studied by appropriate methods; but the significance of this observation is not discussed in the report. Dr. Park says: "They place the sequence of events as follows: At the time of infection, *B. influenzae* descends into the bronchi; later, pneumococci may invade the inflamed bronchi," etc. This statement doubtless paraphrases the following: "The sequence of events in many cases of influenza is as follows: *B. influenzae* descends into the bronchi; pneumococci invade the inflamed bronchi," etc. There is, here, no reference to the etiology of influenza; the bacteriology of the bronchitis and pneumonia of influenza is under discussion. Dr. Park dismisses with a few words the complex subject of influenza bacillus carriers. With the many defects in present knowledge of the micro-organism and of the disease, an expression of opinion concerning the relation of one to the other would require obvious qualification. It is the purpose of this letter to state that the conclusion which Dr. Park finds so assailable is inferred from the report by himself and is not mine.

E. L. Opie, M.D., St. Louis.

IS GONORRHEA INCURABLE?

To the Editor:—The doctrine that gonorrhea in the male is incurable seems, for certain reasons, to be gaining ground among physicians and laymen alike. As one of those who dissent from this belief—which, if erroneous, is fraught with harm—I desire to emphasize the distinction between *incurable* and *uncured*.

To physicians of the last generation gonorrhea was a "urethritis" only; invasions of extra-urethral structures were "complications." So long as pus issued from the meatus it was assumed to be produced in the urethra; and this innocent canal was tortured with caustics, dilators, knives and urethroscopes without avail. Today we know that the disease is usually urethrovesiculitis, the infection invading vesicles and ampullae in from three to twenty days after the discharge appears; and that from these extra-urethral cavities pus may drain into the urethra and out of the meatus for two or twenty years in spite of any or all treatment of the urethra; for this merely mops up the floor, the urethra, without turning off the faucets, the vesicles.

These numerous cases are uncured but not necessarily incurable; for there is now ample evidence from many sources that a single filling of the vesicles with collargol solution (by vasotomy) has promptly cured many of them. Failure to cure some by one injection has led to the evolution of vasotomy into vas-puncture, analogous to puncture of a vein, whereby the vesicle can be repeatedly filled without the drawbacks of an operation. The possibilities of such treatment were illustrated by a man in the third week of severe gonorrhea whose vesicles were filled with collargol solution in St. Luke's Hospital, in April, 1914. He was apparently well on the fifth day thereafter, submitted seminal fluid found to be free from gonococci on the ninth day, and married his nurse on the fifteenth day after operation, without subsequent evidence of gonorrhea in either person.

The ancient belief in the incurability of gonorrhea, based on the obsolete idea that the disease is urethritis only, seemingly needs revision by the modern demonstration that acute gonorrhea is commonly urethrovesiculitis, requiring early treatment of vesicles as well as of urethra.

William T. Belfield, M.D., Chicago.

DEATH FROM RHUBARB LEAVES DUE TO OXALIC ACID POISONING

To the Editor:—I enclose herewith a case history reported by Dr. Harry J. Robb of Broadview, Mont. I should be interested in having your opinion on Dr. Robb's diagnosis of this case.

John J. Sippy, M.D., State Epidemiologist,
Helena, Mont.

On the morning of May 6, Mrs. A. made breakfast, but at the time did not feel well. She then went to bed where she remained. She began to have cramplike pains in the abdomen during the forenoon. These pains continued intermittently all day until 12:30 a. m., May 7.

I was called to see her, and arrived at her home, 20 miles away, at 1:30 a. m., May 7. At that time she was very weak and pale, and so drowsy that it was difficult for her to answer any questions intelligently.

Her temperature was normal. The respirations were 36 a minute. The radial pulse could not be felt. The heart beat was 120 a minute. The extremities were cold. She could keep nothing in her stomach, and vomited a brown, bloody fluid. I found the complete products of conception of about six weeks' development, discharged into the bed. The placenta was bloodless, and a small amount of blood discharged with it did not coagulate after several hours.

Heat to the body and stimulants gave no improvement, and her condition continued to become worse until her death, a few hours later.

After death there was considerable bleeding from the nose. This blood failed to coagulate.

I learned from Mr. A. that she had not taken any drugs except a couple of acetylsalicylic acid tablets, which she took that day for her pain.

May 5, Mrs. A. prepared some rhubarb for supper. The leaves were fried for greens and the stalks were boiled. She ate most of the leaves herself and seemed to relish them. Mr. A. took a spoonful of the leaves, but preferred the stalks.

Mr. A. said he felt weak and sometimes dizzy, May 6. Mrs. A. had been in good health previous to this illness.

The leaves and root of the rhubarb plant have a content of oxalic acid in the form of oxalates, the dried roots containing as high as 40 per cent. What the content in the leaves is, I do not know.

The marked exhaustion, the vomiting of bloody material, early cardiac failure, the early termination of illness in death, and especially the absence of coagulation of the blood in the case of a person who had been perfectly well apparently, thirty hours previous to death, led to my conclusion that death was due to poisoning from the oxalic acid contained in the leaves of the rhubarb eaten.

I shall gladly answer any additional questions you may wish to ask, and would appreciate very much to hear your decision in the case.

H. F. Robb, M.D.

Comment.—It seems probable that the case reported by Dr. Robb is one of oxalic acid poisoning as a result of ingesting a relatively large amount of rhubarb leaves. Both the leaves and stalks of rhubarb contain salts of oxalic acid, but the amount is greater in the leaves. A number of deaths from the use of the leaves have been reported; as far back as seventy-five years ago its toxic effects were noted. During the war the use of the leaves as a food substitute was encouraged in England; when the danger of fatal poisoning became apparent (owing to several deaths), warnings were issued against the use of the leaves. The small quantities of oxalates which occur in the stalks are seemingly ineffective in the quantities ordinarily eaten. Oxalic acid and the oxalates produce local irritation and corrosion; "in addition they produce violent stimulation and later paralysis by depriving the tissues of their calcium through precipitation" (Sollmann, Pharmacology, 1917, p. 691). The symptoms are usually those of collapse, possibly preceded by convulsions. The nephritis produced by oxalic acid was discussed editorially in The Journal, June 16, 1917, p. 1820. The chemical antidote would be the administration of calcium.—Ed.]

The following references may be consulted:

Oxalic Acid in Foods, editorial, The Journal, Nov. 17, 1917, p. 1699.
Poisoning from Rhubarb Leaves, The Journal, June 30, 1917, p. 1954.
Death from Eating Rhubarb Leaves, London Letter, The Journal, June 23, 1917, p. 1978.
Maillart: Poisoning from Rhubarb Leaves, *Rev. Méd. de la Suisse Rom.*, June, 1917.
Poisoning by Rhubarb Leaves, *Lancet,* **1**: 847, 1917.
Rhubarb Poisoning by Leaves, *Pharm. J.* **98**: 413, 1917.
M. L. J.: Severe Poisoning Apparently Due to Eating Rhubarb, *Lancet* **1**: 1110, 1915.
Fry, H. J. B.: The Decalcifying Action of Oxalic Acid Illustrated by Three Cases of Poisoning, *Lancet* **2**: 220, 1913.
Brown, O. H., and Scott, W. G.: Oxalic Acid Poisoning, The Journal, April 27, 1912, p. 1280.

CONTROL OF BITES OF LEPTUS AUTUMNALIS, OR MOWER'S MITE

To the Editor.—Having had some experience with *Leptus autumnalis,* harvest bug, or mower's mite, last fall, I thought some one might be able to profit by a treatment for this most disagreeable insect's bite which I accidentally discovered. The mite was very prevalent in our neighborhood, and was found for some time in the hay. Men working about the barns, feeding stock, were badly bitten. The insect burrows under the skin and makes an extremely itchy area surrounding the point of entrance. Having tried all the remedies spoken of in available books, to no relief, I used kerosene to remove some very greasy ointment which had been applied with no results. Immediate relief followed the application of the kerosene. Later, I found that if a person washed the parts affected with a cloth wet in kerosene as soon as the first itching was noticed, or before the mite had penetrated the flesh deeply, the mite was killed and no further trouble resulted. Men handling the hay at chore times found it a good plan to change the clothing immediately afterward and wash the body quickly with the kerosene. This prevented the mite's burrowing. For a time these mites were so bothersome that they would incapacitate a man. The extreme itching would render sleep impossible, and the resulting scratching would not improve the condition.

Nina Allen Gird, M.D., Bonsall, Calif.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE USES OF YEAST

To the Editor:—Is there available information concerning the medicinal use of yeast? How is it taken? I should like to know whether the use of it would cause any digestive disturbance, and whether the flesh gained is normal and permanent. S. E. L., Bridgeport, Conn.

Answer.—Yeast is one of those remedies that have undergone alternating cycles of use and of disuse; just at present it appears again to be in its ascendency. No doubt, the reason for these cycles has been excessive praise and uncritical use, followed by disappointment and consequent discard.

Hawk and his associates (Hawk, P. B.; Knowles, F. C.; Rehfuss, M. E., and Clarke, J. A.: The Use of Bakers' Yeast in Diseases of the Skin and of the Gastro-Intestinal Tract, The Journal, Oct. 13, 1917, p. 1243) have recently called renewed attention to its laxative qualities. When from one-half to one cake of yeast was given three times daily before meals, it produced regular bowel movements in a number of patients suffering from constipation. That this result is not due to any vital processes in the yeast is shown by the fact that yeast killed by boiling water was employed with success. It is suggested that such yeast might be preferred for patients troubled with flatulence. Aside from the tendency of living yeast to produce diarrhea, and the possibility that it may aggravate flatulence, no digestive disturbance has been charged against it. Aaron, in his "Diseases of the Digestive Organs," speaks favorably of its use in atonic constipation.

The much debated question whether yeast may serve as a food can be answered in the affirmative in view of such work as that of the Germans on "Nährhefe"—yeast food (Schottelius, *Deutsch. med. Wchnschr.,* July 8, 1915, p. 817) and Boruttau (*ibid.,* July 29, 1915, p. 924) and of Hawk and his associates. There is no reason to assume that weight gained under its use would be more readily lost than weight gained from any other food. However, in view of its laxative action, the average individual can ingest only from 1 to 2 gm. of nitrogen a day in this form. This obviously greatly limits its value as a food. Owing to its high nuclein content, it is contraindicated in gout.

As a source of water soluble growth promoting as well as antineuritic vitamin, yeast has become thoroughly established as the result of the recent works of numerous investigators. However, as such common foods as milk, rice, wheat, oats and beans also contain such vitamin, there is little likelihood of its proving of therapeutic value on that account. In other words, yeast and other vitamin containing foods have specific growth promoting qualities only when the stunting is due to lack of vitamin. A minute amount of this substance suffices to produce maximal results. More is of no use. Hess (*Proc. Soc. Exper. Biol. & Med.* **13**:145, 1916) found yeast of no value in infantile scurvy.

The most important question in connection with yeast therapy is to what extent it is endowed with "antibiotic" power, that is, to what degree it is capable of inhibiting the growth of other organisms. That this frequently occurs in cultures in vitro is shown by the fact that yeast contamination may practically eradicate the growth of certain other organisms. That, on the other hand, this is not true for all forms of bacterial life is shown by the fact that there is definite symbiosis between yeast and lactic acid bacilli (Northrup: *Soc. Tech. Bull.* 15, Mich. Agr. Exp. Sta., 1912).

That its "antiseptic power is, on the whole insignificant" has been shown by Palier (*Diet. & Hyg. Gaz.,* March, 1906), who found commercial yeasts commonly contaminated with numerous bacteria, the most frequent being *Bacillus coli-communis* or one of its congeners. An antagonistic action by yeast is claimed against *Staphylococcus pyogenes,* and on the strength of this, Buchholtz (Ueber Acne und eine neue erfolgreiche Behandlung derselben, *Berl. klin. Wchnschr.,* Feb. 2, 1914, p. 215) employed it locally in the treatment of acne and obtained a positive but temporary effect. He believes that the effect is improved by the combination of yeast with an equal quantity of boric acid. He employed this as a dusting powder applied freely to the skin once daily, after the application of a thin layer of a boric acid salve (boric acid powder from 40 to 50, glycerin and water, of each 100) to make it stick better. In cases in which the nose was markedly involved, he also used this as a snuff. Yeast poultices have been employed with asserted great benefit in the treatment of wound infection of all kinds (Kempf, E. J.: *Ind. M. J.,* September, 1904, p. 97).

The use in leukorrhea was recommended by Hippocrates. Abraham (*Mon. Geb. Sym.,* 1910) and many others report favorable results from yeast in the treatment of gonorrheal vaginitis. In various gastro-intestinal infections, yeast has been lauded by many, among others, Thiercelin and Chevrey. It has been given by mouth, but most especially in high rectal enemas.

Still more from a theoretical standpoint is the reassertion of the curative value of the oral administration of yeast in various cutaneous disorders. Thus Hawk and his collaborators report cure or improvement in all of seventeen cases of acne vulgaris and eight cases of acne rosacea. They also report seventeen cases of furunculosis, in all but one of which there was cure or improvement from yeast treatment. They are unable to decide whether the result is due to the laxative action, the production of leukocytosis, or to other influences.

Yeast is probably best taken incorporated in food. Hawk and his associates found that yeast may well be incorporated in wheat biscuits, and that in this way a yeast-wheat combination of most agreeable flavor was produced: that, in fact, the biscuits with the yeast tasted better than those without it. They found by tests that in bread making as much as 20 per cent. of the flour might be replaced by dry yeast, and that thereby a loaf would be produced that was excellent in very way and possessed of an attractive flavor. The dry east was prepared by desiccating compressed yeast at 105 C. n a current of air, and then milling it to produce a flour of he approximate fineness of ordinary wheat flour. They also ound that yeast may be added to meat preparations, such as Hamburger steak, to the extent of 2.5 per cent., yielding a preparation of very satisfactory taste.

REMOVAL OF FRECKLES

To the Editor:—Is there any successful method of removing freckles? A patient of mine has some very large ones, quite unsightly. How about salicylic acid which is used in corn remedies?

Hubert H. Johnson, M.D., Detroit.

Answer.—There is no sure cure for freckles. In time they usually disappear. But sometimes it is possible to eradicate hem. Authorities differ as to the best method. Some favor diluted solutions of acids; others, alkalis. Many formulas have been suggested which are exceedingly dangerous; in fact, the death of one young woman who used a mixture recommended in a newspaper has been recorded. Among other things, mercuric chlorid, peroxid creams, horseradish, buttermilk and zinc salts have been suggesed. Sutton suggests as "the most efficient remedy for the temporary removal of the eruption" a mixture of mercuric chlorid, 1 part; alcohol, 25 parts, and water 74 parts. The affected areas are rendered free from oil by the use, twice daily, of benzin and he mercury lotion dabbed on by means of a small swab every five or six hours. As a result, a mild exfoliative dermatitis occurs and the lesions peel off. Care should be aken to avoid an acute dermatitis. If excessive irritation occurs calamine lotion or cold cream may be applied. Pusey suggests a lotion containing mercuric chlorid, 1 grain; zinc sulphate, 5 grains; tincture of benzoin, alcohol and water, each, 3 drams. He also suggests that the lesions may be reated more vigorously by the application of a paste conaining from 5 to 20 per cent. of salicylic acid, alone or combined with an equal quantity of resorcin. This, of course, ets up an active inflammation and should not be trusted to a patient to use alone, but should be permitted only under he care of a physician. It may be stated that the prompt ecurrence of freckles cannot be prevented ordinarily except by careful avoidence of exposure to light. This is usually oo great a price to pay for relief.

SNAKE VENOMS

To the Editor:—May I ask where I can obtain information on snake venoms, especially of the "poisonous" snakes of North America? I know there has been considerable work done in Brazil along this line.

W. T. P., Kingston, N. C.

Answer.—The following references may be consulted:

Aievoli, E.: Immunization Against Snake Venoms, *Riforma Med.* **34**: 674 (Aug. 24) 1918.

Kubota, S.: Experimental Study of Venom of Manchurian Scorpion, *J. Pharmacol. & Exper. Therap.* **11**: 379 (June) 1918.

McCulloch, C. C., Jr.: Snake Poisoning, or Ophidismus, *New York M. J.* **107**: 1 (Jan. 5) 1918.

Gaggette, A. S.: Treatment of Snake Bites, *Penn. M. J.* **20**: 838 (Sept.) 1917.

Coughlan, J.: Some Insects and Reptiles on the Mexican Border, The Journal, May 26, 1917, p. 1549.

Welker, W. H., and Marshall, J.: Antitoxin Action of Rattlesnake Serum on Rattlesnake Venom with Percentage of Total Solids of Serum and Bile, *J. Pharmacol. & Exper. Therap.* **6**: 563 (July) 1915.

Fox, J. C.: Treatment of Bites by Venomous Snakes, *Brit. M. J.* **1**: 632 (April 10) 1915; Abstr. The Journal, May 8, 1915, p. 1616. Facts About Rattlesnake Venom, Current Comment, The Journal, June 26, 1915, p. 2144.

Acton, H. W., and Knowles, R.: Treatment of Snake Bite, *Indian J. M. Res.* July, 1914.

Bannerman, W. B.: Treatment of Snake Bite with Potassium Permanganate, *Indian J. M. Res.* July, 1914.

Kyes, P.: Venom Hemolysis, *J. Infect. Dis.* **3**: 181, 1910.

Willson, P.: Snake Poisoning in the United States, *Arch. Int. Med.* **1**: 516 (June) 1908.

ELIMINATION OF ANTS

To the Editor:—In The Journal, August 2, I noticed that Dr. Brandon, Essex, Mo., objects to the prolonged visiting of numerous ants that have been camping on him until forebearance loses its virtue. The best thing I have found is a solution of tartar emetic, sweetened. Watch for the first vanguard, put out the delectable food, and then you an be at peace.

George F. Beasley, M.D., Lafayette, Ind.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.

Colorado: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Hawaii: Honolulu, Sept. 8-10. Sec., Dr. J. R. Judd, Honolulu, Hawaii.

Idaho: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.

Illinois: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.

Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.

Massachusetts: Boston, Sept. 9-11. Sec., Dr. Walter P. Bowers, State House, Boston, Mass.

Minnesota: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.

Montana: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

New Hampshire: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.

New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.

Oklahoma: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

UNIVERSITY OF PERU SCHOOL OF MEDICINE, LIMA, PERU

The complete course prescribed for medical education in Peru consists of ten years of elementary and secondary education followed by two years in the natural sciences and seven years in the study of medicine. According to the plan of the medical course, descriptive, pathologic and topographic anatomy are studied through all of the first four years, clinical surgery in the first and second, and clinical medicine in the third, fourth and fifth years. The second year includes analytic chemistry and pharmacology, followed in the third and fourth by human physiology, bacteriology and symptomatology. Nosology is given in the fourth and fifth years. In addition to the courses already named, the fifth year includes therapeutics, materia medica, clinical therapeutics, clinical otorhinolaryngology and urology. The sixth year is given to obstetrics, public health and international hygiene, ophthalmology, dermatology, syphilography, tropical diseases and clinical surgery. During the last year the student devotes his time to legal medicine and toxicology, pediatrics, nervous and mental diseases and practical exercises in legal medicine, toxicology, gynecology and clinical medicine. Practical exercises in the laboratories and botanic gardens are required especially in the first four years. Licenses are secured by passing a series of five examinations covering all of the work done in the seven years. The examinations are said to be quite severe, and the rules are very strict concerning absences from classes and practical exercises in the clinics, wards and laboratories. The total fees for examination are approximately $500. All candidates must present a certificate of vaccination. Graduates of medical schools outside of South America are required to pass an examination in the Spanish language. By special agreement, graduates of medical schools in South America are privileged to practice medicine in any part of South America without special permission being required. Inquiries should be directed to the dean of the Faculty of Medicine, University of Lima, Peru.

MEDICAL EDUCATION AND PRACTICE IN CHINA

Under the influence of several American and other missionary boards and by the aid of such prominent American medical schools as Harvard, Yale and the University of Pennsylvania, and with the generous financial assistance of the China Medical Board, which was organized by the Rockefeller Foundation, there has been great medical progress in China in recent years, and there are twenty-six medical schools in China. Five of these at present are members of the Association of Medical Colleges of China. Membership in this association is limited to colleges, which provide a four year medical course, and which require for admission two or more years of college work, including courses with laboratory work in physics, chemistry and biology.

Two practically new medical schools, including premedical departments, are being erected at Peking and Shanghai by the China Medical Board of the Rockefeller Foundation. These are the Peking Union Medical College and the Shanghai Medical School. The plan is to make these equal to any other medical schools in the world in buildings and equipments, as well as in hospital facilities and in educational standards.

The Rockefeller Foundation is also aiding financially other medical schools in China, particularly the Shantung University School of Medicine at Tsinan, The Hunan-Yale College of Medicine at Changsha, and the medical schools at Nankin, Canton, Soochow and elsewhere.

A strong appeal is still being made for medical missionaries. In China, with an estimated population of more than 4,000,000 people, including Manchuria and Mongolia, there are said to be at present only 2,000 scientifically trained physicians. It is stated that at the end of 1917 there were 351 foreign medical missionaries who had working with them 212 foreign physicians. During that year these physicians cared for about 120,000 hospital inpatients. Although large, these figures do not begin to touch the great needs of medical service in that country.

All civilized nations, indeed, are interested in helping to provide better medical service in China for the sake of their own people, if not for the sake of the Chinese, because China is at present the source of many of the epidemics which are liable to sweep over the entire world. It is for the medical practice of the entire world to combat disease wherever it is found by checking it at its very source.

If any physician would prefer to have a large practice regardless of the financial income involved, he would have no difficulty in securing it in China, where there is indeed great need of skilled medical service.

THE IDAHO ADMINISTRATION CONSOLIDATION LAW

By the administration consolidation law, taking effect March 31, 1919, Idaho abolished a large number of administrative boards, bureaus and other separate governmental agencies, merging them into nine departments of the state government, namely, Agriculture; Commerce and Industry; Finance; Immigration; Labor and Statistics; Law Enforcement; Public Investments; Public Welfare; Public Works, and Reclamation. Each department is headed by a commissioner, who, together with the necessary assistants in each department, is appointed by the governor. Each commissioner receives a salary of $3,600 a year and is required to give bond in a sum of not less than $5,000, except the commissioner of commerce and industry, whose bond is fixed at $50,000.

All of the officers are removable at the discretion of the governor except some who, by provisions of the constitution, are appointed for a specified term. Each department maintains a central office in the state capitol, and such branch offices as are considered necessary by the governor. Each department adopts an official seal and prescribes rules for the performance of its business and the conduct of its employees. The act requires each commissioner to make a full report to the governor at the end of each year, and provides for cooperation between the departments. The Idaho administration consolidation law is similar in many respects to the Illinois civil code of 1917. The department which corresponds to the Department of Registration and Education in Illinois is that of Law Enforcement. Some of its duties are to administer the laws regulating the practice of medicine, dentistry, pharmacy, nursing, embalming, veterinary medicine, osteopathy and optometry. It also has charge of the registration of accountants, architects and surveyors, and the enforcement of the laws regarding hunting and fishing and the registration of motor vehicles.

Wherever the several laws regulating professions, trades and occupations so require, the Department of Law Enforcement is given the following powers:

To conduct examinations to ascertain the qualifications and fitness of applicants to exercise the profession, trade or occupation for which an examination is held; to pass on the qualifications of applicants for reciprocal licenses, certificates and authorities.

To prescribe rules and regulations defining, for the respective professions, trades and occupations, what shall constitute a school, college or university, or department of a university, or other institution, reputable and in good standing, and to determine their reputability and good standing, by reference to a compliance with such rules and regulations.

To establish a standard of preliminary education deemed requisite for admission to a school, college or university, and to require satisfactory proof of the enforcement of such standard by schools, colleges and universities.

To conduct hearings on proceedings to refuse licenses to persons in the respective professions, trades or occupations, and to revoke or refuse to renew such licenses.

To formulate rules and regulations when required in administrating any of the professions, trades or occupations.

None of the above enumerated functions and duties shall be exercised by the department except on the action and report in writing of persons designated from time to time for that purpose by the commissioner of law enforcement.

For the medical practitioners, six reputable physicians who are graduates of reputable medical colleges and who are licensed to practice medicine and surgery in Idaho, a majority of whom shall not be representative of any one school of medicine and among whom three schools of medicine shall be represented.

The action or report in writing of a majority of the persons designated for any given trade, occupation or profession shall be sufficient authority on which the commissioner of law enforcement may act.

In making the designation of persons to act for the several professions, trades and occupations, the commissioner shall give due consideration to recommendations by members of the respective professions, trades and occupations and by organizations therein.

Whenever the commissioner is satisfied that substantial justice has not been done either in an examination or in the revocation of or refusal to renew a license, certificate or authority, he may order reexamination or rehearings by the same or other examiners.

MEDICAL EDUCATION AND LICENSURE IN COLOMBIA

The A.B. degree is a prerequisite to the study of medicine in Colombia, this degree being granted at the end of the Colombian secondary school course. The medical course covers six years of study, the first two years of which are devoted to practically the same studies as a regular two year premedical course commonly given in liberal arts colleges in the United States, except that anatomy is begun in the second year. In addition to anatomy in the third and fourth years, the student gets general and clinical pathology and surgery on the cadaver. This is followed by a year in practice of medicine, internal pathology, dermatology and ophthalmology. The last two years are given to the study in clinics of external pathology, obstetrics, gynecology, urology, hygiene, legal medicine and psychiatrics. Along with the examination at the end of the fourth year the student takes a review examination on the first year's work, and likewise at the end of each succeeding year he is examined on the work both of the year just closed and also on that of the work done three years before.

The M.D. degree with license to practice is obtained by taking a clinical examination and submitting a thesis on some medical theme of public importance. Any foreign candidate for license is required to present his diploma, with photograph attached, certified by a Colombian consul or diplomatic officer in the country in which the diploma was issued. He will then pass an examination which will include clinics in a hospital.

Book Notices

Lice and Their Menace to Man. By Lieut. LL. Lloyd, R.A.M.C. (T.), Chief Entomologist in Northern Rhodesia. With a Chapter on Trench Fever, by Major W. Byam, R.A.M.C. Cloth. Price, $2.75. Pp. 136, with illustrations. New York: Oxford University Press, 1919.

Recent war experiences have served to add to our knowledge of the rôle played by the insects in the transmission of disease. As a result of the Spanish-American War, we discovered that yellow fever was transmitted exclusively by mosquitos and that flies might under certain conditions be one of the chief agencies in the spread of typhoid fever. During the present war attention was focused on the menace of lice and an opportunity was offered to clarify and increase our knowledge. The author of this little book has aimed at presenting in a concise and readable manner the data accumulated in regard to various kinds of lice, their etiologic relations to various diseases and the methods found most successful for their extermination. In his avowed task of writing "for the general reader rather than for the specialist" he has succeeded quite well, and his book can be recommended to those wishing brief and yet accurate and practical information in this important public health subject. Unfortunately the manuscript seems to have been prepared too soon to include, in the chapter on trench fever, the thorough and brilliant study by the Trench Fever Commission of the Medical Research Committee, American Red Cross.

Mortality Statistics of Insured Wage-Earners and Their Families. Experience of the Metropolitan Life Insurance Company Industrial Department, 1911 to 1916, in the United States and Canada. By Louis I. Dublin, Ph.D., Statistician, with the Collaboration of Edwin W. Kopf, Assistant Statistician, and George H. Van Buren, Supervisor, Statistical Bureau. Cloth. Pp. 397. New York: Metropolitan Life Insurance Company, 1919.

This publication covers 635,449 deaths of persons more than 1 year old occurring in the experience of the Metropolitan Life Insurance Company from 1911 to 1916. Of these deaths, 82 per cent. were of white persons and 18 per cent. of colored. The data should be of special interest in that they cover a geographic range more extensive than that of the death registration area of the United States. The tables include number and percentage of deaths, by causes, with corresponding rates, and mortality from all causes of death combined and from the principal specific causes, by color, sex and age.

Compiled with great care and covering the mortality experience of this large insurance company in practically all parts of the United States, this publication, showing the downward trend of mortality of insured wage earners from 1911 to 1916, is filled with analyses which are sure to prove valuable to public health workers.

Interesting comparisons are made between the death rates of the United States registration area for deaths and the death rates of the Metropolitan Life Insurance Company. Such comparisons by sex (age and color have been made easy for the reader by the free use of percentage tables. For the most part the death rates of the general population of the registration area do not differ greatly from the death rates of the insured policy holders; but when marked differences do exist, the writers have carefully analyzed the figures and given plausible explanations. For instance, a comparison of the mortality of wage earners and of the general population shows no marked difference in the rates below 25 years. "Beginning with the age group 25 to 34 years and thereafter there is, however, a marked excess in the rate of mortality among insured male wage earners over that among males in the general population. At these age periods, the special stresses of adult life and of employment in arduous labor make themselves felt in the mortality experience of males in an industrial life insurance company." Further analyses show that this increased mortality among male wage earners was largely due to tuberculosis of the lungs, organic diseases of the heart, pneumonia and Bright's disease.

A special chapter is devoted to tuberculosis, detailed figures being given for the various forms of this disease. Higher rates from tuberculosis of the lungs in age periods below 20 years appear for females, but for all later age periods the rates for males exceed those for females. Of particular interest are the extremely high rates of colored persons, which in several instances are several times the rates of white persons of corresponding ages. For boys from 10 to 14 the rate for the colored (110.4) is eleven times as high as that (9.8) for white persons.

Other special chapters appear for organic diseases of the heart, pneumonia, Bright's disease, external causes of death (accident, suicide and homicide), cancer, cerebral hemorrhage and apoplexy, four principal diseases of childhood (measles, scarlet fever, whooping cough and diphtheria), diarrhea and enteritis, and diseases and conditions incidental to the maternal state, while other causes of death are treated more briefly in other chapters.

The report has a supplement showing mortality statistics of insured wage earners for the year 1917, and, finally, a brief chapter deals with standardized or corrected death rates.

The mass of data presented in this work is an important addition to American vital statistics, and the authors are certainly to be congratulated.

Thirtieth Annual Report of the New York State Hospital Commission, 1918. Cloth. 1919.

This report constitutes a well classified collection of data pertaining to all phases of the care of nervous and mental patients in institutions. Statistical tables arranged according to psychoses and reports of scientific research, prevention work, reeducation and after-care make the report valuable not only to those engaged in similar work but also to all students of social and social-medical problems. The cost of personal services and maintenance and operation of the thirteen state hospitals in New York State for the year ending June 30, 1918, was $9,480,808.17. The total number of inmates, June 30, 1917, was 36,138. There was adequate space for only 28,997 patients. A chart of the percentage of increase in the cost of living indicates that from 1914 to 1918 the cost of food went up 83 per cent. and the cost of fuel and light 63 per cent. The per capita cost of maintenance for the same period increased 27 per cent.

What We Know About Cancer. A Handbook for the Medical Profession. Prepared by a Committee of the American Society for the Control of Cancer and Published Jointly by the American Society for the Control of Cancer and the Council on Health and Public Instruction of the American Medical Association. Paper. Pp. 54. Chicago: American Medical Association, 1918.

This pamphlet has been issued under the auspices of the American Society for the Control of Cancer and the Council on Health and Publication of the American Medical Association. It presents a condensed summary of the best modern knowledge and practice in the early diagnosis and treatment of the principal forms of cancer, and of conditions which may precede its development. Those desiring a brief, up-to-date summary of this important subject will find that the pamphlet fills the purpose quite satisfactorily.

The Redemption of the Disabled: A Study of Programmes of Rehabilitation for the Disabled of War and of Industry. By Garrard Harris, Research Division, Federal Board for Vocational Education. With an Introductory Chapter by Frank Billings, Colonel, Medical Corps, United States Army; Chief of the Division of Physical Reconstruction, Office of the Surgeon-General, and a Foreword by Charles A. Prosser, Director of the Federal Board for Vocational Education. Boards. Price, $2 net. Pp. 318, with illustrations. New York: D. Appleton & Co., 1919.

June 27, 1918, the vocational rehabilitation act became a law. It provides that every person discharged from the Army or Navy and entitled to compensation under the war risk insurance act who is in the opinion of the federal board for vocational education unable to carry on any gainful occupation, to resume his former occupation or, having entered such occupation, is unable to continue it successfully" shall be furnished such a course in vocational rehabilitation as the board may provide. Mr. Harris, the head of the research division of the federal board of vocational education, tells in this book most interestingly what were the needs that led up to the passage of the law, what were the experiences of our allies in reconstructing the human war wreckage, and what is being done to carry out the provisions of the law in the country. Especially interesting is the chapter on the pension system hitherto followed by our government, and the contrast between indiscriminate pension and economic rehabilitation. In the introduction, Col. Frank Billings, chief of the Division of Physical Reconstruction, Surgeon-General's Office, U. S. Army, tells of the organization and work of this division and the steps that have been taken for reconstruction in the Army. The book is copiously illustrated and is an exhaustive discussion of a timely subject.

Medicolegal

Duty to Provide Prompt Emergency Treatment

(*Fontanella v. New York Cent. R. Co. (N. Y.), 174 N. Y. Supp. 537*)

The Supreme Court of New York, Appellate Division, First Department, expresses a willingness to affirm a judgment in favor of the plaintiff, provided he is willing to reduce the verdict in his favor from $20,000 to $12,000, in this action that was brought, not for the original injury, but for the injury alleged to have arisen from the neglect of the defendant to provide prompt emergency treatment, by reason whereof the plaintiff's leg was necessarily amputated. The court says that while the plaintiff, a foreman for the defendant, was at work at a manhole, the cover of the manhole fell on him and broke his leg. That was between 9:30 and 9:45, or very near that time, in the morning. He was taken to an emergency hospital which the defendant had established, reaching it just after 10 o'clock. The physician whose duty it was to be there at that time had not arrived, having been delayed by the failure of his motor car. The assistant station master, who seemed to have charge, telephoned for him and found that he was not in his office, then tried to get another of the company's physicians, and finally telephoned to another hospital for an ambulance to take the man to that hospital, the assistant station master testifying that that message was sent between 10:20 and 10:30 a. m., while the surgeon connected with the other hospital, who came for the plaintiff, swore that the message was not received until after 11 o'clock. The testimony in the case further showed that, immediately on the happening of such an accident, infection sets in; that a wound with this liability to infection requires prompt, if not immediate, emergency treatment, and that the delay of only a few minutes may permit the development of that infection to such an extent as to require the amputation of the limb to save the patient's life. The evidence of the defendant's physician second sought was that he arrived at the hospital at 10:49 and gave to the plaintiff the necessary emergency treatment within a few minutes thereafter; but it seemed that the surgeon of the other hospital was there with the ambulance at nearly the same time, and immediately after the emergency treatment the plaintiff was taken to that hospital. The jury found, on what the court must deem was sufficient evidence, that the delay of approximately an hour at the emergency hospital permitted the infection so to develop that it became necessary, by reason thereof, to amputate the plaintiff's leg. It also found that the defendant had not used reasonable care in providing prompt emergency treatment. For the negligence of the first physician in failing to get to the emergency hospital the trial judge correctly charged that the defendant was not liable. The liability found by the court below was placed on the negligence of the assistant station master in charge of the emergency hospital in failing for an hour to send for an ambulance from the other hospital. A corporation must always act through its agents, and public policy would seem to require that in the providing of prompt service, when prompt service may be vital to the welfare of the patients, as well as in the providing of competent surgical and nursing attention, such an institution is under the duty to use reasonable diligence. Such a duty is not one that can be delegated, but is one which rests primarily and always with the institution, and for the negligence of the assistant station master in failing to provide prompt emergency treatment in this case the defendant was properly held responsible.

Provisions Construed as to Physicians Testifying

(*State v. Miller (Wash.), 178 Pac. R. 459*)

The Supreme Court of Washington reverses a judgment of conviction of the defendant of taking indecent liberties with the person of a girl under 18 years of age, on the ground that the trial court erred in permitting a physician to testify, over objection, that he treated the defendant for gonorrhea shortly before the time of the alleged commission of the offense, which testimony was introduced by the prosecution as tending to show that the defendant had communicated that disease to the girl, there being other testimony tending to show that she had become afflicted with it about the time of the alleged commission of the offense. The court says that the state statutes provide that:

> "A regular physcian or surgeon shall not, without the consent of his patient, be examined in a civil action as to any information acquired in attending such patient, which was necessary to enable him to prescribe or act for the patient."—Section 1214, Rem. Code.
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> "The rules of evidence in civil actions, so far as practicable, shall be applied to criminal prosecutions."—Section 2152, Rem. Code.
>
> "Witnesses competent to testify in civil cases shall be competent in criminal prosecutions, but regular physicians or surgeons, clergymen or priests, shall be protected from testifying as to confessions, or information received from any defendant, by virtue of their profession and character. . . ." Section 2147, Rem. Code.

It seems to the court that Sections 1214 and 2147 are intended to protect two different classes of persons, and are in no wise in conflict with each other. The former protects a patient from having his physician disclose on the witness stand any information acquired in attending him as such patient, which was necessary to enable the physician to prescribe for him, while the latter has reference to the protection of the physician only; that is, so far as the patient's rights are concerned, he has the right of election under Sections 1214 and 2152 in both civil and criminal cases, and so far as the physician's rights are concerned, he has the right of election under Section 2147 in criminal cases. It seems to the court highly improbable that the legislature would accord to a patient a higher degree of protection in civil actions than in criminal actions; that is, a higher degree of protection to his right of property than to his right of liberty.

Furthermore, the court thinks that a patient's consent to his physician's testifying cannot be shown solely by the testimony of witnesses concerning the patient's previous admissions or disclosures. No decision has come to the court's attention holding that such is the law. It seems to the court that the consent must be evidenced to the trial court by some word or act of the patient at the time of the trial, so that the trial court can conclusively know, without depending on the veracity of third persons as witnesses, that the patient has waived the privilege accorded to him by the statute.

It was argued that there was nothing in the physician's testimony which disclosed any communication made by the defendant to the physician, or information acquired by the physician, when he prescribed for the defendant and treated him for the disease; and it was true that there was nothing in the testimony of the physician indicating what conversation took place between him and the defendant as his patient; but manifestly there was enough in his testimony to call for the conclusion that he acquired the information as to the defendant's being afflicted with the disease, when the defendant went to him for treatment. Wherefore the court is of the opinion that this record called for the conclusion that the physician acquired the information as to which he testified, when he treated the defendant, that such information was necessary to enable him to treat the defendant, and that the trial court erred to the defendant's prejudice in permitting the physician to testify over the objection of the defendant's counsel.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Tri-State District Medical Society, Rockford, Ill., Sept. 1-4.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN ORTHOPEDIC ASSOCIATION

Thirty-Third Annual Meeting, Atlantic City, N. J., June 14-17, 1919

The President, DR. HERBERT P. H. GALLOWAY,
Winnipeg, Canada, in the Chair

Treatment of Ununited Fractures Following War Injuries

DR. FREDERICK C. KIDNER, Detroit: In war fractures, recurrent sepsis was an ever present menace; even as late as eighteen months after healing of a wound, pus pockets were found in the deep tissues. Operative treatment then in delayed union was to be avoided, except as a last resort. When all external mechanical devices to overcome delayed union have been exhausted, there still remain certain true ununited fractures. These must be treated by open surgery. Such means as careful, honest, surgical observation of long standing have shown to be consistently successful should be chosen, with regard for the torn, bruised, septic tissues of the soldier, which will not stand so much surgical insult as the healthy tissues of the civilian. The easiest, simplest operations, done in the easiest, simplest way, are the best. In fractures with little loss of substance, the removal of scar tissue, and the contact of fair sized bleeding bone surfaces, will usually suffice. A catgut or other absorbable loop will steady the ends. Sometimes a simple interlocking joint, made with mallet and chisel, is necessary to secure good contact. With loss of bone substance, the bone transplant is necessary. In large bones with good nutrition, almost any type of transplant is successful. In small bones, or in large ones with much damage, the type of graft is important. When nutrition is poor, too much grooving or insult to the medullary cavity means failure. The operation of Chutro, that is, cleaning one side of the bone fragments and insertion of a wafer of periosteum and superficial cortex removed from the tibia, between the bone and the periosteum, is the method of choice in such cases. Circulation is easily established in such a transplant, and it can survive considerable sepsis. The two-stage operation will save many disappointments in operation on ununited fractures. As the first stage, all scar tissue is removed and the field explored thoroughly. The wound is then closed tightly. If no sepsis appears, one may reopen, and do the bone operation. In cases of sepsis, wide drainage is done.

DISCUSSION

DR. WINNETT ORR, Lincoln, Neb.: Nonunion would no doubt have occurred with much less frequency if treatment had included perfect immobilization and perfect position from the beginning; but, in seeing these fractures at any stage, the first thing was to try and secure immobilization, even after the opportunity might seem to have gone by. In the treatment of fractures following injury the question arises as to whether it is better to attempt to restore extremely traumatized parts in normal position, or to allow the inflammation to subside. Jones was emphatic in insisting on securing return of parts as soon as possible to normal position. If this was not done, patients presented extraordinary difficulties later on. One never could hope for good operative position later. The problem, then, is whether to establish drainage first, or secure normal position, or both together. At Savenay all that was done was to try to maintain position and immobilization and send the patients back to the United States as fully protected as possible. One point was clearly shown: that it was necessary to abandon many of the procedures and apparatus in vogue, and this principle should be carried into civil practice. It is important that a committee be appointed to revise textbooks in regard to methods of splinting. If students can be taught a simple, practical group of methods of splinting that can be applied to all fractures under all circumstances, orthopedists will have accomplished one of the most useful results to be obtained from the war experience.

DR. DEFOREST P. WILLARD, Philadelphia: Nature can do more for the bone than the physician can. Until nature proves she can do nothing more, the physician should stay out. Operative procedures should be avoided until absolutely necessary. The best help is afforded by proper fixation and immobilization. Men have been sent home to wait for operation, on account of sepsis, and have come back later with absolutely solid union. One man who lost 2 inches of bone in the tibia was sent home for six months, and came back with an absolutely solid autogenous graft of his own. It was not known where he got it. Another important point is the preoperative care of these cases. All patients should have the benefit of hydrotherapy, massage, and active and passive exercise. Tendon transplantation can be done early and the bone graft later. In regard to the interval between time of healing of the war wounds and time of operation, some men advocate going in very early. In England they do not operate for a year, but that seems a little too long. Still, it is better to be on the safe side. The best method after a severe infection with streptococcus or gas bacillus is the two-stage operation six months after injury. The Chutro graft with nearly all periosteum, to give blood supply, is the best. The conservative, slow method of operating on fractures is best.

DR. Z. B. ADAMS, Boston: It is most important to give nature a chance. Things can be done to stimulate union of bone. Jones drew attention to the fact that hammering the site of the fracture at intervals of a week would stimulate union by causing local hyperemia. In regard to metal plates, every one is agreed that treatment by metal plates is not the best way to treat delayed union. A standardized method of treatment is best in which the bones are brought into line and held there, and function of the surrounding joints and nutrition of the muscles and soft parts are maintained. Such procedures tend to limit the number of delayed nonunions.

MR. E. W. HEY-GROVES, London, England: Dr. Kidner's general remarks on this question were correct, but there is a difference in the interpretation of results. In fracture, removal of the fragments is often undertaken as a primary step. I am rather skeptical about the osteogenic power of the periosteum. If comminuted fragments are removed immediately, there is no trace found of young bone formation. If fragments are left in position from six to eight weeks, there is formation of external callus or involucrum. Comminuted fragments are full of bone cells which are poured out on the vascular portions of the periosteum. But in case of sepsis, the little bits of bone will never have the chance to do anything at all. It is not enough to introduce raw surface of bone to raw surface and then leave it. It must be tied. It is of the utmost value to put through bolts and screws of bone, ivory, metal or wire. In regard to the employment of plaster of Paris, it is undesirable after operation to put a limb in plaster of Paris and leave it for many months; but sometimes it has to be done, and muscle function has to be restored later. Some absorption or atrophy does take place at the nuts, but that is only a preliminary stage of repair in normal fractures, and repair never begins without osteoporosis, before final osteosclerosis takes place and formation of a tube. Absorption of calcium salts is not necessarily an evil. A well fitted bone may be lifted securely and kept in place by metallic suture or bone nail or screw. In the case of the femur one can take a very fine drill and make eight or ten drill holes in the axis of the bone until every one starts to bleed. In this way one can tap the vascular and cellular resources of the bone, which will help in union. Deformity cannot be prevented by use of a plaster-of-Paris cast. The most one can do is to minimize it. It is well to put on a molded splint which can be laced on, to afford protection, and by this method one is independent of very long plaster-of-Paris immobilization.

Dr. E. W. Ryerson, Chicago: No single method of treatment is effective under all circumstances. If one does not wish to carry out the two-stage operation, one can test the limb by active massage and physiotherapy beforehand; if no reaction follows, and if the scar is losing its redness, one can perform the operation at one sitting. Even if there are symptoms of infection, one cannot keep the soldiers sitting in the hospital a year longer. On the other hand, there is the two-stage operation. It is difficult to persuade the soldier to submit to two operations in rapid succession, but most of them will stand for anything, provided there is hope of success. More light is needed in cases of nonunion of the femur with wide separation of the bones. It may be possible to put in Chutro grafts, which are as good as the intermedullary inlaid grafts.

Dr. Joel Goldthwait, Boston: When the American forces went over there, the only thing many men knew was how to put in metal plates. The surgeons thought they obtained wonderful results. Later the staff was kept busy over here picking out the plates that the enthusiasts had put in. An order then went forth that no plates were to be put in without consultation.

Dr. John Ridlon, Chicago: There are two points to be considered in the question of bone grafts and plating bones: Grafts are put in to fill in a space, and plates to fix the fragments while the bones are in contact. The bone graft for filling in space meets the problem, but there is no necessity of bone grafts for fixing fragments, which can be fixed more readily by metal plates, Metallic fixation of broken bones may leave them in a pus cavity in some instances until union takes place. It is doubtful if bone inlays will unite in the presence of a large quantity of pus. Fractures can be fastened by metal attachments; and even if suppuration occurs, union will take place and the metal can then be removed. One point does not seem to be fully clear, and that is the reason for atrophy in these bones. The metal plate has been credited with all the bone atrophy. The bone atrophy which occurs in delayed union or nonunion is due more to disuse than to any other factor.

Dr. Charles L. Lowman, Los Angeles: I am interested in the use of hammering instead of massage to stimulate growth of bone. There are, however, half a dozen different kinds of massage that can be used, whether light percussion or deep hammering, with treatment of parts distal to the injury.

Dr. Albert H. Freiberg, Cincinnati: Foreign bodies, such as plates, frequently operate as a slow cause of nonunion. Before the war, many of us had the experience of seeing fractures fail to unite until after removal of plates. The relationship of infection to nonunion is not yet perfectly understood. In my work at the Walter Reed Hospital, I found nonunion present in the presence of sequestrums. These bits of bone were left in because they had periosteal fragments and were supposed to act as osteogenic centers. It was necessary only to remove these fragments, and subsequent healing and union took place. It is not advisable to perform a plastic operation too soon. Union can be allowed to take place first.

Dr. John L. Porter, Chicago: I have used a method of attaching a bone graft to these small fragments, without sacrificing bone. The small fragment is split, and a piece taken from the tibia is chiseled and driven into the fragment, this being used as a lever and dropped in, in correct position. Thus one has a bone graft with sharply pointed end, which allows of pulling the small fragment up into position.

Dr. J. Torrence Rugh, Philadelphia: Sepsis has been considered the greatest factor in the present war, and all attention has been focused on that. The individual factor has been lost from sight. Internal secretion has a most profound influence on bone proliferation. Many of these cases of delayed or nonunion can be benefited by treatment with thyroid, or any of those glands which influence metabolism.

Experiences with Astragalectomy

Dr. Pietro Chutro, Buenos Aires, Argentina: The astragalus is so exactly adapted to the mortise that, except in certain fracture by rifle ball, any fracture of this bone gives rise to deformity which makes joint movement difficult. Often, when several joint elements have suffered injury, the cartilage, the bone fragments and the synovial membrane contribute to retention of pus. The liability of infection of neighboring tendon sheaths also indicates that astragalectomy should be instituted from the first, in order to drain the ankle-joint properly. This result, however, is not always accomplished. The immediate infection appears to subside, but after some weeks the foot remains swollen, and the wound bleeds easily and shows much granulation. Movement becomes impossible from pain and mechanical hindrance. The foot tends to remain swollen, the toes immobile and contracted, the sole convex, a tactile hypersensibility persists, and the foot is entirely useless. Under these conditions amputation becomes necessary, which, in the great majority of cases, could have been avoided earlier.

In order to prevent this unpleasant train of results, certain operative technic was undertaken, as follows: The wounds of entrance and exit were cleaned, and incision was then performed in the form of an italic *"s,"* commencing above the external malleolus, and descending along the anterior aspect of the malleolus to the line of the ankle joint, becoming then almost transverse as far as the prominence of the tendon of the tibialis anticus, and then becoming again longitudinal and descending 2 or 3 cm. Astragalectomy was then done and the foot fixed in good position. To fix the foot, a bronze wire was passed through the skin and soft parts of the inferior lip of the wound, grazing the posterior-superior border of the cuboid, and then following a recurrent path, traversing the anterior border of the external malleolus and soft parts of the other lip of the wound. The drainage tubes were placed, and the wire was twisted. Enough opening remained to allow of free drainage. If the infection had spread to the sheaths of the postero-internal tendons, débridement was done, extending to the joint. On terminating the operation, the foot was immobilized at right angles by a figure-of-eight bandage, extending from the heads of the metatarsals to the inferior fourth of the leg. Over this bandage was added a second pad of cotton, and then a new bandage, thus obtaining complete immobilization. Dressings were renewed in from fifteen to twenty days. The patient commenced to walk in the fourth or fifth week, without a crutch, leaning on the arm of a comrade, and in a few days he walked alone. Walking could be begun before complete healing of the wound. The results were very satisfactory; the shortening was negligible, and in time the patient could walk without limping.

DISCUSSION

Dr. Clarence L. Starr, Toronto: Extensive tarsal injury makes a poorly functionating foot. Removal of the astragalus provides adequate drainage, and displacing the foot backward gives a better weight-bearing apparatus than any type of amputation. Dr. Chutro is to be congratulated on the work he has done along the lines of the tarsus.

Transference of Fibula as Adjunct to Free Bone Graft in Tibial Deficiency

Dr. Willis C. Campbell, Memphis, Tenn.: I have adopted the plan of transferring the upper extremity of the fibula as an adjunct to the bone graft. All cartilage and fibrous tissue are removed from the head of the fibula, care being taken not to injure the external popliteal or peroneal nerves. Next a cavity is made in the inferior and external aspect for the reception of the denuded head of the fibula. Heavy traction places the head of the fibula within the cavity. As the final step, the inlay graft is done in the usual manner.

Diagnosis and Preoperative Treatment of Peripheral Nerve Injuries

Dr. Murray S. Danforth, Providence, R. I.: These studies were made in the Edinburgh War Hospital, in the service of Sir Harold Stiles. Diagnosis was based on history taking and routine physical examination. Single examinations were never accepted as sufficient to indicate operative measures, except possibly correction of deformities. As a rule, one examiner made all the tests. In this way possible discrepancies were noted between results of voluntary power tests and electrical responses. In case of discrepancy, the tests were reinstituted, and the reason was ascertained. Only repeated examination could indicate the probability of anatomic loss of continuity, or that recovery would not take place. The general rule, in regard to treatment, was to wait from six weeks to two months after complete wound healing before operating, and during that time to make two or three complete examinations. The preoperative treatment consisted in improving the nutrition of the muscles, correcting any deformities and restoring flexibility of the joints in the affected extremity. If no deformities were present, the muscles were protected from stretching by proper splinting. This is important. Treatment was also given by hot soaks, whirlpool baths, massage and electrical stimulation. Restoration of flexibility of joints, especially the finger joints, was the most difficult part of preoperative treatment. Elastic traction by means of various appliances was successfully carried out. Massage and passive motion were used in association.

(To be continued)

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Fourth Annual Meeting, held at Atlantic City, N. J.,
June 16-18, 1919

The President, Dr. A. McPhedran, Toronto, in the Chair

Imminent Psychology

Dr. Joseph Collins, New York: Medicine, as revealed by the war, has been found lacking more in the field of neurology than in any other field. Physicians were found incompetent to examine, interpret and treat disorders of the nervous system. Neurology has not been taught adequately to medical students in this country. Psychology has been treated by pedagogists with scorn. Alleged psychiatrists have not seen the necessity of being physicians first and psychiatrists second. Eventually admissions to college will be determined by psychologic tests and not by the knowledge the applicant possesses. The choice of a profession will be determined by psychologic examination. In pedagogy, children will be classified into groups by psychologic tests, and promotions will depend on them. Potential psychoneurotics will be recognized before incapacitating symptoms arise. Feeblemindedness will be detected.

Epidemic Encephalitis

Dr. Lewellys F. Barker, Baltimore: I have observed ten cases. This is not a new disease. It has been reported in connection with influenza epidemics. It corresponds to Folin's observations and with Strümpell's poliencephalitis of adults. This in an acute or subacute nonpurulent encephalitis or encephalomyelitis. It is different from poliomyelitis and from meningitis.

DISCUSSION

Dr. Emanuel Libman, New York: Dr. Straus and his co-workers found that there is a filtrable virus which is capable of producing in monkeys and rabbits lesions similar to those found in the human brain. The virus can be recovered from the inoculated animals.

Dr. Joseph Collins, New York: I have seen five cases with generalized tic, torticollis and dystonia throughout the entire body.

Dr. Frank Billings, Chicago: The disease existed in the epidemic of influenza of 1889 and 1890. Cases occurred during the convalescence from influenza. The worst ones were characterized by delirium and even comatose conditions, but all the patients I saw recovered.

Dr. E. A. Fousel, Philadelphia: Dr. Barker did not speak of retention of urine, which is naturally the symptom which calls the attention of the patient to the fact that he is sick.

Dr. L. F. Barker: I have not seen retention of urine, as a primary symptom, although incontinence has been reported as a symptom.

Diagnosis of Late Syphilis of Central Nervous System

Dr. Channing Frothingham, Boston: Since the opening of the Peter Bent Brigham Hospital, considerable attention has been paid to the diagnosis and treatment of syphilis of the central nervous system. As a result, lumbar puncture has been performed in practically all cases in which even a suspicion of syphilis of the central nervous system was present. Two hundred and thirty-three cases were studied. The hospital diagnoses were used and the cases grouped as tabes, general paresis, syphilis of the meninges, and cerebrospinal syphilis. In each group, except that of syphilitic meningitis, there was a definite small percentage of cases, between 2 and 5 per cent., in which neither the history nor the physical examination called the attention of the examiner to the central nervous system, even after syphilis was known to be present. These cases would have been missed as cases of syphilis of the central nervous system if lumbar puncture had not been performed. Therefore, since the lumbar puncture is not dangerous, and since it may expose syphilis of the central nervous system in which physical examination has failed to do so, and since a definite diagnosis is desired early in order to institute appropriate treatment, it seems fair to demand a lumbar puncture in all cases of old syphilis before beginning treatment.

DISCUSSION

Dr. Joseph Collins, New York: Lumbar puncture, as a means of diagnosis, is not comparable in any way with the ordinary symptoms. Syphilis of the central nervous system reveals itself in demonstrable ways, first by disturbance of the pupillary light reflexes, which never occurs in any other condition than syphilis of the central nervous system. Early lumbar puncture will not reveal syphilis of the central system as well as careful examination.

Dr. M. J. Rosenau, Boston: The Wassermann is a crude test, and in any series of cases the number of positive results may be dependent on the sensitiveness of the antigen used. Therefore, unless we standardize the Wassermann test, particularly with regard to the sensitiveness of the antigen, the interpretations may be incorrect.

Dr. Homer F. Swift, New York: I would like to call attention to the paradoxical Wassermann reaction. If one follows the reaction with the two methods—the ice box antigen and the cholesterin antigen with the warm technic—one will often find cases which will give a positive reaction with one method and a negative reaction with the other. One cannot tell which antigen is going to give a positive reaction in a given case. Results from different laboratories have often given contradictory readings because of this very fact. It is important that both methods be applied.

Findings in Three Thousand Consecutive Medical Cases with Wassermann Examinations

Dr. George Dock, St. Louis: We had Wassermann tests made in all my medical cases. No attempt was made at clinical analysis while the work was going on. We used three antigens: (1) ordinary, (2) cholesterin and (3) Noguchi. Results varied widely. In the white outpatients, positive Wassermann tests occurred in 52 per cent.; in the colored outpatients, positive Wassermann tests occurred in 48 per cent. In the tuberculosis clinic we got 23.6 per cent. positive reactions. This is in contrast to the assertion of many authorities that all chronic tuberculosis cases show positive Wassermann reactions.

Dr. Hideyo Noguchi, New York: I have been able to increase the sharpness of the reaction by using an acetone alcohol soluble antigen.

Chemistry of Blood in Scurvy, Especially Its Calcium Content

Dr. Alfred F. Hess, New York: Various chemical examinations of the blood were made in cases of infantile scurvy. These included the carbon dioxid content, urea, sugar, calcium and other constituents. The blood was found to be normal in all but two particulars. There was a slight increase in its acidity and a mild degree of acidosis. However, the more important finding was a decided decrease in calcium content. As the salt is approximately normal in rickets, this difference emphasizes the essential distinction between the two diseases. In spite of the low calcium content, the children did not show evidences of tetany nor did they have convulsions, which proves that the body has a considerable factor of safety in regard to its minimum calcium requirement.

Eosinophilic Polymorphonuclear Leukemia

Dr. H. Z. Giffin, Rochester, Minn.: The clinical characteristics noted were: splenomegaly; enlargement of superficial lymph glands, and a white count that revealed eosinophils, 73.6 per cent., and polymorphonuclear leukocytes, 24 per cent. The patient had had edema and ascites in 1911 with enlargement of the superficial lymph glands and eosinophilia. No parasites were found. He improved on medical treatment. He had a splenectomy in 1915, and apparently did well after that operation. He lived until the fall of 1918, when he died of pneumonia and empyema. Eosinophilia was constantly present. At necropsy, eosinophils were found in all hematopoietic organs.

DISCUSSION

Dr. L. F. Barker, Baltimore: We have observed one case with 71 per cent. of eosinophils. I made a lumbar puncture and obtained a fluid with a large number of white cells with typical myelocytes.

Dr. Emanuel Libman, New York: I saw a case in which there was edema and ascites. The fact that in Dr. Griffin's case the spleen was removed and made no difference in the condition is remarkable.

Dr. A. S. Warthin, Ann Arbor, Mich.: Leukemic infiltration of the meninges is found in leukemia and also in chloroma.

Dr. F. W. Peabody, Boston: Italian, aged 40, with a history of progressive weakness, a spleen which reached to the level of the umbilicus, and white count of 50,000 with 2 per cent. eosinophils, lived a long time.

Dr. J. A. Capps, Chicago: I recall a case of splenomegaly. That patient refused operation and lived eleven years. He had a white count varying from 11,000 to 21,000, and a large spleen, was in fair health, and had an eosinophilia that ran from 10 to 18 per cent. and very few myelocytes. The case was called leukemia.

Long Duration of Remission in Pernicious Anemia

Dr. Charles G. Stockton, Buffalo: A case of pernicious anemia beginning in 1899 was of a serious character with gradual improvement, with interruptions, for six years. Following that there was a disappearance of symptoms, excepting the continuance of achylia gastrica. From 1917 until the beginning of 1918, the patient was apparently well, except for the continuance of achylia gastrica. In February, 1918, she had a severe relapse, the blood showing characteristic morphologic changes, although the color index was 0.8. Her condition was grave, and a transfusion of 900 c.c. of blood resulted in temporary improvement. A few weeks later the patient died of lobar pneumonia. The patient had a remission of twelve years. This would seem to discredit the theory that patients sometimes recover from pernicious anemia.

Transfusion of Blood in Pernicious Anemia

Dr. J. M. Anders, Philadelphia: According to my collective investigations, transfusion offers more for this incurable disease as a means of prolonging life than any other form of treatment up to the present day, including splenectomy, which, moreover, causes immediate death in a not inconsiderable percentage of cases. Causal treatment and the routine method of administering arsenic may be combined with transfusion of blood.

DISCUSSION

Dr. Frank Billings, Chicago: One who has watched a great many of these cases must realize that there are grades and types. In 1896 I had a patient who suffered from pernicious anemia; apparently the cause was a sharp attack of influenza. He recovered so well that he worked as a night watchman for ten years. He always had a subnormal red count, and he occasionally showed nucleated cells. He had achylia gastrica during the entire time. He came into the hospital with a relapse; his blood went down to 600,000 reds, and hemoglobin 10 per cent. Another case was that of a woman who apparently recovered without transfusion and who lived thirteen years. There must be more than one toxin in pernicious anemia. In 20 per cent. there are changes in the spinal cord. In treatment, removal of the spleen or transfusion will have effect in some cases but not in others. I believe many of the cases of reported cures after splenectomy were not cases of pernicious anemia at all.

Dr. Julius Friedenwald, Baltimore: I have examined a large number of cases with reference to the gastric secretion, and I can confirm Dr. Stockton's remark that there is absence of gastric secretion. In those cases in which there is absence of gastric secretion one never finds a return of the acid again, even in the remissions.

Dr. R. C. Cabot, Boston: I have seen about 800 cases. Only one patient is still alive. The present wave of enthusiasm for transfusion will fall like the red count in this disease. It is perfectly clear that you can incite a remission by transfusion more reliably than by any other method; but that the patients live any longer seems to be not yet shown; besides transfusion is not without its dangers. I have had one fatal case even after the blood was carefully grouped. The patient died within twenty-four hours after transfusion. Unfortunately, we had no postmortem.

Dr. George Dock, St. Louis: Several years ago I mentioned a patient who had lived for thirteen years. I hear every Christmas from a patient I first saw in 1906; he had neuritis as a result of Dr. Cabot's cure by Fowler's solution, but has been practically well all the time.

Dr. T. B. Futcher, Baltimore: In 1908, I saw a woman with a characteristic picture of pernicious anemia. In 1917, she was readmitted with the first marked relapse. Unlike Dr. Stockton's patient, her blood showed features of pernicious anemia. She is still in a period of relapse.

Dr. Emanuel Libman, New York: Transfusion properly carried out is without risk. If a thrombosis occurs, it is because the blood has agglutinated. You do not influence the achylia or the nervous symptoms by transfusions. I do not believe that transfusion starts a remission unless it is going to occur; but if it is going to occur, transfusion will bring it about more quickly. Though not prolonging life, we do not put the patient into much better shape for the remainder of his life.

Dr. J. M. Anders, Philadelphia: Transfusion is not done during the remission but only when there is a progressive downward tendency. It should be done before the hemoglobin drops too low. In those cases you get good results in a large percentage of cases. I am sure my patient would not have been alive today if he had not been transfused. As to the duration of life, while it may not be true in some cases that life is prolonged, it must be true in others. The only way to know the proper time to do transfusion is by making blood examinations and examine for reticulated cells.

An Antihemolysin for the Hemolysin of Gas Bacillus

Dr. W. W. Ford, Baltimore: One of the first characteristics of this hemolysin of the gas bacillus was its ability to destroy the red blood corpuscles in man. The theory that this destruction of blood was produced by the acid formed by the bacillus is not tenable. The property of the hemolytic splitting up of blood is due to an excretory product from this organism. As a rule, there is no hemoglobinuria in these cases. In pernicious anemia there is no hemoglobinuria, which may point to the fact that the destruction of the blood may be a secondary condition and not a primary one. Inoculation of animals with gas bacillus does produce hemoglobinuria, according to one observer. If destruction of the blood is an important feature of the gas bacillus, the production of a serum might have practical value.

Factors Influencing Recovery and Resolution in Pneumonia, with Special Reference to the Chemistry of the Exudate

Dr. Frederick T. Lord, Boston: The findings suggest an explanation of recovery from pneumonia in the course of which humoral immunity is assisted by local biochemical changes. Acidosis in pneumonia may be due to partial isolation of the pneumonic lung permitting a local increase in H-ion concentration, the excess of acid formed in the exudate gaining entrance to the circulation. Dissolution of the pneumococcus may proceed at first slowly and later more rapidly as the local acidity increases. When the H-ion concentration reaches the acid death point of the pneumococcus, crisis and recovery follow. The findings also suggest an explanation of resolution in the course of which the fibrinous exudate is locally split to a form in which it may be absorbed readily and harmlessly. With the breaking down of the cellular exudate, an enzyme-digesting protein (fibrin) in weakly alkaline and weakly acid mediums is liberated. As the acidity increases, the action of this enzyme ceases. An enzyme capable of splitting peptone to amino-acid nitrogen, also active during the proteolysis of the fibrin, is still further activated at a H-ion concentration of 6.3 or 5.2. The exudate may then be dissolved, and resolution takes place.

DISCUSSION

Dr. Emanuel Libman, New York: The question of acid production by pneumococci is of great interest. In many infections there is an acid production in the body, the acid coming from the glucose. Rosenow has shown that if pneumococci are grown on the serum of a human being who is not suffering from pneumonia, there will not be acid production. There has been developed a type of pneumococci which produces acid from glycoproteins.

Dr. S. S. Cohen, Philadelphia: Was the acid production in the exudate attributed to autolysis or to a biologic action of the pneumococcus?

Dr. C. F. Hoover, Cleveland: I should like to know the method of determining the hydrogen-ion concentration.

Dr. Frederick T. Lord, Boston: In answer to Dr. Hoover's question, the H-ion concentration of the pneumonic lungs was determined by the colorimetric method after dialysis of the press juice obtained from the lungs. In one case the colorimetric determination was checked by the electrometric method. In answer to Dr. Cohen, I can only speculate as to the source of the acid which leads to an increase in the H-ion concentration of the pneumonic lung. Perhaps the most likely source is the splitting of the small amount of sugar in the blood to lactic acid. There are, however, other possible sources.

(To be continued)

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting, held in Atlantic City, N. J., June 14, 1919

The President, Dr. Henry B. Christian, Boston, in the Chair

Work of the Medical Clinic

Dr. Henry A. Christian, Boston: The present is a critical time, owing to the readjustments that necessarily must follow the disorganizing influences of war. These influences probably will work more against investigation than any other phase of our medical work. Consequently this society must use every effort to maintain the investigative spirit among its members. To accomplish this the organization of medical clinics and the relation of chiefs of clinics to their assistants is important. To bring about the best results it is important to credit to each worker his work as an independent author. I advise against the plan of joint authorship between the chief and his assistant. Freedom in investigation should be allowed to all assistants. The work of the medical clinic is to train clinicians, and consequently the problems of the medical clinic should be derived from patients and remain closely associated with patients. To bring this about it is a desirable policy to have all workers spend time in both the laboratory and the wards. A return of those preparing for clinical work to the laboratories of the fundamental sciences for a period of training is of value both to the fundamental sciences and to the clinic. Further improvement in ways and means are needed. The problem of teaching has not been solved. Suggestions and advice should be critically examined, and accepted only when their value is demonstrated. It is unfortunate that money cannot be obtained to permit of an adequate development of clinical teaching. It is still more unfortunate that some of the sums are available only on the acceptance of fixed methods of organization. Large funds for investigation and teaching in the hands of a few may do harm or do good.

Occurrence of Anhydremia in Certain Clinical Conditions

Drs. W. McKim Marriott, St. Louis, and J. F. Perkins, Dallas, Texas: Some infants suffering from severe diarrhea lapse into a condition simulating an intoxication. The blood of these patients is invariably concentrated. The amount of water lost from the body is sufficient to account for the rapid and great loss of weight. The desiccation explains the temperature rise. The diminished blood volume results in a fall of blood pressure, arteriolar constriction, accumulation of formed blood elements in the capillary circulation, and a greatly diminished volume flow of the blood. Renal secretion is almost at a standstill, and there is a retention of urinary elements in the blood. Acidosis results from this cause and also from the presence of the products of suboxidation accumulating as the result of diminished volume flow of the blood through the tissues. The administration of a sufficient amount of fluid to render the concentration of the blood normal usually results in a return toward normal conditions and a disappearance of the symptoms. In many cases it is impossible to administer sufficient fluid. The occurrence of anhydremia results in a condition which clinically and experimentally resembles very closely "wound shock." The treatment is also similar. Anhydremia results not only from diarrhea but also from any condition in which there is a diminished fluid intake or an excessive fluid loss.

DISCUSSION

Dr. Lee, Boston: The condition Dr. Marriott described very closely resembles the syndrome in severe wound hemorrhage and shock. Furthermore, his observations on the blood volume correspond very closely to the observations on blood volume which we have made in soldiers. We were able to bring out one further point which Dr. Marriott did not mention in his paper: We found in general that the prognosis of our cases in soldiers depended on the fact of whether or not we were able to maintain the blood volume. In those cases in which the blood volume persistently returned to a low level despite treatment, the prognosis was bad. We estimated our blood volume by estimating the hemoglobin before and after the injection of a known amount of either saline or gum salt.

Dr. Oscar M. Schloss, New York: In the course of intestinal intoxication in infants, there is a great loss of fluid through the occurrence of watery stools. Very often only small amounts of fluid are ingested by mouth. As a result, the tissues become dehydrated and there is a concentration of the blood and a consequent reduction in the blood volume. I have felt for some time that the dehydration which occurs in these cases is of great importance. Dr. Marriott has shown that the acidosis is due to the concentration of the blood and to the diminished volume flow of blood. I expressed the view that the acidosis was due to anuria, which was the result of diminished blood pressure in the kidney and also the increased osmotic pressure of the blood, due to increased protein content. The prognosis in cases of intestinal intoxication can be gaged to a considerable degree by the ability of the patients to retain water given intravenously, subcutaneously or intraperitoneally. If the injected fluid is retained, as shown by an increase of weight, recovery may occur. If the infant is unable to retain the fluid, he usually succumbs.

Dr. R. T. Woodyatt, Chicago: In addition to studying the blood volume or the total water content of the blood, it is also important to study more than one kind of water in the blood. Experiments made in conjunction with Drs. W. D. Sansum and J. O. Balcar lead me to favor an idea, which is not wholly new, that in dealing with the problem of anhydremia it is necessary to recognize two fractions of blood water, namely, free water and bound water, that is, on the one hand, water comparable in a way to pure liquid water at ordinary pressures and temperatures, and, on the other hand, water associated with proteins, sugar, salts, etc., in the form of hydrates. One of the symptoms of "intoxication" (Finkelstein) in fever. During the course of continued intravenous injections of strongly hypertonic sugar or salt solutions in animals and men, we have seen fever develop with great regularity whenever the subject has lost by diuresis a sufficient weight of water. A loss in water amounting to only 2.5 per cent. of the body weight in normal dogs has often resulted in fever. This disappears if the water balance is restored. In this respect it is like the "inanition fever" of infants which Crandell showed to be due to thirst; also to the fever which Halberstadt described in infants undergoing changes of diet and which Peteri showed could be allayed by water alone; also to the sugar and salt fevers of Finkelstein, which disappear when enough water is given. However, the fevers that we have observed occur during sustained injections of large quantities of hypertonic fluids into the blood stream, that is, under conditions notable for their tendency to produce hydremic plethora, and the fevers may develop even while the flow of urine is still abnormally great. The fever in these cases appears to be due not to a lowered blood volume nor to a diminution of total water in circulation, but rather to a lack of water in the right state to sustain evaporation at the rate necessary to maintain a normal body temperature. The vapor tension of the blood water appears to be lowered, but not its volume. Somewhat similar observations have been made with respect to diuresis, which may apparently cease while the blood volume is high, owing to lack of water in a state which renders it available for urine. Dr. Marriott does not, of course, say that every symptom of "intoxication" is due to diminished blood volume, and I do not so understand him. The foregoing is mentioned simply to emphasize other factors besides diminution of the blood volume which may go hand in hand with general anhydremia and which may be responsible for some of the features of the syndrome "intoxication," rather than the volume changes per se.

Observations on Blood Sugar

Dr. Ralph Pemberton, Philadelphia: In severe cases of arthritis usually there is a greatly lowered sugar tolerance, giving very high curves as compared with the curves for normals. In groups of moderate, mild and convalescent arthritis, respectively, the sugar tolerance, with some exceptions, tends to return to normal, the curves becoming lower and flatter. In soldiers, the subject of advanced arthritis, accompanied by markedly lowered sugar tolerance, the removal of focal infection in the tonsils or teeth, when associated with relief of symptoms, was followed by a coincident and abrupt return to normal of the lowered sugar tolerance. This lowered sugar tolerance returns to normal after convalescence or cure following other lines of therapy, such as a restricted food intake and nonspecific protein injections. In cases of advanced and chronic arthritis, apparently free from demonstrable surgical foci, there may be a greatly lowered sugar tolerance giving very high curves. This suggests that the sugar tolerance may sometimes remain disturbed in long standing cases, even after the removal of apparently causative foci of infection. Patients having demonstrable surgical foci of infection do not necessarily have a lowered sugar tolerance in the absence of systemic effects. A lowered sugar tolerance is apparently specific for no disease: it parallels the course of arthritis suggestively closely; and it may return to normal abruptly after the removal of focal infection. In view of the frequency of focal infection and its effect on sugar tolerance, it is obvious that such factors should be eliminated before ascribing a lowered tolerance to any particular disease. The possible causative rôle of such agents in the production of the lowered tolerance characteristic of certain diseases is also suggested.

Arterial and Venous Oxygen in Pneumonia, and Its Relation to Cyanosis

Dr. William C. Stadie, New York: The blood of twenty-six bronchopneumonia patients, seven lobar pneumonia patients and five normal individuals obtained by puncture of the radial artery was studied with respect to its oxygen content and oxygen capacity by the Van Slyke gasometric method. In the five normal cases the mean value for the arterial oxygen unsaturation, that is the percentage of hemoglobin uncombined with oxygen in the arterial blood, was 5. In the pneumonia cases the arterial oxygen unsaturation ranged from 0 to 68 per cent., and there was found a definite relation between the degree of cyanosis and the amount of arterial oxygen unsaturation. As the cyanosis increased, the arterial oxygen unsaturation increased proportionately. This points to deficient oxygen exchange in the lung. As a rule, patients show beginning cyanosis with an arterial oxygen unsaturation of 10 per cent. Only one patient with an arterial oxygen unsaturation greater than 20 per cent. recovered. In individual cases the disappearance of the cyanosis and the clinical improvement of the patient is accompanied by a fall in arterial oxygen unsaturation, and conversely, cases in which the cyanosis increased showed increasing arterial oxygen unsaturation. In only one case was there a marked diminution of the oxygen capacity. In general, venous oxygen unsaturation closely parallels the arterial oxygen unsaturation.

Activity of Heart, and Its Response to Digitalis in Pneumonia

Dr. T. Stuart Hart, New York: In the recent epidemic of pneumonia, clinical and pathologic evidence showed that in the majority of cases death was due not to heart failure but to a general toxemia in which the heart was not primarily at fault. Digitalis studies made with standardized preparations of the drug, controlled by electrocardiographic records, indicated that in those having a normal heart at the beginning of the pneumonia the hearts showed no evidence of modification of the rate as compared with those to whom digitalis was not given. Blood pressures followed an identical course whether digitalis was given or withheld. The response of these hearts to digitalis was the same as in a similar group of hearts without pneumonia. Characteristic changes in the electrocardiographic records were obtained. Partial heart block was observed on several occasions. Two cases of mitral disease with auricular fibrillation showed a marked slowing of the heart and improvement in the circulation after the administration of digitalis. Cases with chronic cardiac valvular disease and regular heart action showed no evidence of being benefited by digitalization; in these pneumonia was fatal in the majority of instances.

DISCUSSION

Dr. William C. Stadie, Boston: The relative infrequency of cardiac failure as the cause of death in influenzal bronchopneumonia was borne out by the study of the arterial and venous oxygen content in our series of cases. The oxygen consumption, that is, the difference between the arterial oxygen content and the venous oxygen content, was not found to be increased appreciably above normal values. This would indicate that there is no slowing of the blood flow, and hence no decrease in the volume output of the heart. This was observed even in the fatal cases in which the observations were made shortly before death. In other words, cardiac failure as measured by this means did not occur in these cases.

Dr. Joseph Sailer, Philadelphia: My experience in the camps included a large number of cases of pneumonia. At Camp Wheeler several hundred patients were receiving strict digitalis therapy; of these, four developed symptoms that, in the absence of instruments of precision, it seemed justifiable to regard as heart block. All the patients recovered promptly when the digitalis was discontinued. It is probable that in young, healthy men, auricular fibrillation, as a complication or sequel of pneumonia, is extremely rare. I failed to observe a single case of complete arrhythmia with rapid pulse during my service in the army. Among the older patients seen in civil hospitals I have observed it occasionally, on the whole very rarely. It is, apparently, the only reason for the administration of digitalis.

Renal Glycosuria

Dr. Solomon Strouse, Chicago: The diagnosis of renal glycosuria has been based on, first, glycosuria without hyperglycemia; second, glucose excretion almost entirely indepennt of carbohydrate intake, and third, absence of diabetic mptoms. To these data should be added, I think, a fourth, d that is the absence of the development of subsequent iabetes. A few patients have been observed long enough to ow that some, at least, do not develop diabetes; but, as oslin has pointed out, a late review of all patients with this ndition is advisable. Glycosuria without hyperglycemia as in the light of the more recent studies on blood sugar een found to occur in not a few cases of true diabetes mellitus. Early cases of diabetes mellitus—those, for instance, iscovered in life insurance examination—not infrequently how an excretion of glucose not entirely dependent on carbohydrate intake; and in such cases the discovery of glycosuria ften precedes the onset of typical diabetic symptoms. lthough one can note the presence of a condition with all haracteristics of renal glycosuria, it is readily seen that he clinical test of time is necessary for the final diagnosis f this condition as a clinical entity. Four patients were tudied for from one year to seven years. They fulfilled all he criteria of renal glycosuria. All are in good physical ondition; three are entirely free from sugar, and the fourth atient is passing an increased amount of sugar with a ormal blood sugar reaction. He, too, is in perfect physical ondition and with no symptoms of diabetes mellitus.

DR. LOUIS HAMMAN, Baltimore: It is of interest to point ut that the renal threshold for glucose is a variable factor nd that patients with renal diabetes often show remarkable hanges in their tendency to glycosuria. Several years ago, n the course of some studies on the renal threshold for lucose, I discovered two apparently healthy young adults who put out sugar in the urine, although the blood sugar did ot reach 0.14 per cent. One of the two had spontaneous lycosuria after hearty meals rich in starches. From eight o twelve months later, when retested, neither patient had glycosuria, even though the blood sugar rose to 0.16 per cent.

DR. R. T. WOODYATT, Chicago: In connection with these discussions of the significance of the blood sugar percentage in its relationship to glycosuria, there is a point which has been brought up in previous meetings that I believe is worth emphasizing, namely, the necessity of knowing something about the volume of the blood, or, more exactly, the surface of blood exposed to cells. If the blood in the kidneys contains 0.1 per cent. of glucose, we may imagine that glucose molecules are bombarding the capillary walls at the rate of so many per second in accordance with the kinetic theory. We may assume that a certain percentage of the molecules which strike the capillary walls penetrate into them; that is, into the cells forming the capillary wall. We may also assume that the effects which glucose exerts in these calls will be proportional to the number of glucose molecules which enter them in a given period of time. It is apparent that the number which enter a given cell in any given time when the blood sugar percentage is fixed will depend on the extent of the surface which the cell presents to the bombardment of molecules. It follows that if we are to use the percentage of sugar in the blood as an index of the rate at which glucose molecules are entering the cells, we should know that the surface exposed to blood remains constant, or else know how it varies. A study of the arrangement of capillaries in a frog's foot or in the glomerulus of a kidney or other suitable location will show that an increasing blood volume is capable of inflating collapsed capillary loops and distending others, thus developing more surface for itself, and vice versa. It is therefore apparent that the surface of contact between blood and cells is a variable factor. By suitably arranged experiments, one may inject a strong glucose solution into the veins constantly at a rate just sufficient to cause a detectable glycosuria and sustain this threshold injection for hours. In a certain experiment the blood sugar percentage was found at 0.22. A large volume of extra water was then injected by vein without interrupting the glucose injection. The glycosuria continued as before. But the blood sugar percentage fell to 0.15. In this way, also, it has been possible to maintain glycosuria while the blood sugar percentage is held within normal limits. There appears to be no common agreement among different investigators as to the normal blood sugar threshold of the kidneys expressed as a percentage, and I believe with Epstein that in interpreting blood sugar percentages there should be a correction for blood volume, or more exactly for the blood surface at the time of the blood sugar determination.

DR. HERMAN O. MOSENTHAL, New York: I wish to endorse what Dr. Hamman said concerning the variability of the renal threhold in cases of diabetes. In one instance no sugar was excreted in the urine while the blood sugar was at a level of 0.24 per cent., whereas a few days later there was a slight glycosuria, although the glycemia had dropped to 0.18 per cent. Another point worth emphasizing in this connection is that nephritis, although it is generally supposed to raise the renal threhold to glucose, will not necessarily do this. In one case of marked nephritis the kidney was more permeable to glucose than under normal conditions, allowing sugar to escape in the urine constantly while the glucose in the blood was only 0.1 per cent.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

August, 1919, **158**, No. 2

*One Aspect of Syphilis as a Community Problem. H. S. Newcomer, R. Richardson and C. Ashbrook, Philadelphia.—p. 141.
*Cardiovascular Defectives. L. M. Warfield, Milwaukee.—p. 165.
*Case of Peforated Gastric Ulcer, with Abscess Formation; Perforation Through Lung, With Spontaneous Recovery. J. Friedenwald, Baltimore.—p. 179.
*Lumbar Puncture as a Factor in Causation of Meningitis. P. Wegeforth and J. R. Latham, U. S. Army.—p. 183.
Relationship of Streptococcus Hemoliticus to "Influenza" and Pneumonia. M. B. Levin, D. A. Goodman, and F. J. Pancoast, Fort McHenry, Md.—p. 202.
Influenzal Pneumonia Epidemic at Camp Dodge, Iowa, 1918. E. T. Edgerly, Ottumwa, Ia.; F. M. Manson, Worthington, Minn.; W. G. Dwinell, Providence, and J. G. Carr, Chicago.—p. 212.
Laboratory Report on Epidemic Pneumonia. W. G. Dwinell, Providence, R. I.—p. 216.
Clinical Aspects of Pneumoria Following Influenza, Camp Dodge, Iowa, 1918. J. G. Carr, Chicago—p. 232.
Report of Surgical Service, U. S. Army Base Hospital, Camp Dodge, Iowa, On Epidemic of Influenza of 1918. F. M. Manson, Worthington, Minn.—p. 244.

Syphilis as a Community Problem.—As the result of much personal experience Newcomer and his associates found out that it is practicable for any well organized general hospital to establish a clinic for the treatment of syphilis without great expense to the institution and to the certain advantage of the community it serves. The fundamental questions of mortality which underlie the spread of this infection do not properly present themselves for the consideration of the physician and the hospital in connection with such a clinic. The practice of segregating the syphilis clinic from the more general work of the hospital, which has been so general, should be abandoned, as it makes the treatment appear to the patient in the light of punishment and to the hospital staff and management as a disagreeable duty. The interests of all are thus sacrificed to sentiment, and in the confusion the propaganda for better morals is not effectively advanced. Medically speaking the authors' results confirm the prevailing view that once syphilis has invaded the body it is very difficult if not impossible to eradicate the disease. Systematic treatment is, however, capable of minimizing its effects for the individual, and at the same time rendering him almost innocuous to the community. Such a clinic as this is probably more successful in securing treatment in this systematic way than is management by the private practitioner. It being assumed that such clinical facilities as those described have been made available in adequate amount, the attack on syphilis as a community problem should involve as a measure of the first importance systematic effort to secure treatment at the earliest possible moment for those infected.

Cardiovascular Defectives.—It is shown by Warfield that there is a class of young men of usually healthy appearance who nevertheless suffer from a group of symptoms following mild exercise characterized by breathlessness, precordial pain, dizziness, palpitation and exhaustion. There also may be headache, sleeplessness, cold, clammy hands and feet and profuse sweating. These men might never have been discovered except for the army draft, which caused thousands of young men to be examined physically. These men have no complaints, as a rule, which lead them to seek medical advice. They find that they are better able to make a living at light or sedentary work than at hard work, so they drift into the lighter occupations. The majority are surprised when told that there is something really the matter with them, although they have recognized the fact that they cannot take the violent exercise which other men of their acquaintance can take. A certain number are taken to a doctor, who may diagnose heart disease or neurasthenia. There is no common etiologic factor among the true cardiovascular defectives, no cause can be found, except a constitutional inferiority, a poor quality of tissue which must be supposed to account for the syndrome. Among others, certain chronic diseases or the result of severe acute illnesses are responsible for the syndrome. When there is a definite pathologic basis, such as pulmonary tuberculosis or chronic focal infection, etc., cure of the disease causes the effort syndrome to disappear. Cases resulting from infectious disease or based on constitutional inferiority do not improve.

Gastric Ulcer with Abscess Formation.—Friedenwald says that only four cases similar to his are recorded in which perforation from a gastric ulcer was followed by rupture through the lung. The patient recovered.

Lumbar Puncture in Meningitis.—It had been found, clinically, that infections of the meninges occur not infrequently allowing the release of normal spinal fluid by lumbar puncture during a septicemia. Five such instances are cited by Wegeforth and Latham. To prevent the possible accidental production of a meningitis as a result of diagnostic lumbar puncture it is recommended (1) that careful consideration be given the bacteriologic study of the blood before such punctures are attempted; (2) that in acute diseases, in the absence of definite signs of irritation of the central nervous system, lumbar puncture should be avoided unless it is first conclusively shown that the blood stream is free of infection; (3) that when the clinical symptoms are such as to render a lumbar puncture advisable, minimal quantities of fluid should be withdrawn; (4) that small bore needles should be utilized in performing the operation to prevent as much as possible subsequent leakage of spinal fluid into the surrounding tissues.

American Journal of Physiology, Baltimore

July 1, 1919, **49**, No. 2

*Studies in Secondary Traumatic Shock. II. Shock Due to Mechanical Limitation of Blood Flow. J. Erlanger and H. S. Gasser, St. Louis.—p. 151.

*Gastric Response to Foods. III. Response of Human Stomach to Beef and Beef Products. H. R. Fishback, C. A. Smith, O. Bergeim, R. A. Lichtenthaeler, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 174.

*Id. IV. Response of Human Stomach to Pork and Pork Products. C. A. Smith, H. R. Fishback, O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 204.

*Id. V. Response of Stomach to Lamb and Lamb Products. H. R. Fishback, C. A. Smith, O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 222.

Electrical Conductivity Method of Determining Relative Volume of Corpuscles and Plasma (or Serum) in Blood. G. N. Stewart, Cleveland.—p. 233.

*Effect of Feeding Pars Tuberalis and Pars Anterior Proprior of Bovine Pituitary Glands on Early Development of White Rat. C. J. Marinus, Detroit.—p. 238.

*Relation of Hypophysis to Glycogenolysis. R. W. Keeton and F. C. Becht, Chicago.—p. 248.

*Gastric Response to Foods. VI. Digestion in Normal Human Stomach of Eggs Prepared in Different Ways. R. J. Miller, H. L. Fowler, O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 254.

Studies on Brain Stem. I. Regulation of Body Temperature in Pigeon and Its Relation to Certain Cerebral Lesions. F. T. Rogers, Chicago.—p. 271.

Physiologic Significance of Reaction of Tissue Cells to Vital Benzidene Dyes. P. G. Shipley, Baltimore.—p. 284.

Studies on Nervous Control of Kidney in Relation to Diuresis and Urinary Secretion. I. Effect of Unilateral Excision of Suprarenal Section of Splanchnic Nerve and Section of Renal Nerves on Secretion of Kidney. E. K. Marshall, Jr., and A. C. Kolls, Baltimore. p. 302.

Id. II. Comparison of Changes Caused by Unilateral Splanchnotomy with Those Caused by Unilateral Compression of Renal Artery. E. K. Marshall and A. C. Kolls, Baltimore.—p. 317.

Id. III. Effect of Nicotin on Secretion of Two Kidneys after Unilateral Section of Splanchnic Nerve. E. K. Marshall, Jr., and A. C. Kolls, Baltimore.—p. 326.

Id. IV. Unilateral Ligation of One Branch of One Renal Artery and Unilateral Splanchnotomy. E. K. Marshall, Jr.., and A. C. Kolls, Baltimore.—p. 335.

Id. V. Chlorid and Sulphate Diuresis after Unilateral Splanchnotomy. E. K. Marshall, Jr., and A. C. Kolls, Baltimore.—p. 339.

Shock Due to Mechanical Limitation of Blood Flow.—An examination was made by Erlanger and Gasser of the mechanical changes in the circulation occurring in shock as induced by procedures directly involving the abdominal viscera, that is to say, in the type of shock most commonly investigated. Another method of inducing shock was the so-called mechanical shock of Janeway and Jackson. These investigators studied the effect of temporary partial occlusion of the inferior vena cava. They found that properly graded temporary partial obstruction of the inferior vena cava above the liver or of the aorta beyond the origin of the left subclavian artery eventually results in the development of a condition closely resembling traumatic shock. They are convinced that the failure of the circulation after both manipulations is in part certainly due to the consequence of the sequestration of corpuscles in the capillaries and venules, and that if back pressure in the veins, such as is produced by caval obstruction, is a factor in the development of this state of affairs in the capillaries and veins, it is not an essential one. The fact that the vasomotor mechanism need not be involved (as for example in aortic obstruction) renders it unnecessary to invoke failure of a nervous venopressor mechanism to explain the fulness of the capillaries and venules. It can be explained on the basis either of the change in character of the blood stream, or respiratory and nutritional changes in the vessel walls or, and more probably, of both.

Gastric Response to Beef.—The digestion of various forms of beef and beef products in the normal human stomach was studied by Fishback and his associates by the fractional method. Over seventy complete experiments were made on twenty-five different subjects. It was found that all normal stomachs do not respond alike to the entrance of the same food. Some respond very promptly and decidedly to the entrance of food, whereas others respond very slowly and indifferently to the same food. Also, one type of normal stomach empties very quickly, whereas a second type evacuates slowly under like dietary conditions. Roast beef appeared to be handled by the stomach with about the same ease whether rare, medium or well done, although the rare beef had, perhaps, a slight advantage in this respect. Beef steaks appeared to be just as readily digested if cooked rare as when medium or well done. Very tough steaks from the cheaper and tougher cuts of meats, such as rump and shank, showed distinctly more rapid evacuation than sirloin or the best tenderloin steaks. Roast beef was found to lie between these two classes of steaks in gastric response and evacuation time. Hamburger steaks were found to leave the stomach in about the same time as an equal weight of roast beef under the same conditions. Stewed beef was handled by the stomach in practically the same time as roast beef, but with a less rapid development of acidity. The response to boiled corned beef was similar to that of roast beef or stewed beef. Dried beef was digested with almost the same ease as ordinary roast beef. Beef bologna was handled by the stomach in the same length of time as roast beef. Calves' liver required a slightly longer time. Beef tongue was less readily digested than dried beef. Frankfurters left the stomach rather quickly, as did also sweetbreads. Tripe was digested a little less rapidly than roast beef. For 100 gm. of the beef products tested an average evacuation time of two hours and thirty-five minutes was obtained on subjects of the rapid emptying type and three hours and twenty-five minutes on subjects of the slow emptying type.

Gastric Response to Pork.—For individuals with stomachs of the rapid empting type a general average evacuation time for pork products of two and three-quarters hours was found. Subjects of the slow emptying type showed a general average of three hours and forty minutes. Pork products in general were comparatively slow to leave the stomach as would be expected from their high fat content. Roast pork was retained appreciably longer than roast beef in most instances. Pork chops required about the same period of gastric digestion as roast pork. Fried ham also required considerably longer to digest than roast beef. Minced ham showed a slight advantage over boiled ham as to evacuation time. Liver and bacon required about the same period of digestion as roast beef. Pork sausage was somewhat more easily handled than were pork chops but less readily than roast beef. Ham bologna required about the same time to digest as fried ham or as the less readily digestible beef steaks. The evacuation of bacon was found to be slow and low gastric acidities were developed. Ham sandwiches were more readily handled than most other pork products tested. "Scrapple" left the stomach more slowly than pork sausage and belongs to the less readily evacuated pork products. Pigs' feet gave variable results but appear ordinarily to be handled more easily than pork chops.

Gastric Response to Lamb.—Lamb was found to require from two to three hours (average two and one-half hours) for individuals possessing the rapid emptying type of stomach to digest and from three to four hours (average three hours and twenty minutes) for individuals with the slow emptying type of stomach. Roast lamb and lamb chops required practically the same period of gastric digestion and stewed lamb a little longer than the other two. Sheep brains left the stomach rather rapidly (two and one-half hours). On the average, roast lamb remained in the stomach a few minutes longer than roast beef, but not as long as roast pork.

Effect of Pituitary Feeding on Growth.—One hundred young rats were separated into three groups by Marinus. The first group was fed on pars anterior proprior of the pituitary gland, the second on pars tuberalis, and the third or control group on beef muscle. During twelve weeks of feeding the rats of the first group exhibited increased growth rate accompanied by a more rapid development of the reproductive system, evidenced by gross and microscopic hypertrophy of the organs and by the earlier birth of young. In the second (pars tuberalis fed) group there was no change in the sexual development as compared with that of the control group. The growth rate was slightly slower in the second group, owing, perhaps, to the smaller amount of meat fed. This study has not shown that any of the functions ascribed to the anterior lobe as a whole are due to the pars tuberalis.

Relation of Hypophysis to Glycogenolysis.—The results of the experiments made by Keeton and Becht favor the view that the physiologic rôle played by the hypophysis in carbohydrate metabolism does not deal with transformation of glycogen into sugar but more probably with the utilization of the sugar by the organism.

Gastric Response to Eggs.—Experiments to determine the response of the normal human stomach to eggs prepared in various ways, showed that eggs give rise to less stimulation of gastric secretion than meats and leave the stomach sooner. Raw egg white left the stomach much more rapidly than any other form of egg preparation. Raw egg yolk required much longer to leave the stomach than egg white. Hard boiled eggs required on the average a few minutes longer for gastric digestion than soft boiled eggs. Scrambled eggs required a little longer to leave the stomach than boiled eggs. Fried eggs were handled as readily as soft boiled eggs or any other type of cooked egg. Eggs scrambled or fried with a large excess of fat remained in the stomach a little longer, the difference being most marked with the rapid emptying type of individual. The belief that fried or moderately greasy foods give the stomach appreciably more trouble than others was not supported by these findings. Omelets remained in the stomach as long as scrambled eggs and longer than boiled eggs. Poached eggs, shirred eggs and soft cooked eggs were found to be among the more readily digested forms of eggs. Eggs pickled in vinegar were digested in the same time as the hard boiled eggs from which they were prepared. Deviled eggs remain in the stomach a little longer than plain boiled eggs. Eggs with milk, or egg nog, leave the stomach a little more slowly than eggs alone, the egg albumin preventing the formation of indigestible curds in the stomach such as are likely to be formed with milk alone. Eggs with bread or French toast remained in the stomach a little longer than bread and butter alone but not longer than hard boiled eggs. Bacon and eggs were taken care of by the stomach almost as readily as fried eggs alone while possessing distinctly higher food value. Frizzled beef with scrambled eggs was digested as quickly as scrambled eggs alone. Eggs and meat appear, therefore, to form a desirable combination from the standpoint of gastric digestion.

American Journal of Public Health, Concord, N. H.

August, 1919, **9**, No. 8

Constitutional Foundations of Federal Public Health Functions: F. J. Goodnow, Baltimore.—p. 561.
Dangerous Tendency in Public Health Administration. W. S. Rankin, Raleigh, N. C.—p. 567.
Presence of Fecal and Nonfecal Types of Colon Bacillus in Various Types of Water. W. R. Stokes, Baltimore.—p. 571.
Meats; Present Aspect of Supply, Conservation and Development. W. H. Lipman, Chicago.—p. 575.
Conduct of Central and Local Government Authorities in England. A. Newsholme, London, England.—p. 581.
Future Cooperation Between American Red Cross and Public Health Agencies. L. Farrand, Washington, D. C.—p. 583.
Proper Relation of Federal and State Governments in Public Health Work. A. J. McLaughlin, Washington, D. C.—p. 586.
Present Status of Pneumococcus Vaccine. R. L. Cecil, Washington, D. C.—p. 589.
Use of Anaerobic Culture Methods in Study of Influenza. J. F. Norton, Chicago.—p. 593.
*Nature of Toxic Agent in "Meat Poisoning." I. Greenwald, New York. —p. 595.
*University Health Service. W. E. Forsythe, Ann Arbor, Mich.—p. 598.
Interpretation of Bacteriologic Findings. P. Castleman, and K. R. Bailey, Boston.—p. 602.

Nature of Toxic Agent in "Meat Poisoning."—The experiments reported by Greenwald were performed with a view to obtaining some information as to the nature of the substances responsible for the symptoms of "meat poisoning." The results were negative but it is believed that they help to indicate the direction which future investigation should take. The stage of decomposition of meat appears to have comparatively little to do with toxicity. Badly decomposed meat (venison, game birds) is eaten, by preference, by large numbers of people. On the other hand, meat of perfectly fresh appearance, taste and odor, but infected with a virulent strain of bacteria, may cause serious illness and death. The relatively simple substances known as ptomains cannot be regarded as responsible for the symptoms observed. They are not nearly sufficiently toxic, particularly when given by mouth. Their existence, in any but very badly decomposed meat, is open to question. Moreover, they may be produced by the very means taken for their isolation. In these experiments no attempt was made to investigate the possible occurrence of heat stable toxins. Under ordinary conditions, it would be quite impossible to separate their effects from those produced by the ingested bacteria. "Meat poisoning" is produced by the ingestion of food that has not, as a rule, been exposed to prolonged bacterial action. Also, the filterable toxin of cholera vibrios, which will produce severe gastroenteritis when injected intraperitoneally, is harmless when given by mouth. What is true of cholera vibrios may also be true of other organisms. The rapid development of the symptoms of "meat poisoning" indicates very clearly that they are not entirely due to the action of micro-organisms within the gastro-intestinal tract. There seems to be a heat labile toxin which produces the acute immediate effects. The bacteria may or may not grow and add a further intoxication. The particular organism may be what Van Ermengen calls a "pathogenic saprophyte" such as *B. botulinus*. This organism produces a highly potent toxin but the bacilli themselves are harmless because they are incapable of growing at body temperature. With other organisms, other factors may play a similar rôle. Greenwald suggests that further investigation is required and should take the direction of an investigation of possible heat labile toxins.

University Health Service.—The personnel of the health service established by the University of Michigan five years ago consists of five men and one woman, full time physicians, two dispensary nurses, a pharmacist, and a stenographer. The physicians were selected to do general rather than specialized work, and were given faculty standing in the department of administration, with graded rank and salaries such as existed in established lines of public health work. The financial support of the work came entirely from a general student annual fee of $6 collected by the university at registration. A necessary part of the attention to sick students is hospitalization as part of their privileges in the health service. Such patients are sent to the hospitals operated by the medical departments of the university, where they may receive free necessary attention for a limit of sixty days. The medical service in the hospitals is given by their regular staffs and is under cooperative supervision of the health service physicians. Physicians of the health service attend students when called to their rooms. For such calls the university collects from the students $1 for a call in daytime and $2 for a night call, and places the money to the credit of the health service. Absolute freedom is given students in the selection of a staff physician regardless of sex. Arrangement exists by which private hospitals may be used in addition to those of the university.

American Journal of Roentgenology, New York City

July, 1919, **6**, No. 7

Camp Greenleaf School of Roentgenology. W. F. Manges, Philadelphia.—p. 305.
Mobile Roentgen Ray Apparatus. A. C. Christie, Washington, D. C.—p. 358.

Annals of Surgery, Philadelphia

July, 1919, **70**, No. 1

*Cranioplasty: Value of Graft of Bone, Cartilage or Fascia in Closure of Cranial Defects Caused By Wounds in War. A. Primrose, Toronto.—p. 1.
Clamp for Osteoplastic Craniotomy. E. Sachs, St. Louis.—p. 21.
*Results of Splenectomy in Anemia. W. J. Mayo, Rochester, Minn.—p. 22.
Treatment of Gunshot Wounds of Chest. E. Eliot, Jr., New York.—p. 30.
*Delayed or Late Extraction of Intrathoracic Projectiles by Method of Petit de la Villéon. R. G. Le Conte, Philadelphia.—p. 37.
*Thoracic Fistula and Chronic Empyema. H. Lilienthal, New York.—p. 43.
Empyema. J. S. Rodman, Philadelphia.—p. 49.
*Treatment of Empyema. J. A. Hartwell, New York.—p. 55.
*Foreign Bodies in Stomach. Report of Cases. R. Winslow, Baltimore.—p. 60.
Inguinal Hernia. F. Toreck, New York.—p. 65.
Transplantation of Rectus Muscle or Its Sheath for Cure of Inguinal Hernia when Conjoined Tendon is Obliterated. Transplantation of Sartorius Muscle for Cure of Recurrent Hernia when Poupart's Ligament has Been Destroyed. J. C. Bloodgood, Baltimore.—p. 81.
*Strangulated and Irreducible Hernia. E. H. Risley, Boston.—p. 89.
Roentgen-Ray Examination of Abdominal Organs Following Oxygen Inflation of Peritoneal Cavity. A. Stein and W. H. Stewart, New York.—p. 95.
New Instruments for Procuring and Preparing Autogenous Bone Bolts and Keys and Special Methods of their Application in Shaft Fractures. W. L. Bell, Oakland.—p. 101.
Use of Autogenous Bone Grafts, Secured and Applied after Method of Bell. M. L. Emerson, Oakland, Calif.—p. 105.
Treatment of Acute Gastromesenteric Ileus. A. P. Condon, Omaha.—p. 107.
No-Flap or Guillotine Amputation; an Unfortunate Resurrection. J. H. Gibbon, Philadelphia.—p. 111.

Cranioplasty.—Forty-two cranioplasties were performed by Primrose on thirty-eight patients. Nearly all the patients suffered from headache. As a rule, the headache was relieved completely by a successful cranioplasty. The relief of dizziness by operation was more pronounced than that of headache. In cases of deafness, noises in the ear, defective vision and aphasia, there were no observations to suggest that the operative procedure had any effect on the condition. As for hemiplegia, which was present in fifteen cases in varying degree, the condition showed progressive improvement, in every instance usually leaving a residual weakness, but in exceptional cases clearing up entirely. It cannot be said that the closure of the defect had any remedial effect on paralysis in these cases. The value of the operation in more complicated cases, more particularly those suffering from jacksonian epilepsy, is less evident. Primrose is convinced that the value of the fascial graft is well worth considering. Where there is a cortical irritation, with much scar tissue implicating the dura mater, it is most serviceable to make a free dissection of the cicatricial tissue, removing the patch of dura mater involved and substituting a patch of fascia lata to close the rent. Where a gap exists in the cranium it should be closed. The symptoms caused by the existence of the gap and directly dependent on it will almost certainly be relieved by a successful cranioplasty.

Results of Splenectomy in Anemias.—The triumph of splenectomy, according to Mayo, is the cure of hemolytic icterus. Only patients in a terminal condition, with secondary gallstones and cirrhosis of the liver, fail to be relieved. The only patient the Mayos lost of twenty-seven splenectomized for hemolytic icterus was one operated on during an acute exacerbation.

Late Extraction of Intrathoracic Projectiles.—October, 1918, Petit de la Villeon reported about 330 and Robin ninety-two extractions of foreign bodies from the chest. There were four deaths in these combined series, a mortality of less than 1 per cent. One death was apparently due to the anesthetic, and one occurred from sepsis in a patient who had previously had an open operation on the opposite lung, and the necropsy disclosed a putrid gauze pack in the pleura. Le Conte points out that the indications for operation are: intrathroacic projectiles should be removed when the patient complains of pleurodynia, shortness of breath on slight exertion, cough or dyspnea, more or less frequent hemoptysis, and when there are signs of congestion in the lung surrounding the projectile, with slight elevation of temperature. When no symptoms referable to the projectile exist, the question of its removal should be considered with reference to the possibility of its causing future trouble. Also, fragments of projectiles should always be removed from a military patient, where their presence prevents him from reentering Class A. When the projectile lies in the mediastinum or hilum of the lung, its size and the degree of tolerance must be balanced carefully with the danger of its removal. In the average case the intervention is so simple, the extraction so easy, the recovery so prompt, and the risk so small, that due weight must be given to these things when the subject of operation is under discussion.

Thoracic Fistula and Chronic Empyema.—Patients with cavities and discharging sinuses persisting for more than two months after drainage for empyema and unsterilizable by the Carrel-Dakin method, Lilienthal says, should be examined with the vertical fluoroscope. Those with large rigid cavities and profuse discharge are proper subjects for his operation, which may be described as a major noncollapsing thoracoplasty. Small cavities, when resisting other treatment, are also suitable for this form of thoracic surgery. In fact, the procedure described by the author should, he says, be selected in the cases in which it has been heretofore customary to perform major chest collapsing operations or the Delorme-Fowler decortication.

Treatment of Empyema.—In Hartwell's opinion no form of treatment for empyema which disregards the thorough drainage of the chest cavity by a rib resection, and the gradual reexpansion of the lung by respiratory effort, meets the requirements. Other means will cure only a certain number of cases, particularly in such times as the disease occurs in abortive forms, which it has done during the past two years.

Foreign Bodies in Stomach.—One of Winslow's patients had swallowed 1,059 small steel pins and 129 hair pins, forty-nine safety pins, thirty-six pieces of wire, buttons, etc., 1,290 different pieces in all. They were removed at operation.

Strangulated and Irreducible Hernia.—The point emphasized by Risley in the report of a case is the possibility, when extensive adhesions make wide dissection of a hernia inadvisable, of placing an adherent cord and testicle within the dominal cavity, together with its adherent hernial sac (or dder), doing a radical cure of the hernia and expecting favorable, symptomless outcome.

Boston Medical and Surgical Journal

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hest During Influenza Epidemic. P. H. Cook, Worcester, Mass. p. 158.
ormication: A New Sign of Nerve Regeneration. I. H. Coriat, Boston. —p. 163.
iagnosis and Treatment of Syphilis. L. J. Cummins, Boston.—p. 166.

Formication: A New Sign of Nerve Regeneration.—Coriat gards the formication sign of Tinel as being a valuable t for the detection of nerve regeneration. The test is ry easily applied, but should be done carefully in each se, as the tingling produced by neuroma formation may d to error. In neuroma formation or in the early stages regeneration without neuroma formation, the formication limited to the level of the lesion. In the neuroma forman also, where the regenerating axis cylinders are blocked d may consequently lose themselves in the surrounding sues, the formication remains fixed at the level of the ion. In actual regeneration of the nerve the formication ogresses over the zone of the growth of the axis cylinders d can finally be detected along the partial or entire cutaous distribution of the nerve. For a time it may involve e entire cutaneous distribution, but as regeneration becomes mplete, it finally can be detected only in the extreme riphery. This formication probably is due to an increased isitiveness of the young axis cylinders. It is best, hower, not to rely on the formication sign alone. The test ould be correlated carefully with the other investigations the nerve lesion, such as protopathic and epicritic sensiity, regenerating pain points, and electrical reactions.

lorida Medical Association Journal, St. Augustine and Jacksonville

July, 1919, **6**, No. 1

nfluenza. J. M. Perret, Pensacola, Fla.—p. 1.
rganizing for Community Health. O. H. Cox, Pensacola, Fla.—p. 8.

Journal of Bacteriology, Baltimore

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hermophilic Bacteria. D. H. Bergey, Philadelphia.—p. 301.
etabolism of Actinomycetes II. S. A. Waksman, Newark, N. J. —p. 307.
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acteriology of Dusentery in Norway. T. Thjøtta. Norway.—p. 355.
iphtheria Bacillus in Culture. J. W. M. Bunker, Detroit.—p. 379.
rowth of Certain Bacteria in Mediums of Different Hydrogen Ion Concentrations. B. Cohen and W. M. Clark, Washington, D. C. —p. 409.

Medical Record, New York

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reatment of Influenza and Its Pulmonary Complications. J. M. Anders, Philadelphia.—p. 223.
ractical Application of Facts of Narcotic Drug Addiction Disease. C. F. J. Laase, New York.—p. 225.
tatistics of Influenza. F. L. Hoffman, Newark, N. J.—p. 229.
ark Field Illumination Method in Early Diagnosis of Syphilis. R. L. Dourmashkin, New York.—p. 234.
rug Addiction Causes Acidosis and Responds to Alkaline Therapy. C. A. Rosewater, Newark, N. J.—p. 326.
rench Nephritis. J. Ryle, London, England.—p. 237.

ichigan State Medical Society Journal, Grand Rapids

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ifferential Diagnostic Problems in Psychoses Associated with Infectious Diseases. B. L. Jones, Ann Arbor.—p. 427.

Minnesota Medicine, St. Paul

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pidemiologic Investigation of Influenza Epidemic at Camp Dodge, Ia., 1918. M. Seham, Minneapolis.—p. 281.
ndication for Surgical Treatment of Thyroid. G. Earl, St. Paul. —p. 295.
lant Dermatitis. E. D. Brown, Minneapolis.—p. 3001.
nterrelation Between Orthodontic Malformations and Diseases of Nose and Throat. G. C. Dittman, St. Paul.—p. 305.
ervous Symptoms in Pernicious Anemia. H. W. Woltmann, Rochester.—p. 306.

New York Medical Journal

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Tuberculosis Among European Nations At War. J. A. Miller, New York.—p. 221.
Gunshot Injuries of Head. K. W. Ney, New Orleans.—p. 229. To be Cont'd.
Neurology in Everyday Practice. H. Climenko, New York.—p. 234.
*Atropin in Pneumonia. A. Sterlin, Philadelphia.—p. 237.
Arthritis of Knee Joint. Following Fissure Fractures of Tibia. P. Bonnet, Paris.—p. 239.
Iridectomy and Conjunctivoplasty in an Unusual, Old Trauma to the Eye. S. Moskowitz, New York.—p. 242.
Childbirth. P. A. Kane, Chicago.—p. 243.

Atropin in Pneumonia.—In the treatment of influenzal pneumonia Sterling has used belladonna or atropin, administered early, from $\frac{1}{150}$ to $\frac{1}{100}$ grain of atropin, or 5 to 10 drops of tincture of belladonna, to atropinize or belladonnize the system, with very good results. He has treated all influenza cases with quinin hydrobromid or dihydrobromid, in 5 grains doses, right from the start, giving three capsules night and morning with a glass of hot tea and whisky (one tablespoonful) until the temperature became normal. If the temperature was high, he gave a capsule every three hours throughout the day disregarding the deafness or cinchonism symptoms. To children quinin was administered in suppositories of cocoa butter. The dose was regulated according to age; 5 grains in one suppository, every three hours, or two suppositories night and morning. Digitalis, atropin and cocain were also used from the start.

		gm. or c.c.	
℞	Pulv. digitalis.........	066	gr. 1
	Atropinae sulphatis....	00066 or 00099	gr. $\frac{1}{100}$-$\frac{1}{150}$
	Cocain hydrochlorid....	033 or 017	gr. $\frac{1}{2}$-$\frac{1}{4}$
	Strychninae sulphatis..	002	gr. $\frac{1}{30}$

M. S. One capsule four times a day.

To children digitalis and belladonna were administered in tincture form separately so as to be able to increase or decrease the dose as needed. Alkaline drinks were given from the start.

		gm. or c.c.	
℞	Liq. potass. citratis	180	℥ 6

Sig. One tablespoonful every two hours.

Sterling is convinced that this treatment lowered the mortality among his cases.

New Orleans Medical and Surgical Journal

August, 1919, **72**, No. 2

Intraperitoneal Rupture of Bladder During Puerperium. Report of Cases. W. Kohlmann, New Orleans.—p. 47.
Value of Roentgen-Ray Diagnosis of Bone Syphilis. A. Granger, New Orleans.—p. 53.
Empyema. B. C. Garrett, Shreveport, La.—p. 58.
Venereal Control. H. M. Wilson, U. S. Army.—p. 62
Some Phases of Tropical Medicine in Recent War C. C. Bass, New Orleans.—p. 72.

Ohio State Medical Journal, Columbus

Aug. 1, 1919, **15**, No 8

Genesis of Myopic Eye. S. D. Risley, Philadelphia.—p. 467.
Feeding Clinically One Thousand and Thirty Cases in One Year. H. J. Leslie, Cleveland.—p. 472.
Chronic Infections of Large Bowel Including Sigmoid and Rectum. W. M. Beach, Pittsburgh.—p. 474.
Practical Offices for Surgeon. C. M. Harpster, Toledo.—p. 478.
*Diagnosis and Treatment of Meningitis. W. J. Stone, Toledo.—p. 483.
Neuropsychiatric Problems of Future With Suggestions for Their Prevention. C. W. Sawyer, Marion.—p. 492.
Local Health Administration in Ohio. A. W. Freeman, Columbus. —p. 495.
*Importance of Balanced Diet. E. S. Everhard and G. Felker, Dayton. —p. 498.

Diagnosis and Treatment of Meningitis.—The mortality in 227 instances of epidemic meningitis observed by Stone was 29.0 per cent. The mortality in fourteen instances of meningitis due to mixed infections, such as streptococcus or pneumococcus with meningococcus, was 92.8 per cent. The mortality in eighteen instances of meningitis, due to other organisms than the meningococcus, was 88.8 per cent. During the course of the epidemic 196,000 cultures were taken for carriers. The highest percentage of carriers found was 6 per cent.; the average for the entire series was 2.1 per cent. Five per cent. of the patients with meningitis had been under treatment for the carrier state at an earlier date. The spinal fluid was cloudy in 90 per cent. of first punctures. The fluid was clear, but organisms were found in less than 1 per cent. of the recovered patients and in 2.6 per cent. of the fatal instances. The average number of intraspinal treatments in the recovered patients was eleven; the average total amount of serum each received was about 300 c.c.; the average total spinal fluid drainage was about 575 c.c. The average period of illness was fifty-two days. Among the fatal instances the average number of days under treatment before death was ten. Among 161 recovered patients, 9.3 per cent. had petechiae while among sixty-six fatal instances, 21.2 per cent. exhibited petechiae. Positive blood cultures were obtained in a larger percentage of patients with petechiae, while negative blood cultures were, as a rule, obtained in those patients not manifesting petechiae. The mortality among forty-eight patients who received combined intravenous and intraspinal therapy was 27.1 per cent.

Balanced Diet.—It is claimed by Everhard and Felker that very few people eat too much, but it is difficult to keep the fats down. Under all other circumstances the fat excess makes trouble. An excess of fat in the diet renders the urine acid to methyl red and results in bodily distress of various types. The authors suggest that high fat percentage keeps the protein and carbohydrates so low as to produce anemia and other disorders of malnutrition.

Public Health Journal, Toronto

August, 1919, **10**, No. 8

Sanitation In War. J. W. S. McCullugh, Ottawa, Can.—p. 345.
Bacteriology of Swelled Canned Sardines. W. Sadler, Vancouver, Can.—p. 355.
Diphtheritic Wound Infections. J. G. Fitzgerald and D. E. Robertson, Toronto, Can.—p. 360.
*Mental Deficiency from Preventive Aspect. M. Young.—p. 363.

Mental Deficiency from Preventive Aspect.—The points on which Young lays special stress are: The importance, from the point of view of mental hygiene, of maternity and child welfare work, and particularly of antenatal work. The education of the physician, the health visitor and school teacher, the social worker, and all others likely to come in contact with very young children in the beginnings of mental deficiency. The special care, from the earliest possible age, of the child with a bad mental tendency. The continuation of an advocacy for the prevention of the perpetuation of the mentally unfit. Increased activity in the segregation of the special cases of mental defect. The establishment of psychiatric clinics. The compulsory notification of cases of mental deficiency.

Social Hygiene, New York

July, 1919, **5**, No. 3

G. H. Q., A. E. F., Bulletin No. 54 On the Venereal Problem. S. Harris, U. S. Army.—p 301
Police and Public Health. R. W. Pullman, Washington, D. C.—p. 311.
Massachusetts Plan against Venereal Disease. A., N. Thomson, U. S. Army.—p. 317.
Social Legislation and Vice Control. J. Mayor, New York.—p. 337.
Prudery and Child. W. M. Gallichan, London, England.—p. 349.
Law Enforcement; A Plan for Organized Action. P. Popenoe, New York.—p. 355.

Southwestern Medicine, El Paso, Texas

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Surgery of Appendix. J. H. Morford, El Paso.—p. 1.
Rupture of Mediastinum. R. G. Jones, El. Paso.—p. 4.
Observations of an Army Tuberculosis Examiner. D. C. Twichell, Albuquerque, N. M.—p. 6.

Surgery, Gynecology and Obstetrics, Chicago

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*Radical Cure of Pelvic Deformity. H. Jellett, Dublin, Ireland.—p. 117.
Factors that Enter Into Surgery of Prostate. J. B. Deaver, Philadelphia.—p. 126.
*Infective (Secondary) Hemorrhages from War Wounds. H. Neuhof and F. B. St. John, New York.—p. 130.
*Transplantation of Bone for Defects of Head and Neck of Femur. C. Davison, Chicago.—p. 142.
*Recurrence of Exophthalmic Goiter after Thyroidectomy. H. G. Sloan, Cleveland.—p. 148.
Vesical Diverticulum. Analysis of Twenty-One Cases. F. Hinman, San Francisco.—p. 150.
Case of Pregnancy and Labor Following Amputation of Cervis Uteri. O. S. Pavlik, Chicago.—p. 172.
*Occurrence of New Growths in Abdominal Wall after Laparotomy. W. C. Danforth, Evanston, Ill.—p. 175.
*Three New Amputations of Foot, Designed to Retain Calcaneal Tread. C. E. Corlette, Sydney, Australia.—p. 177.
Neoinsertion of Round Ligaments; Caballero's Operation. E. Nicholson, Buenos Aires, Argentine.—p. 194.
Technic for Bloodless Hysterectomy. B. Van Hoosen, Chicago.—p. 196.
Two Cases of Elephantiasis of Scrotum. L. N. Bell, Tsingkiampu, China.—p. 199.
Treatment of Sac In Herniorrhaphy. A. M. Miller, Danville, Ill.—p. 201.
Fracture of Neck of Femur in Feeble. W. D. Wise, Baltimore.—p. 201.
Congenital Radioulnar Synostosis. J. W. Sever, Boston.—p. 203.

Radical Cure of Pelvic Deformity.—Jellett is firmly convinced that pubiotomy is a safe operation. It both enables a particular labor to be terminated satisfactorily and it cures certain degrees and types of contracted pelvis. He insists that it should be performed as long before the delivery of the patient as possible. On the other hand, he says, these are three points which are still to be decided: Should pubiotomy be performed independently of pregnancy and labor? Should it be done by the open method? Should any special steps be taken to prevent bony union? In Jellett's opinion it would appear as if the first two questions should be answered in the affirmative and that by so doing complications will be prevented.

Infective Hemorrhages from War Wounds.—Infective hemorrhage occurred in forty-five patients of a total of about 5,000 surgical cases that passed through the hospital in which Neuhof and St. John were stationed in one year. Many of these cases were minor ones, others did not require surgical intervention. Its incidence is, therefore, better appreciated in the statement that sixty-five of a total of 2,332 operations were undertaken for its control (2.79 per cent). The occurrence of infective hemorrhages varied considerably with the different convoyés of wounded but was in general proportionate to the frequency of infection. The authors gained the impression that it became less common with the wider operative exposures that were practiced more and more frequently. Infective hemorrhages occurred most often if more conservative or no operative procedures were employed in the treatment of the wound. Brief histories are given of these cases.

Bone Transplants in Defects of Femur.—Davison cites cases of recent fracture of the neck of the femur without impaction, and cases of ununited fracture of the neck of the femur with diminished vitality of the capital fragment which were repaired by transplanting a segment of fibula across the nonunion, and cases in which the head of the femur, destroyed by injury or disease, was replaced and fair function reestablished by transplantation of the head and upper part of the fibula into the upper end of the shaft of the femur in such a manner that the articular surface of the head of the fibula articulated with the acetabulum.

Recurrence of Exophthalmic Goiter.—A study of the case histories of patients suffering recurrences of exophthalmic goiter has led Sloan to believe that in many instances, if not always, the exciting cause of exophthalmic goiter and of its recurrence will be found to be of an infection, usually focal in character, which must be eradicated before cure is possible.

Occurrence of New Growths in Abdominal Wall After Laparotomy.—Two new growths in laparotomy scars, one a true desmoid and the other a fibrosarcoma, are reported by Danforth.

New Amputations of Foot.—Corlette's paper was also published in the *Medical Journal of Australia,* **1**:479, 502, 526 (June 14, 21 and 28) 1919; **2**:8 (July 5) 1919, and was abstracted in The Journal, Aug. 16, 1919, p. 560.

Texas State Journal of Medicine, Fort Worth

July, 1919, **15**, No. 3

Health Conservation. J. L. Davis, Waco.—p. 114.
Some Factors Determining Development of Public Health. O. Davis, Austin.—p. 117.
Medical Inspection of Immigrants with Special Reference to Texas-Mexican Border. J. W. Tappan, El Paso.—p. 120.
Control of Malaria. P. W. Covington, Austin.—p. 124.
Problem of Addict. O Dowling, New Orleans.—p. 126.
Sleeping Sickness. K. H. Beall, Fort Worth.—p. 129.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single ase reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

June, 1919, **16**, Nos. 184-186

Duodenal Stenosis. E. Cautley.—p. 65.
Catarrhal Jaundice Associated With Influenza in Children. E. Bronson.—p. 73.
Influenza in Infants. C. Achard.—p. 78.
Case of Ectopic Urinary Bladder. R. Thompson.—p. 80.
Case of Congenital Urethrocele. F. C. Pybus.—p. 87.
Case of Lipodystrophia Progressiva. F. P. Weber and T. H. Gunewardene.—p. 89.
Case of Myasthenia Gravis. J. Thomson.—p. 92.
Experiences at a Ringworm Clinic. H. Davis.—p. 93.
Retrospect of Otology, 1918. M. Yearsley.—p. 97.

Duodenal Stenosis.—An infant, aged 12 months, had a convulsion" while nursing, at 10 days of age, but had no ubsequent attacks. Breast feeding was continued for five nonths, with the addition of one bottle daily of milk and vater at 4 months of age. He was then weaned. All his life ie had been liable to feverish attacks, temperature from 101 o 104 F., with "green sickness;" bringing up mucus and assing it per anum. These attacks had become worse. The tomach was considerably dilated and gastric peristalsis was ery marked, a doubtful swelling being felt in the pyloric egion. On exploration three days later the pylorus was ound widely dilated, hence the obstruction was undoubtedly ituated lower down, but the state of the child did not warant further exploration or gastro-enterostomy. The boy lied two weeks later at the age of 13 months. The postnortem examination showed a stomach dilated and hyperrophied; pylorus widely dilated, admitting the first finger. he first part of the duodenum was dilated into a more or ess spherical sac over 2 inches in diameter. The second art, for a distance of 1 inch, was extremely stenosed, merely dmitting the passage of a probe; and the duct entered about he middle of the stenosed portion. There were no other bnormalities. The remarkable feature of the case was the rolonged duration of life with such an extreme degree of tenosis. There was no history of any attack of tetany in is case.

Catarrhal Jaundice with Influenza.—Bronson cites twelve ases of acute catarrhal jaundice in children who had been xposed to influenza but who had not had the disease in its sual form. In two other children and one adult jaundice ollowed a typical attack of influenza.

Influenza in Infants.—Achard claims that influenza in the ifant is by no means exceptional. The forms of the disease iay differ and the gravity vary. The infant does not possess ny real immunity, but is merely exposed to contagion from ithout, the infection being chiefly contracted from the iother. Achard has seen thirty-two cases in children less ian 2 years of age cared for at the Neker Hospital.

British Medical Journal, London

July 12, 1919, **2**, No. 3054

Disappointments After Gastroenterostomy. B. Boynihan.—p. 33.
Influence of Deficiency of Accessory Food Factors on the Intestine. R. McCarrison.—p. 36.
Investigation of End Result in Blood Transfusion. W. G. Waugh.—p. 39.
Mastoiditis. A. Dighton.—p. 40.
Two Cases of Acute Perforated Gastric Ulcer: Operation: Recovery. E. Huntley.—p. 41.

Investigation of End Results in Blood Transfusion.—mong 124 cases of transfusion of blood done by Waugh, icompatibility has been met with on three occasions. In wo of these transfusion was abandoned, no ill effects peristing. The third case occurred in a patient suffering from yemia. Injury to the donor occurred once, probably the esult of the transfusion tube having been reintroduced into ie donor's vein after being employed on the recipient. In losing the donor's wound, Waugh makes a point of removig one-half inch of the vein opened in case it may have uffered damage during the proceedings.

July 19, 1919, **2**, No. 3055

Symptoms, Causes and Prevention of Anoxemia. The Value of Oxygen In Its Treatment. J. S. Haldane.—p. 65.
War Lessons As Applied To Civil Practice. R. Sanderson.—p. 71.
*Reamputation. A. E. Chisholm.—p. 73.
Case of Accidental Transference of Malaria Parasite in Course of Transfusion. A. S. Gubb.—p. 74.

Reamputation.—Chisholm has found the following points of practical value in reamputating: Avoid a terminal scar. It is rarely necessary, and probably rarely wise, to include muscle in the flaps. A good fibrous pad is formed between the skin with its integuments and the sawn end of bone. Reamputate clear of the disability for which reamputation is being performed, and try to make sure that no further operation will be necessary. In dealing with terminal sequestra a difference must be made between those cases in which there is little or no active sepsis present and those in which sepsis is pronounced. Reamputation should not be performed in the presence of a really actively septic wound. If the wound fills up with clot, for example, after a reactionary hemorrhage, it is well to open it right up under a general anesthetic, clear out the clot, resuture and drain in the usual way. Otherwise there will be great risk of a septic state ensuing. If the skin is scanty, and if it is important to preserve the length of the stump with a view to future function and fitting, extension may be applied by means of glue or strapping stretching from the stump to some form of wire splint. In amputation a short distance below the knee it is well to apply a posterior splint before the patient comes out of the anesthetic, for there is a great tendency for the knee to assume the flexed attitude of rest, and, if convalescence be delayed, a certain amount of contracture of the hamstrings, often difficult to overcome, may take place. If sepsis appears in a mild form after operation, fomentations or Carrel's treatment may be applied for a few days. If reamputation has to be performed in the presence of a sinus only very mildly septic, or if the muscles do not look very healthy on section, a flavine pack will be found of value, the wound being left open with a view to delayed primary or secondary suture later; or bipp may be applied, suturing the wound and providing drainage for serous oozing for a few days. In amputation below the knee the anterior edge of the tibia should be bevelled so as to prevent the sharp edge from pressing on the anterior flap. Chisholm's usual routine, before suture of the wound, has been to swab the fresh raw surface with ether, which, besides acting as an antiseptic, tends to encourage bleeding, so that small vessels which might lead to troublesome bleeding later on can be ligated at the time of operation. Ether tends also to show up unhealthy muscle by the fact that it may not react so well to the stimulus. This especially applies to avascularized damaged muscle seen soon after the infliction of the primary wound. The wound is then closed and sutured accurately. A narrow rubber dam is introduced at each end of the wound. These drains are left in for two or three days and then removed, provided no sign of infection has appeared. A thin rubber dam provides very efficient drainage and is preferred by Chisholm to tubing in most cases.

Journal of Tropical Medicine and Hygiene, London

July 15, 1919, **22**, No. 14

*Bilharziasis Treated by Intravenous Injection of Antimony Tartrate. J. B. Christopherson and J. R. Newlove.—p. 129.

Bilharziasis Treated by Intravenous Injection of Antimony Tartrate.—The authors are convinced that this treatment is specific and that it is a means of eradicating bilharzia from Egypt and the Sudan and from other places. They recite their experience in a considerable number of cases.

Lancet, London

July 26, 1919, **2**, No. 5004

*Initiation of Wound Shock and Its Relation to Surgical Shock. E. M. Cowell.—p. 137.
*Jaundice Among British Troops in Northern Italy. H. H. Tooth.—p. 144.
*Effects of Artificial Pneumothorax. S. V. Pearson.—p. 148.

*Outbreaks of Cerebrospinal Fever in Relation to Atmospheric Humidity: Influence of Humidity of Overcrowding. A. Compton.—p. 151.
Malaria from Surgeon's Standpoint. M. White.—p. 154.
*Case of Multiple Epulides. W. W. James.—p. 156.

Initiation of Wound Shock and Its Relation to Surgical Shock.—A number of points in connection with shock are emphasized by Cowell, such as the psychic aspect of the case and the loss of circulating fluid and body heat. He agrees with other observers that during operation in such cases, or where the anatomic interference contemplated is at all extensive, the surgeon should insist on gas and oxygen anesthesia either alone or combined with regional anesthesia. During the operation a falling pressure may be counteracted by giving from 500 to 1,000 c.c. of a 6 per cent. gum solution in physiologic solution of sodium chlorid. There is no evidence of any permanent benefit following the injection of any of the numerous drugs recommended from time to time.

Jaundice Among British Troops in Italy.—The observation made by Tooth and Pringle suggest that jaundice may occur as a complication of influenza.

Effects of Artificial Pneumothorax.—Pearson's report is based on the experience gained from twenty-one patients with severe pulmonary tuberculosis whose pneumothorax he induced artificially, except in one case. The exception developed a spontaneous hydropneumothorax which Pearson converted into a controlled pneumothorax. Eleven of the twenty-one persons are alive, and all except two of these are enjoying good health and following their usual vocation. Nearly all of the ten who died had their symptoms much alleviated and their lives materially prolonged, in several instances by years, during which they enjoyed fairly good health and followed their occupations. The restoration to health and activity of most of the eleven is said to be wonderfully complete.

Cerebrospinal Fever and Atmospheric Humidity.—The studies of cerebrospinal meningitis in Egypt made by Compton add little that is new to our knowledge of the disease and its prevention, but, they afford a striking confirmation of the hypothesis previously advanced associating these outbreaks with a high degree of atmospheric humidity when the meningococcus is about. A "carrier rate" of only 1 per cent. among "noncontacts" taken at random in the Alexandria District (Egypt), and constituting therefore a fairly good "sample," as against a rate ten or even twenty times as high in England under similar circumstances, i. e., working with the same medium and technic, suggests an explanation of the comparative immunity of Egypt from the disease. With the meningococcus so little about, atmospheric humidity in Egypt gets little chance to precipitate outbreaks. Compton indicated by ventilation studies, based on the hygrometric state of the atmosphere met with indoors in occupied quarters during sleeping hours, how the greatest attention requires to be paid to ventilation as a corrective of overcrowding, in view of keeping the indoor humidity as low as possible, considering the part attributed by him to atmospheric humidity in the etiology of cerebrospinal fever.

Multiple Epulides.—In James' case every tooth of the temporary and permanent set which had erupted had associated with it an epulis. The patient was 11 years of age, and not a mouth breather. Very radical surgical intervention, with extraction of the teeth, controlled the condition.

Bulletin de l'Académie de Médecine, Paris

June 24, 1919, **81**, No. 25

Smallpox at Paris during the War. R. Wurtz.—p. 833. See Paris Letter.—p. 350.
*The Centenarians of California. O. Laurent.—p. 835.
*Sun Bath Schools. P. F. Armand-Delille.—p. 840.
*Races of Pneumococci. M. Nicolle and E. Debains.—p. 843.
*Serofibrinous Pleurisy. P. Emile-Weil.—p. 846.

Centenarians.—Laurent remarks that the alleged exceptional longevity in Bulgaria, the land of yoghurt, seems to be a question of chemistry, but the exceptional number of centenarians in California seems to be due to the natural causes of the climate, that is, the generally moderate and constant temperature, the fertility of the soil ensuring wholesome food, and the purity of the air as the state may be said to have no manufactures while the ocean, the mountains and the vegetation are constantly purifying the air. Children live out of doors more than elsewhere, and 300 centenarians are recorded to a population of over three millions. He adds that the California centenarians are distinguished by their mental and physical vigor. Laurent describes in particular Captain Diamond whose certified record shows that he was over 118 years old at his recent death, and quotes from his book "Secret of a Longer Life and More Pleasure in Living It." Laurent adds that the more we can study the facts relating to longevity the nearer we come to the problem of life in general, and especially of what he calls infra-life, such as, for instance, the beating of a turtle's heart that is being perfused but is shut off from the vital processes otherwise. [Laurent went to California to study the centenarians and their environment.]

Heliotherapy School.—Last year Armand-Delille organized a sun bath school, like Rollier's at Leysin, for the children of repatriated tuberculous women. The school was in a hilly region in Savoie, and every pleasant day forty or fifty children, dressed only in trunks, held school out of doors. They returned to the school building for lunch, and on rainy days the children were dressed and stayed under a shelter. The classes alternated with games and gymnastic exercises, and the children were thus engaged from 8 till 4:30. By the end of a month the favorable influence was evident, and by the end of three or four months the physical transformation was complete, the suspicious glands could no longer be felt. Similar results were obtained at the Sylvabelle station (Var) with 125 repatriate children who took sun baths without clothing and all winter long. These experiences were on a scale large enough to fully confirm the necessity for heliotherapy as an integral element in outdoor schools. He does not hesitate even to declare that a course of preventive heliotherapy should form part of the hygiene for every child. It can be easily arranged on this principle of the sunlight school. Of course medical supervision is necessary, particularly as a course of sun baths may be dangerous with pulmonary tuberculosis on account of the congestive reactions which it may induce. With this reserve, preventive heliotherapy is a powerful means for fortifying the organism, and is especially effectual in treatment of localized tuberculous lesions in glands.

Different Races of Pneumococci.—Nicolle and Debains reiterate that the agglutinating power of bacteria is the criterion of the race; the power of fixation of complement, on the other hand, is the criterion for the species. There may be other antigens, but those responsible for agglutination and fixation predominate. They are not peculiar to any one bacterium: Of eighty-three specimens of streptococcus tested, eighty-two agglutinated the pneumococcus I and II, and one the pneumococcus I; the cholera vibrio agglutinated both strains, while the pneumococcus II was agglutinated by meningococci, staphylococci, typhoid and dysentery bacilli, and slight agglutination for pneumococcus III was evident with some streptococci. They found further in negroes a pneumococcus IV, "such as the Americans list as purely negative," which in 8 per cent. showed average agglutination, but in 40 per cent. it displayed extremely pronounced agglutinating powers, hyperagglutinability.

Induced Pneumoserosa in Treatment of Serofibrinous Pleurisy.—Weil has now a record of fifty cases of serofibrinous pleurisy in which he injected air, after evacuating the effusion, until the pressure was the same as before. This ensured healing without sequelae in 82 per cent. of the cases, and the failures were in cases with pre-existing adhesions or tuberculous lesions in adjoining organs. A complete success therefore can be realized only when the diaphragm is free, but in one case the diaphragm finally regained its full play after a year of treatment, with ten interventions. In 34 per cent., healing was complete in two or three months; in a few in less than a month. In a parallel series of 86 cases simply punctured, without attempting to induce the *icumoséreuse*, only 16 per cent. healed without disturbing :quelae. Of course tuberculous processes elsewhere inter-re with complete healing.

Journal de Médecine de Bordeaux

January 25, 1919, **90**, No. 2

ulmonary Complications of Influenza. R. Damade.—p. 27.
esection of Stiff Joint in Finger. H. Lefèvre.—p. 35.

Resection of Stiff Joint in Finger.—The ankylosis in the iree cases was the result of a war wound of the finger, with ippuration. Complete recovery of the use of the finger fol-wed resection of redundant tissue and reconstruction of pproximately normal conditions in the joint.

March 25, 1919, **90**, No. 6

Neutral Solution of Chlorinated Soda in Treatment of Puerperal Vaginal Infections. J. Andérodias.—p. 107.
oisoning from Castor Oil Seeds. A. Baudrimont.—p. 108.
odin in Treatment of Influenza. L. Boudreau.—p. 110.

Chlorin Treatment of Puerperal Vaginal Infection.—ndérodias applied Dakin's method of irrigation with neutral olution of chlorinated soda in a case of puerperal vulvo-iginal thrombosis with gangrene. The outcome was favor-ole.

Poisoning with Castor Oil Seeds.—Baudrimont was called a man and his wife who had taken castor oil seeds, the an eating twenty-four and the woman twelve. They ate iem like nuts, and an hour later both were seized with vere vomiting and diarrhea, entailing great suffering and xhaustion, the woman screaming with cramps late into the ext day, the respiration irregular and panting. Both were ee from all disturbances by the fourth day, except the xhaustion. Llaguet tells of a case in which a child died ter picking and eating a single seed. A number of authori-es are cited by Baudrimont to confirm the danger from the xic element in the outer covering of the seed.

Paris Médical

June 28, 1919, **9**, No. 26

The Diet with Diarrhea or Constipation. J. C. Roux.—p. 501.
Physical Training of Youth. Boigey.—p. 505.
Drug Cystitis in Typhoid. H. Roger.—p. 508.

The Diet with Diarrhea and with Constipation.—Roux views the diet which should be advised with acute and ironic diarrhea, with chronic diarrhea from fermentations, id with constipation, simple or with enteritis or fermenta-ons. Analysis of his recommendations shows that, in all, e aim in the diet proposed is to modify and regulate the velopment of the intestinal flora. The normal digestive nctions seem to require the symbiosis of certain bacteria. ut we can regulate the type and the intensity of fermen-tions and putrefaction, and in this way make the bacteria ork our will for us. As the inflamed bowel mucosa exudes albuminous fluid, the putrefaction bacilli are favored by is, and hence restriction to water is the best way to com-t diarrhea as this deprives the bacteria of this culture edium. The water should be boiled and the mouth rinsed oroughly and often. Rice water supplies a little nourish-ent. A liter or a liter and a half of water at least should given in the twenty-four hours to ward off damage from ss of fluids with acute diarrhea. The aim in feeding should to supply carbohydrates, sugar and starch. The starch vors proliferation of acid-producing bacteria. Breakfast iould be tea or cocoa with dry toast or gruel; at 10, rice ater; at noon a thick gruel or *bouillon de légumes* freshly epared, with thoroughly cooked rice or potatoes and jam, ith dry toast or zwieback; at 4, cocoa made with water. t 6 the same meal as at noon. Kefir or yoghurt can soon added, and a pudding at dinner or supper, made with milk. ater, purées of vegetables and, finally, some meat. Any cess of fats should be strictly avoided and only fresh itter used. This diet can be kept up a long while and is eful also in chronic diarrhea.

He says that with dysentery the frequent stools are only ucus and pus from the lower bowel. The patient in reality constipated, and a milk diet, preferably with kefir, is indi-ted. Improvement is manifested by the appearance of diarrheic stools, and then the above menu can be followed, as also with chronic diarrhea of the putrefaction type with putrid, dark colored stools. With chronic diarrhea of the fermentation type, the stools are light colored, and the reaction is acid. Carbohydrates must be avoided, and the use of legumes, potatoes and wheat restricted. Breakfast can consist of tea, cocoa made with water, dry toast, stewed fruit and butter. At noon, fish or meat, with rice or macaroni, cheese or pudding, stewed fruits and dry cakes. At 4 repeat the breakfast; at supper repeat the dinner. Potatoes and legumes can finally be cautiously resumed. In certain rare cases, the patients exhausted by the frequent stools, it may be necessary to restrict to water alone for a time and then give only raw meat and eggs, not allowing starchy foods until the stools have become putrid and alkaline. With children it may be best to restrict them to kefir and raw meat for a time, giving daily from 10 to 20 gm. of raw meat, to a total of 40 or 50 gm. Of course secondary diarrheas call for removal of the primary cause first.

With simple constipation he plans a dish rich in starch and fat to alternate with a cellulose dish; fruit four times a day. If there is not much toxic action, meat could be allowed at one meal. A little milk can also be taken, and three spoonfuls of bran a day may likewise prove useful. If there is much toxic action, large doses of lactose transform to acid the reaction of the cecum contents, as the *Bacillus acidophilus* gets a chance to flourish. When there is enteritis with the constipation, all the fruits and vegetables should be cooked. If there is much pain, the legumes should be dropped and the cooked fruit should be passed through a strainer. Agar will have to take the place of the laxative action of fresh vegetables. With constipation of the fermentation type, with much flatulence, all leguminous and raw vegetables must be dropped, and cooked fruits must be freshly prepared; cooked fruit standing for more than twenty-four hours is a culture medium for molds. Meat and cheese can supplement this ration, and paraffin oil gives the laxative effect. The distention from gases may kink the bowel at some point, and this should be combated.

Physical Training.—Boigey describes the special method followed at the Joinville School and the fine results obtained. Careful distinction is made, he says, between the "prepubertary," "postpubertary" and athletic exercises.

Bladder Disturbances During Hexamethylenamin Treatment of Typhoid.—Roger describes in detail a moderate case of typhoid in a man of 33 who was given hexamethylenamin by the mouth in doses of from 1.5 up to 4 and 6 gm. It did not ward off a very serious relapse, and it caused symptoms of actual cystitis. He had never had any bladder trouble before. Roger compares this painful and annoying disturbance from the medication to similar experiences on record, including Fullerton's case of medicinal cystitis in The Journal, Jan. 13, 1912, p. 78.

Presse Médicale, Paris

July 3, 1919, **27**, No. 37

*Pernicious Anemia with Jaundice. Chauffard and Bernard.—p. 361.
*Cancer of Colon. E. Desmarest.—p. 363.
*The Residue with Gastric Digestion. Léon-Meunier.—p. 364.
*The Vertigo that Restores the Hearing. P. Sollier.—p. 366.

Pernicious Anemia with Jaundice.—A previously healthy man of 51 developed pernicious anemia with jaundice, then preleukemic myelemia and finally subacute and terminal myeloid leukemia. The jaundice was not accompanied by retention of bile. In three weeks the reds dropped from 1,630,000 to 760,000, but the hemoglobin kept at 50 per cent. throughout. At the same time, the whites ran up from 2,500 to 331,000 and at last the myelocytes formed 97 per cent. The curves of reds and whites thus crossed each other.

Cancer of the Colon.—Desmarest has removed a cancer of the left colon in two cases by a left transverse supra-umbilical incision which afforded unusually ample access to the splenic angle of the colon and also to the left portion of the transverse colon and the entire descending colon. A cushion under the thorax throws the whole region into prominence, and section of the phrenocolic ligament permits easy and complete mobilization of the transverse-descending angle of the colon. If the bowel is completely obstructed, the feces should be diverted through an ample incision in the cecum, suturing the mucosa to the skin.

Residues of Gastric Digestion.—Meunier has long been convinced that the usual test-meal findings do not mirror the true condition in the stomach because the gastric secretion may be more or less active without being pathologic, and because the principal function of the stomach is not secretory but motor. With abnormal conditions, four hours after a meal the stomach may still contain some of the meal, or it may all have been evacuated but the empty stomach continues secreting gastric juice. The only way to ascertain these conditions with precision is to introduce the stomach tube and have the subject lie prone, absolutely horizontal, thus utilizing the force of gravitation, instead of the usual method with the patient seated, and thus having to combat the force of gravitation. He has abandoned completely the usual test meal, and merely tells the patient to take a few stewed prunes after his last meal. The next day he eats nothing but 300 gm. of soft mashed potato, and four hours later he drinks 100 c.c. of distilled water containing 10 gm. of sugar. Then he lies prone, turning from side to side to mix the contents of the stomach, after which he sits up and the tube is introduced, and then he lies prone again. The fluid which runs out through the tube is tested for sugar, the dilution of the titrated sugar solution showing the volume of the fluid in the stomach at the time. Meunier asserts that when the residue consists merely of gastric secretion, medical measures only are called for, but residues of food, scraps of the prunes, denote some progressive trouble that calls for surgical intervention. With this method of exploration of the stomach, these surgical affections can be detected at an earlier stage than is otherwise possible, and the prospects of surgical intervention are correspondingly brighter.

Vertigo that Cures Deafness.—Sollier refers to Lermoyez' article (summarized recently, March 1, 1919, p. 685), that described certain cases of progressive deafness and malaise in which an attack of sudden vertigo is followed by restoration of the hearing. He ascribed it to a local spasm of the vessels in the internal ear, the relaxing of the spasm causing the dizziness. Sollier intentionally induces dizziness to break up the spasms or other cause of the deafness, and has been able by this means to restore the hearing in some cases of hysteric deafness, as he describes in detail. The dizziness is induced by plugging both ears deep with the forefingers and pressing repeatedly on the tragus. This induces intense dizziness so that the subject falls if the fingers are drawn suddenly out of the ears. The same effect can be realized by sending a faradic current through the skull at the tragus level. Hysteric deafness after aerial shock may be due to vascular spasm, but it is accompanied by anesthesia of the ear. The latter disappears as the hearing returns. The sudden disappearance of the deafness in these hysteric cases suggests that it is due to vascular spasm, as in Lermoyez' gouty patients, and thus hysteria cannot be regarded as exclusively of psychic origin. His research confirms the physiologic conception of hysteria.

July 7, 1919, **27**, No. 38

*Unheated Serum in Diagnosis of Syphilis. Rubinstein.—p. 373.
*Improved Crusher Clamp. T. de Martel.—p. 374.
Traumatic Aerocele of the Brain. A. Barbé and R. Glénard.—p. 376.

Unheated Serum in Diagnosis of Syphilis.—Rubinstein points out some sources of error in the Hecht method for seriodiagnosis with unheated serum. He insists that parallel tests with heated and unheated serum are indispensable.

Improved Clamp.—De Martel's crusher is formed of two blades jointed at the outer end like a closed razor. They have a slight outward curve, and the clamping is done with another instrument which locks the ends of the clamp blades together. His description is illustrated, and the advantages of this simple crushing clamp are lauded as he compares it with Mayo's and Doyen's cumbersome clamps with handles and uneven crushing of the tissues, the pressure growing less toward the tip. His clamp ensures even pressure throughout, and facilitates suture.

Progrès Médical, Paris

June 7, 1919, **34**, No. 23

*Carbon Dioxid Snow in Dermatoses. L. Lortat-Jacob and G. Vitry.—p. 219.
Abscess in Lung after Gassing. A. Clerc, L. Ramond and H. Guillaume.—p. 222.
*Hemolytic Jaundice. M. Loeper.—p. 223.
*Spa Treatment of Nephritis. J. Cottet.—p. 225.

Carbon Dioxid Snow in Dermatoses.—Lortat-Jacob's improved method of applying carbon dioxid snow was mentioned recently in these columns, August 9, page 456. He here reports with a few illustrations the complete cure in four out of five cases of old ulcerating epithelioma of the face; four of four cases of lupus; a case of old rebellious nodular folliculitis with hypertrophy; five of five cases of keloid, including one of painful keloid, and other cases to a total of thirty-five. The results were so good that he does not wait for further experience to commend this method of treating dermatoses.

Hemolytic Jaundice.—The spleen was much enlarged in Loeper's case and the anemia was pronounced, while the red corpuscles swung periodically from 800,000 to 1,500,000 and back again, unmodified by any treatment. The hemolytic jaundice in this case presented characteristics of both the congenital and the acquired types, and the cyclic course suggests a parasitic origin. This assumption is confirmed by the benefit from arsenic in the form of arsphenamin given by the rectum. Inoculation of guinea-pigs with blood and urine gave negative results.

Mineral Waters in Treatment of Nephritis.—Cottet discusses the indications for different mineral waters when it is a question of modifying the diathesis or other disorder to which the kidney disease is secondary; also the indications when it is desired to act directly on the kidney or to ward off the evil effects of the deficient elimination of waste through the kidneys.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 21, 1919, **49**, No. 25

*Traumatic Hernia. D. Pometta.—p. 905.
*Biology of Bothriocephalus. C. Janicki.—p. 915.
*Cesarean Section. A. Fonio.—p. 919.
*Volume of Blood Corpuscles. A. Alder.—p. 925.

Traumatic Hernia.—Pometta discusses hernia from the standpoint of industrial accident insurance.

Biology of the Bothriocephalus.—Janicki reports experimental research with the ligula species of bothriocephalus. The adult worm is a parasite in the intestines of water birds that eat fish, but the larvae live and grow to maturity in the fish, possibly taking two years for this, and the fish dies if the worm is not expelled. This extreme development in the first host he regards as a remarkable instance of complex adaptation of the parasite to its successive hosts.

Extraperitoneal Incision with Transperitoneal Cesarean Section.—Fonio describes a method of cesarean section that he has applied in eleven cases in which infection seemed almost certain. The intervention proved a complete success in all, with no infection of the peritoneum. He packs the vagina with iodoform gauze to push the cervix up as high as possible. The abdomen is incised between the symphysis and the umbilicus, and moist sponges are packed between the abdominal wall and the uterus, shutting off the peritoneal cavity, all under local anesthesia. Then a general anesthetic is given, and the uterus wall is incised. After delivery of child and placenta, the gaping wound in the uterus is drawn up out of the abdomen and its cavity rinsed and dried and the incision is sutured in tiers. Then the parietal peritoneum is drawn up and sutured tight around the wound, about 0.5 or 1 cm. from it, thus leaving the incision outside of the peritoneum. Four or five small glass drains are left in contact with the uterus wound, as a bloody serous fluid is squeezed out. By this means any infection of the uterus wound gets no chance to spread to the peritoneum. He refrains from tamponing the uterus in clean cases as this would prevent the free escape of secretions, but in dubious cases medicated tampons aid in checking infection. With ergot and a preparation of blood platelets, we can control hemorrhage readily without necessity for tamponing. In clean cases he sutures with silk. In future he intends in dubious cases to use catgut for the mucosa and muscle, and silk for the outer tiers. In none of the thirteen cases described in detail was there any sign of infection of the peritoneum with this extraperitoneal technic for the transperitoneal uterus incision.

Volume of Blood Corpuscles.—Alder describes some sources of error in the usual methods for estimating the volume of the blood corpuscles, and means to avoid them.

Annali d'Igiene, Rome

April, 1919, **29**, No. 4

Influenza in Italian Navy. F. Rho.—p. 193.
*Morphology of Diphtheria Bacillus. M. Pergola.—p. 196.
Infectious Properties of Influenza Sputum. G. Volpino.—p. 211.
Deficiency Diseases. I. A. Scala.—p. 215. Cont'n.
The Eight-Hour Day.. L. Verney.—p. 231.

Morphology of the Diphtheria Bacillus.—Pergola's research seems to indicate that the longer and slenderer form of the diphtheria bacillus is encountered only when conditions are particularly favorable for its growth. This explains why this type is associated with the severer forms of diphtheria. He discusses the preferable staining technic, and adds that the best means to keep the diphtheria and other bacteria alive and in good condition is by cultivating them in ordinary agar to which bouillon is successively added.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 1, 1919, **40**, No. 44

Typhoid and Dysentery in 1918 Epidemic. F. Ubertis.—p. 434.

June 19, 1919, **40**, No. 49

*Huge Femoral Hernia. E. Cartolari.—p. 498.

Huge Femoral Hernia.—The hernia had repeatedly recurred after operative treatment, and when Cartolari operated on the woman of 48 the hernia extended to 20 cm. below the knee, spreading out in the lower part to a width of 50 cm. The operation took almost two hours, the reduction of the viscera being done very cautiously. Part of the abdominal wall had to be entirely reconstructed. He used for this four flaps from the hernial sac, arranging them one above the other, and reenforcing the whole with a flap from the fascia lata, twisted around and sutured over the whole, with an additional flap from the muscle superposed. While convalescing in bed, a hernia developed on the other side, requiring a Bassini herniotomy. The woman has worn an abdominal band during the ten months since, as Cartolari does not dare to trust too much to the weakened abdominal tissues. The case is illustrated.

Policlinico, Rome

May 25, 1919, **26**, No. 21

*Induced Pneumoperitoneum. P. Alessandrini.—p. 641.
*Earning Capacity After Trauma of the Head. E. Fossataro.—p. 644.
Injury from Common Drugs. A. Filippini.—p. 651.
Da Vinci on the Organs of Sense. G. Bilancioni.—p. 656.

Induced Pneumoperitoneum for Radiologic Work.—Alessandrini comments on the successful introduction of oxygen or air into the peritoneal cavity, to throw the organs into relief for roentgen examination, as he has applied it in forty cases. He used an ordinary pneumothorax needle, the point made a little blunter, and his experiments on the cadaver confirmed the harmlessness of this technic. He had the patient recline, while Goetze preferred the semiseated position in his ninety cases. In the reclining position, the abdominal walls are more relaxed and the patient is more tranquil. The needle is pushed through the rectus muscle and transverse fascia, above the umbilicus, below the liver dulness. As soon as the fascia has been traversed, he injects a little oxygen and watches the manometer to see if the tip is in the peritoneal cavity. The manometer shows the respiratory fluctuations if the tip is in the cavity, and the liver dulness disappears; the palpating hand also feels as if it were suddenly arrested as it touches the viscera, especially the cecum, after a little oxygen has been introduced. The only mishaps encountered were that in one case the needle proved to be clogged, and in another the adhesions from chronic fibrous peritonitis had nearly obliterated the cavity.

The pressure and the amount of the oxygen must be recorded; the quantity ranged from 500 c.c. to 3 liters in his cases. It was extracted afterward in one case of large tumor as it caused dyspnea, but otherwise the gas was left to be absorbed. No effect on pulse, respiration or temperature was observed, not even with much meteorism. His experience teaches that the pressure should never be allowed to surpass that found at the beginning; this can be realized by introduring the gas slowly, as the pressure adapts itself unless large amounts are introduced too hastily. The oxygen rises, and hence the patient must assume different positions for the roentgen examinations to show up the different viscera, various modifications of the erect, horizontal and the knee-chest positions. His findings with this method of pneumoperitoneum were most instructive, and the technic worked out seems to be practical and harmless. The contrast meal throws no light on anything outside of the digestive tract, but oxygen exaggerates the contrasts with all the viscera.

Earning Capacity After Trauma of the Head.—Fossataro gives the clinical history of seventeen patients followed for nine up to fourteen years after an accident injuring the head. The outcome differed so widely in the various cases that it is impossible to foretell what the result will be after such accidents. Some had their earning capacity reduced by 50 per cent., others only by 15 or 20 per cent., although the trauma seemed graver in some in this latter group. Injury of the occipital region seemed more serious, even when there was no fracture. One man died from the effects of the trauma, fourteen years later, although he had shown great improvement during the last few months. The seventeen cases are described in detail, and Fossataro reiterates the necessity for being extremely guarded in pronouncing the prognosis after injury of the head.

June 29, 1919, **26**, No. 26

*Operative Treatment of Causalgia. R. Mosti.—p. 809.
Present Status of Treatment of Exophthalmic Goiter. G. Dragotti.—p. 812.
Health Insurance in Different Countries. L. Verney.—p. 817.

Causalgia.—Mosti reports a case of extremely severe causalgia in which the projectile seemed to have injured merely the artery alone. Resection of the segment of the artery involved, with its corresponding sheath, cured the agonizing pain at one stroke. This does not harmonize with the prevailing conception that causalgia is due to an ascending neuritis of a trunk nerve, or neuritis of the peripheral sympathetic. In his case the humeral artery was completely obstructed by thrombosis, and the lesion involved the artery alone. There was no injury of the nerve, but the sheath of the artery was involved in the lesion. The case suggests that injury of an artery may be the primal cause of causalgia. Even when the sheath alone seems injured, the artery may have suffered. Tenani insists on removing a segment of the sheath of both artery and vein in this "peripheral sympathectomy" as Leriche calls it. Bobbio recently reported eight cases of causalgia cured by "electrolytic decortication" of the nerve according to Negro's technic. The causalgia involved the sciatic in three cases, the median or the ulnar in two and in three both these nerves. In some of his cases the artery had been injured as well as the nerve. He also is convinced that the intervention should include the sheath of both vein and artery, but simple excision of the sheath of the artery has seemed to answer all purposes since Leriche introduced this "peripheral sympathectomy" in 1916.

Riforma Medica, Naples

June 21, 1919, **35**, No. 25

*Echinococcus Disease of the Lung. A. Fagiuoli.—p. 498.
*Reflex Contracture and Paralysis. C. Chavigny.—p. 502; Id. P. Boveri.—p. 502.
Present Status of Sporotrichosis Arthritis. G. Molinari.—p. 504.

Primary Echinococcus Disease of the Lung.—Fagiuoli emphasizes that in the case described there was nothing to distinguish the true nature of the process until radioscopy cleared up the diagnosis at once, showing the round cysts in the lung. The seroreaction was not positive and there was no eosinophilia until after exploratory puncture. Soon after the latter there were violent paroxyms of coughing, with blood-streaked expectoration, fever and rapid pulse, but the third day order was restored.

Reflex Paralysis and Contracture.—Chavigny reiterates that even long established hysteric paralysis and contracture may yield finally to the proper measures, as in a case of contracted hand described in which the *main figée* of four years' standing relaxed at once as the fingers were passively exercised under the faradic current. Boveri relates that in many cases sent to his service labeled reflex paralysis or reflex contracture, some lesion in the joint or tendon was finally discovered. An excrescence on the bone or a foreign body may finally reveal an organic cause for what is assumed to be a purely functional or factitious disorder.

Archivos Brasileiros de Medicina, Rio de Janeiro

February, 1919, **9**, No. 2

*Sexuality and Psychoneuroses. A. Austregesilo.—p. 85.
*Treatment of Vagotony and Sympatheticotony. H. Noronha.—p. 92.
*Improved Ureosecretory Constant. J. M. da Fonseca.—p. 100.

Sexuality and Psychoneuroses.—Austregesilo declares that his long years of experience as neurologist and psychiatrist have convinced him that sexuality is an important factor in most if not all cases of psychoses. In every form of dementia, toxic psychoses, psychoneuroses, imbecility and idiocy he has detected anomalies in the genital sphere in almost every case, if not in all. Erotic elements are evident in the delirious ideas. The history of mankind, he says, is a record of war and religious mysticism, and both of these are expressions of the sexual instinct, the manifestation of the strength of the male and of the self-sacrificing devotion of unselfish love. The problem of sexuality has been studied by poets, novelists and artists of all ages, but scientists have been very timid and reserved until Freud's pioneer work. In conclusion, Austregesilo offers the aphorism that those living normal sexual lives do not suffer from their nervous system.

Treatment of Vagotony and Sympatheticotony.—Noronha warns that the main thing in treatment of either condition is to aim to restore tone to the unstable nervous system as a whole; atropin can then be given for vagotony and epinephrin for sympatheticotony, but the doses should be small and cautiously given.

Improved Ureosecretory Constant.—Da Fonseca has modified Ambard's formula, to eliminate certain sources of error. The formula he advocates is based on the azotemia per liter; the actual and the normal amount of urine in the twenty-four hours, and the urea per liter of urine. The subject is prepared for the test the same as for the Ambard formula. The functional capacity of the kidneys is estimated by the proportion between the urea in the blood and in the urine and by the volume of urine secreted. The formula is thus as follows: The constant or coefficient equals the urea percentage in the blood, divided by the urea percentage in the urine, multiplied by the quotient obtained by dividing the actual volume of urine by the normal volume of urine. The standard for the normal amount of urine is calculated for each subject by adding to the weight in kilograms the excess in centimeters of the height above 1 meter. The figure thus obtained is multiplied by 10. For a woman he substracts 10 per cent. from the figure thus obtained. The calculation thus would be for a person weighing 70 kg. and 1.70 meters tall, $70 + 70 \times 10 = 1,400$ c.c. For a woman weighing and measuring the same, it would be identical except for substracting 10 per cent. $= 1,260$ c.c. The constant normal coefficient obtained with this new and simple formula ranges from 0.015 to 0.018 and it has proved remarkably instructive when compared with Ambard's constant and the clinical course. The simplicity of the formula is an advantage. When the coefficient runs up to 0.025, 0.050, 0.100, the kidneys are wofully deficient; with 0.200 or 0.250 there is scarcely any functional capacity left. Less than 0.010 also denotes severe kidney insufficiency, such as is observed in nephritis of the dropsy type.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

May, 1919, **2**, No. 5

*Sclerosis of Splanchnic Vessels. S. Martínez Gómez.—p. 257.
*Phlegmon in Ischiorectal Fossa. F. Martínez Suárez.—p. 267.
Cancer of the Pylorus. N. Mendizábal.—p. 279.

Sclerosis of Splanchnic Vessels.—The sclerosis in Gómez' three cases induced attacks like those of angina pectoris in the abdomen. Under repose and medical measures the condition improved, but it grew worse again as active life was resumed. The pain was always in the upper abdomen and never spread to the thorax, neck or arms. It came on almost suddenly, after the principal meal, and was brought on by exercise. It yielded rapidly to repose and did not return at any other time of the day in two of the patients. The third had the pain develop after each meal and also during the night, but it stopped when he stood up. In this case aerophagia evidently cooperated in the clinical picture. Such patients should lead a tranquil life, avoiding excitement and stimulants and overloading the stomach. The heart should be supervised.

Ischiorectal Phlegmon.—Suárez relates that periproctitis and peritonitis followed the ischiorectal phlegmon, with death the eighth day. The patient was a previously healthy man of 56.

Brazil-Medico, Rio de Janeiro

June 7, 1919, **33**, No. 23

*Colorimeter for Measuring Doses of Vaccines. A. M. da Cunha and C. de Miranda.—p. 177.
*Syphilis in Brazil. O. Clark.—p. 177. Com'd in No. 22, p. 169.

Dosage of Vaccines.—Da Cunha and de Miranda determine the strength of a bacterial vaccine by the opacity of the emulsion. They give the formulas to use with the colorimeter for the purpose, as worked out by comparative tests with Sabouraud's weighing method.

Syphilis in Brazil.—Clark relates that de Mendonça obtained a positive Wassermann reaction in 50 per cent. of the thousands of patients that passed through his surgical service at the Hospital de Beneficencia Portugueza during a certain period, but this hospital is for the Portuguese colony and the disease may have been acquired across the sea. Clark tells further of a group of 14 medical students of the best social standing, men who knew the dangers of venereal disease, but recent examination twelve years later shows signs of syphilis in 9, including several with grave visceral lesions. Clark's article was read at the First South American Congress of Dermatology and Syphiligraphy at Rio last fall, and the data he presented confirm the enormous prevalence of syphilis in Brazil. The vital statistics do not show this as the underlying syphilis may have been overlooked or, as in one case he knows of, the man of 30 committed suicide because he had contracted syphilis. He cites examples further of tuberculosis developing in a healed syphilitic cavity in the base of the left lung. He adds that syphilis seems to be even more prevalent in northern Brazil. A large proportion of the heads of families in northern Brazil die at about the age of 40, victims of cardiovascular, nervous or visceral syphilitic lesions. From his three years in the hospitals of Europe and New York and eight years in a Rio hospital, he thinks Brazil far surpasses those other countries in the prevalence of syphilis. General paralysis, which is said to be rare in tropical countries, is becoming more frequent as physicians are growing more skillful in diagnosing it.

Clark adds that there can be no doubt that syphilis in Brazil runs a mild course, as a rule, notwithstanding the inadequate treatment. The proportion of tertiary manifestations is very small in comparison to the total number of syphilitics. The race as a whole is the strongest he knows of, which contradicts the assumption that syphilis is an important factor in the degeneration of a race. He describes the findings in fifty cadavers with grave visceral lesions, supplementing this with the clinical history of 6 cases of syphilitic liver disease, with recovery in some; 2 with acute yellow atrophy of the liver subsiding under treatment, and one case of primary enlargement of the spleen with seconanemia, negative Wassermann reaction and anamnesis, the blood picture normal. The spleen measured 35 cm. returned to normal size under mercury. A few months a gumma developed in the abdominal wall, and at this the Wassermann reaction was positive. Later he ered from intense gastralgia which subsided likewise er mercury. In one young man of 18 the splenomegaly ned to be traceable to inherited syphilis. It subsided only ially under specific treatment; the liver was enlarged and there was some ascites. Splenectomy seems the relief in such cases.

Crónica Médico-Quirúrgica, Havana

May, 1919, **45**, No. 5

e in Childhood Prolongs Life After Forty. J. S. Fernández.—
. 147.
rpes of Cornea After Anti-Typhoid Vaccination. F. M. Fernández.
—p. 156.
compatibility of Quinin and Acetylsalicylic Acid. J. L. Yagüe y
Espinosa.—p. 157.

Gaceta Médica de Caracas, Venezuela

May 15, **26**, No. 9

condary Dyspepsia. L. Razetti.—p. 91.
ytocic Action of Quinin. R. Medina Jiménez.—p. 96.

econdary Dyspepsia.—Razetti refers mainly to dyspepsia ondary to appendicitis, describing several typical cases. patients had been treated and drugged for years until casual discovery of tenderness at McBurney's point first acted attention to the appendix. One woman applied to for an operation on the stomach as she was so weary of ing medicines for her hypochlorhydric dyspepsia of many rs' standing. In this case palpation revealed an ovarian t. In other cases the McBurney point gave the clue or tender gallbladder—in all, the removal of the ovary, endix or gallbladder seemed to cure at one stroke the onic dyspepsia. All patients with digestive disturbance explainable by other means should have the appendix mined. If this can be exculpated, all the other pelvic abdominal organs should be interrogated in turn, remem- ing that a chronic inflammatory process often develops hout any acute warning of its existence. Lobo corro- ated his statements, saying that the appendix is undoubt- y responsible for 50 per cent. of the cases of dyspepsia, Ruiz declared that these speakers overlooked the impor- ice of syphilis as a cause of dyspepsia. From simple persecretion to Dieulafoy's exulceration, all forms of dys- sia may yield to treatment of the underlying syphilis.

Revista Médica de Chile, Santiago

April, 1919, **47**, No. 4

yphus in America. R. Kraus.—p. 131.
ookworm in Coal Mines of Southern Chile. J. Noe.—p. 148.
ase of Cerebral Syphilis. H. L. Plaza.—p. 157.

Typhus in America.—This article has already been briefly ntioned in these columns, when it appeared elsewhere. aus emphasizes that neither by cultures nor by micro- pic or histologic findings is the differential diagnosis of hus possible. Even the process of necrosis in the walls the small arteries, and cellular infiltration around the mifications, to which E. Fränkel called attention as thognomonic of typhus, were found in three influenza cases the Hospital Muñiz at Buenos Aires. Monkeys react with ver to intraperitoneal injection of typhus blood. They are ore sensitive than guinea-pigs, but the monkeys of the mericas are less sensitive than those of the Old World. icolle has reported that the micrococcus of Malta or dulant fever is agglutinated with typhus serum more effec- ally than with any disease except Malta fever itself. The reaction with the *Bacillus proteus* isolated from the urine typhus patients, especially the strain known as X 19, is id to give a characteristic agglutination in 90 per cent. of ses. An alcoholic preparation gave more responses than e live cultures in Kraus' tests, and the alcoholic preparation said to keep for two years. Sordelli emulsifies two agar be slant cultures with 2 c.c. of physiologic saline and adds alcohol to four times the volume, and after setting aside for an hour, he decants the alcohol. The sediment is then emulsified with physiologic saline, the volume equal to that of the alcohol. He then adds 0.5 per cent. phenol, and after waiting twenty-four hours, adds 8 drops to the serum to be tested. The directions with a European preparation are that each 0.5 c.c. of diluted serum calls for 0.1 c.c. (4 drops) of the alcoholic preparation.

Revista Española de Cirugía, Madrid

March, 1919, **1**, No. 3

*Plastic Surgery of the Cheek. R. de Mata.—p. 129.
*Coexistence of Genitoperitoneal Tuberculosis and Uterine Fibromatosis. R. B. de Bengoa.—p. 135.
*Septic Phlebitis. Iñigo.—p. 143.

Surgery of the Cheek for Epithelioma.—De Mata's incision was carried from the ear to the middle of the chin but just below the jaw all the way except at the point of the chin, where it ran up to the lip. The diseased glands in the neck were then excised, and then the incision was carried around the edge of both lips to the median line. This allowed the entire skin of the cheek to be turned back to the orbit and nose. The tissues beneath were then turned back toward the ear, leaving the mucosa lining of the mouth intact except the gap where the epithelioma was cut out. This was repaired with mucosa from the lips, and the severed Steno's duct was reimplanted in the mucosa. The linear scar left is in the shadow of the jaw and is scarcely perceptible, especially as the man has grown a beard since. Healing was prompt and perfect, and the mouth could soon be normally opened.

Fibromatosis of the Uterus Plus Tuberculous Ascites.—De Bengoa lists the case described as *un caso clínico de ginecopatías antagónicas* on account of the coincidence of the tuberculous lesions and ascites with the fibromyomatosis of the internal genital organs and peritoneum. After resection he refrained from draining and applied heliotherapy, with excellent results.

Septic Phlebitis.—Iñigo noted a rise in temperature and acceleration of the pulse as the only signs in certain cases of insidious septic phlebitis. The fever is not high but occurs spasmodically and may be of brief duration, preceded by a slight chill or at least by a feeling of chilliness and malaise, when there may be nothing to suggest inflammation or suppuration in the wound. Necropsy in some cases of this kind cleared up the diagnosis for the first time. One of the typical cases described was that of a woman who had had a large left ovarian cyst removed and seemed to be smoothly convalescing, when she developed periods of malaise with slight chills, slight rise in temperature and pulse of 90 to 120, these brief periods alternating with euphoria. The laparotomy wound healed perfectly, but the patient said she felt as if she had hemorrhoids only they were higher up than they should be. No hemorrhoids could be discovered. The recurring slight and brief fever was ascribed to absorption of cyst contents, as some had been spilled at the laparotomy, and the woman was to have left the hospital at the end of the third week, when she died suddenly the night before Necropsy revealed embolism from septic phlebitis. There had been no edema at any time, no phlegmasia alba dolens, but if the blood had been examined when the woman complained of the "high hemorrhoids," it might have given the clue. At least, it would have shown the necessity for keeping the woman in bed. Septic phlebitis was responsible for 66 per cent. of the mortality with war wounds of the chest, according to Borrows, and in an even larger proportion with wounds in the limbs.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

April, 1919, **27**, No. 4

*Syphilis of Upper Air Passages and Ear. J. A. Pansardi.—p. 109.

Syphilis of Nose, Throat or Ear.—Pansardi reviews the manifestations of syphilis in the nose, mouth and larynx and in the organ of hearing. He discusses the diagnosis and the local and general treatment of each type at different ages and with inherited or acquired syphilis.

Semana Médica, Buenos Aires

May 22, 1919, **26**, No. 21

*Case of Adiposogenital Dystrophy. J. Destéfano.—p. 535.
Proposed Reform of Medical Curriculum. N. V. Greco.—p. 539.
*Hemorrhagic Purpura of Syphilitic Origin. L. U. Rabuffetti.—p. 541.
*Ossifying Myositis. R. A. Rivarola.—p. 544.
Hypospadias. Id.—p. 545.

Adiposogenital Dystrophy.—Destéfano says that the retrospective diagnosis in the man of 50 is that the inadequately treated attack of cerebral syphilis fourteen years before had modified the pituitary body and adjoining sugar center so that symptoms of perverted functioning in each became apparent. Obesity developed, with loss of genital functions, loss of all the hair on body and limbs, except at the pubis and axillae, and the urine finally showed up to 15.94 gm. of sugar. The pituitary body was seen to be smaller than usual, evidently the seat of sclerosis.

Purpura of Syphilitic Origin.—Rabuffetti argues that the syphilitic origin in the case of severe hemorrhagic purpura described is established by the complete cure under treatment for the syphilis alone. The patient was a painter of 27, but calcium chlorid and similar measures for the hemorrhagic purpura and complicating hydrarthroses failed to display the least benefit. Under mercury and arsphenamin, recovery was soon complete. The tolerance for arsphenamin was remarkable. Two or three months later he complained anew of pains in bones and joints at night, and treatment was resumed.

Ossifying Myositis.—The case described by Rivarola has been published before (Centeno, 1915), but the course since has shown the necessity for exceptional hygiene in this disease. The child keeps in good condition in the hospital, but when the parents take the boy home the condition develops acute aggravation. The child presents congenital deformity of the toes, the arrested development here confirming the general assumption of the embryonal origin of the disease. Rivarola adds in conclusion that congenital malformation, arrested development, of fingers or toes should warn of the possibility of the child's being a candidate for ossifying myositis later. The hygiene and development should be supervised with special care in consequence.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

May 10, 1919, **1**, No. 19

*Psychanalysis. J. Borst.—p. 1650.
*Calcium Content of the Blood in Children. S. B. de V. Robles.—p. 1663.
Oil Eczema. L. Heyermans.—p. 1671.
Lethargic Encephalitis or Encephalitic Influenza? S. J. Van Wijhe.—p. 1673.

Psychanalysis.—This is an address delivered by Borst at a conference of railroad physicians, as he thinks that their special field of practice can derive great benefit from Freud's pioneer work on the origin and cure of neuroses. He describes a number of striking incidents from his own experience, and emphasizes the difference between the results obtained with the older methods of treatment and those now realized by exploring and cleaning out the subconscious elements. Thirty years ago, for instance, he tried to cure a tendency to somnambulism with hypnosis, but the success proved transient and the somnambulism kept up. Now, in such a case, he investigates the circumstances of the first appearance of the tendency to somnambulism. This gives insight into the subconscious, and as this is brought into the light and discussed, a complete and permanent cure is realized. This we owe to Freud, he says, but Borst does not follow him to the extreme of accepting a sexual element in every case. It is this feature of psychanalysis which has attracted lay attention to it in an undesirable degree. In some of the cases Borst describes, the marriage of a sister below her rank, discovery of cheating by an employee, or a severe fright was the cause of the nervous diarrhea, hysteric instability, or attacks of depression, anorexia and nausea. He cured these patients by psychanalysis without seeking any sexual factors. Cases of bladder and rectum neuroses, especially in young girls, often subsided permanently when the practice of masturbation was discovered and combated.

Calcium Content of the Blood in Children.—Robles found that the calcium content in the children examined ranged from N/75 to N/90. It seemed to keep at a constant figure in the same child, when the Wright method for determination of the calcium in the blood was applied. In all such tests the time should be recorded; the findings differ the longer or shorter the time. Half a minute seems the preferable technic. His extensive tests of children with tetany failed to show any difference from normal in the calcium content of the blood.

Hospitalstidende, Copenhagen

June 4, 1919, **62**, No. 23

*Permanently High Blood Pressure. V. Topp.—p. 705.
*Syphilis in Etiology of Appendicitis. H. Boas and O. Wissing.—p. 709.

The Prognosis with Permanently High Blood Pressure.—Topp tabulates the findings at the Finsen Institute in 164 cases of permanently high blood pressure, above 180 mm., between 1913 and 1916. Recent reports in regard to 157 show that 83.5 per cent. have died since. The surviving 16.5 per cent. had a maximal pressure of 180 to 220 and one of 250, including 4 between 40 and 49; 9 between 50 and 59; 8 between 60 and 69, and 5 between 70 and 79. There were 118 men to 39 women; 15.3 per cent. of the men are still living and 20.5 of the women. In over 60 per cent. of the patients, sclerosis of the kidneys was evident, and 84 per cent. of these patients died within two years. The survivors are all persons who are able to reduce physical exertion to the minimum.

Syphilis in Etiology of Appendicitis.—Boas examined sixty-seven appendicitis patients for signs of syphilis, but found nothing to suggest acquired or inherited syphilis in sixty-five of them.

June 11, 1919, **62**, No. 24

*Spirochetes in Paretic Dementia. H. C. Hall.—p. 729.

Spirochetes in Paretic Dementia.—Hall was never able to discover spirochetes in the brain in cases of paretic dementia until he applied Jahnel's technic. With this he showed up the spirochetes readily even when the Levaditi and Noguchi methods gave negative results. Jahnel supplemented the Levaditi technic with a preliminary treatment with uranium nitrate which Cajal recommends with his method for staining glia to avoid the necessity for staining of the nerve fibrils. The uranium nitrate affects the fibrils and the spirochetes in a different manner. In tissue treated for thirty minutes to an hour at 37 C. with a 1 per cent. solution of uranium nitrate, the nerve fibrils become incapable of taking the silver nitrate stain while the spirochetes take this stain well. The whole procedure takes three or four weeks, but the findings seem to be extremely instructive. In the two cases described in detail, the discovery of the spirochetes harmonized with the symptoms noted during life. They seem to occur in a few well defined foci, mainly in the cortex. He adds that certain biologic characteristics of the spirochetes found in paretic dementia seem to indicate that this is a specific type of the syphilitic virus, with a special affinity for the nervous system.

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*Influenza in the Pregnant and in Parturients. E. Hauch.—p. 1063.
Circumscribed Edema; Two Cases. H. R. Magnus.—p. 1069.
*Catheterization in Cases of Retention. C. Dethlefsen.—p. 1071.

Influenza in the Pregnant and in Parturients.—Hauch concludes from experiences at the Copenhagen Maternity that labor and delivery are very dangerous in the course of influenza pneumonia, and hence must be deferred with every means in our power. The fetus usually dies in the severer cases, and the death of the fetus renders the prognosis grave. Otherwise the pneumonia has no especial gravity during a pregnancy or in the puerperium.

Catheterization in Cases of Retention.—Dethlefsen connects the catheter with a douche can of warm water and lets the water pour with force through the catheter as the latter is being introduced. This prevents obstruction of the catheter, and facilitates materially the introduction of the catheter, while smoothing out folds in the urethra lining.

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DERMATOLOGY AND ASSOCIATED DISORDERS OF THE MUCOUS MEMBRANES [*]

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One of the proper and important functions of the dermatologist is the study and interpretation of disorders of the mucous membranes, occurring either as independent manifestations or in association with cutaneous or constitutional disease. By reason of their continuity with the skin and close structural relationship, consideration of the mucous membranes ought logically to be included in a complete dermatologic investigation, a practice more often omitted than observed. The statement that they deserve investigation is particularly applicable to the oral cavity, in which the presence of lesions of the mucous membranes may serve to clarify the diagnosis of accompanying cutaneous disorders, and at times provides the key for the recognition of otherwise obscure conditions of disease.

Compared with the voluminous literature concerning every feature of the cutaneous expression of disease, that dealing with affections of the mucous membranes is disproportionately small and is to a considerable extent incidental in character. Perhaps this is a reflection of the tendency in practice to be uncertain when lesions of the mucous membranes not frankly specific are in question, and to formulate diagnostic conclusions from evidence with which we confess ourselves to be more familiar. In any event, this field offers abundant opportunity for observation and study, the results of which will be welcomed as an important addition to medicine as a whole and to dermatology in particular.

It is not proposed at this time to enter into an extensive discussion of mucous membrane disorders, but rather to point out that the subject warrants greater consideration than has been given it in teaching and practice, and that by inattention to this field much of clinical value fails of proper interpretation or goes unrecognized.

The occurrence of papules and of vesicular and exudative processes in the mucous membranes, resulting in erosions, plaques and ulcerations, is observed as part of the symptomatology of a variety of diseases. Those of especial interest to the dermatologist, aside from syphilis, are the lesions of the mucous membranes which occur in association with disorders classified as typically cutaneous. Represented in this group are lichen planus, erythema multiforme, dermatitis herpetiformis, the three varieties of pemphigus, erythematous lupus, lupus vulgaris, herpes and impetigo herpetiformis, mostly dermatoses of constitutional origin. Involvement of the mucous membranes is of regular occurrence in several of these conditions and may, in fact, precede the cutaneous symptoms or, in rare instances, be the only manifestation of the disease.

CLINICAL FEATURES OF LICHEN PLANUS

Lichen planus presents all of these variations. We are inclined to look on lichen planus as a typical dermatosis, and yet its lesions may be limited entirely to the mucous membranes or may exist there for a long period before the appearance of cutaneous symptoms. The case of solitary lichen planus of the tongue reported by Montgomery[1], and that of lichen planus of the buccal mucosa and tongue in a child, as recorded by Sainton and Burnier,[2] are instances of this unusual limitation. A tabulation made by Trautman (as quoted by Montgomery[1]) of 157 cases of lichen planus of the mucous membranes, shows that the skin was primarily affected in fourteen cases, coincidentally affected in ninety-four, subsequently affected in nineteen, and that in twenty-six instances the mucous membrane lesions existed alone. In these 157 cases, the cheeks were affected in 129 instances, the tongue in eighty, the lips in thirty-five, the palate in twenty-seven, the gums in seventeen, the larynx in seven and vulva in six. The striking feature of this tabulation is the high percentage of cases in which the disease affected the mucous membranes exclusively.

Lichen planus of the oral cavity is one of the most accurately studied affections of the mucous membranes and presents fairly distinctive clinical features. Its comparatively frequent occurrence offers at least one reason for attempting to gain proficiency in diagnosis based on symptoms limited to the mucosa. The essential lesion is a papule, appearing as a convex, conical or flattened, hard, whitish-gray dot of pinhead size or smaller, without an inflammatory halo. The papules are either discrete and scattered, or arranged in groups or lines, the latter often forming a rather characteristic meshwork, with nodes at the points of intersection as described by Montgomery.[1] Circinate lesions occasionally develop by reason of the appearance of new papules at the margin of an older group, with involution of the latter, leaving a depressed, smooth, nonstriated, bluish-red center, surrounded by a delicate polycyclic border composed of tiny papules. The formation of ring lesions by central involution and peripheral extension of large papules has also been noted. Lieberthal's[3] description of lichen planus as it appears in the oral cavity is concise and accurate. He says:

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[*] Chairman's address, read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Montgomery, D. W.: J. Cutan. Dis. 32: 481 (July) 1914.

[2] Sainton and Burnier: Bull. Soc. franc. de dermat. et syph. 22: 200, 1911.

> On the cheeks, lichen planus, as a rule, affects that part which is just opposite the interdental space and presents papules, oval or circular plaques and, most frequently, streaks or linear projections with intervening furrows. These projections are arranged in different ways, parallel to each other, convergent or divergent, passing each other in different directions and forming networks, or stellar or brushlike formations. They all show the character of the elementary papules, are opaline, sharply defined and painless. The lesions of the tongue differ somewhat. On the back they present irregular, oval or circular plaques, while on the upper and lower surfaces of the margins solitary papules are found, or more frequently, irregular or band and stripelike plaques. They are, as a rule, not sharply defined, are smooth, less hard, not raised above the level of the normal surface, not glossy, but dull and grayish white. On the mucous membrane of the lips the papules form irregular plaques, and on the vermilion border groups of irregular plaques. On the soft and hard palates, and on the gums, solitary and aggregated papules are more frequent than plaques or networks. The older the process upon the mucous membranes, the more do the papules coalesce and lose their distinct outlines. The plaques and streaks lose their roughness and hardness, and at last they become so flat that there is no elevation present, but only the shiny, white discoloration resembling mucosa touched with silver nitrate. These lesions show no tendency to degenerative changes; no erosion or ulceration occurs.

The process is indolent and often persistent, and may relapse after its spontaneous disappearance.

In addition to the oral cavity, lichen planus appears also on the vaginal and urethral mucosa, and not infrequently manifests itself on the glans penis.

The clinical features of lichen planus of the mucous surfaces have been presented in considerable detail because of the difficulties at times encountered by the practitioner in differentiating the disease from syphilis. With lesions confined to the mucosa, the diagnostic skill of the expert is put to the severest test, and even with accompanying cutaneous symptoms the situation may prove confusing. Fordyce[4] has pictured the condition thus:

> The grouping and distribution of lichen planus of the skin, with its pigment changes, may closely simulate a syphilid, and if at the same time radiating, or parallel, gray or white streaks are seen inside the cheeks, with palmar and plantar papules, and swelling of the inguinal or cervical lymph nodes, the diagnostic difficulties increase. The observer may be still further confused by the absence of itching in lichen planus and its favorable response to mercurial treatment. Consideration in the differential diagnosis of lichen planus and syphilis should be given to the several phases of mucous patches, scars or epithelial changes after the involution of specific lesions, as well as to the specific and nonspecific leukoplasias. Leukokeratosis in individuals who are not smokers, and from whom a syphilitic history cannot be elicited, should suggest the probability of lichen planus, and lead the observer to look for further evidence of that affection.

It has been my experience that lichen planus of the skin, attended with itching, is frequently diagnosed as eczema or scabies by the practitioner. This error can in many instances be avoided by an inspection of the oral mucosa, provided the frequent appearance of lichen planus in this location is borne in mind.

LUPUS ERYTHEMATOSUS

Lupus erythematosus may also be limited to the mucous membranes, either entirely, which is rare, or for a considerable time preceding its appearance on the skin or scalp. Its recognition under these conditions is made more difficult by variations in its clinical appearance dependent on the stage of the process. Dubreuilh,[5] Smith[6] and Kren[7] draw a distinction between the appearance presented by recent and by older lesions of lupus erythematosus as observed on the oral mucosa. Their descriptions of early lesions indicate that the disorder begins as a hyperemic, bluish-red, slightly elevated spot, with indefinite outlines and, at times, a slightly eroded surface. In this stage differentiation from other acute inflammatory lesions is often impossible. Within a few days the lesion undergoes a change, the margins are slightly elevated and more distinct in outline, and delicate vascular striations are observed converging toward the center of the lesion, which is now depressed, eroded, and often covered with an adherent yellowish pellicle.

In a later stage the central erosion increases in depth and is either converted into a thin, flat scar, or is covered with epithelium, with the formation of closely set, bluish-white puncta or striations converging centrally. On the lips the striae may be arranged in parallel lines or in the form of a delicate network. Coincident with the appearance of these whitish striations, the lesion loses its inflammatory character and enters on the stage of atrophy and quiescence. It is not unusual, however, for the lesion again to enlarge by peripheral extension and to show recurrent central erosion at intervals. This description applies especially to patches as they appear on the buccal mucosa, which is the site of predilection.

Kren[7] has given a clear and accurate account of the condition as it is observed on the lips. He says:

> The plaques, which may by confluence rapidly involve the entire lip, have the same margins with similar vascular ectasia or similar fine white tracery (as observed on the buccal mucosa). The delicate network of white striae is especially distinct within the margins of lesions on the vermilion of the lip. This is a feature which is observed repeatedly and which has not been given sufficient prominence in descriptions of the affection. The color of the lip is violaceous; the lip is slightly swollen and often everted. As a rule, in recent cases the lip is so heavily covered with scalelike, large, thin, epithelial lamellae and with bloodcrusts, that the details just described are seen only in part or not at all. The lip then presents the appearance, as described by Dubreuilh, of having been painted with collodion which is peeling off. After maceration of the lamellae and crusts, irregular red areas with concave margins may be observed in the violaceous labial mucosa, which is stippled with white dots. Especially noticeable is the readiness with which bleeding of the affected labial mucosa occurs upon slight movement, a condition which is rarely observed in the oral mucosa.

I have had the opportunity to observe during several years an instance of lupus erythematosus, in a young woman, with two lesions on the mucosa of the lower lip.[8] These had been present for more than one year before three additional patches appeared on the scalp, and they still persist long after the disappearance of the scalp lesions. At irregular intervals both lesions on he lip become edematous, with reddened, elevated margins and central erosion. On subsidence of the inflammation the lesions again assume their indolent form, with slight marginal infiltration and central depression and atrophy.

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[3] Lieberthal, David: Lichen Planus of the Oral Mucosa, J. A. M. A. **48**: 559 (Feb. 16) 1907.

[4] Fordyce, J. A.: J. Cutan. Dis. **22**: 405 (Sept.) 1904.

[5] Dubreuilh: Ann. de dermat. et syph., 1901, p. 231.

[6] Smith: Brit. M. J. **1**, 1906.

[7] Kren, O.: Arch. f. dermat. u. syph. **83**: 13, 1907.

[8] Foerster, O. H.: J. Cutan. Dis. **33**: 405, 1915

CONFUSION WITH SYPHILIS

The symptomatology of lichen planus and of lupus erythematosus, as observed in the mouth, has been described in more or less detail because these two disorders may present features requiring differentiation from syphilis. If the lesions appear on the mucous membranes primarily, and especially if they remain limited to the mucosa, the aid in diagnosis which might be afforded by the presence of cutaneous lesions is not available; knowledge of the symptomatology as described will then prove valuable by providing distinguishing data.

While other dermatoses than lichen planus and lupus erythematosus may exhibit lesions of the mucous membranes, these are seldom of such character as to be confused with those produced by syphilis. They are generally of short duration, and in their essential features are reproductions on the mucosa of the coincident cutaneous lesions, modified by location. An exception must be made, however, with respect to erythema multiforme and pemphigus, in which the occasional limitation of lesions to the mucosa and their clinical appearance may simulate the mucous patches of syphilis, and especially in pemphigus vegetans, in which the oral mucosa and perigenital and anal regions may be simultaneously affected. In these diseases the lesions of mucous surfaces will almost invariably present evidence of their vesicular or bullous origin by shreds of epithelium which persist at some part of their margins, though careful examination may be required to reveal them. In addition, these lesions are usually painful, bleed readily, are always superficial and not infiltrated, are surrounded by an inflammatory zone, and may present polycyclic contours by fusion of adjoining lesions. The polycyclic outline and collarette of epithelial shreds are also features which serve to differentiate relapsing herpes of the mouth from mucous patches, as pointed out by Fournier.

OTHER AFFECTIONS PRODUCING LESIONS

The mucous membranes may participate in the symptomatology of a number of other dermatologic conditions, too numerous for detailed discussion at this time. It is well to recall, however, that dermatitis herpetiformis may present lesions on the tongue, lips, cheeks, conjunctiva, prepuce and labia, usually of marked inflammatory nature and attended with burning pain. Urticaria, angioneurotic edema and purpura often involve the mucous membranes of the mouth, nose and alimentary tract. Medicinal agents, especially antipyrin, have been known to produce erosive lesions of the mucosa, and iodin has been responsible for ecchymotic and gangrenous processes. Engmann[9] describes seborrheic eczema as occurring on the conjunctiva, oral mucosa, tongue and introitus vaginae, and also discusses the subject of affections of the mucous membranes in relation to skin diseases in a comprehensive manner. Acanthosis nigricans, made known to us by Pollitzer, affects the lips and mouth with considerable regularity, and impetigo herpetiformis may be preceded by lesions of the oral mucosa. Recently, Mook[10] has described a series of cases of pemphigoid dermatitis following vaccination, several of which presented oral lesions; an allied condition was described by Howe,[11] six out of ten of his cases ending fatally, with marked involvement of the oral mucosa.

Several of the constitutional diseases, scurvy, pellagra, acute leukemia and pernicious anemia, not infrequently affect the mucous membranes, and it may devolve on the dermatologist to establish the diagnosis. Tuberculosis, syphilis, and malignant disease of the mucous membranes, leukoplakia and the mucous membrane lesions occurring in the course of the acute exanthems will only be mentioned here, for their importance in relation to the general subject is so evident as not to require further comment at this time or place.

GEOGRAPHIC TONGUE

There remain three conditions to which, it appears to me, atttention can be directed profitably at this time. One is geographic tongue, wandering rash of the tongue, or exfoliatio linguae areata, regarding which some confusion appears to exist, largely a matter of nomenclature, in my opinion. It is described in most textbooks as a rare disease, occurring chiefly in young children. My experience with this condition may be entirely at variance with that of other observers, for I have encountered it most often in adults and only very rarely in children. During a period of service as member of a medical advisory board, I examined carefully the mouth and tongue in every one of 2,800 men referred for various physical defects, and found the geographic tongue in twenty. Most of the men so affected were not even aware of the presence of the disease. While in service at a base hospital several instances of it were seen in soldiers sent for treatment under the erroneous diagnosis of syphilis, or in soldiers presenting themselves voluntarily for advice as to the condition. The routine examination of the mouth and tongue of every patient may account for my observation that the disorder is not a rarity. A characteristic feature of the lesion is the yellowish or yellowish-gray color of the slightly elevated border, contrasting sharply with the red center.

MOELLER'S GLOSSITIS

Harris[12] has recently called attention to the uncommon condition known as Moeller's glossitis, or chronic superficial excoriation of the tongue, and described two cases observed by him. His publication has led to the recognition of additional cases, and to stimulate further interest it appears desirable at this time to direct attention again to this important and sometimes grave disorder. Harris gives this condensed picture of Moeller's glossitis:

> An affection of the tongue occurring in middle-aged adults, principally women, and affecting especially the tip and edges, but also the dorsum of the tongue; but at times also the inside of the lips, cheek, hard and soft palate, and characterized subjectively by a sensation of burning pain, and objectively by the presence of intensely red, sharply defined, irregular patches, in which the filiform papillae are thinned or absent, the fungiform papillae are swollen, and the stratum corneum desquamated. The condition shows periods of exacerbation and lessened intensity, but is very resistant to treatment and tends to persist. The severe pain caused by eating interferes with nutrition and may lead to grave consequences.

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[9] Engmann, M. F.: J. Cutan. Dis. **22**: 412 (Sept.) 1904.

[10] Mook, W. H.: J. Cutan. Dis. **33**: 667 (Oct.) 1915.

[11] Howe, J. S.: J. Cutan. Dis. **21**: 254 (June) 1903.

[12] Harris: J. Cutan. Dis. **33**: 742, 1915.

Though its symptoms are distinctive, Harris found the disease confused in the literature with geographic tongue, neuralgia of the tongue and lichen planus.

VINCENT'S DISEASE

It has been impressed on me by experience that, with the return of our troops to their home communities, Vincent's disease will probably become an important factor in the differential diagnosis of lesions of the mouth and other mucous surfaces. Attention has been called to the increase in the number of cases of Vincent's disease since 1915 in Canada[13] and England, among both the soldiers and the civilian population; but similar statistics as to the prevalence of the disease in this country are not available. As it is a communicable and curable affection, its early recognition is a mattter of considerable importance. Vincent's angina has been a widespread, though not common disease in this country for many years, and small, localized epidemics have at times occurred. Among the overseas troops, "trench mouth" has been identified as Vincent's disease, and statistics from one British military hospital in France state that it represented 23 per cent. of all throat complaints. Most of the patients with this affection whom I have seen and who had been overseas gave a history of trench mouth, usually described as of moderate severity; recent attacks were probably recurrent.

Vincent's disease may appear on the tonsil as a deep ulceration; on the ramus of the lower jaw posterior to the last molar tooth as a localized ulcerating patch; as a general mouth infection involving almost the entire mucosa, pharynx, and at times the tongue, or remain limited to the gums, where it is often primary and may be mistaken for pyorrhea alveolaris.[14] Mild cases tending to chronicity occur as tonsillitis or gingivitis of moderate degree, or on the cheeks and lips in shredlike patches resembling the condition observed in those who habitually bite the lip or cheek. These mild types may develop into severe attacks, with the formation of sloughing, serpiginous ulcers covered with a heavy, pultaceous, creamy, often adherent pseudomembrane. The ulceration may be superficial, or deep and destructive; it may spread with rapidity, and involve large areas of the mucosa. The breath is fetid, the glands are swollen, and the patient often presents a pallid or yellowish appearance, even in cases of moderate severity, though the systemic reaction is often less than would be expected.

The disease may also produce ulceration and gangrene of the vulva, conjunctivitis and an ulcerative balanitis. Greeley[15] has recorded a case with coincident purpuric eruption and bleeding from the nose and gums, in several attacks, ending fatally.

The spirillum of Vincent and the associated fusiform bacillus are recognized as the causative agents of the disease, and can be readily detected in smears. The organisms are also readily seen in dark-field preparations, and I have made frequent use of this method of diagnosis. The clinical resemblance to diphtheria is occasionally marked, and cultures should be made in all doubtful cases, as the two diseases may coexist.

The predicted increase in the number of cases of Vincent's disease indicates that it will enter more frequently than heretofore into the differential diagnosis of syphilis, and that familiarity with the various phases of its symptomatology will be required of the dermatologist. The possibility of confusing Vincent's disease with syphilis is not as remote as might appear, for the similarity of the lesions to mucous patches may be striking in the cases of moderate severity, and search should always be made for the organisms.

The possibility of coexistence of the two diseases should be kept in mind, as well as the fact that mercurial treatment may arouse to activity quiescent types of Vincent's disease in the syphilitic.

ACCESSORY NASAL SINUSES OF CHILDREN *

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The views that I have expressed in several previous publications, dating back to 1912, as to the frequency of accessory sinus diseases in children, hold at the present time with additional emphasis. Subsequent investigation of anatomic specimens and references to the work of others seems to demonstrate that the accessory nasal sinus development occurs at a much earlier period than is generally considered by most investigators, and it is accepted that their variation in size, shape and position at different ages, up to the period when they assume the adult type, is extreme.

SINUSITIS IN THE CHILD

From a careful study of the early anatomic development of the sinuses, it seems probable that many cases of meningitis are the result of unrecognized inflammation of some of the sinuses, as the symptoms of sinusitis are more or less obscure in children. That this should be so can readily be appreciated from the structure of these parts at an early age, for they are surrounded by much softer bone than at a later period of life; there is a more profuse development of the lymphatic and vascular systems, and the mucosa is in most intimate relation with the osseous tissue, so that slight inflammation of the former must produce some pathologic change in the latter. My experience has been that in the child, chronic sinusitis is common, and it will be found on careful examination that many instances of postnasal catarrh in the child are but symptoms of some inflammatory condition of the adjacent sinuses.

DEVELOPMENT OF THE SINUSES

The reasons for the development of the nasal accessory sinuses have been defined by various authors with varying theories. Killian believes that the development of this area depends on the inherent biologic characteristics of the cells which go to form the various structures in this area. Coffin and Freres, however, explain the development on a physical basis. They believe that the reabsorption of bone is due to variations in air pressure, particularly that of expiration; that the principal growth of the sinuses begins after breathing occurs; that there is a distinct similarity between the effect of air pressure on the sinuses and on the alveoli of the lung, and that a constant change of air pressure in the sinuses, and, finally, the direction of the inspired and expired air bear a relation to the anatomic formation of the nose. These two authors also point out that children having adenoids present poorly developed sinuses, because of the lack of normal air pressure in the nose during expiration.

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[13] Laughlen, Warner and Holmes: Canad. M. A. J. **9**: 345, 1919.

[14] McKinstry, W. H.: Brit. M. J. **1**: 421 (March 31) 1917. Campbell, A. R., and Dyas, A. D.: Vincent's Angina, J. A. M. A. **68**: 1596 (June 2) 1917.

[15] Greeley, H.: Am. J. M. Sc. **155**: 742 (May) 1918.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

* The bacteriologic observations contained in this paper were obtained from experiments conducted by Dr. Mark J. Gottlieb, of the Laboratory for Clinical Research.

Functions.—The functions of the nasal accessory sinuses have been subject to considerable controversy, and no particular theory as to the physiology of these cavities has as yet been universally accepted. Whether the sinuses are the remains of rudimentary structures, which, in lower animals, serve as adjuvants to the act of smelling, or whether these cavities evenly distribute the inspired air and thus help olfaction, is still open to discussion, as well as the suggestion that the pneumatization and extension of these cells serve to lighten the bones of the skull in order that proper poise and counterpoise, may be maintained. The contention that they are an adjunct to respiration by moistening the inspired air is not supported by histologic findings, as there are no mucous glands in the mucosa of these cavities.

Early Appearance.—In connection with the anatomic development, it should be remembered that the maxillary sinus is well defined, although rudimentary, at birth, and even in the fetus it is found about the fourth month, so that inflammation of this sinus at an early age is not infrequent. From this early form, in which it has a triangular shape, it undergoes but little change until the second dentition, when the development of the molars and bicuspid teeth play an important part in its relation to the bones of the face. Previous to the completion of the first dentition, the odontoblasts are in the most intimate relation with the floor of the sinus, which continues to develop, but does not reach the adult type until about the twelfth year. The thickest wall is then found to be formed by the body of the superior maxilla posteriorly, while the orbital wall superiorly is of extreme tenuity. Much earlier, however, accessory foramina are found, as in the adult, and the stomata open into the middle meatus at the posterior end of the semilunar hiatus.

IMPORTANCE OF CELLS

Most important in the child are the inflammatory affections of the ethmoid cells, these cells and the antrums being more frequently involved than the frontal and sphenoidal sinuses. Evidences of the ethmoidal area are seen in the fetus about the eighth month; but development into distinct cells does not commence until the fourth year, and from that period on these tissues are susceptible to morbid changes, the cells reaching their maximum development about the twentieth year. In the child, as in the adult, the middle turbinated body is essentially a portion of the ethmoid area, although its anterior end is thinned out, is small and runs parallel to the perpendicular plate, so that the lower border is deflected inward. At about the eighth to the tenth year one finds that the ethmoidal ostia open into the nasal meatuses, and for surgical purposes, and especially in the recognition of morbid changes, the cells can be grouped into an anterior mass communicating with the middle meatus, while the posterior group opens into the superior meatus.

The anterior group is by far the more important, as its stomata are found along the semilunar hiatus and the fissure between the ethmoidal bulla and the inferior turbinated body, at a location at which infection from intranasal morbid changes most frequently takes place. The anterior cells are more numerous than the posterior, although the latter are larger as regards the capacity of the individual cells, and their stomata are much less in size than those of the anterior mass. As the internal wall of the orbital fossa forms the eternal boundary of the ethmoid, the possibility of orbital symptoms, as a complication of ethmoidal infection, is apparent. In operating on this region, this relationship must be borne in mind on account of the extreme thinness of the ethmoidal orbital wall, and the danger of injuring the contents of the orbital cavity.

FRONTAL AND SPHENOIDAL SINUSES

Previous to the seventh or eighth year, the frontal sinus is usually not developed, although not infrequently it is present as early as the fifth year. Before puberty, it does not extend far up in the frontal bone; then a marked change takes place until the eighteenth year, when its full development is accomplished. The anatomic and surgical relation differs in no way from that in the adult, except that its relation to the cranial cavity, on account of the thin posterior wall, is most intimate; and this must be considered in relation to inflammatory processes.

The sphenoidal sinus may show a definite cavity as early as the third year, while, by the seventh year, it is well developed; and although its inflammatory changes have not been as much studied as have those of the other sinuses, I am of the opinion that it is more frequently involved than is usually thought. Its lateral walls are largely within the intracranial cavity, and this deserves special consideration in relation to the development of obscure cases of basal meningitis, as do also its intimate relations laterally and superiorly with the internal carotid artery and cavernous sinus.

RECOGNITION OF SINUSITIS

The recognition of sinusitis in the child is more difficult than in the adult, as the symptoms are usually obscure and rarely characteristic; and it is unusual to have a single sinus involved to the exclusion of the others, the rule being that more than one sinus is affected at the same time. One can well appreciate the difficulty of differentiating individual inflammatory areas under such circumstances. When the upper sinuses are the seat of a purulent inflammation, the discharges may reinfect those lower down, and especially the maxillary antrum, so that the soft tissues around the stomata are kept irritated and swollen, and it becomes most difficult to differentiate the exact underlying faulty condition.

INVOLVEMENT DUE TO INFECTIOUS DISEASE

The frequency of occurrence of the infectious diseases in childhood, and the concomitant inflammatory changes of the nasal mucosa, explain why the sinuses are involved during this period, and they are involved particularly in influenza, scarlet fever, measles and pneumonia. In the vast majority of cases there is a primary inflammation of the nasal mucosa, and the sinuses involved become so from a direct extension of this inflammation, irrespective of its basal cause, the swelling of the soft tissues around the sinus opening causing the secretions to be retained as a result of the stenosis which is produced.

In the new-born child, antral sinusitis may occur as a consequence of infection by vaginal discharges from the mother, or from injury—the result of instrumental delivery—and the resultant purulent inflammation involves the soft osseous antral walls. In my experience, this condition arising in small children from these causes or from others is a true sinusitis, as well defined as that found in the adult, and it is not a tuberculous caries or osteomyelitis, as has sometimes been claimed. As a rule, affections of the antrum occur during the second dentition, while, infrequently, errors in the development of the teeth may act as an exciting cause of the empyema.

The ethmoid labyrinth in the older child is especially liable to become involved in all inflammatory affections of the nasal mucosa, and in coryza; and in the contagious diseases of childhood these cells are affected in practically every instance, frequently accounting, to my mind, for suppurative ethmoiditis in later life, which has, in reality, existed from early childhood.

DRAINAGE

The nasal accessory sinuses are able, normally, to drain themselves continuously by virtue of the fact that, although their outlet openings are not in every instance situated at the most dependent portion of the cavity, their mucous membrane is furnished with ciliated epithelia, which constantly waft their cilia in the direction of the outlet. Furthermore, the normal openings of some of these cavities are in the most dependent portion of the sinus when the head is in the upright position. In the ethmoidal tract, the drainage may be exceedingly simple or intricate; the individual cells may drain by opening one into the other or directly into the nasal chamber.

BACTERIOLOGY

It is reasonable to presume that the bacteria found in the nasal accessory sinuses of infants and children during inflammatory conditions should be the same as the flora present in these cavities in the adult. Torne, as early as 1903, showed that without exception healthy sinuses were found sterile in cadavers within two hours after death. Zarnico tabulated the organisms in the order of their importance as infecting agents in accessory sinus disease as follows: *Diplococcus lanceolatus* (pneumococcus), staphylococcus and streptococcus, influenza bacillus, pseudodiphtheria bacillus, Friedländer's capsule bacillus, *Meningococcus intracellularis, Bacterium coli, Bacillus pyocyaneus, Bacillus pyogenes-foetidus.*

According to Turner, in twenty-two cases of acute and chronic fronto-ethmoidal sinus disease, the pneumococcus was isolated in eight (36 per cent.), *Streptococcus pyogenes* in nine (40 per cent.), and the staphylococcus in ten (45 per cent.). An organism which resembled the influenza bacillus occurred in one case. In forty-three cases of maxillary sinus disease, the pneumococcus was present in thirteen (30 per cent.), *Streptococcus pyogenes* in thirty-three (76 per cent.), staphylococci in thirty-four (79 per cent.), *Bacillus influenzae* in one, *Bacillus tuberculosis* in one, and *Micrococcus catarrhalis* in two. Babcock, in a recent investigation on the bacteriology of sinus infections, has shown that in fifty-three acute cases, pneumococci of the various groups were found in thirty-two instances, streptococci in five, staphylococci in thirty, and *Bacillus influenzae* in four. A number of other organisms which are not ordinarily pathogenic were also found, but did not occur alone. In forty-seven chronic cases, pneumococci were found six times; streptococci, nineteen; staphylococci, thirty-eight; *Bacillus influenzae,* twice, and many other organisms which were not supposed, however, to be pathogenic.

STAPHYLOCOCCI AS INFECTING ORGANISMS

We have observed in the results of all these investigations that staphylococci occur in equal, if not in greater frequency than the other organisms mentioned. The question of whether or not staphylococci are of infective consequence, when present in the secretions of infected nasal accessory sinuses, has arisen, therefore, many times in our mind. To answer the question we endeavored to determine whether or not the staphylococci isolated from the purulent discharges procured from the nasal accessory sinuses were pathogenic to rabbits.

The nasal chambers were irrigated with a sterile solution of sodium chlorid. The secretions were then sucked out of the nose into a sterile tube, and cultures were made from this pus on agar plates. The staphylococci were identified, by means of their staining characteristics with Gram's stain, and by the color and the general appearance of their colonies. Of seventeen specimens of pus secured from seventeen patients suffering from acute sinus disease of one or more cavities, staphylococci were recovered in eleven. In four, *Staphylococcus pyogenes-aureus* was found; in eight, *Staphylococcus albus,* and in two, *Staphylococcus citreus. Staphylococcus aureus* and *albus* were recovered together from three specimens.

In endeavoring to ascertain whether these organisms were pathogenic to rabbits, we first determined the maximum dose of nonvirulent staphylococci which the animal could be given intravenously without causing its death. For this purpose agar slants of uniform size were made, and the organisms were grown on them for twenty-four hours. A sufficient amount of sterile physiologic sodium chlorid solution was then poured into the tube up to the top of the slant, with the tube held in the upright position. The organisms were then scraped off the surface of the agar with a platinum loop, and the solution and the bacteria were poured into another tube and thoroughly shaken. Five-tenths c.c. of such suspension of nonvirulent staphylococci was the maximum dose that could be given to a rabbit intravenously without causing its death. Twenty-four hours after the rabbits were infected, blood cultures were made by paracentesis cordis and every twenty-four hours thereafter, until the cultures were found sterile or the animal died.

EFFECT ON RABBITS

One animal that received *Staphylococcus aureus* gave a sterile blood culture within three days. Another, whose blood culture was positive after twenty-four hours, died the following day, and on necropsy an extensive hemorrhage was found in the pericardial sac. The animal died as the result, probably, of the trauma incident to cardiopuncture. In a third, the blood culture remained positive until the animal's death, which was six days later, and on necropsy a purulent pericarditis and abscesses of the liver and kidney were found. Pure cultures of *Staphylococcus aureus* were recovered from these lesions. The fourth animal was found dead one day after infection. Free fluid in the pleural cavity was found, as well as an abscess of the liver. Cultures from these produced not only *Staphylococcus aureus,* but, in addition, a gram-positive bacillus. All of the rabbits that were infected with *Staphylococcus albus* gave negative blood cultures in from three to seven days. In one case, the animal died two days after the blood culture was found sterile. There was marked congestion of the right lung, dilatation of the right heart, the left heart being empty, and there were a few grayish-white spots in the substance of the left kidney. Unfortunately, no cultures were made from these lesions. In the two rabbits in which *Staphylococcus citreus* was injected, the cultures were found sterile after the third day.

It can readily be seen, although the number of specimens examined is small, that only one out of seventeen cultures of staphylococci could be considered as definitely virulent. Our presumption, therefore, is that in the great majority of cases staphylococci are not the primary infecting organisms, but are secondary invaders which supplant the offending organism and prolong the symptoms.

THE DIAGNOSIS

The recognition of the various sinus affections in the child is more difficult than in the adult, as the subjective symptoms are not clearly defined. Transillumination is of value, but comparative studies must be made, as the area of light and shadow is rather different than in the adult. The use of carefully made roentgen plates, however, is of great service, especially as regards the presence of pus in the antra or frontal sinuses; and, previous to the tenth year, the use of the roentgen ray is the most valuable diagnostic medium that we possess. The presence of frequent headache should always occasion suspicion of sinus inflammation, and especially when the parts are tender to touch over the sinus involved, bearing in mind, however, that localizing pain with any degree of accuracy is difficult in the very young. In acute sinusitis, pain of an aching character is almost invariably present at some time during the course of the inflammation, but in chronic cases it is very frequently absent, unless the secretions are retained under pressure, when it may become most intense.

A marked symptom of great diagnostic value, when present, is the cessation of pain with the appearance of a free nasal discharge, and the return of the pain when the discharge lessens or temporarily ceases. The presence of a discharge, especially if unilateral and purulent, or semipurulent, in character, is always of diagnostic value, and especially if intermittent. If there is lymphoid tissue in the vault of the pharynx, most marked on the side from which the discharge comes, it will often be found that the adenoids are not the sole source of the continued coryza from which the child suffers, but that there is, in addition, a sinusitis. Location of the source of the discharge is of great value in determining which sinus is affected, and the method of ascertaining the source differs in no way from that employed in the case of the adult, which is so well known as to require no further discussion.

Aprosexia and disturbance in the general health are more or less inevitable concomitants of chronic purulent sinusitis, while complications, as in the adult, are not as frequent, although orbital symptoms are not uncommon. In the so-called strumous child, with whom there is a purulent nasal discharge, with excoriated upper lip and marginal blepharitis, and frequently with corneal ulcers, purulent sinusitis, usually of the antrum and of the ethmoid cells, exists; and while serious organic osseous changes are not present, when they do occur the ethmoid structures are most frequently involved. In purulent inflammation of these sinuses, and especially in that acute, fulminating type sometimes seen, serious orbital complications may ensue as a result of pathologic changes in the correlated vascular sinuses, with the development of thrombosis of the cavernous sinus and resultant pyemia, meningitis and death. In the milder form, a symptom not uncommon and always of diagnostic value is edema of the eyelids from vascular pressure. In inflammatory processes affecting the maxillary antrum, it is not uncommon to find some involvement of the osseous structures of the superior maxilla, if the purulent sinusitis is long continued; but in the majority of instances the affection presents rather a benign course and, only too frequently unrecognized, it is treated as "nasal catarrh." After the nasal chamber has been cleansed the reappearance of pus in the middle meatus is indicative of antral suppuration, but in older children puncture of the lateral nasal wall of the antrum is necessary to recognize the condition present.

CLOSE RELATIONSHIP

Inflammatory changes in the ethmoid structures, a result of neglected rhinitis, are frequently found. It has been my experience that isolated sinusitis is uncommon. In younger children, the antrum also is apt to be involved, while in older children the frontal sinus may be simultaneously affected. On account of the relation of the complicated ethmoid system to the other sinuses, and of the fact that pathologic changes occur here so frequently as a result of the infectious diseases of childhood, it will be found that this sinus is the primary source of infection in the great majority of cases of pansinusitis, and that this relationship is especially emphasized on account of the rather intimate connection of the various stomata of its component cells with the other sinuses, so that the presence of a purulent discharge which does not, to a greater or less degree, involve other sinuses, is almost impossible.

As a result of the late development of the frontal sinus, as has been pointed out previously, chronic changes are unusual; but its involvement in the older child during acute intranasal inflammation is much more frequent than is currently considered. The recognition of inflammatory changes in this region does not differ from that in the adult, and the presence of pus in the middle nasal meatus will aid greatly in establishing the diagnosis, although it may be easier to eliminate suppuration of the frontal sinus than to define its presence.

PURULENT SPHENOIDAL SINUSITIS

The recognition of purulent sphenoidal sinusitis is by far the most difficult, as it is practically always combined with ethmoidal changes, and the symptoms are not characteristic. Severe occipital or vertical headache, with more or less dizziness, is suggestive of retained secretions in this sinus; the discharges are scant and usually become inspissated in the nasopharynx or along the posterior portion of the vomer and floor of the choanae, and it will not infrequently be found that the condition cannot be recognized until exploration has been made of the interior of the sinus. In the young adult, however, the exploration should not be made until the presence of other sinus affections of a purulent character has been eliminated.

The routine use of the pharyngoscope in young children has disclosed a surprisingly large number of cases of posterior ethmoidal and sphenoidal suppuration which would have remained unrecognized by any other method of examination.

Most important is the fact that these inflammatory invasions mean a radical disturbance of the entire drainage system of the nasal interior, and all treatment, whether conservative or radical, must rest on this basis. The relation of focal lesions in the accessory nasal cavities of children to systemic diseases, such as arthritis, endocarditis and nephritis, must be considered of an importance equal to that of the lesions occurring secondary to tonsillar and dental disease. Dr. Dean, the chairman of this section, has a very valuable contribution on this subject.

FIRST MEASURES IN TREATMENT

In treatment of sinusitis in the child, the aim ought always to be to destroy as little tissue as is consistent with obtaining permanent results, and, as far as possible, the intranasal mucosa should be preserved if operative procedures become necessary in the individual case. Palliative treatment will permanently cure the majority of acute sinus inflammations when such treatment is intelligently directed toward free drainage.

Previous to the employment of surgical measures, therefore, the use of warm alkaline sprays and of weak epinephrin solution to reduce the congested mucosa, with, if the case is severe, rest in bed, the employment of laxatives and such general measures as may be indicated in the particular case, will often produce the most happy results; and in this connection it should be remembered that the tendency of acute sinusitis is toward cure, and the use of the measures outlined will not infrequently remove the inflammation when operation would have been resorted to unnecessarily, with possibly much less satisfactory results.

In these instances in which the sinus disease has continued and resists treatment, it will often be found that the general health of the child was more or less seriously affected previous to the development of the nasal affection, as a result of the original disease causing it; and until proper care of the general health is instituted, local measures alone will not be of great avail.

The employment of some type of suctional, negative pressure apparatus, applied intranasally for freeing the nose and ostia of secretions, proves very beneficial. The congestive hyperemia which is thereby induced is oftentimes decidedly curative. I have had no experience with the employment of autogenous vaccines in the treatment of sinus disease of children, but believe they probably have the same relative value as in the adult. The question of dosage must, however, be carefully considered.

I believe intranasal treatment to be indicated primarily in all cases of sinusitis in children; but it should be strongly emphasized that the turbinal tissue should be preserved; and while it is necessary at times to remove the anterior end of the middle turbinated body, the removal of its entire structure to reach the stomata of any of the sinuses is not warranted. When possible, drainage should be obtained through the natural openings, and to accomplish this it is proper to remove as much of the osseous tissue at such points as may be required.

When the frontal sinus is involved, its relation to the anterior group of ethmoid cells is such that attention must be paid to them before the inflammation of the mucosa lining the frontal sinus will subside.

When the antrum is diseased inflammatory changes, as a rule, readily subside under ordinary treatment; but in obstinate cases, after fracturing and pushing aside the inferior turbinated body, a large opening should be made through the inferior meatus into the sinus, and the parts drained in this way, the question of whether or not irrigation is advisable is to be decided by the character and chronicity of the purulent discharge.

OPERATIVE PROCEDURE

In certain fulminating forms of sinusitis in the child, and in persistent suppurative cases resisting endonasal treatment, with marked impairment of the general health or other violently acute symptoms, an external operation will be indicated. The physician must bear in mind, however, that before any radical external operation on the child is undertaken, a most careful examination should be made for any morbid changes in adjacent areas which may be keeping up the sinusitis by interfering with drainage, as it has been my experience that in not a few instances treatment for a considerable time may be of no benefit until a hypertrophy of the middle turbinated body has been removed, or a lymphoid mass in the nasopharynx, which has acted as a constant source of reinfection. It should be emphasized that any enlargement of the middle turbinated body is a serious obstacle to the cure of inflammatory changes in any sinus, and until it has been relieved the sinusitis will prove most obstinate to treatment.

Free drainage must be secured before a cure can be obtained, and if intranasal treatment fails to obtain such a result, then whatever radical operation may be selected should be performed. It should also be emphasized in this connection that free drainage means free nasal respiration, and this is another prominent factor that must be taken into consideration in the surgical treatment of these conditions. In addition, it is essential that when pus is found in any of the sinuses it must be evacuated as a surgical principle, and granulations and necrosed tissues must be thoroughly removed. On this basis rests the surgical treatment of all chronic sinus affections, with the various modifications of technic in the care of the individual sinuses dependent on the peculiar anatomic structural characteristic of each.

When the external radical operation on the frontal sinus is under consideration, it is essential, therefore, as a preliminary step, to remove the anterior portion of the middle turbinated body in order to secure thorough drainage, and not infrequently this procedure may bring about a cure. The external operation on the frontal sinus in the young should be performed with the greatest reluctance in the absence of definite external or intracranial symptoms. In those cases in which the frontal sinusitis has been unrecognized, a fistula may have resulted, and the condition possibly has been treated as a dacrocystitis. The only method by which relief may be obtained is by thoroughly opening the sinus, externally cleaning out the anterior ethmoid cells, which are always involved, and obtaining free drainage through the nasal chambers.

OTHER METHODS

In children, the antrum rarely requires external operation, as opening the lower nasal fossa with irrigation is usually sufficient to obtain a cure of the suppuration. In young children, operative work on the maxillary antrum must be performed with great caution, on account of the relation to the teeth at this age. Such procedures, during the formative period of the teeth, are apt to result most disastrously.

As a result of these studies it has been my experience that a radical external operation for the relief of purulent sinusitis is rarely indicated and is not productive of as satisfactory results as the more conservative intranasal procedures. Should indications arise however, demanding such external surgical interference, the same type of operative attack applies as in the adult.

45 East Sixtieth Street.

ABSTRACT OF DISCUSSION

Dr. Charles Gilmore Kerley, New York: In my professional work I have been unable in several instances to induce the laryngologist to make a diagnosis of sinusitis in children where I thought it ought to be made. It seemed to me that with the rhinologists and laryngologists sinusitis in the child was sometimes overlooked. This was not the fulminating case, which is easy to diagnose. The cases that come to me as a pediatrist are those that have often gone through the hands of the laryngologist. As one mother expressed it, the laryngologist had cut out everything in sight and out of sight, and still the child had a persistent running nose. She told me that the discharge was enormous and claimed that it took three handkerchiefs to make the trip to my office and back, a period of five hours. She showed me a handkerchief, and it was filled with a secretion, moist and of a lightish yellow color, showing that it was purulent. I told this mother that her child had sinus disease. Whereupon she told me a laryngologist had sent her to me because he had finished with the case and it was up to me to build up the child. This boy was a bright, normal, husky boy. He had good blood, his urine was normal and yet he had this persistent discharge. What did he have? He had a multiple infection, a multiple sinus infection without any damming back of secretions. Headache of obscure origin is a prominent symptom in these cases. When a child has headache, when he complains of pain, he does not deceive. Pain complained of by a child always means pain, and headache is a frequent symptom in the sinus cases. Another symptom is a persistent fever. A child has a fever that ranges from 99 to 101. Perhaps the condition has continued for several weeks. We examine for pyelitis, for tuberculosis and other conditions that might cause a persistent slight elevation of temperature. Sinusitis of a mild type has to be considered in making a diagnosis when there is a persistent temperature elevation extending over a considerable period of time. Another point that has been impressed on me in connection with work with children is that there are various diseases of adults that are acquired in childhood. Pyelitis is one. I am confident that children may have sinus disease, which, because of the obscure characteristic symptoms, is not recognized and is carried into adult life.

Dr. J. M. McTiernan, New York: Several years ago I heard Dr. Kerley ask for some definite information as to sinus conditions in children, and I kept a record of 197 cases referred to me for removal of tonsils and adenoids. I found an almost normal nasopharynx in eighteen cases. These patients had a chronic discharge from the nostrils, a pale thickened membrane and were marked mouth breathers. Where sinus complications exist, if a saline solution is used first to wash out the nasal cavity and then a few drops of epinephrin are used, often the diagnosis can be made. I have seen headache and malaise in children relieved entirely by the treatment of sinus conditions. However, all mouth breathers are subject to headaches. I cannot agree with Dr. Oppenheimer that it is the frequent headache which is a symptom of sinusitis in a child. I believe that a persistent, chronic headache, that headache for which a child so often wears glasses without relief, is the characteristic headache which signifies a sinus condition. I had one case where a chronic headache had existed since the patient was 8 years of age, and it was relieved when he was 16 years of age by taking off the sphenoidal wall at the right side, although the cavity had been washed out at different periods for several years.

Dr. Emil Mayer, New York: I want to call attention to one form of this affection that Dr. Oppenheimer evidently overlooked, and that is the infection of the antrum and ethmoid in the very young child, the infant. There are only a few cases on record. I believe I was among the first to call attention to that many years ago, and in looking up the few cases which were recorded it was remarkable to observe the similarity of the symptoms. Each one of these patients had a curious opening on the cheek and a foul-smelling discharge from the nose. In those instances there is only one thing to do, and that is to enlarge the already existing opening and curet entirely through the nose and cleanse it. This case occurred before the day of the roentgen ray and before we knew anything about the bacteriology of it, but the chairman in his article on affections of the accessory sinuses in children last year mentioned that class of cases, and I believe it should be recorded in connection with the kind of cases mentioned by the speaker.

Sir St. Clair Thomson, London, England: This is a very important question, because we have not yet realized the connection between rhinitis and sinusitis in infancy and childhood and the atrophic rhinitis and ozena of later life. I would suggest to those in active practice that they try to get what we have long been working for, that is, postmortem examinations. We should get the pathologists in every hospital to open all the sinuses in every case that comes to postmortem, it is an operation that can be done without special equipment and it should be done as systematically as opening the other chief cavities of the body. Of course, the cases we should like to see are those that end fatally and suddenly as the result of an accident, because it will for some time be difficult to say whether the pus found in the sinuses of a patient dying of an ordinary disease, say bronchitis, dysentery, typhoid fever or pneumonia, is merely a part of the death process and not a primary focus. I throw that out as a suggestion. Sinusitis in children can be divided into those cases that are due to a focus of infection in the adenoids, and those where the focus is somewhere else. As to the infection which comes from somewhere else much work has been done in England to show that cases which we are apt to call sinusitis are really cases of osteomyelitis of the superior maxillary. Speaking of adenoids, Sir William Osler, who has had experience in three countries—Canada, the United States and England—has given it as his opinion that there are more adenoid children to the acre in England than anywhere else in the world. My experience is that a majority of cases of sinusitis in children, just as are a majority of cases of bronchial infection and, I am almost inclined to think, also a majority of cases of chronic gastric catarrh, are due to infection of the adenoid mass. I do not think that every mass of adenoid tissue is dangerous. Quite the contrary. I am making some investigations in an institution with which I am connected and where adenoids and septums and sinuses do not come for treatment, that is, a sanitarium for the tuberculous where I go once a week and examine every patient. Many patients still possess their tonsils and septums, their adenoids are still there and are doing no harm. It is not a mechanical process in the adenoid itself that it becomes a focus of infection. That is the dugout where the enemy entrenches itself, and we think it is easier and, if I may use the term, a more sporting proposition to blow up that dugout than to try to drive out the enemy by poison gas. The first line of attack is the adenoid. The only objection is that the young laryngologist is apt to see a fee in an adenoid, sometimes when there is no adenoid there.

Dr. I. W. Voorhees, New York: How does Dr. Oppenheimer examine these patients in his office? Children come accompanied by their mother and are very much afraid. If you have another child or nervous adults waiting outside and they hear a cry or scream, it disrupts the day's work. Another point is the necessity of differentiating between a foreign body and unilateral sinus disease. Just recently a girl, 8 years of age, came to the clinic with a unilateral nasal discharge. I attempted to see if there was any foreign body present but found none. I then examined her under ether and failed to find a foreign body. She was then roentgenographed and the report stated: "Left antrum filled with pus." The child was admitted for opening of the nasoantral wall, but unfortunately the admission slip was lost and a tonsillectomy and an adenectomy were reported done instead. The mother came back three days later and said that four years ago the tonsils had been removed. I examined the child and found signs of an old successful tonsillectomy. She still has empyema of the antrum and the mother will allow nothing to be done.

Dr. G. W. McKenzie, Philadelphia: I understood Dr. Oppenheimer to say that the sinus contained no mucous glands. I question that, because I have done a lot of study on that and my impression is that the sinuses do contain mucous glands, and that there are mucus secreting cells.

Dr. Lee W. Dean, Iowa City, Iowa: In connection with disease of the nasal sinuses in children, it seems to me there is one thing that is axiomatic, and that is the point made by Sir St. Clair Thomson, that the first treatment of sinus disease in children or infants is the eradication of the diseased adenoid tissue in the nasopharynx, which is usually the source of infection. We have now a series of from 75 to 100 cases of sinus disease in infants and children under 12 years of age, where four out of five have been completely cured, so far as the nasal sinus disease is concerned, by the removal of the diseased adenoid tissue in the nasopharynx. The investigation was made in this way. These patients were examined, a diagnosis was made, and then the diseased adenoid tissue was removed. No other treatment was given. The patients left our service and in four or five weeks came again for examination. We found that four out of five of these young children were well, so far as the nasal sinus disease was concerned. When we found that the fifth child did not get well, we resorted to other measures. Investigating the bacteriology of our sinus cases in infants and young children, we found that in eleven out of twelve cases in which there was an arthritis the hemolytic streptococcus was in the sinus, while in those cases in which there was no marked systemic lesion the hemolytic streptococcus was found in only 4 or 6 per cent. of the cases. In the twelve cases with arthritis, the tonsils and adenoids had been removed months before the cases were investigated. Following treatment of the sinuses which were affected marked improvement of the arthritis resulted in every case.

Dr. Seymour Oppenheimer, New York: In a paper read in New York Dr. Dean brought out particularly the relationship of accessory sinus disease to general systemic manifestations. It has been his experience, as well as my own, that in any number of cases that have been referred to us from the pediatric department or from the general practitioner for determination of where the focus was which was causing the arthritis or other manifestation, that by very careful observation we were able to localize and cure the systemic manifestation after having determined that the focus was in the nasal accessory cavities. Dr. Dean called attention to the fact that in some instances it is not necessary to attack these cavities surgically; however, the simple removal of a mass of lymphoid tissue may be sufficient to allow the proper drainage. I also want to refer to a method mentioned in the chairman's paper, that is, the investigation of these cases while the child is under anesthesia when it is being operated on for diseased adenoids and tonsils. That is the time to puncture the antrum and irrigate it. Dr. Voorhees spoke of the difficulty of examination. I grant that it is extremely difficult in children, but there are methods which can be employed. First of all we must estimate something as to the general appearance of the mucous membrane of the nose. I have had constructed a very thin bladed speculum of the Killian type which I am able to introduce into the nose and frequently I am able to illuminate the regions that otherwise are not visible. The use of the nasopharyngoscope is most valuable, plus the employment of suction methods in withdrawing secretions. It is not unusual, instead of finding a nose full to find no evidence of secretion; but after the employment of suction methods the secretion is profuse. Sir St. Clair Thomson referred to the fact that the young laryngologist saw in the adenoids a fee. That is quite correct. I have seen a number of children, both in private and hospital practice, where on inspection of the throat a large mass of mucopus was seen dropping down from the nasopharynx. We may jump to the conclusion that the child has a mass of lymphoid tissue, but the history in some cases is that the child has been operated on already. In some instances the secretions may come from an infected sphenoid cavity, and, as I stated, it has been a source of surprise to me how frequently we have been able to demonstrate pus coming directly from the posterior ethmoid cells and from the sphenoid cavity, and in several cases we have been able to show it coming from the ostium of the sphenoid cavity. Any excessive temperature elevation in a child should always call attention to the nasal accessory sinuses.

Dr. Kerley asked what is the symptom complex of chronic sinusitis. I might reply to that by saying, the intranasal finding of purulent discharge. The other general systemic manifestations, such as aching, temperature elevation and a general lack of well being must be considered, but a good diagnosis is practically established by finding a mucopurulent discharge from the nose. It must be borne in mind that a mucopurulent discharge from the nose does not come from the nasal mucosa per se, but that every child recovering from scarlet fever or measles has evidence of a mucopurulent discharge from the nose and that is coming from the nasal accessory cavities.

THE ANALYSIS OF HUMAN MILK

TECHNIC OF OBTAINING SAMPLES AND INTERPRETATION OF RESULTS *

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The increased interest in breast feeding, which has been the result of recent articles both by pediatricians and by those interested in public health, has again turned the attention of clinicians to the chemical composition of human milk. It is in place at this time, therefore, to draw attention to mistakes which may be made in obtaining the specimens for chemical analysis, the method of analysis, and the interpretation of reports sent by the chemist. Human milk has often been sent to the chemical laboratory for analysis when a baby is sick, and a report returned giving the percentage of fat, lactose and protein. In many instances the practitioner has not been sufficiently familiar with the normal composition of human milk, and its variations under normal conditions, to interpret from the results of the examination whether the milk is abnormal or not; and because of this ignorance many babies have been deprived of their mother's milk when the milk has been normal. It should be a rule, therefore, that an infant should not be weaned because of the analysis of the milk until it has been proved, first, that the milk is harmful to the infant, and secondly, that its composition is abnormal. The composition cannot be said to be abnormal until it is found to be outside the limits of the normal variations of human milk. As will be shown later, the variations of human milk have much wider limits than were previously taught.

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* From the Children's Medical Department of the Massachusetts General Hospital.

* Read before the Section on Diseases of Children at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

The second source of error is the method of obtaining the sample for examination. In order that it shall represent the true analysis of human milk, it must be obtained in one of two ways: First, all the milk should be drawn or expressed from one breast and sent either in bulk or in mixed sample to the chemist. The difficulty with this procedure is to know whether all the milk has been obtained or not. The only way to control this would be to spend the preceding twenty-four hours weighing the baby before and after each nursing to determine how many ounces of milk are taken on the average. When this is known, it can be estimated whether the entire amount of milk has been obtained in the sample sent for analysis. The second method is much simpler in that it only requires the nurse to obtain 1 ounce of milk before nursing and 1 ounce after nursing. These two ounces may be analyzed separately or mixed, but if analyzed separately, they must be averaged.

This complicated procedure is necessary since the percentage of fat is much lower at the beginning than at the end of nursing, the difference occasionally being as much as 10 per cent. The percentage of lactose also changes, although to a less marked degree, being higher at the commencement of a single nursing than it is at the end. The difference in protein is less pronounced and will hardly lead to error. Because of these wide variations it may be seen how easily a wrong interpretation may be made.

The time of day that the milk is drawn also has an influence on the composition of the milk. These figures, which show that there is a difference in the percentage of fat at different times of day, will be reported in another place by Dr. Denis and myself. The highest percentages come at noon or in the afternoon, and sometimes are so high that, if taken alone, they would be considered pathologic. The best time to take a sample of milk for analysis which will give the most characteristic figures is 9 or 10 o'clock in the morning.

The following is an example of how a physician may be led astray by the analysis of breast milk which was obtained in the wrong manner: A sample of 1 ounce was obtained before nursing from a mother whose baby had failed to gain for one week and seemed uncomfortable. The analysis of this sample was: Fat, 1.5 per cent.; lactose, 7.7 per cent.; protein, 1.18 per cent. If these figures are compared with those given in most books as normal figures, namely, fat, 4 per cent.; lactose, 7 per cent.; protein, 1.5 per cent., the sample obtained would prove to be very weak and would explain why the baby was not gaining. I venture to say that in many instances such an analysis would be interpreted as sufficient reason for weaning the infant. This was not done in this case, however, because the milk, when obtained in the correct manner, proved to be a perfectly normal milk. Samples obtained later from the same patient, both before and after nursing, when mixed, contained: fat, 4.05 per cent.; lactose, 7.5 per cent.; protein, 1.16 per cent., which is a perfectly normal human milk. If the first sample had been obtained immediately after nursing, instead of before nursing, the composition would have been: fat, 6.6 per cent.; lactose, 7.4 per cent.; protein, 1.13 per cent., and the milk would have been said to be too rich and, therefore, indigestible. It is clear, therefore, that breast milk procured for chemical analysis must be taken in one of the two ways outlined above.

Although the method of collecting samples of breast milk is of great importance, the methods of analysis are of equal importance. To inaccurate methods of analysis are due mistakes which are responsible for depriving the baby of its mother's milk. The usual method of analysis used by clinicians and many laboratories is somewhat as follows: First, the fat is determined by the Babcock method, which is sufficiently accurate for all practical purposes; the proportion of sugar is assumed to be so nearly constant that it is set at 7 per cent., and the protein is obtained by subtracting the assumed and known constituents from the solids. Such a method is extremely inaccurate because there is a normal variation of from 6 to 8 per cent. in the lactose content of normal human milk. This variation, of course, reflects on the percentage of protein found in the answer and gives incorrect results. The following analysis was given to me from a case which had a classical textbook history of protein indigestion: fat, 2 per cent.; lactose, 7 per cent.; protein, 4 per cent. Such a milk, if correctly obtained and accurately analyzed, is very abnormal. The symptoms were loss of weight, vomiting, and watery stools containing curds. The analysis of the milk seemed to explain these symptoms and to warrant weaning the baby. On close questioning, however, it was found that the sample of milk was taken from the mother before the baby had nursed because it was more easily obtained at that time. Since there was doubt also as to whether it represented the true chemical analysis, another set of samples were taken correctly, 1 ounce before nursing and 1 ounce after nursing, both of which were mixed and analyzed by Dr. Denis. The fat was determined by the Babcock method, the protein by the Kjeldahl, and the lactose by the Folin-Denis titration method.[1] Its true composition was found to be: fat, 4.35 per cent.; lactose, 7.08 per cent., and protein, 1.75 per cent. This analysis, although slightly richer in protein than the average, was within normal limits for the age. The baby was therefore, not weaned and the symptoms of indigestion were found to be due to other causes. After these causes were removed, the baby did well on the breast.

It is necessary, therefore, both to have the sample of milk obtained in the proper manner, and to have it analyzed by accurate methods before deciding that a single analysis justifies weaning the infant and depriving it of its mother's milk.

In what way can the analysis of human milk help one clinically? The analysis of human milk is of value only when the physician understands its normal variations. Unfortunately, most of us are more interested in the pathologic than in the normal or the physiologic; and when we have to decide whether a given sample is pathologic or not, we are in consequence unable to answer the question. Pathologic chemical variations in human milk are less common than the textbooks lead us to suppose. In the majority of instances the symptoms and not the gross chemical composition of the milk decide for or against weaning. In the following case, the analysis of the milk probably explained the baby's symptoms of indigestion: The baby was having a great deal of gas and distress, crying most of the day, and passing six green, irritating stools a day which, under the microscope, were seen to contain considerable fat. The mother had considerable gas in the bowels. The analysis showed: fat, 1.4 per cent.; lactose, 8 per cent., and protein, 1.07 per cent. Although no single component was excessively high, the relative *proportions* of the fat, lactose and protein were abnormal. In this instance after weaning, the baby straightened out on a simple formula of cow's milk.

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[1] Folin and Denis: J. Biol. Chem. 33: 521 (March) 1918.

In another instance a baby was being fed by a wetnurse who also gave her own baby the breast after the foster-baby received what it needed. It was noticed that although the wetnurse's baby gained rapidly, it was uncomfortable and a good part of the time had undigested stools. As time went on the fosterbaby did not receive enough milk and was given all of the wetnurse's milk. It then commenced to have indigestion, and it was found on analysis that the additional milk, namely, the end of the milk of the nursing, contained 8 per cent fat. After a wetnurse with poorer milk was obtained, there were no symptoms of indigestion, and the baby gained weight in a normal manner.

SUMMARY

1. Mixed samples of milk taken before and after nursing, or the entire amount of one breast, must be taken to obtain a characteristic sample of milk for analysis. It should be drawn at 9 or 10 a. m.

2. Accurate methods of chemical analysis must be used. Clinical laboratory tests cannot be depended on because of their inaccuracies.

311 Beacon Street.

ABSTRACT OF DISCUSSION

Dr. John Foote, Washington: I think all the great pediatrists have written about the necessity of milk examination. Soranus of Ephesus was the first. He described the thumbnail test in the second century, A. D. Breast milk varies depending on when the milk is taken, whether at the beginning, the middle or the end of the nursing, and the quality of the milk often depends on the time of day or whether it is taken from one breast or the other, so the matter of making a milk analysis involves many considerations. This was pointed out clearly by Dr. Abt in a splendid monograph a few years ago. The thumbnail test of Soranus was quite as accurate as some of our modern lactometer estimations of the quality of breast milk derived from a single sample.

Dr. James D. Love, Jacksonville: I am convinced that the routine examination of breast milk as commonly practised with a lactometer more often leads us astray than not. A mother may state that her milk is thin and bluish in appearance and she submits a specimen for examination. We may find that this milk is deficient in fats and apparently is not a milk on which the baby will thrive; and yet the baby is thriving and taking on weight. Too often we base our estimate on examination of a given specimen of milk. As Dr. Foote has said, the milk in the morning will differ very materially from an afternoon specimen. If the baby is nursing every two or three hours, the milk carries materially more fat than if the baby is nursing every four hours. I merely wish to make the point that unless an examination is made properly and the milk is selected from at least two or three specimens in the course of the day, the routine examination of milk as performed by the average physician will often lead to erroneous conclusions.

Dr. Fritz B. Talbot, Boston: The appearance of the milk really does not tell you anything. We have seen milks that have been very yellow, looked very rich, and yet they have had only 0.9 per cent. of fat in them.

ANOMALIES OF TUBERCULOSIS IN THE HIGHLANDS OF COLOMBIA

A NEW DIAGNOSTIC SIGN IN INCIPIENT CASES

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Physicians of the early part of this century observed a curious evolution of tuberculosis in the great Colombian Highlands. These highlands have an elevation of about 11,800 feet above sea level, and are inhabited by an Indo-Spanish race which numbers very few Indians and many pure descendants of the conquerors. The highlands have an average temperature of from 14 to 16 C. (or 57.2 to 60.8 F.), with an inexhaustible fertility, and are not very thickly populated. Both men and animals progress admirably in this region, notwithstanding deficient hygienic conditions inherited from our Castilian fathers.

I wish to describe the invasion of tuberculosis in these places, which a few years ago were almost free of the Koch bacillus. Today the region is infested with this terrible malady, but with pathologic peculiarities different from what prevails in the temperate zone.

Immunity to tuberculosis is produced by the constant production of antibodies by lymph nodes or other tuberculous tissues. In the highlands of Colombia, certain forms of tuberculosis are most common because the race does not possess immunity to tuberculosis in any degree. The study of these problems is to me of the greatest importance. In the years from 1896 to 1899, I was shown in the clinic of my teacher, Dr. Josue Gomez, in the Hospital de Caridad of Bogota (Charity Hospital), as a pathologic rarity, one or two cases of pulmonary tuberculosis. On the other hand, there were frequent cases diagnosed as tuberculous peritonitis. Numerous necropsies demonstrated the truth of his assertions. Dr. Gomez attributed this phenomenon to various causes. I believe that it was tuberculosis of the mesenteric lymphatics in men who did not have ancestral immunity. This made the invasion of the tuberculosis more rapid so that the action of the antibodies did not stop the rapid peritoneal invasion. Probably, then, the lungs were kept almost immune, the mesenteric ganglions being the place selected by the first tuberculous invasion. The invasion in these organs not immune *per continuitatem* occurred with a rapidity which did not permit the development of antibodies.

During the last four years I have served as professor in the same clinic and have observed hundreds of such cases. There were three things that called my attention especially to the curious nature of the disease in the highlands of Bogota: the rapid cavity formation, the miliary forms, and the tuberculous meningitis.

N. N., a man from the country, aged 24, had vomited blood two months before admission, while at his farm, without feeling previously ill. He felt better a few days later, continued his work at the farm, and having vomited blood again forty days afterward, went to Bogota and took a bed in the Hospital de Caridad.

While making the morning rounds, my intern and my chief head of the clinic showed me that case as gastric hemorrhage with vomiting. The man had powerful muscles and a perfect frame, with not a single degenerative stigma. He was a beautiful example of that hardened and healthy type of our country. On examining him, simple percussion revealed to me the existence of a cavity larger than a dove's egg in the apex of the left lung. The auscultation confirmed my diagnosis. There was nothing else; not an enlarged lymph node; not even a strange noise besides the cavity phenomenon. Based on previous cases observed in my clinic I gave a fatal prognosis. In fact, ten or twelve days later my patient died in a hemoptysis, and the necropsy revealed, as the only tuberculous lesion, the cavity previously diagnosed. In this case, as in eight or ten others, the man was free from hereditary tuberculosis, not having in any other part of his body a tuberculous lesion that might have produced antituberculins.

Tuberculous meningitis also belongs to the not uncommon form of acute tuberculosis generally occurring in the sick—more often in women—while convalescing from great hyperpyrexia, principally from typhoid fever. It is not unusual, observing the cases attentively, to find that the bed next to the meningitis patient is occupied by a tuberculous patient, although on examining the meningitis patient no tuberculosis has been found. Here is new ground, not previously immune, in which, as in the case of a child, the malady takes its most virulent form.

Miliary tuberculosis adopts forms similar to those already mentioned. I was able to observe its frequency after severe hemorrhages in patients not previously subject to tuberculosis.

There are, however, numerous cases of chronic pulmonary tuberculosis. A very curious phenomenon is the clear diversity in pulmonary tuberculosis contracted in the highlands and that contracted in sea level regions. Even if there is no morphologic diversity between the bacilli of one and the other, the clinical evolution of the disease is very different.

Native and foreign men afflicted with tuberculosis who come to the highlands react marvelously to the climate and well-directed treatment. Having been during several years physician for a corporation that imported into the country numerous tuberculous patients, and which took great care in their treatment of them, I had the advantage of seeing some remarkable cures. Only the tuberculous patients with cavities who are so unfortunate (as many are) as to be subject to arterial hypertension die rapidly with hemoptysis.

On the other hand, persons acquiring tuberculosis in the highlands take a slow and sluggish reaction to all treatment. Being acclimated, these patients do not benefit from the advantages of the climate.

A NEW SIGN FOR THE EARLY DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS

The new sign which I describe has been found in 169 cases of incipient pulmonary tuberculosis. It consists of the reenforcement of the whispered voice in the vertex of the affected lung. This sign appears before the disease reveals itself by any other symptom, either auscultatory or percussional, before respiratory inversion and impairment in the supraspinal triangle of the affected side, which the classics consider as first signs of the malady, appear. A stethoscope and a little practice are enough to find it. The mechanism of the sign is very simple: it might be said that it is the same as the respiratory inversion, and that, examining not the respiratory noise, but the whispered voice, the physician resorts to a trick which allows him to confirm the beginning of the tuberculous process, in a period before the appearance of the principal respiratory inversion.

It is well known that to auscultation, inspiration is noisy and expiration silent. The murmur is produced, not only by the expanding of the pulmonary vesicles, but because each column of air breaking in the flute-like point which forms each bronchial subdivision has to produce a musical sound. This sound is helped also because the column of air subdivides itself in the thick and narrow tubes. The normal exhaling, however, is silent. Now the respiration of a person at rest, who breathes with the mouth open (as in the position of auscultation) and heard near the mouth, presents a phenomenon quite opposite: the exhaling is more noisy than the inhaling. This exhaling murmur is produced in the larynx and pharynx, these organs being the first obstacles that the outcoming column of air finds in which it can produce a musical sound. We see, then, that almost all exhaling reenforcement that is found in auscultation is originated in the larynx, the trachea, and the thick bronchial tubes. The ear that auscults hears them, thanks to the fact that they pass through pulmonary tissues more dense which allow sounds to pass better.

Laënnec showed that the first period of tuberculosis is characterized by a peribronchitis; that is to say, an infiltration of the interstitial peribronchial tissues. This sign is a physical phenomenon. The interstitial peribronchial inflammation increases the density of the lung, and owing to the easy transmission of sound by dense tissues, the larynx and tracheobronchial noises are transmitted in a better way to the ear that auscults, through a tissue of greater density. This explains the respiratory inversion, that is, the reenforcement of the expiration.

When the peribronchial injury is not sufficiently extensive; when the interstitial tissues of the lung have not yet increased enough to conduct with clearness to the ear that auscultates the tracheobronchial noise, it is sufficient to make the patient repeat in a low voice in each expiration a word rich in consonants. In an instant the ear will perceive the great difference that exists, in the case of incipient tuberculosis, between the healthy and the affected side. With a stethoscope carefully applied to the ear, isolating outside noises, a very muffled murmur is perceived, at most, from the healthy side, while from the affected side each syllable is distinctly heard, with such force that it reaches sometimes the degree of whispered pectoriloquy.

I have followed the progress of 169 tuberculous patients from the beginning of the malady; in many of them before the appearance of the slightest symptom. Always, sooner or later, this sign appeared before the respiratory reenforcement and other signs that, associated, did not leave doubt for the diagnosis.

Naturally, in cases in which there already exists respiratory inversion, the sign of the reenforcement of the whispered voice is much more accentuated, getting to be, sometimes, almost pectoriloquy. This sign should not be confused with whispered pectoriloquy, which may accompany tuberculous pneumonia of the apex of the lung, which has an acute progress, with blowing and other signs. The cavities are accompanied also by tympany to percussion. The Niess sign, consisting of whispered pectoriloquy in the space situated between the inside edge of the scapula and the columnar vertebrae, is found also in bronchial adenopathy. Its cause is the transmission of the tracheobronchial breath through the hypertrophic lymphatic advancement by control of clinical diagnosis? In the report of a committee of the New York Academy of Medicine in 1914,[4] it was pointed out that in a selected series of large hospitals in the United States the percentage of necropsies, as compared with the total number of deaths, was one eighth that in Canada, Great Britain, Austria and Germany. At that time, in only two hospitals was the number of necropsies above 40 per cent. of the deaths. According to Winternitz,[5] this number had increased in 1917 to include eight hospitals of twenty-two answering a questionnaire. He says, "Perhaps the selection of hospitals was fortuitous;" and, when one reads the list of hospitals, it seems that the assumption is correct. In this list of eight hospitals are included the Robert Brigham[6] and Cincinnati General[7] hospitals, with, respectively, 70 per cent. for two years and 63 per cent. for one-half year, periods too brief to indicate sustained interest in the matter. These figures indicate a distinct tendency toward improvement, proceeding, however, at a disappointingly slow rate. Indeed, one of the large hospitals in this city, during the year 1918, showed a reduction from an average of 40 per cent. over several years to 18 per cent., whereas the other increased from 13 per cent. to 15 per cent., both being affected in practically the same way by war conditions and the epidemic of respiratory infection.

CONCLUSIONS

Investigations of the cause of this general shortcoming of American medicine in studying the accuracy of clinical diagnosis lead to a variety of explanations and an equal variety of suggestions for improvement. The latter may be thus summarized:

There should be:

1. Education of the public as to the importance of postmortem examinations to public health.
2. Improvement of legislation: (*a*) obviation of the necessity for written permission to perform a necropsy, and (*b*) recognition of the difference between anatomic dissection and the necropsy.
3. Improvement of hospital regulations.
4. Increased development of the interest of physicians in the necropsy.
5. Encouragement of the "selfish interest in postmortems on the part of intelligent relatives of the dead."
6. Assignment, in large hospitals, of certain persons whose special duty it shall be to secure permission for postmortem examinations.
7. Information given the family as to the conditions disclosed by the necropsy.
8. A request for necropsy in every fatal case in hospital or private practice.
9. Establishment in the hospitals of regular clinical pathologic conferences.

We would suggest, in addition, that the subject is of direct importance to the development of industrial medicine and that those interesting themselves in this subject point out to employers and employees the value to medicine and industry of postmortem examinations. The suggested alteration of actuarial figures regarding life insurance is of similar importance to the so-called health insurance.

ABSTRACT OF DISCUSSION

Dr. Francis Carter Wood, New York: It is necessary to be very frank in our discussions and to realize that neither medicine nor surgery is as yet perfect. The public is as well aware of this fact as we are. The only way to improve diagnosis is to follow our cases with the greatest care and to study our practical results and those of others. Failures in diagnosis are often due, not so much to lack of knowledge as to lack of thoroughness and care in examination. Too much reliance is placed on laboratory reports, which are popularly supposed to have an infallibility with which no laboratory man would credit them. One way in which to improve the treatment of patients is to have students in the hospital wards. In teaching them the physician teaches himself. The private practitioner must fall back on reading, on attendance at medical lectures and meetings, and on most careful and thorough study of his patients.

Dr. W. Carpenter MacCarty, Rochester, Minn.: For a number of years I have been greatly interested in the comparative study of clinical and pathologic diagnosis. In justice to the clinician we must divide all errors into three groups, namely, actual errors, apparent errors and avoided errors. The actual errors are those which might affect the welfare of the patient by virtue of being misleading in so far as therapy is concerned. The apparent errors are usually those in terminology and may not affect the patient. The avoided errors are those in which the diagnosis is guarded by some general descriptive or localizing term. We must work with the clinician and not antagonize him. He must do likewise with the pathologist. I am not saying that Dr. Karsner criticizes him but I feel that his facts may be interpreted as criticism. I am associated with clinicians with whom I attempt always to consider one object, namely the patient. Much of the difficulty of clinicians has arisen from their attempt to utilize detailed pathologic terminology for clinical purposes. Pathology terminology as a means of communication of ideas is inefficient even for pathologists. If we do not change our attitude toward clinicians and patients the pathologic work of clinics will be done by laboratory girls who may be able to meet the emergency technically but who will be short on judgment. Our attitude should not be one of antagonism but one of strenuous attempt to give the patient the proper prognosis. I have lived with clinicians for twelve and one-half years. We have never had an argument and we have never had any trouble. The judgment from the laboratory is the last court as far as diagnosis is concerned. Pathologists throughout the world must take the same attitude. We have much to correct in our own specialty. We must first have our own conceptions of diseases clear and then utilize a simple and accurate code of communication of ideas. There is no uniform terminology in our textbooks. Much of our science is absurd, certainly ambiguous. It is inefficient, not only from a clinical standpoint, but from our own standpoint. We have to correct ourselves or our places will be taken by those not as scientically trained as we are. We must get into the game of rendering immediate service to patients. The game can be played only by means of team work and by diplomatic constructive analysis of our own faults and those of our colleagues.

Dr. E. R. Le Count, Chicago: We should remember that the postmortem examination is a measure, for the most part, of things that are rather certain; lobar pneumonia, for example, is definite. When we compare such definite lesions as lobar pneumonia with the conditions that attend clinical diagnosis, it is a little hazardous because of the many varying factors which enter into clinical diagnoses, and one of these to be thought of always is the time element. How long has the patient been under observation? I do not think it is quite fair to any clinician to charge him with an error in diagnosis unless he has had adequate facilities for making a diagnosis including the time. There are many other factors. Dr. Karsner mentioned sclerosis of the heart valves. We all know how common it is to find sclerosis of the front mitral leaflet. It is practically constant in the later years of adult life, but hardly any of such scleroses deserve a place as diagnosable lesions. I have contented myself so far, as far as possible, with showing the clinician what is present and avoiding any discussion as to why he did not make a correct diagnosis. Often such failure to comment is as effectual as a long drawn out discussion.

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[4] Oertel, Horst, and Lewinski-Corwin, E. H.: Report on Postmortem Examinations in the United States, by the Public Health and Budget Committee of the New York Academy of Medicine, J. A. M. A. **60**: 1784 (June 7) 1913.

[5] Winternitz, M. C.: Autopsies—Their Value, Methods of Obtaining and Protection of the Hospital, Mod. Hosp. **8**: 36 (Jan.) 1917.

[6] McCrudden, F. H.: Mod. Hosp. **6**: 376, 1916.

[7] Woolley, P. G.: Mod. Hosp. **6**: 377, 1916.

Dr. Henry A. Albert, Iowa City, Iowa: There is no doubt in my mind that we should place much more emphasis in the teaching of medical students on the importance of a knowledge of pathology, more especially gross pathology, than we do at present. The correlation of such with the clinical findings can be best brought out at the postmortem table. In this respect we are more fortunately situated than are many others. We are in a small community with a hospital of 500 beds entirely under the control of the hospital taff and practically all patients are clinical cases. About ifteen years ago, only about 25 per cent. of the cases which terminated fatally reached the necropsy table, whereas at the present time, the percentage is about 85. All our clinicians are interested in pathology. The rule at our institution is hat necropsy work takes precedence over all other work. The clinicians have agreed to permit necropsies to be given preference, in point of time, to any other work. In case of necessity our clinicians are perfectly willing to give up a surgical or medical clinic, so that they and the students can attend the necropsy. For some years the clinicians and pathologists have compared notes. The students also make both clinical and pathologic examinations and compare the findings. These take place to a certain extent at the time the postmortem examination is made. The clinician is there and the essentials of the clinical history are presented. The pathologic conditions are noted and discussed. After the bacteriologic findings have been noted and microscopic examinations of the tissue specimens have been made by the students, all the pathologic findings are again discussed and the correlation between such and the clinical symptoms is again made. We have found such frank consideration of all of the findings of a given case to be very helpful.

Dr. W. M. L. Coplin, Philadelphia: I would like to ask Dr. Karsner if he could tell whether the errors in diagnosis were in cases used for teaching purposes.

Dr. H. E. Robertson, Minneapolis: I am in entire sympathy with Dr. Karsner's object in presenting this paper. However, I do wish to be cautious in allowing those who do not understand fully the difficulties of the practice of medicine to be placed in a position where they can critisise the medical profession by quoting from its own members criticisms which are not fully understood and often out of place. Our profession has many weak spots and we have been rather lax in attempting to correct these. The other day there appeared before our county medical society two laymen whose duty it was to call attention to the lax methods pursued by modern hospitals in the professional care of the patients under their charge. This fact appeared to me to be a very ominous sign and showed that we are in danger of having done for us by outsiders things that we should do ourselves. One point of attack on this problem which seems to me to be very important is on the teaching done in medical schools. In these students our hope must lie for the radical improvement of existing conditions and if we present these high ideals of practice and living properly, without radical revolution but by evolution, we may find many of the present evils corrected in one generation. Socialized medicine in some form or other is almost certain to overtake us. Wise criticism and planning may regulate this to the advantage of the profession as well as that of the public. Nowhere is this wise criticism so important as in the relation between the pathologist and the clinician, and the responsibility of the pathologist is often very great. I am inclined to think that at times, at least, the clinician needs sympathy and instruction rather than publicity.

Dr. Francis Carter Wood, New York: I think much of what has been said depends on the fact that we are working with an older group of physicians, men who have not the laboratory training of the last ten years. I feel, as Dr. Robertson does, that our educational ideals in the medical schools are not yet high enough in the sense of teaching the men the responsibility which they assume when they undertake the practice of medicine and the necessity of thorough investigations of individual cases. The reason for much of the slipshod work in diagnosis is that in their desire to take more patients physicians assume more than they can do well. The same thing is seen in the hospitals, where a man will see a large number of patients very superficially, but is unable or unwilling to spend a great deal of time with any one patient.

Dr. H. T. Karsner, Cleveland: The most serious criticism of the aims of this paper is that made by Dr. Robertson. I feel that nothing appears in the paper that should not be seen by the profession or the public and maintain that an intelligent medical or lay public can understand that the inaccuracy of clinical diagnosis is not a reflection on the medical profession but rather an indication of the need for improvement. Such improvement can only be attained through cooperation based on complete understanding of the situation. Concealment of these facts can lead only to regression. Dr. Robertson suggests that the necropsy can be employed as a means of indicating a man's diagnostic ability, but I feel that it reveals rather the limitations of diagnostic methods. In hospitals where consultations are freely employed the index is one of staff rather than individual. In reply to Dr. Coplin, most of the cases were used for teaching purposes both before and after death. Between the third and fourth year of medicine in Western Reserve University, there is only a three weeks' vacation period so that the clinical material is used throughout the year. In addition, the fourth year students, as clinical clerks, attend the clinical-pathologic conferences on the cases that come to necropsy. In reply to Dr. Albert, we hold clinical-pathologic conferences in both the hospitals used in this study, and in the fourth semisemester of the year we also hold similar conferences for the entire second and third year classes, in which the third year students present the clinical features and the second year students the pathologic features of the cases under discussion. In all these conferences any errors disclosed are traced as far as possible to the source with the idea of evaluating clinical and laboratory diagnostic methods. In reply to Dr. Le Count, we did not include cases which were in the hospital too short a time to permit reasonable clinical examination, and as stated in the paper did not include minor or agonal pathologic lesions which the clinician could not be expected to have diagnosed. I quite agree with Dr. MacCarty that there should be a standardized nomenclature in pathology but cannot agree that his device brings us materially nearer a solution of the problem. Pathology alone cannot settle the matter because the terms used are in most instances common to the entire field of medicine. We, as pathologists, have no quarrel with the clinicians. On the contrary, we stand in need of closest cooperation. Any disagreement that may occur are rather a battle between progress and reaction than a conflict between pathologists and clinicians. By our ability to see things directly as they occur in the body rather than through layers of skin, fat and other structures, we are in a position to verify or correct diagnoses made at the bedside. This difference should always be recognized and lead to harmonious discussion rather than acrimonious debate.

Vaccine Against Cancer.—Professor Rappin of the University of Nantes is director of the Pasteur Institute, and as early as 1886 he called attention to a micro-organism which he found constantly in cancer and has continued to find it since, although his research has been fragmentary. He has been recently experimenting with a vaccine made from this micro-organism and reports in the *Bulletin médical* of July 19, 1919, three patients with inoperable cancer treated with it. He considers the results encouraging, although his material was so small and not demonstrative. He gives illustrations of the micro-organism as seen in an alveolar cancer, hoping others will carry on the research more thoroughly. His previous communications were published in the *Gazette médicale de Nantes* and in the *Comptes rendus des séances et mémoires de la Société de biologie*, Dec. 10, 1887.

EXPERIENCES WITH DUODENAL FEEDING AT U. S. ARMY GENERAL HOSPITAL NO. 41 *

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First Lieutenant, M. C. U. S. Army
FOX HILLS, STATEN ISLAND, N. Y.

At General Hospital No. 41, we have treated gastric patients returned to this country from duty overseas as well as patients from among the enlisted members of the detachment. Practically all of these patients had been under dietetic treatment before reaching our ward, but the symptoms were continuing in unabated form. It occurred to us that, rather than again subject the patients to a procedure that had failed to produce improvement, we would have recourse to Einhorn's duodenal alimentation. The underlying principle appeared to be rational, that through rest of the diseased area, by completely excluding it, nature might be given the opportunity of effecting recovery. Our results with this method have been encouraging.

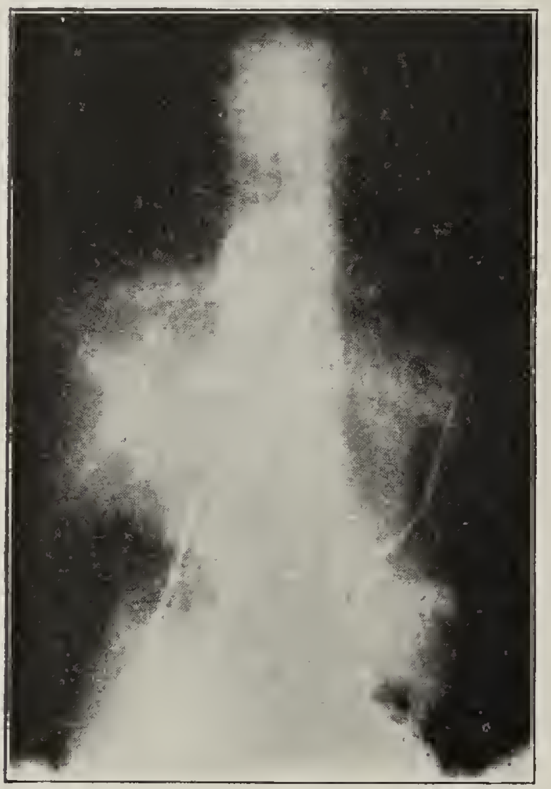

Fig. 1 (Case of E. F. L., Pvt., Medical Detachment).—Fairly typical history of ulcer with positive roentgen findings, blood in the gastric secretion, and a blood stain about 1 inch in length on a string, 21 inches from the teeth. The patient on discharge had gained 15 pounds and had no complaints. The tube was swallowed with no bulb at the end, yet passed into the duodenum without coiling on itself. Other attempts to have a tube pass into the duodenum with no weight at the end failed, the tube coiling on itself in the stomach.

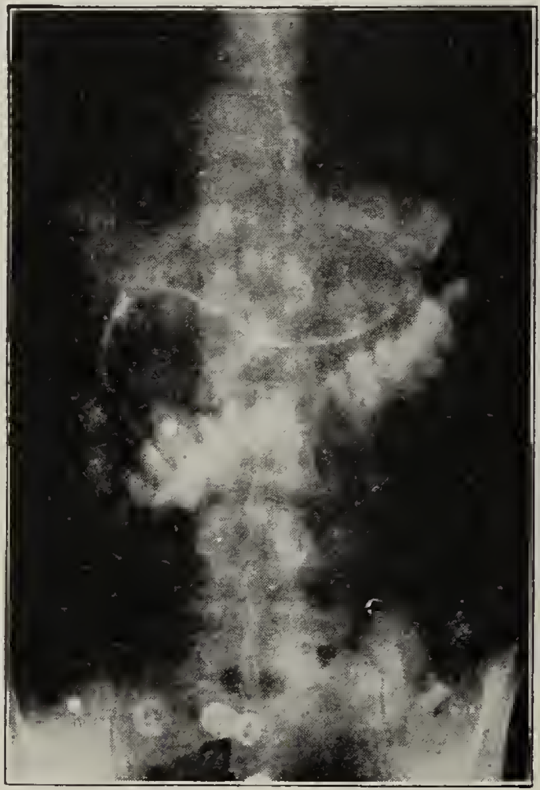

Fig. 2 (Case of G. C. B., Pvt., Medical Detachment).—In this case a bulb was sewed on with plain catgut to the end of the rubber tube. The tube was swallowed in the evening and the roentgenogram taken the following morning. As a result of the absorption of the catgut, the bulb became detached from the end of the tube, which had passed into the duodenum.

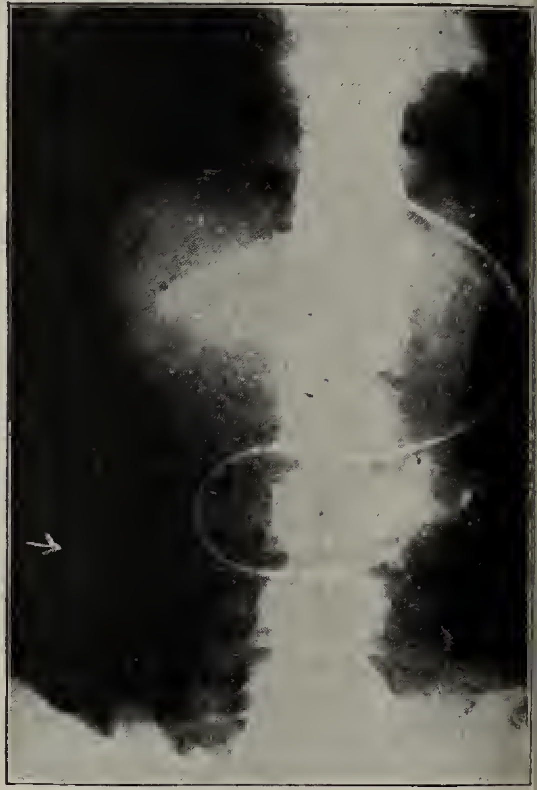

Fig. 3 (Case of E. A., First Lieut., M. C.).—Owing to the fact that plain catgut absorbed with such rapidity, so that in some cases the bulb became detached while still in the stomach, it was decided to use chromicized catgut. The arrow points to the bulb, which has become freed from the end of the tube to which it was originally sewed. The bulb was recovered from the stool about thirty-six hours after it was swallowed.

We modified the duodenal tube in a few details. According to its original construction by Einhorn, as also in the modifications by Gross, Palefski and Rehfuss, there is a perforated metallic attachment at one end. We attempted to get rid of this metallic endpiece. It seemed possible that a metallic weight of that sort might, if left in contact with the soft lining membrane of the duodenum or jejunum over a prolonged period of time, produce an erosion with possible hemorrhage or ulceration. Especially might this occur where it would be desirable to keep the tube in place for as long a time as six weeks or more in the case o a chronic ulcer. We, therefore, had one patient swal low the rubber tube with no bulb attached. In thi particular case the end of the tube actually passe through the pylorus into the duodenum (Fig. 1). Bu every other attempt failed, the tube coiling on itsel within the stomach. A weight at the end of the tub seemed quite valuable in facilitating the passage of th tube into the proper place. We could not, however understand the particular value of the weight once th tube had reached the duodenum, whereas the continue pressure might be a conceivable source of danger. W therefore sewed a bulb on the end of the rubber tub with plain catgut. The tube was swallowed by th patient that evening, and a roentgenogram was take the following morning which showed the tube in plac and the bulb detached and present in a different portion of the intestine. The catgut had been absorbed permitting the bulb to escape (Fig. 2). Owing to th rapidity with which plain catgut is absorbed, we hav been using chromicized catgut. In the case of anothe patient we sewed the bulb on with chromicized catgut The roentgen-ray finding taken eighteen hours afte the tube was swallowed is shown in Figure 3. In on case, the lumen of the tube became so occluded tha food would not flow through. We, therefore, mad several openings at varying distances from the end t minimize this possibility. The duodenal tube, as w use it, consists of 45 inches of thin, readily collapsibl rubber tubing with several openings along the side, th openings being about as large as the lumen and locate at different intervals for a distance of approximatel 1½ inches from the end. Sewed with chromicize catgut to the end of the tube is a small perforate metal bulb, which eventually becomes detached an may be recovered from the stool.

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* Read before Hospital Staff, May 27, 1919.

* This work was conducted on the service of Major Frank B. Gummey, chief of staff, and his successor, Major Frank Harnden.

We have become impressed with the value of the drop method of feeding the patients as originally advocated by Dr. Morgan. Feeding with the syringe as proposed by Einhorn may produce distention, pain and nausea. In one case, it produced cardiac palpitation with flashes of heat; in another case, flashes of heat followed by a feeling of cold, evidences of a possible vasomotor disturbance. In the normal mechanism of alimentation the stomach, which, as one of its functions acts as a reservoir, from time to time forces some of the chyme through the pylorus into the duodenum. In duodenal feeding the stomach as a reservoir is eliminated. The food passes directly into the intestine with its comparatively small lumen.

That an increase in bulk at any one time may cause distention appears probable. Moreover, when feeding is done by the drop method, there is increased opportunity for the material to mix with the secretions and for greater consequent enzymic action.

Not only the direct introduction of a bulk of material by the syringe method, but even an increased flow by the drop method may produce discomfort which often can be obviated by regulating the rate of flow and decreasing the number of drops per minute. The rate best suited can be determined only by a study of the individual case. Given slowly, drop by drop, there is less possibility of the food's accumulating in the duodenum and backing up toward the pylorus, thereby perhaps coming in contact with the ulcer we are attempting to treat. This contingency may also be minimized by attention to the patient's position in bed during the period of feeding. Referring to Figure 3, we see that the end of the tube is at the end of the transverse portion of the duodenum. In this case the patient was instructed to lie on his left side during the feeding so as to aid in draining the fluid away from the duodenum and toward the jejunum. Apart from the duodenal tube as described above, the rest of the apparatus we have been using consists of two pieces of rubber tubing, two medicine droppers, a 4-inch piece of glass tubing into which one of the medicine droppers fits, a screw clamp and a container, all arranged as seen in Figure 7. The method is simple, practical and inexpensive. When available, a vacuum bottle as a container may be used to advantage.

As to the localization of the tube, we have found no method so satisfactory as a roentgenogram. Far from being unnecessary or unimportant, as is usually stated, we know of no better way of determining exactly the position of the tube and where the end of it is. Even if all other facts were to prove conclusively that the tube was in the duodenum, we should have no definite clue as to how far the end of the tube reached. Shall we judge by the length of tube swallowed? That is uncertain because the tube may coil on itself (Fig. 4). By injecting a suspension of barium through the open end of the tube by means of a syringe and taking the roentgenogram during the process, we have a complete column of barium outlining the tube. Within fifteen minutes the plate is ready for inspection. In the case of a duodenal ulcer, it is important not only that the tube be in the duodenum, but that the end be sufficiently far removed from the diseased area to avoid all possible contact of the food with the ulcer. In one case a roentgenogram showed the end of the tube in the duodenum. It also showed an escape of barium from the part of the tube within the stomach. On removing the tube we found the opening from which the barium had escaped.

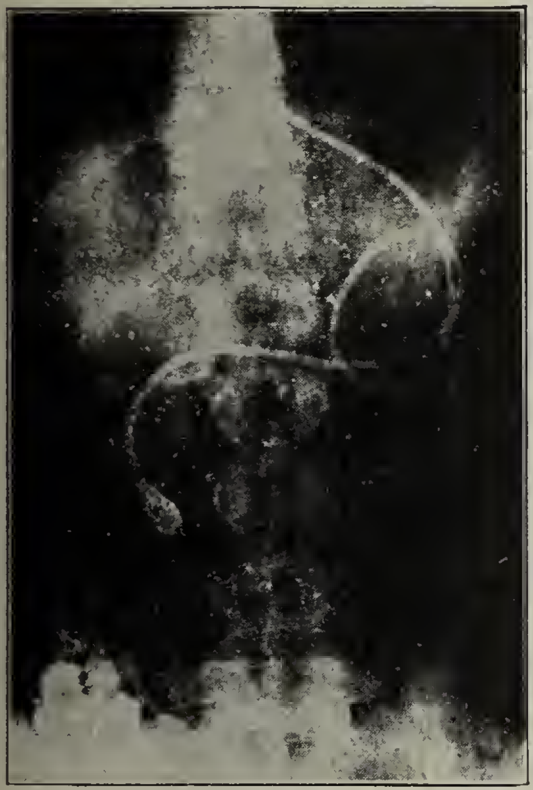

Fig. 4 (Case of G. C. B., Pvt., M. D.).—An illustration of the fact that the length of tube swallowed gives no certain indication as to where the end is, as the tube may coil on itself.

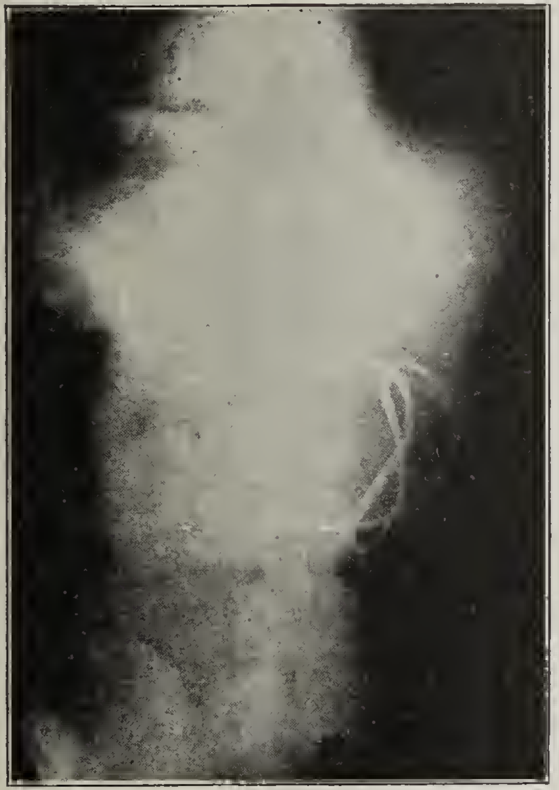

Fig. 5.—One of the factors that may interfere with the proper flow of fluid through the tube, namely, a kinking of the tube without any actual obstruction.

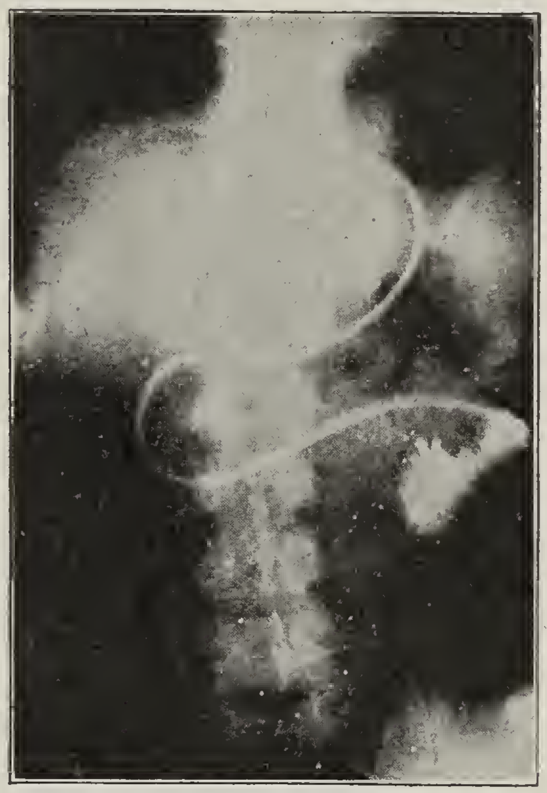

Fig. 6 (Case of J. L., Corporal Inft.).—This picture, taken twenty-four hours after the tube has been swallowed, still shows the bulb attached to the end of the tube. It had been sewed on with chromicized catgut No. 4.

After the tube is in place, the following possible occurrences may interfere with the proper flow of fluid through it: The lumen may become occluded. To minimize this possibility several openings were made at varying distances from the end of the tube as described above. Another possibility is a kinking of the tube. This is shown in Figure 5. In this case the food material failed to run through by the drop method. It could, however, be forced through with a syringe. We were able to correct the difficulty by gradually pulling out several inches of the tube until the food again flowed through with no obstructions. A third factor which may prevent the food from passing through is pylorospasm, the sphincter contracting on the rubber tube. On several occasions in the course of duodenal feeding the fluid failed to pass through. Attempts to force it through with a syringe were equally unavailing. We had the patients swallow some water, and within a few minutes the food again passed through by the drop method without the slightest difficulty. We believe a relaxation of a contracted pyloric sphincter may explain this result.

The material the patient is fed should be fluid, and of such a nature and such bulk as to give him a maximum degree of comfort, and at the same time supply him with a caloric value requisite to maintain his weight, and a sufficient amount of protein to keep him in nitrogen equilibrium. It is an interesting physiologic phenomenon that, fed in this way directly into the intestine, patients are able to retain their weight over a period of several weeks, during the entire course of the treatment. In maintaining a patient's weight, we have an added factor that is of value in healing the disease.

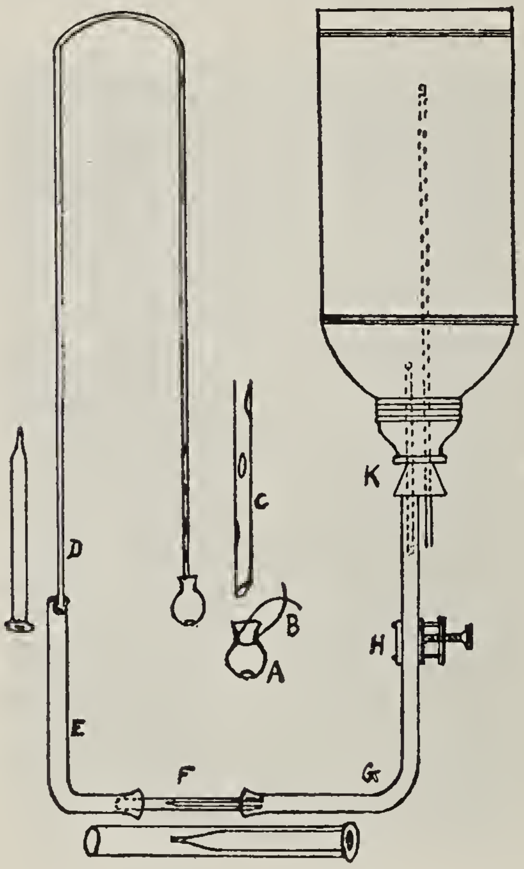

Fig. 7.—Outfit for duodenal feeding; *A*, perforated metal bulb; *B*, chromicized catgut; *C*, end of duodenal tube, with openings; *D*, medicine dropper; *E*, rubber tube; *F*, glass tube containing medicine dropper; *G*, rubber tube; *H*, screw clamp; *K*, vacuum bottle.

No definite feeding formula can be laid down. Each case must be studied individually. One must seek that happy combination of proper rate of flow, total bulk, and nature and concentration of food contained therein that will support nutrition with a maximum degree of comfort. An average mixture as we have employed it in our ward may contain 150 c.c. of peptonized milk; 70 gm. of glucose; 2 eggs, and 40 gm. of butter. In a patient, weighing approximately 60 kg., who is at rest, such a mixture given three times a day is sufficiently ample to sustain his body requirements.

The length of time the tube is permitted to remain in place must necessarily vary with the individual. To establish a definite period for all cases is to disregard obvious differences in healing power in different persons. This will vary with age, inherent recuperative power, as well as with the chronicity and severity of the lesion. To determine how effective the method of treatment has been, the patient is fed by mouth after a variable period has elapsed, while he is still being fed by the tube. In this way we have some means of judging the extent of recovery. As we find that we can increase the food by mouth, we eliminate one of the feedings by tube. Finally we dispense with duodenal feeding entirely and remove the tube. If we were to find that pain recurred on feeding by mouth, the tube still being in place, we could continue duodenal alimentation.

CONCLUSION

These points should be emphasized:

1. The importance of a duodenal tube with a weight at one end that is readily detachable shortly after the tube has reached the duodenum, and that has several openings near the end to minimize the possibility of occlusion.
2. The importance of the drop method of feeding.
3. The value of the roentgen ray for localization of the tube.
4. The conviction that we are dealing with a method that is not uncomfortable to the patient, as a rule, when properly handled, that we believe to be rational in its underlying theory, that enables the patient to maintain his nutrition, and that may prove of value in some cases.

ARACHIDIC BRONCHITIS *

CHEVALIER JACKSON, M.D.
AND
WILLIAM H. SPENCER, M.D.
PHILADELPHIA

We have selected the term "arachidic bronchitis" to apply to a special form of bronchitis due to the aspiration of peanut kernels into the lower air passages. It doubtless should be applied also to analogous cases caused by the aspiration of a few other organic substances; but up to the present time relatively few cases caused by other substances have been observed; whereas, with peanut kernels, the cases have been so numerous and the evidence so overwhelming as to demand a place among the list of diseases affecting the bronchi and lungs of children.

There are only three references to "peanut bronchitis" that we have been able to find, one by Chevalier Jackson,[1] another by Ellen J. Patterson,[2] and a third in the Mütter Lecture for 1917,[3] wherein the visible living endoscopic pathology of arachidic bronchitis is discussed under the name peanut bronchitis.

DIAGNOSIS

The resemblance of the symptoms to those of laryngotracheal diphtheria is sometimes most striking, and in a number of cases antitoxin had been administered, though laryngeal smears and cultures had shown no *Bacillus diphtheriae.* There is in all of the cases a varying degree of dyspnea and restlessness which is usually more marked in the younger children. It was noted that the cases of peanut bronchitis show a marked toxemia, which we ascribe to the absorption of toxins from the difficultly expelled lung secretions. This toxemia resembles that seen in the acute infections, and is at times accompanied by a mild delirium. There is a marked difference between this toxic condition produced by the peanut and the purely septic condition which is seen in cases in which there has been a prolonged sojourn in the bronchus of substances of other than vegetable nature.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Jackson, Chevalier: Peroral Endoscopy and Laryngeal Surgery, St. Louis, Laryngoscope Company, 1914, pp. 238, 261, 262, 393, 394, 396.

[2] Patterson, Ellen J.: New York M. J. **109**: 101 (Jan. 18) 1919.

[3] Jackson, Chevalier: Observations on the Pathology of Foreign Bodies in the Air and Food Passages, Surg., Gynec. & Obst. **28**: 201 (March) 1919.

A dusky cyanosis is often present, but in the bronchoscopic clinic it has often been noticed that in children who have been fighting for air for a rather prolonged period of time, from any cause, this duskiness often is superseded by an intense pallor, the result of the excessive heart strain incident to the strenuous efforts of the muscles of respiration. This pallor frequently causes a false sense of security on the part of the attendant, who is accustomed to associate urgent dyspnea with cyanosis; and tracheotomy has often been performed too late, even though the cardinal signs, retraction of the suprasternal and supraclavicular fossae, and of the lower ribs and epigastrium, have been present the while. Distressing cough is a constant symptom; in the older children it is often paroxysmal and associated with the expectoration of a pinkish-gray, thick, tenacious, purulent sputum, which is very difficult to dislodge from the air-passages.

The clinical chart shows an irregular, septic type of temperature elevation; and the heart rate and the respiratory rate are usually higher in proportion than the temperature, as would be expected when we consider the restlessness and the dyspnea present (Fig. 1). The physical signs reveal a generalized diffuse bronchitis, with an accentuation of the signs at the site of the foreign body. The asthmatoid wheeze[4] is present in the large majority of the cases. This is a wheezing sound of a dry character, heard by placing the ear at the open mouth of the patient and requesting him to make a forced expiration. The wheeze persists after practically all secretion has been coughed out of the air-passages, and is often so loud as to be audible across the room. The patient rarely loses the voice, a point which may aid in the differentiation from laryngeal diphtheria.

Inspection of the chest will usually reveal a lessened expansion on the side of the foreign body; percussion, an impairment of resonance, and auscultation, a diminution of the intensity or absence of the transmission of the breath sounds and voice sounds in that portion of the lung distal to the foreign body. These signs may be definite enough to warrant a localization of the intruder in a certain bronchus. Loud, bubbling, sonorous and sibilant râles are heard throughout the chest; these are, however, often of greatest intensity over the site of the foreign body. In some of the cases the marked dulness in the lower portion of one side of the chest, together with the absence of breath and voice sounds, has been interpreted as fluid in the pleural sac, and exploratory punctures, and even rib resections, have been made, only to find the pleura normal and no unusual amount of fluid present. A roentgenogram is invaluable in confirming the signs and evidences of a pathologic condition (even though the foreign body itself rarely makes a demonstrable shadow) and it will with certainty rule out empyema.

Next to diphtheria, the disease most likely to be confused with arachidic bronchitis is infective laryngotracheitis, especially the epidemic forms called influenza and the "grip." In these cases the symptoms will often clear up if the secretions are alkalized by the administration of sodium bicarbonate. In other cases, only the bronchoscope will decide. A careful inquiry into the history of the onset, and a finding of whether or not an epidemic has been present and of whether or not the little patient has had access to peanuts should aid in the diagnosis. It may be mentioned that there are cases of influenza in children requiring bronchoscopy to prevent the little patients from drowning in their own secretion, in the same manner as in some of the cases of arachidic bronchitis.

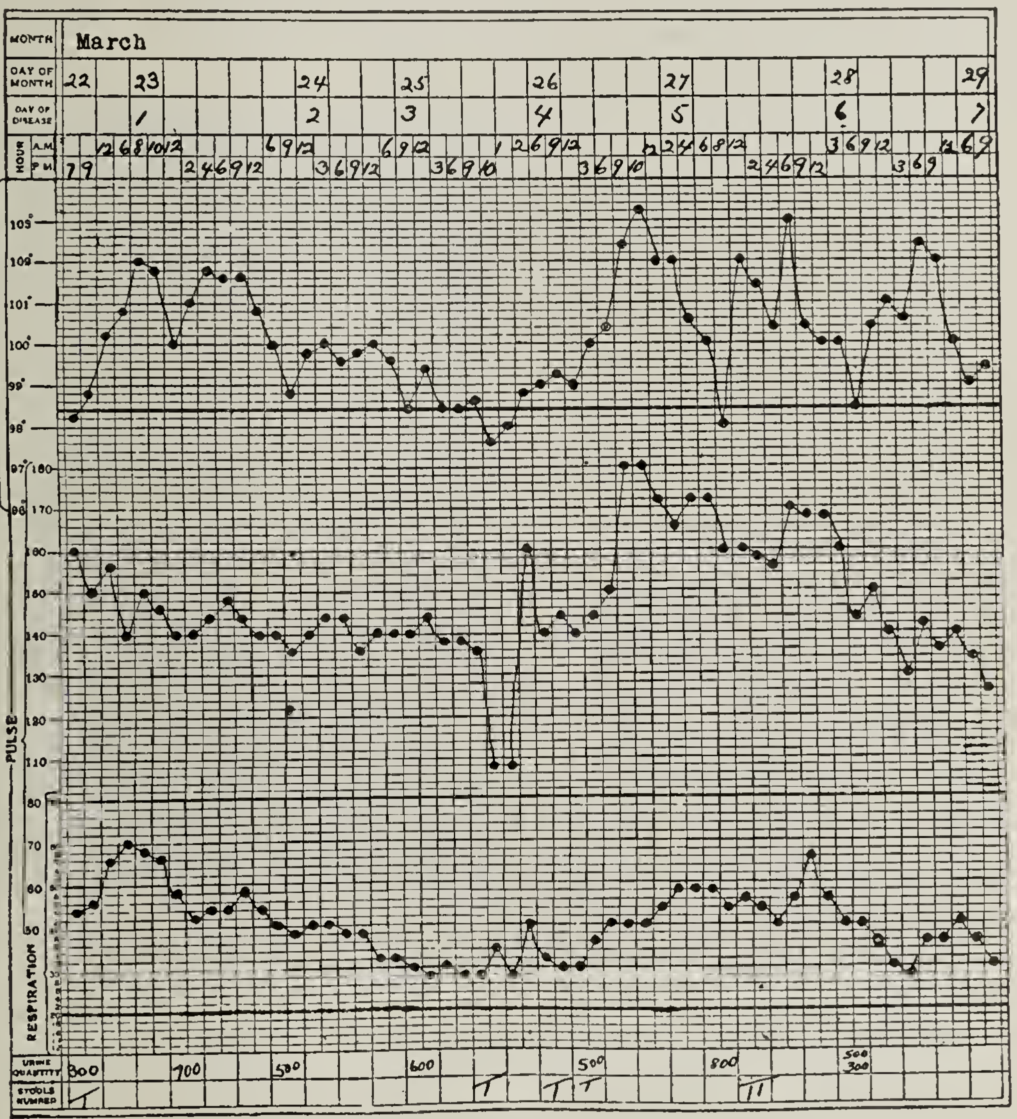

Fig. 1 (Case 2 [Fbdy. 647]).—Portion of a temperature chart in a case of arachidic bronchitis; girl, aged 4; peanut in the right lower lobe bronchus for three days.

We should always remember the possibility of peanut bronchitis when consulted regarding a child who rather suddenly develops irregular fever, restlessness, dyspnea with cyanosis, paroxysmal cough, and the signs of a diffuse, generalized bronchitis, attended with wheezing respiration. A history of choking on a peanut, or of eating peanuts at about the time of inception of the illness, renders the diagnosis almost certain.

ETIOLOGY

Age.—One factor in etiology definitely established at the bronchoscopic clinic is that relating to age. No cases have been observed in adults. It may be assumed that this is partly because adults do not aspirate peanuts; if they did, symptoms would follow bronchial obstruction no matter what the substance, and it is reasonable to assume that at least a few such cases would have come to the bronchoscopic clinic. The reaction in children is so diffuse as to indicate an etiologic factor independent of obstruction. Be the reason what it may, the fact remains that the only cases of arachidic bronchitis that have come to the bronchoscopic clinic have been in children. A closely related fact is that the severity of the symptoms has been in inverse ratio to the age. Other data and observations on etiology will be considered under pathology.

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[4] Jackson, Chevalier: A New Diagnostic Sign of Foreign Body in Trachea or Bronchi, the "Asthmatoid Wheeze," Am. J. M. Sc. **156**: 625 (Nov.) 1918.

PATHOLOGY

All of the peanuts aspirated had been roasted, so that it has not been possible to determine clinically whether the intensely irritating quality is lessened or increased by the action of heat on the raw tuber. Judging by analogy in similar organic materials, we may infer that the property of irritation is possessed by the raw peanut also, for violent diffuse tracheobronchitis was produced in several cases by the aspiration of walnut kernels and unroasted coffee beans. In one case, a pistachio kernel in the bronchus produced the identical symptoms of peanut bronchitis. A kernel of corn (maize) also acted in a similar manner, although the general reaction and evidences of toxemia were not so marked as in the peanut bronchitis. The peanut, however, seems to be peculiarly toxic when retained in the lower respiratory tract, and various explanatory hypotheses have been suggested by W. M. L. Coplin:[5]

(*a*) The action on the mucosa of irritating chemical substances present in the peanuts, either naturally, as in ricin in the castor bean, or developed in the process of roasting. The peanut contains 25 per cent. of protein, of which two globulins have been isolated —arachin and conarachin. Conarachin has the outstanding characteristic of containing more basic nitrogen than any other seed protein. Arachidic acid, a saturated fatty acid, is present in about 5 per cent. strength in peanut oil.[6] A fruitful field for investigation is open in the testing of the individual substances in the bronchi of animals.

(*b*) Is the reaction the result of the presence of an alien protein parenterally introduced?

(*c*) Does the porous organic vegetable protein afford a protective matrix for the proliferation of bacteria, the bacterial growth liberating toxins or acquiring virulence to enable the organisms to attack the living tissues?

"Peanut thresher's fever" is well known to practitioners in the districts where the peanut is grown. Whether it is due to particular qualities inherent in the peanut plant and its tubers, or only to the great clouds of dust, acting simply as a multitude of foreign bodies, is a question on which we could get no information in medical literature. It has been observed by members of the dental profession that some teeth are more sensitive to peanuts than to sweets.

The endoscopic living pathology is evidenced as an edematous, generalized, purulent bronchitis, with accentuation of the morbid processes at the site of lodgment of the peanut kernel. In one of the cases, patches of exudate were seen, and in all of the cases there was a copious secretion of thick pus, which sometimes was so abundant as to drip from the bronchoscope. The degree of reaction to the foreign body varies with the age of the patient; the younger the child, the more severe the reaction. In three cases in which we were not permitted to do a bronchoscopy, the patients died within two weeks. From the reports in these cases, as well as from observations in the nearly fatal cases that came in early enough for the patient to be saved, it seems evident that the younger children succumb after a short time from exhaustion incident to their constant fight for air and their bechic efforts toward the expulsion of the pus; or from toxemia produced by the absorption of the toxins of the retained purulent lung secretions; or, probably, from both combined. In older children, if the peanut is not removed, lung abscess develops in the portion of the lung distal to the foreign body. Removal of the foreign body, if the general condition of the patient is not too serious, is usually followed by a prompt subsidence of the dyspnea and cyanosis; the secretion loses its tenacious character, becomes more fluid and easier to expel and, in a few days, grows mucoid, greatly lessened in amount, and shortly ceases. The fever leaves in a little time, and the patient shows continued improvement in his general condition almost from the moment the peanut kernel is removed.

It is important to note that in all our various foreign body cases in which, prior to admission, the pleural cavity had been explored by puncture or by rib resection, no evidence of a pathologic condition was found. The impairment of resonance and the diminished transmission of breath and voice sounds are due, we have believed, to the accumulation of secretions in that part of the lung distal to the foreign body which is obstructing the bronchial drainage. To this condition, at the suggestion of Dr. George C. Johnston, we have applied the term "drowned lung," the pus being in the bronchi, to distinguish it from lung abscess, in which more or less of a pathologic cavity contains the pus (Fig. 2).

TREATMENT OF PEANUT BRONCHITIS

Having by history, physical examination and roentgenographic study made the diagnosis of peanut bronchitis, the physician should place the patient, as soon as possible, under the care of an endoscopist. The possibility of the kernel being coughed up is very doubtful, because, owing to its small size, it is usually drawn quite deeply into the bronchial tree, lodging in one of the smaller divisions, in which the expulsive force is limited; the edematous swelling of the bronchial mucosa tends further to fix the intruder. The longer the peanut kernel remains in situ, the greater the damage it produces, so that delay, with the hope and expectancy of the kernel being spontaneously expelled, should never be considered.

If the child is in good condition and but little dyspnea is present, immediate bronchoscopic removal of the peanut will in but a short time completely relieve all symptoms. The after-treatment of peanut bronchitis is largely nursing and providing the patient with an abundance of fresh air.

If, on the other hand, urgent dyspnea is present, and the child is obviously unable by bechic efforts to rid the air-passages of the thick secretions, tracheotomy should be performed. It is wise to do the tracheotomy early and not wait for the signs of exhaustion and intense toxemia, which may render the operation ineffective. Removal of the peanut at this stage would not relieve the dyspnea caused by the edematous laryngotracheobronchitis, although the pus accumulation could be thus removed. Furthermore, the insertion of the bronchoscope through the already damaged larynx would probably precipitate the tracheotomy. The tracheotomy will relieve the dyspnea and allow the removal of the secretions, and thus will lessen the toxemia.

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[5] Jackson, Chevalier: Surg. Gynec. & Obst. **28**: 201 (March) 1919.

[6] From chemical data kindly furnished by Prof. P. B. Hawk, Department of Chemistry, Jefferson Medical College of Philadelphia. Arachidic acid was suggested as a possible irritating factor by Jacob Rosenbloom.

After the tracheotomic wound has sufficiently granulated and the patient has recovered from the fatigue and exhaustion accompanying arachidic bronchitis, the peanut can be removed by bronchoscopy through the mouth. Passing the bronchoscope through the tracheotomic wound has decided disadvantages, and is never practiced in my clinic, even when, as in these arachidic cases, the tracheotomy has already been performed for dyspnea and drainage of the bronchi. It is important in the dyspneic cases not to use general anesthesia for either the tracheotomy or the bronchoscopy; for as soon as the patient loses consciousness, the action of the voluntary muscles of respiration ceases and the patient immediately stops breathing. Morphin is also contraindicated because it paralyzes both the respiration and the cough reflex.

ANALYSIS OF SOME RECENT CASES

An analysis of sixteen recent cases in which portions of peanut kernel had been removed from the bronchi is rather interesting. The oldest patient was aged 6, and the youngest 17 months, the average age being 3 years. The mortality was 17.6 per cent.—all the fatal cases being in the younger children, the oldest of these being 23 months and the youngest 17 months of age. There was no reason to believe that the mortality was due to the bronchoscopy, as these patients were admitted in extremely bad condition. The mortality in bronchoscopy for metallic substances is practically nil. Thirty-five per cent. of the cases of arachidic bronchitis required tracheotomy to relieve the urgent dyspnea, which is a constant symptom, varying in degree, but present in all of the cases, and to facilitate the ridding of the air-passages of the thick, tenacious secretion which the child is unable to expel through the impaired glottis. The tracheotomy was not performed for the purpose of inserting the bronchoscope, so-called lower bronchoscopy, for in all the cases the bronchoscope was inserted through the mouth, and the foreign body so removed. The longest time of sojourn of the peanut kernel in the bronchus was forty-eight days in a child, aged 2½ years, who recovered; the shortest stay was one day in a child of 17 months; and in this transient period the reaction was so great that the little one succumbed.

It is seen that all of the cases occurred in children, and that the younger the child the more severe was the reaction to the foreign body, and the more doubtful the outcome. Prompt tracheotomy, when urgent dyspnea is present, is a life-saving measure, for even after the peanut is removed the edematous laryngotracheobronchitis does not immediately subside; and being unable to expel the thick, tenacious secretion through the glottis, the necessary cooperation of which, in the bechic cycle, is impaired by the subglottic edema, the child is drowned in its own secretions.

The longer the stay of the peanut in the air-passages, the greater is the reaction. The resistance of the older children is relatively stronger; but a prolonged stay will in any case result in lung abscess which, unrelieved, is fatal.

REPORT OF CASES

The following cases were selected from our records as typical of the varying degrees of reaction resulting from the aspiration of peanut kernels:

CASE 1 (Fbdy. 347).—A boy, aged 1 year, 11 months, thirty days before admission, was eating peanut candy when one of his older playmates slapped him on the back and caused an intense choking and coughing attack. On the next day the patient developed a severe cough and had a temperature of 104 (rectal), which lasted two days and then returned to normal. The temperature became elevated six times in a month and, after a few days, would return to normal. During the intervals of normal temperature the child coughed severely but would play with his toys, becoming very ill at other times. He lost rapidly in strength and weight. On admission it was noted that he looked ill and had dark, hollow circles under his eyes. His temperature was 104. A physical examination by Dr. John W. Boyce disclosed the respiratory movement of the right side to be almost abolished. The left side appeared fuller than the right. The percussion note was impaired, almost dull all over the right side, the impairment increasing toward the base. Breath sounds over the right upper chest were loud and harsh, but diminished in intensity over the lower lobe. A few small and medium moist râles were scattered over the right side. There was severe paroxysmal coughing, and the breathing was labored and accompanied by wheezing which could be heard across the room. Some cyanosis was present, and the patient's general condition was extremely poor.

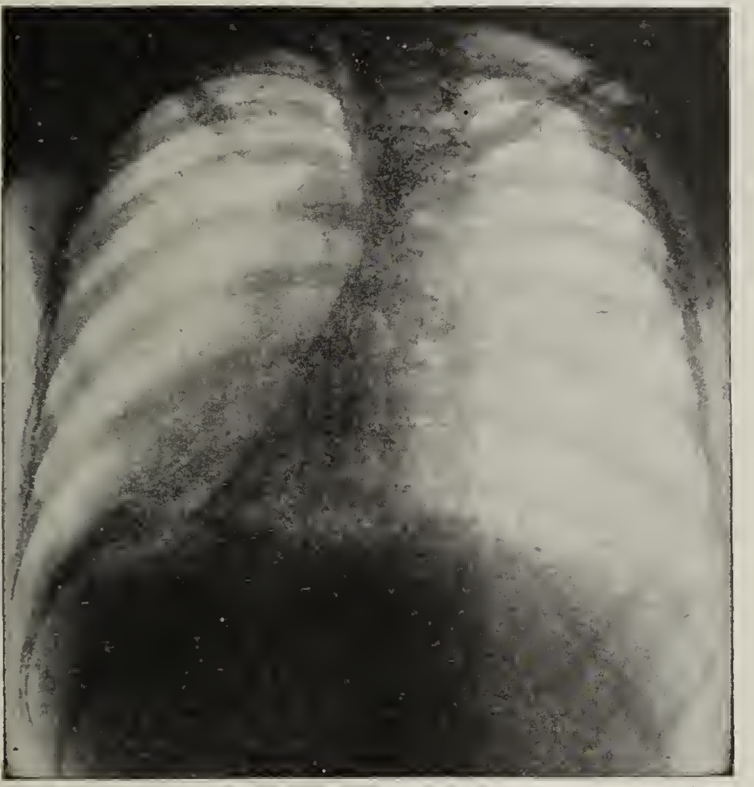

Fig. 2 (Case Fbdy. 444).—Drowned lung resulting from the blocking of a branch of the left inferior lobe bronchus by a pistachio nut; note sharp limitation of the involved area.

The roentgenogram showed shadows over the right chest, although the impairment of resonance was greater than the density of the shadow would have indicated. The roentgenographic report (by Dr. George C. Johnston) was: "Decided evidence that right lower lobe bronchus is plugged. Left clear. Distinct shadow over right lower lobe, opaque enough for pus."

Without anesthesia, local or general, a bronchoscope was introduced, and a large amount of foul pus and slough was removed and an abscess cavity evacuated, after which a portion of peanut kernel was found lodged in the right lower lobe bronchus and removed. Only transient improvement followed. The air-passages were again quickly filled with pus, and urgent attacks of dyspnea and laryngeal spasms occurred. A tracheoscope was inserted through the mouth, and a number of sloughs which had lodged in the subglottic region were removed by means of it. The laryngeal spasms then subsided. One of the sloughs was ringlike and was considered a part of a bronchial wall. The dyspnea again recurred, however, owing to the copious outpouring of pus reaction in children is so diffuse as to indicate an etiologic factor independent of obstruction. Be the reason what it may, the fact remains that the only cases of arachidic bronchitis that have come to the bronchoscopic clinic have been in children. A closely related fact is that the severity of the symptoms has been in inverse ratio to the age. Other data and observations on etiology will be considered under pathology.

PATHOLOGY

All of the peanuts aspirated had been roasted, so that it has not been possible to determine clinically whether the intensely irritating quality is lessened or increased by the action of heat on the raw tuber. Judging by analogy in similar organic materials, we may infer that the property of irritation is possessed by the raw peanut also, for violent diffuse tracheobronchitis was produced in several cases by the aspiration of walnut kernels and unroasted coffee beans. In one case, a pistachio kernel in the bronchus produced the identical symptoms of peanut bronchitis. A kernel of corn (maize) also acted in a similar manner, although the general reaction and evidences of toxemia were not so marked as in the peanut bronchitis. The peanut, however, seems to be peculiarly toxic when retained in the lower respiratory tract, and various explanatory hypotheses have been suggested by W. M. L. Coplin:[5]

(*a*) The action on the mucosa of irritating chemical substances present in the peanuts, either naturally, as in ricin in the castor bean, or developed in the process of roasting. The peanut contains 25 per cent. of protein, of which two globulins have been isolated —arachin and conarachin. Conarachin has the outstanding characteristic of containing more basic nitrogen than any other seed protein. Arachidic acid, a saturated fatty acid, is present in about 5 per cent. strength in peanut oil.[6] A fruitful field for investigation is open in the testing of the individual substances in the bronchi of animals.

(*b*) Is the reaction the result of the presence of an alien protein parenterally introduced?

(*c*) Does the porous organic vegetable protein afford a protective matrix for the proliferation of bacteria, the bacterial growth liberating toxins or acquiring virulence to enable the organisms to attack the living tissues?

"Peanut thresher's fever" is well known to practitioners in the districts where the peanut is grown. Whether it is due to particular qualities inherent in the peanut plant and its tubers, or only to the great clouds of dust, acting simply as a multitude of foreign bodies, is a question on which we could get no information in medical literature. It has been observed by members of the dental profession that some teeth are more sensitive to peanuts than to sweets.

The endoscopic living pathology is evidenced as an edematous, generalized, purulent bronchitis, with accentuation of the morbid processes at the site of lodgment of the peanut kernel. In one of the cases, patches of exudate were seen, and in all of the cases there was a copious secretion of thick pus, which sometimes was so abundant as to drip from the bronchoscope. The degree of reaction to the foreign body varies with the age of the patient; the younger the child, the more severe the reaction. In three cases in which we were not permitted to do a bronchoscopy, the patients died within two weeks. From the reports in these cases, as well as from observations in the nearly fatal cases that came in early enough for the patient to be saved, it seems evident that the younger children succumb after a short time from exhaustion incident to their constant fight for air and their bechic efforts toward the expulsion of the pus; or from toxemia produced by the absorption of the toxins of the retained purulent lung secretions; or, probably, from both combined. In older children, if the peanut is not removed, lung abscess develops in the portion of the lung distal to the foreign body. Removal of the foreign body, if the general condition of the patient is not too serious, is usually followed by a prompt subsidence of the dyspnea and cyanosis; the secretion loses its tenacious character, becomes more fluid and easier to expel and, in a few days, grows mucoid, greatly lessened in amount, and shortly ceases. The fever leaves in a little time, and the patient shows continued improvement in his general condition almost from the moment the peanut kernel is removed.

It is important to note that in all our various foreign body cases in which, prior to admission, the pleural cavity had been explored by puncture or by rib resection, no evidence of a pathologic condition was found. The impairment of resonance and the diminished transmission of breath and voice sounds are due, we have believed, to the accumulation of secretions in that part of the lung distal to the foreign body which is obstructing the bronchial drainage. To this condition, at the suggestion of Dr. George C. Johnston, we have applied the term "drowned lung," the pus being in the bronchi, to distinguish it from lung abscess, in which more or less of a pathologic cavity contains the pus (Fig. 2).

TREATMENT OF PEANUT BRONCHITIS

Having by history, physical examination and roentgenographic study made the diagnosis of peanut bronchitis, the physician should place the patient, as soon as possible, under the care of an endoscopist. The possibility of the kernel being coughed up is very doubtful, because, owing to its small size, it is usually drawn quite deeply into the bronchial tree, lodging in one of the smaller divisions, in which the expulsive force is limited; the edematous swelling of the bronchial mucosa tends further to fix the intruder. The longer the peanut kernel remains in situ, the greater the damage it produces, so that delay, with the hope and expectancy of the kernel being spontaneously expelled, should never be considered.

If the child is in good condition and but little dyspnea is present, immediate bronchoscopic removal of the peanut will in but a short time completely relieve all symptoms. The after-treatment of peanut bronchitis is largely nursing and providing the patient with an abundance of fresh air.

If, on the other hand, urgent dyspnea is present, and the child is obviously unable by bechic efforts to rid the air-passages of the thick secretions, tracheotomy should be performed. It is wise to do the tracheotomy early and not wait for the signs of exhaustion and intense toxemia, which may render the operation ineffective. Removal of the peanut at this stage would not relieve the dyspnea caused by the edematous laryngotracheobronchitis, although the pus accumulation could be thus removed. Furthermore, the insertion of the bronchoscope through the already damaged larynx would probably precipitate the tracheotomy. The tracheotomy will relieve the dyspnea and allow the removal of the secretions, and thus will lessen the toxemia.

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[5] Jackson, Chevalier: Surg. Gynec. & Obst. **28**: 201 (March) 1919.

[6] From chemical data kindly furnished by Prof. P. B. Hawk, Department of Chemistry, Jefferson Medical College of Philadelphia. Arachidic acid was suggested as a possible irritating factor by Jacob Rosenbloom.

After the tracheotomic wound has sufficiently granulated and the patient has recovered from the fatigue and exhaustion accompanying arachidic bronchitis, the peanut can be removed by bronchoscopy through the mouth. Passing the bronchoscope through the tracheotomic wound has decided disadvantages, and is never practiced in my clinic, even when, as in these arachidic cases, the tracheotomy has already been performed for dyspnea and drainage of the bronchi. It is important in the dyspneic cases not to use general anesthesia for either the tracheotomy or the bronchoscopy; for as soon as the patient loses consciousness, the action of the voluntary muscles of respiration ceases and the patient immediately stops breathing. Morphin is also contraindicated because it paralyzes both the respiration and the cough reflex.

ANALYSIS OF SOME RECENT CASES

An analysis of sixteen recent cases in which portions of peanut kernel had been removed from the bronchi is rather interesting. The oldest patient was aged 6, and the youngest 17 months, the average age being 3 years. The mortality was 17.6 per cent.—all the fatal cases being in the younger children, the oldest of these being 23 months and the youngest 17 months of age. There was no reason to believe that the mortality was due to the bronchoscopy, as these patients were admitted in extremely bad condition. The mortality in bronchoscopy for metallic substances is practically nil. Thirty-five per cent. of the cases of arachidic bronchitis required tracheotomy to relieve the urgent dyspnea, which is a constant symptom, varying in degree, but present in all of the cases, and to facilitate the ridding of the air-passages of the thick, tenacious secretion which the child is unable to expel through the impaired glottis. The tracheotomy was not performed for the purpose of inserting the bronchoscope, so-called lower bronchoscopy, for in all the cases the bronchoscope was inserted through the mouth, and the foreign body so removed. The longest time of sojourn of the peanut kernel in the bronchus was forty-eight days in a child, aged 2½ years, who recovered; the shortest stay was one day in a child of 17 months; and in this transient period the reaction was so great that the little one succumbed.

It is seen that all of the cases occurred in children, and that the younger the child the more severe was the reaction to the foreign body, and the more doubtful the outcome. Prompt tracheotomy, when urgent dyspnea is present, is a life-saving measure, for even after the peanut is removed the edematous laryngotracheobronchitis does not immediately subside; and being unable to expel the thick, tenacious secretion through the glottis, the necessary cooperation of which, in the bechic cycle, is impaired by the subglottic edema, the child is drowned in its own secretions.

The longer the stay of the peanut in the air-passages, the greater is the reaction. The resistance of the older children is relatively stronger; but a prolonged stay will in any case result in lung abscess which, unrelieved, is fatal.

REPORT OF CASES

The following cases were selected from our records as typical of the varying degrees of reaction resulting from the aspiration of peanut kernels:

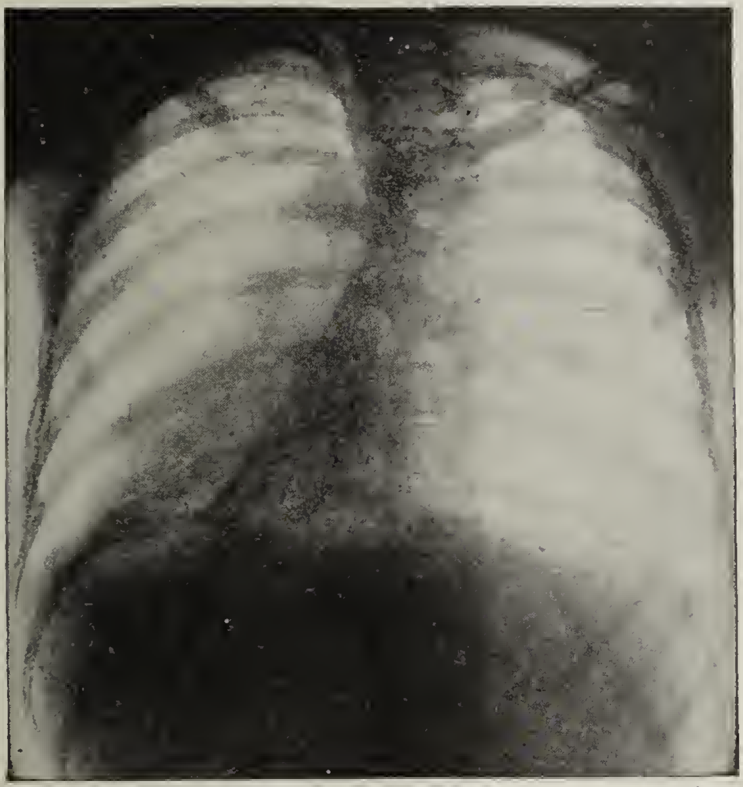

Fig. 2 (Case Fbdy. 444).—Drowned lung resulting from the blocking of a branch of the left inferior lobe bronchus by a pistachio nut; note sharp limitation of the involved area.

Case 1 (Fbdy. 347).—A boy, aged 1 year, 11 months, thirty days before admission, was eating peanut candy when one of his older playmates slapped him on the back and caused an intense choking and coughing attack. On the next day the patient developed a severe cough and had a temperature of 104 (rectal), which lasted two days and then returned to normal. The temperature became elevated six times in a month and, after a few days, would return to normal. During the intervals of normal temperature the child coughed severely but would play with his toys, becoming very ill at other times. He lost rapidly in strength and weight. On admission it was noted that he looked ill and had dark, hollow circles under his eyes. His temperature was 104. A physical examination by Dr. John W. Boyce disclosed the respiratory movement of the right side to be almost abolished. The left side appeared fuller than the right. The percussion note was impaired, almost dull all over the right side, the impairment increasing toward the base. Breath sounds over the right upper chest were loud and harsh, but diminished in intensity over the lower lobe. A few small and medium moist râles were scattered over the right side. There was severe paroxysmal coughing, and the breathing was labored and accompanied by wheezing which could be heard across the room. Some cyanosis was present, and the patient's general condition was extremely poor.

The roentgenogram showed shadows over the right chest, although the impairment of resonance was greater than the density of the shadow would have indicated. The roentgenographic report (by Dr. George C. Johnston) was: "Decided evidence that right lower lobe bronchus is plugged. Left clear. Distinct shadow over right lower lobe, opaque enough for pus."

Without anesthesia, local or general, a bronchoscope was introduced, and a large amount of foul pus and slough was removed and an abscess cavity evacuated, after which a portion of peanut kernel was found lodged in the right lower lobe bronchus and removed. Only transient improvement followed. The air-passages were again quickly filled with pus, and urgent attacks of dyspnea and laryngeal spasms occurred. A tracheoscope was inserted through the mouth, and a number of sloughs which had lodged in the subglottic region were removed by means of it. The laryngeal spasms then subsided. One of the sloughs was ringlike and was considered a part of a bronchial wall. The dyspnea again recurred, however, owing to the copious outpouring of pus and the inability of the child to expel it, so that a tracheotomy was performed which, aided by careful nursing, relieved the dyspnea. There was a slight improvement in the lung condition, and the patient was discharged to his home with the hope that an antituberculous regimen would restore the damaged lung; it was reported, however, that no improvement followed, and that the child died two months later.

The interesting points of this history are:

1. The prompt reaction to the foreign body, as evidenced by the temperature of 104 within twenty-four hours.
2. The intermittence of the symptoms; probably accounted for by wedging of the peanut kernel at times in the bronchus, and by the accumulation of secretions and the toxic absorption therefrom; succeeded, in turn, by the dislodgment of the foreign body for a time, possibly by the pressure upward of the accumulating secretions, a subsidence of temperature occurring after the drainage of the drowned lung.
3. The progressive failure of general health.
4. The excessive quantity of pus and the difficulty with which children expel it.
5. The relief afforded by tracheotomy in the lessening of the dyspnea and in the removal of secretions which the child could not expel through the larynx.
6. The extensive destruction of lung tissue by abscess formation, which rendered the removal of the exciting cause—the peanut kernel—unavailing.
7. The fatal outcome resulting from the prolonged retention of the peanut kernel in the bronchus.

Case 2 (Fbdy. 647).—A girl, aged 4, brought to Jefferson Hospital, had choked while eating peanuts three days before admission, and had become very cyanotic for a period of about half an hour. Within twenty-four hours a severe cough and fever developed, and urgent dyspnea with cyanosis prompted the mother to consult a physician, who introduced bougies into the esophagus.

On admission there was urgent dyspnea and a purplish cyanosis; the child was extremely toxic and mildly delirious. Smears made from the larynx showed organisms resembling the diphtheria bacillus. A thick purulent secretion was seen in the larynx but no membrane. Diphtheria antitoxin was given, and tracheotomy was immediately performed, in order to relieve the dyspnea and allow the removal of the secretions. The dyspnea was relieved, but recurred frequently, owing to the accumulation of the tenacious pus, and necessitating frequent removal of the cannula and wiping of the secretion from the trachea.

A physical examination by Dr. E. E. Graham revealed a generalized bronchitis, with a small area of consolidation at the left apex posteriorly. A roentgenographic study by Dr. David R. Bowen disclosed a marked peribronchial thickening on both sides, but no pathologic shadows which would warrant his saying that in any one spot there was a foreign body. Later bacteriologic reports from cultures were negative for diphtheria bacilli. It was decided not to perform a bronchoscopy at this time because of the marked improvement following the tracheotomy, and because of the indefiniteness of the physical signs and the roentgenographic examinations, which rendered doubtful the presence of the peanut. The tracheotomic cannula was removed after three weeks. On the day following the removal of the cannula, the patient again became dyspneic and cyanotic and seemed unable to expel through the larynx a thick, yellowish, tenacious sputum. The tracheotomic wound was reopened and the cannula reinserted; but with such slight improvement of the dyspneic signs that bronchoscopy was decided on. It was done through the mouth and after removing a large amount of the secretion by bronchoscopic sponge-pumping a portion of peanut kernel was found in the right lower lobe bronchus and removed. No anesthetic was used, and the operation required five minutes and twenty-six seconds. Continued improvement followed; the secretion became more fluid and finally ceased; the tracheotomic cannula was removed, and the patient was discharged well.

The resemblance to laryngeal diphtheria in the early symptoms in this case is noteworthy, and the lifesaving effect of the tracheotomy is well illustrated, for the symptoms partly subsided under the increased drainage and relief from dyspnea afforded. The prompt recurrence of the symptoms on removal of the cannula is a further proof that much of the disturbance is due to retention of the viscid secretions and to absorption of toxins therefrom.

Case 3 (Fbdy. 448x).—A girl, aged 6, was referred with the statement that twenty-four hours previously a peanut kernel had been aspirated. Much coughing and choking followed the accident, and within twelve hours the temperature was 102, respirations 42 and pulse 126. On admission the face was flushed and there was some dyspnea. The pediatrician, Dr. H. T. Price, reported a severe bronchitis on both sides, worse on the left. A roentgenographic study was not obtainable.

Bronchoscopy revealed all the air-passages filled with blood-stained pus: A portion of peanut kernel was removed from the orifice of the left upper lobe bronchus, and was followed by a gush of pent-up pus. The little patient was discharged well four days later.

The peculiar, irritative action of the peanut kernel is well exemplified by the prompt reaction noted in this case, as well as by its equally prompt subsidence on the removal of the peanut. It is also to be noted that the child was older and therefore more resistant to the pathogenic agent, whatever it may be, inherent in the peanut kernel.

Complete detailed reports of other cases will be published subsequently.

CONCLUSIONS

1. The aspiration of peanut kernels into the bronchi of children causes a definite syndrome which we term arachidic bronchitis.
2. There seems to be some inherent property in the peanut rendering it far more irritating than other forms of foreign body in the bronchi.
3. The instances which we have seen of this arachidic bronchitis have all been in children, and the younger the child the more severe was the reaction.
4. The pathologic condition consists of an edematous, purulent, laryngotracheobronchitis which, if not fatal, results in lung abscess.
5. The symptoms are due to (*a*) the swelling of the mucosa of the air-passages, resulting in dyspnea and cyanosis, and (*b*) the accumulation of the difficultly expelled purulent lung secretions, and the absorption of toxins therefrom, which results in fever and other signs of toxemia. The condition must be differentiated from laryngotracheal diphtheria and influenzal laryngotracheobronchitis.
6. The prognosis is grave if the peanut is not removed. The younger children succumb quickly to exhaustion and toxemia. If the peanut is promptly removed, convalescence is usually rapid. Resistance in the older children renders the course more protracted, but lung abscess ultimately results.
7. The treatment consists in early bronchoscopic removal of the peanut in the cases in which there is only slight dyspnea. In cases in which dyspnea is marked, tracheotomy may be required to pipe air to the lungs and to facilitate the removal of the viscid, puru-

lent secretions, a bronchoscopic removal of the peanut through the mouth to be effected as soon as the wound has sufficiently granulated.

8. The number of the cases and the definiteness of the symptoms, together with the serious nature of the reaction, warrant the inclusion of arachidic bronchitis among the diseases affecting the lower respiratory tract of children.

1830 South Rittenhouse Square.

ABSTRACT OF DISCUSSION

Dr. Edwin E. Graham, Philadelphia: What I have to say will be purely from the standpoint of the pediatrist. Perhaps it would be well for me to give you the impression I had on seeing my first case. An infant was suffering from inspiratory dyspnea, a typical case. The child was more or less cyanosed.. Inspiratory dyspnea to the pediatrist means what it would to the laryngologist, obstruction of the larynx, and I thought of laryngeal diphtheria. I asked the intern whether he had made a smear. He had. A culture? Yes. Had he given antitoxin? Yes. But Dr. Jackson had told him that this child had inhaled a peanut. On closer examination I found well marked bronchitis in both lungs, which we do not get in laryngeal diphtheria; I found this child was toxic and running an irregular temperature, which we do not have in laryngeal diphtheria. In laryngeal diphtheria the toxemia and temperature come late. The child had only been sick twelve hours, which certainly suggested laryngeal diphtheria. In peanut bronchitis the voice is husky, rarely lost as in membranous croup. The lung symptoms were more or less localized in one portion of one lung and although it is not always possible by auscultation and percussion to locate the peanut, still you can make a guess as to where the peanut is in a fair proportion of cases. The peanut commonly does not make a shadow with the roentgen. ray. One of the symptoms which impressed me most was the constant and persistent cough, evidently due to the large accumulation of thickened mucus to which Dr. Jackson refers and which is distributed throughout both lungs. When one understands the pathology, and the fact that this child is suffering from laryngitis, tracheitis and bronchitis, of course the symptomatology is clear, but as far as I know the books on pediatrics do not discuss peanut bronchitis, and when Dr. Jackson tells us that this is the third paper that has been read on the subject, perhaps we are to be excused. Certainly, the literature on the subject has been so scant that neither the laryngologists nor pediatrists have known much about it. The younger the child the more severe are the symptoms and in the infant under two years of age the symptoms developed in a few hours. A history of choking with severe dyspnea and possibly eating peanuts helps in the diagnosis. Tracheotomy in the infant is often necessary and does much good.

Dr. Thomas Hubbard, Toledo, Ohio: I have encountered cases of peanut bronchitis and also of pneumonia and have attributed the causation to a saprophytic infection—peanuts are very often moldy—and also as to the other infections. The peanut has usually been subjected to more or less mastication and coincident mouth infection may be carried into the bronchi. Another factor which I have thought was important in causing the violent bronchitis which often follows aspiration of a peanut is the fact that the child who aspirates the peanut has been eating peanuts. There are many small fragments of peanuts in the mouth and undoubtedly at the time the peanut is aspirated the small fragments find their way into the smaller bronchi. Probably the attack of coughing is primarily due to a small piece or pieces being inhaled and the larger mass is then aspirated. This was impressed on me at a necropsy made years ago on a patient who died a few hours after the onset of a double pneumonia. We found small fragments of peanut scattered through the smaller bronchi on both sides. It is these little fragments which probably account for the pneumonia in this type of case. As to peanut bronchitis in adults: A patient came to me on account of bronchitis of about a month's duration. Nothing was said about a foreign body. I examined her and located a one sided bronchitis; then, in a routine way, I asked her if there was any possibility of foreign body aspiration. She remembered that about four weeks before she had choked on a peanut, but she said she had coughed up the skin of the peanut and thought that was the end of it. It is interesting also to mention that she arranged to go to the hospital the next day, but that night she coughed up the peanut.

Dr. John W. Murphy, Cincinnati: I have had several cases of peanut bronchitis in children, and in each the history has been that the child was eating peanut candy, and I suppose that would account for the child having peanut fragments in the bronchi. I have always been impressed with the small size of the foreign body. It seems almost impossible that a very small portion of peanut could produce the intense bronchial symptoms manifested in these cases. A child, six years of age, aspirated a peanut and it was removed with much difficulty three or four days later. The following day the child seemed to be doing nicely. I went into the next room, and in fifteen minutes the nurse came running in and said, "the child is dying." I found the child in a state of complete collapse. What had happened? There had been an excessive secretion of rather thick mucus which had suddenly come up into the trachea and the child had suffocated, almost the same as if a large body had been inspired suddenly. A rapid tracheotomy was done. The trachea was completely occluded by the foreign body. Even though we passed the bronchoscope several times and succeeded in removing a substance considerably larger than the ordinary foreign body found in such cases, it proved each time to be inspissated mucus.

Dr. H. P. Mosher, Boston: Dr. Jackson said tracheotomy is dangerous in these cases. I would like to ask him why. Also why he condemns the use of morphin in those cases where we think it necessary.

Dr. Fenton B. Turck, New York: Dr. Jackson has taught us that bronchially lodged foreign proteins do not produce reaction. Therefore, meat and bone do not produce this reaction of pneumonitis even though infected, but if a foreign body reaches the bronchi and causes destruction of the tissue by cell digestion, it produces this reaction of pneumonitis. If meat is cooked it has no particular effect in the bronchi but substances which cause rapid tissue destruction or substances containing ferments which digest the tissue produce this reaction of pneumonitis. We are dealing not alone with a foreign agent but with autolyzed tissue products producing their own reaction in the body. Dr. Jackson has shown by his clinical observation and experimental work that tissue autolysis produces what we now call bronchopneumonia, bronchitis and similar conditions under a variety of names.

Sir St. Clair Thomson, London, England: Of course, we all recognize that in these matters we may say of Dr. Jackson as Michael Angelo said of Titian, that he eclipsed all his predecessors and sterilized all his successors. I came here, like Dr. Mosher, without a dictionary, and I have just written here to Dr. Dean, "I am ashamed to say that I do not know what 'arachidic' means." It was therefore a great relief when Dr. Graham came to my rescue by calling it "peanut bronchitis," because I really only understand English. There I feel at home. We do not have peanuts in England; we call them "monkey nuts." Also, our children are not so advanced as are your children. We do not feed them monkey nuts. Dr. Graham said he saw an infant with inspiratory dyspnea. Of course, I do not know what the limit of infancy is in this country, I should judge it would be about three weeks. In England we short petticoat a child at the end of four months, but here I suppose it is a full grown adult at that time. We also feed them with milk or some simple diet; here it seems to be peanuts and chewing gum. Evidently, also, they do not require teeth, as Dr. Hubbard said that in his case the peanut was not sufficiently masticated. Of course, it was from America that we learned about fletcherizing our food, but evidently infants are not taught it. Now, coming to what interests us, I hope I gather correctly from Dr. Jackson that if the patient does not have sufficiently localized symptoms, and yet the symptoms are serious, he does a tracheotomy. I would like to know whether after the tracheotomy he follows the ideas of one of our British statesmen, does he wait and see? Because I think in many of these cases, if there is no urgency and a tracheotomy is done, we should wait and see. We ought to give Nature a chance, although I do not think that in America Providence has much to do with it, you are generally ahead of Providence; still there is such a thing as self determination even in the human body, and after Dr. Jackson has done his tracheotomy, in order to live up to his ideals, does he wait until the tracheal wound closes before he goes in through the mouth? I did not quite follow him. If he goes in through the mouth with a tracheotomy wound in the neck, it seems to me like a burglar, who, going into your basement and seeing in the cellar some things he wants, goes around to the front door and down to the cellar when he might easily have gone down from the basement. But whatever Dr. Jackson insists is the fact, whether he defends his own position, as no doubt he will do, I still feel that there are many like myself who must agree that a good deal of Dr. Jackson's advice is, as the poet says, "Too wise and good for human nature's daily food."

Dr. Chevalier Jackson, Philadelphia: The paper spoke very learnedly about physical signs, but for brevity's sake I omitted the names of the different men who are responsible for those physical signs, as you probably know that I could not tell you on which side a pneumonia was, by my own individual auscultation and percussion. It is only by association with Drs. McCrae, Graham, Boyce, Price and others who have worked with me that I am able to give a résumé of what the physical signs have been in the cases of arachidic bronchitis. Dr. Hubbard's point is worthy of consideration. He spoke of peanuts being of septic character from being chewed in the mouth. That is equally true of fragments of teeth and other dental objects, and especially of bones, which are of all foreign bodies in the bronchi the most putrid, yet they do not produce more than a localized reaction. A patient's temperature will not rise and there will be no particular illness from aspirating a piece of bone if it does not obstruct drainage. Therefore it cannot be true that it is infection carried from the mouth produces the peanut reaction. In regard to there being a multiplicity of fragments, we have reason to doubt that this is the causative factor in the reaction that is produced by the peanut. We have had many cases in the hospital going along day after day with a temperature of 103 or 104 F. While we are deciding whether or not to use the bronchoscope, but finally, introducing the bronchoscope, we have taken out a piece or two of peanut, and immediately the temperature has fallen and the patient promptly recovered. If it were unremovable multiple fragments in minute bronchi instead of one fragment in a larger bronchus, the patient would not have gotten well. Dr. Murphy made a good point in saying that peanut candy is a common cause of this condition. Children without molars are given peanut candy; of course they cannot chew, but they are given the candy and in a great many instances this has been the source of the peanut kernel in the bronchi. His impression as to the small size of the fragments corresponds to my own. I have been impressed in a number of cases with the relatively small size of the peanut kernel; but the subsequent recovery proves that the relatively small piece of kernel was the cause of the illness. Dr. Mosher's remarks are important contributions to the subject. Tracheotomy was mentioned in connection with cases where we had to save the child from asphyxia. It was not for the purpose of inserting the bronchoscope, but to give the child air and to get out thick secretions and tide the child over until he got in condition for a bronchoscopy. The bronchoscopy was always done through the mouth, not for the sake of the technic, but simply that it is easier to work with the bronchoscope through the mouth in the old way than when it is put through the neck with the head in the way. The tracheotomic route has no advantages. If the bronchoscope is inserted, the patient's head being concealed, no observer can tell by looking through the tube whether it went in through the tracheal wound or through the mouth. Tracheotomy for the insertion of a bronchoscopic is a relic of the developmental stage of bronchoscopy. In regard to using morphin, until I went to Philadelphia I was afraid to use either morphin or cocain in children, and I never used them. But when I arrived in Philadelphia Dr. Graham and Dr. Hare said morphin at least could be given with perfect safety if given with proper precaution. Under their careful guidance I used it in older children with complicated mechanical problems of disentangling foreign bodies and have found it of the utmost value, although I think it must be used with care and discretion in selected cases and in older children only. I am glad of the corroboration in Dr. Turck's remarks, but I must disclaim credit for the hypothesis of the alien protein; that was the suggestion of Dr. Coplin of Jefferson Hospital. Sir St. Clair Thomson is altogether too modest in saying that he understands only English. I heard him give an address at the Congress in London in three different languages succesively and heard him translate into three or four different languages the words of different speakers. So I must say he is the master of many languages instead of one, and he is also a master of the bronchoscope.

GANGRENE FOLLOWING CARBON MONOXID POISONING

J. EMMONS BRIGGS, M.D.

BOSTON

REPORT OF CASE

Sunday morning, December 22, the three O'Connell brothers left Warren Bridge in their motor boat, for a fishing trip in Boston Harbor. The day was beautiful and warm. All the brothers went forward. After passing the narrow gage ferry, Cornelius went into the cabin to lie down.

The cabin was 15 by 7 feet. Before starting on the trip, Cornelius had disconnected the exhaust pipe preparatory to installing another muffler. This exhaust was ordinarily carried out along the bottom of the boat, but the pipe was disconnected within 3 feet of the engine, leaving the open exhaust in the cabin.

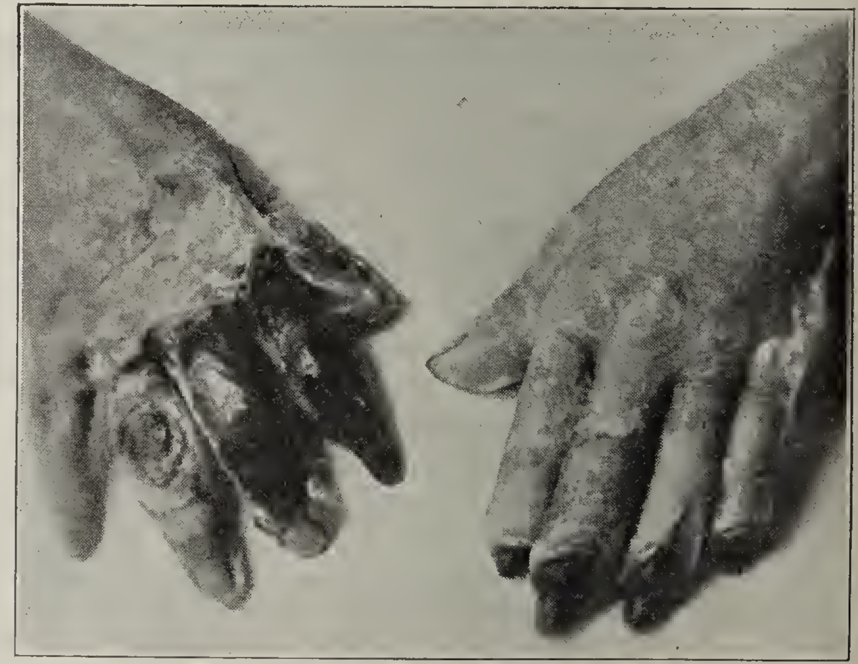

Fig. 1.—Condition of hands before operation.

When they approached Apple Island, Timothy asked John to go into the cabin and arouse Cornelius. After fifteen minutes, John had not returned and Timothy noticed through the open door that he had fallen suddenly forward. Timothy shut off the engine, rushed in and found Cornelius lying on the floor about 8 feet from the engine. John was within 4 feet of the engine and was dead.

Cornelius at this time was still breathing. He was carried out of the cabin and efforts were made to revive him. At first, he talked incoherently. The police boat was signaled and they were towed in. When they arrived at the wharf, John was pronounced dead and Cornelius was taken to an emergency hospital and the following day was transferred to another hospital, where he remained a week.

He was treated for what appeared to be second degree burns of both hands and feet. His record in that institution states that the backs of both hands and feet were covered with large tense blebs. These were punctured and trimmed off, and boric ointment dressings were applied. After leaving the hospital, he was attended by his physician, who continued treatment, but soon observed that the affected areas were increasing in size and extensive gangrene was developing.

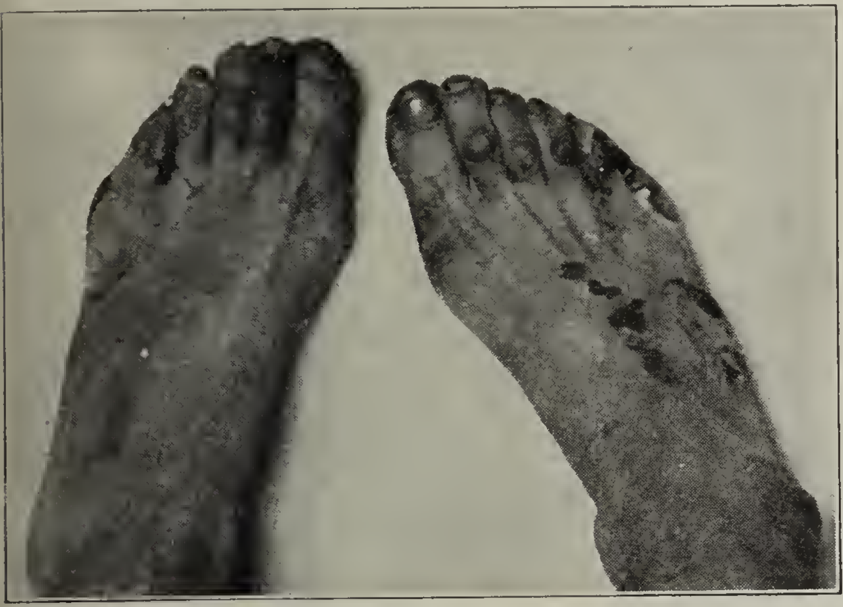

Fig. 2.—Superficial gangrene of feet.

He was admitted into my clinic, Jan. 24, 1919. On admission, his condition was as follows:

Right hand: Gangrene involved the entire three middle fingers, one half of the inner border of the thumb and an extensive area of the little finger. The left hand showed gangrene of the distal phalanges of the four fingers and flexor surfaces of the thumb. Gangrenous areas were on the outer border of the tibial region, the external malleolus, the outer border of the dorsum of the foot, and small patches on three toes. On the left foot, there were gangrenous areas at distal end of two toes.

It was evident from the location and character of the lesions that they could not have been produced from contact with heat. The type of gangrene differed widely from any previously observed by me. At the time the patient entered our hospital, the blebs which resembled burns had entirely passed away. Situated beneath these areas, a dry gangrene was present. This necrosis attacked the skin, muscle tissue, tendon, periosteum and bone, and entered several joints.

Lines of demarcation were well established. On the left hand, the tips of the fingers were entirely necrotic. On the right hand, the ends of the fore and middle fingers were viable, while extensive gangrenous areas involved the dorsum of both these fingers. It is impossible to conceive of a burn producing areas thus distributed.

Examination of the blood and urine were negative. Absence of sugar, which is frequently present in carbon monoxid poisoning, is accounted for by the long interval which had elapsed since the intoxication.

January 28, thirty-seven days after the accident, amputations were performed as follows: On the right hand, the three middle fingers were disarticulated at the metacarpophalangeal joints. On the left hand, four fingers were amputated midway in the second phalanx. As amputations were made in septic areas and as attempts were made to save all tissue possible, the flaps were only partially drawn together and ample drainage was provided.

As will be seen by referring to Figure 1, an area of necrosis remained on the dorsum of the middle finger and the thumb of the right hand. This destructive process continued, entered the second phalangeal joint, and resulted in deformity and ankylosis. Perhaps amputation of the little finger would have been desirable, but this can be done at a later time.

Figure 2 illustrates a more superficial type of necrosis, from which the patient ultimately recovered without the loss of any toes. The necrotic areas on the dorsum and outer aspect of the right foot, after sloughing deeply, finally healed by granulation.

PREVIOUS CASES

In connection with the foregoing, the two similar cases recorded in the literature may be of interest, and brief abstracts are appended. They are reported, respectively, by Alberti[1] and by MacLean.[2]

Alberti reports extensive gangrene of the musculature of the throat and paralysis of the left leg in consequence of carbon monoxid intoxication. This patient, W. Kaupe, was overcome with carbon monoxid escaping from a stove. When he awoke, he saw that the woman lying beside him was dead. Her face was congested and swollen and covered with tabloid vesiculations. He had stabbing pains in the head, and on attempting to rise, he fell unconscious. A paralysis of the right foot and painful swelling of the right elbow appeared, with pain in the arm and stiffness in the neck. On the right side of the neck, there was a brownish black mummified area, the size of the palm of the hand, which remained entirely dry and was surrounded by a line of demarcation. It was necessary to incise to the depth of 2 cm. before blood, mixed with dark brown fluid, appeared. The gangrenous area on the neck and right elbow extended, and he died twenty-six days after the intoxication.

The case of MacLean showed carbon monoxid poisoning resulting in gangrene of both legs. The patient was found unconscious in his room with a small gas burner open, in which the flame had been accidentally extinguished. The gas contained 7 per cent. carbon monoxid. A week later, the patient complained of pain in the feet and legs and was readmitted to the hospital because both feet and legs were swollen and discolored in patches, the discoloration extending below the knees. During the next two weeks, the pain continued, the legs became edematous, and discoloration increased to gangrene. The right leg was amputated, January 9, and the left, January 13. Recovery followed.

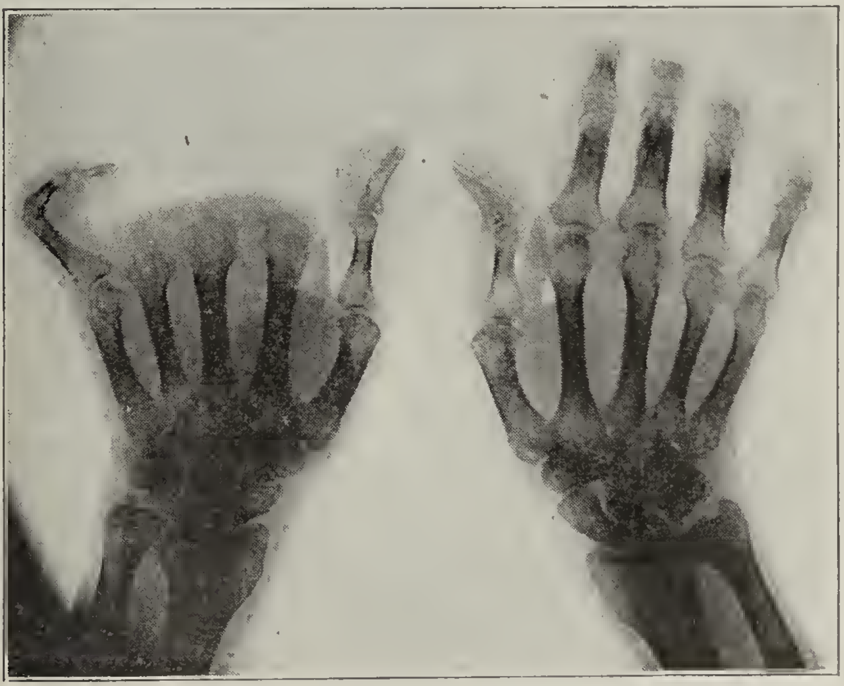

Fig. 3.—Hands after amputation.

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[1] Alberti: Deutsch. Ztschr. f. Chir. **20**: 476, 1884.

[2] MacLean, Angus: Carbon Monoxid Poisoning Resulting in Gangrene of Both Legs, J. A. M. A. **56**: 1455 (May 20) 1911.

THE SURGICAL TREATMENT OF TYPHOID CARRIERS *

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In this article we record the results of surgical treatment of six chronic typhoid carriers; one (a "urinary" carrier) was cured by nephrectomy, three ("intestinal" carriers) were cured by cholecystectomy, and two ("intestinal" carriers) failed of cure by cholecystectomy. The diagnoses and conclusions in the "intestinal" carriers have been based entirely on the outcome of cultures of the duodenal contents rather than on the outcome of cultures of the lower intestinal contents. Negative duodenal cultures are also recorded in a seventh carrier who had a cholecystectomy in 1913.[1] These results, while not perfect, are believed to be better than can be shown for any other kind of treatment available at present and are certainly better than the results of no treatment at all.

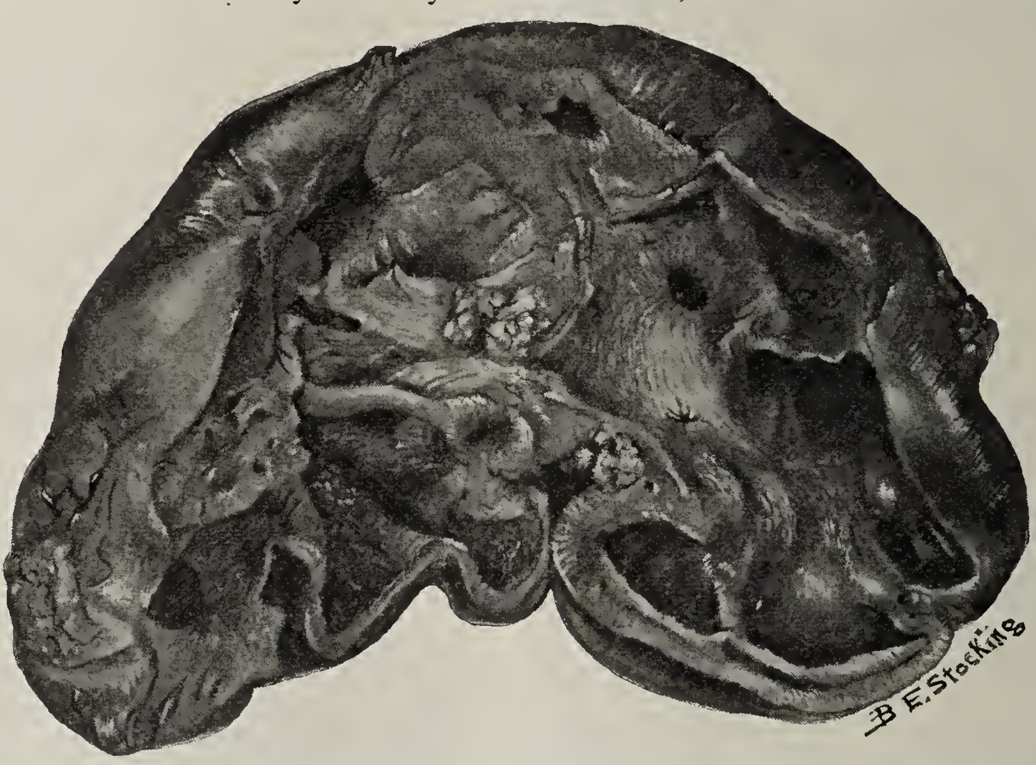

Fig. 1 (Case 1).—Left kidney; typhoid pyonephrosis; typhoid fever, 1912; left nephrectomy, May 28, 1918; cure.

The literature of the treatment of typhoid carriers contains the record of a number of apparent cures following cholecystectomy[2] and the use of the roentgen ray,[3] vaccines,[4] lactic acid bacilli,[3] and various drugs.[3] These conclusions, however, are based almost altogether on the results of cultures of the feces. In view of our present knowledge of the pathology of typhoid carriers and of the differences between cultures of the bile and those of the feces, these apparent cures are open to some question. On the other hand, a number of failures have been reported even with only feces cultures as a standard of cure. These cases are, of course, of definite negative value. Failures following cholecystectomy[5] will be referred to later. In general, it may be said that the future literature will be much more valuable than the past literature if workers will confine their reports to cases which have been examined by aid of the ureteral catheter and duodenal tube.

CONTROL OF COMMUNICABLE DISEASES

Shortly after the declaration of war, the Surgeon-General's Office prepared directions for sanitation and for the control of communicable diseases in the Army which were issued by the War Department as Special Regulations No. 28.[6] Paragraph 28, *b* and *c*, is as follows:

> (*b*) No man should be employed as cook or handler of food or water who is a carrier of *B. typhosus, B. paratyphosus* A or B, or cysts of *Endameba histolytica.*
>
> (*c*) Stools of all cooks and food handlers (including handlers of water and drivers of water and ice wagons) will be examined for typhoid, paratyphoid A and B, and dysentery bacilli, and for cysts of *Endameba histolytica.* In case of enlisted men, notation of positive findings should be made on the service record.

As a result of these regulations, a large number of men were examined and a small number of typhoid carriers were found. Exact percentages of the carrier rate cannot be given, as not all carriers were reported and all the examinations were not satisfactory; but the number of men examined in the first six months was about 30,000. Routine examinations were also made of convalescent typhoid patients, and two carriers in this series were found in this way who were carrying typhoid bacilli five and six months after recovery from their fever. No paratyphoid carriers have come under observation to date. The disposition of these men was naturally more of a problem than the diagnosis. They were automatically relieved from duty as food handlers, and some were at first discharged from the service locally. On account of the unusual opportunity afforded to study the carrier problem, it was decided by Col. F. F. Russell, in charge of the division of infectious diseases of the Surgeon-General's Office, to collect as far as possible all carriers at the Walter Reed General Hospital, Washington, D. C., for observation and treatment. Surgical treatment was considered the most promising in view of the pathology of the carrier state as seen experimentally in rabbits and on account of an earlier successful cholecystectomy, as well as of the results of various kinds of treatment recorded in the literature on this subject. Some of these men consented willingly to operation when the condition was explained. Others at first refused; but when it was made clear to them that during the war they were subject to court martial if they refused an operation that might fit them for duty, they also agreed to operation.

REPORT OF CASES

Case 1 (record furnished by Major A. Kemble, Washington, D. C., in charge of case).—*History.*—C. W. R., cook, 14th Balloon Company, aged 21, white, in service four months, stationed at Omaha. The patient's father died of cancer. The family history was otherwise negative. The patient had had the usual diseases of childhood and typhoid fever in 1912-1913, lasting from October until January. Since May, 1916, he had had eight typhoid inoculations, the last three being in January, 1918. He said he had never had any symptoms referable to the genito-urinary tract. Venereal history was negative.

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* From the Laboratory Service, Walter Reed General Hospital.

* Read before the American Society of Tropical Medicine, Atlantic City, N. J., June 16, 1919.

[1] Leary, T. J.: Surgical Method of Clearing Up Chronic Typhoid Carriers, J. A. M. A. **60**: 1293 (April 26) 1913.

[2] Fromme, A.: Deutsch. Ztschr. f. Chir. **107**: 578, 1910.

[3] Cummins, S. L.; Fawcus, H. G., and Kennedy, J. C., J. R. A. M. C. **14**: 351, 1910.

[4] Meader, F. M.: New York State J. M. **12**: 355, 1912.

[5] Locle, W.: Deutsch. med. Wchnschr. **35**: 1429, 1909. Fromme (Footnote 2).

[6] Special Regulations No. 28, W. D., 1917, 22.

In the course of routine stool and urine examination of food handlers he was found to be a "urinary typhoid" carrier by Major Davis at Central Department Laboratory, Col. C. F. Craig in charge, March 20, 1918. April 13, he was admitted to Walter Reed General Hospital for observation and treatment.

He was a well proportioned man weighing 175 pounds and in generally good physical condition. The temperature was normal. There were no unusual symptoms or physical signs present. A specimen of bile obtained through a duodenal tube was negative for typhoid bacilli. The left kidney was palpable but only slightly enlarged. The urine was turbid in appearance and acid. The specific gravity was 1.014, and contained a heavy trace of albumin and numerous pus cells. Cultures showed a pure, rich culture of typhoid bacilli. The patient was transferred to the genito-urinary service. May 3, cystoscopy revealed a much congested bladder. Both ureteral orifices were normal and the bladder was otherwise negative. The prostatic orifice was normal and no residual urine was present. The ureters were easily catheterized. The flow from the left was very free and continuous, and two large test tubes of cloudy fluid were obtained. A normal flow and a normal fluid were obtained from the right. On these specimens the laboratory reported the following:

From left kidney: Cloudy with leukocytes, epithelial cells and threads of bacilli. Urea concentration: 0.005 in 1 c.c. The specimen contained a rich pure culture of *B. typhosus*. From right kidney: clear; calcium oxalate crystals. Urea concentration: 0.031 in 1 c.c. Culture: A few colonies of *B. typhosus* (probably from bladder). A thorium pyelogram revealed a large hydronephrosis of the left kidney. May 15, the function (phenolsulphonephthalein) on each kidney was: left, less than 1 per cent.; right, 22.5 per cent.

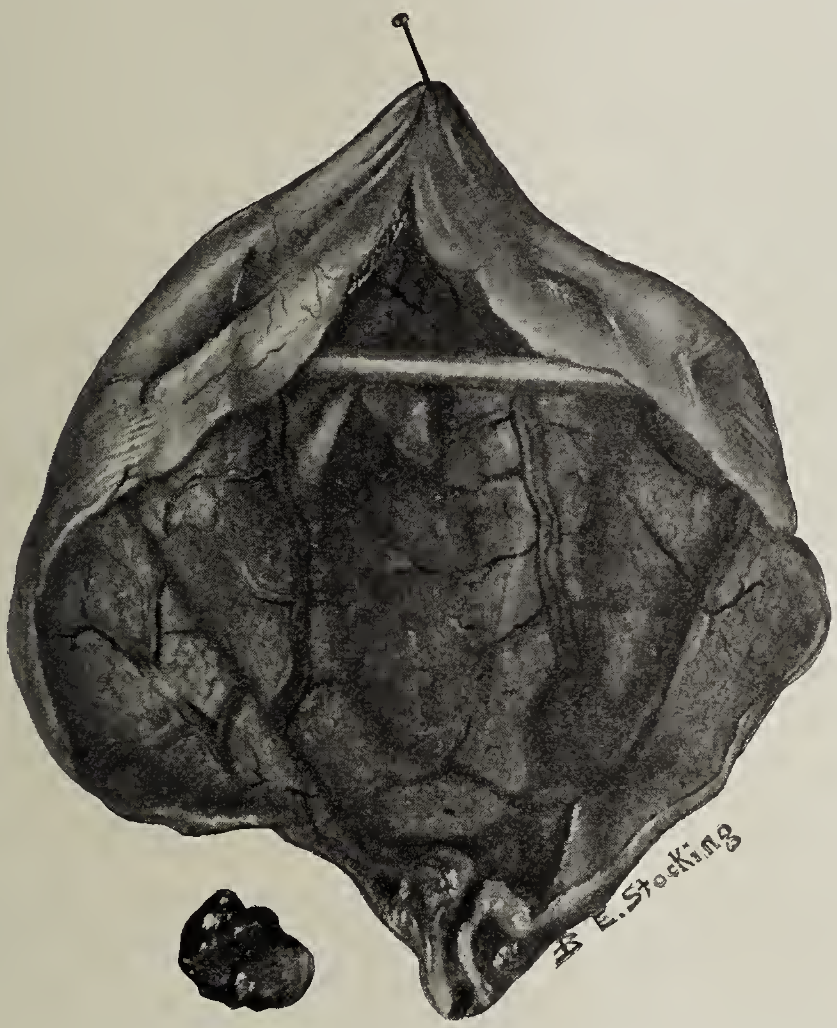

Fig. 2 (Case 4).—Typhoid gallbladder: typhoid fever, August, 1911; cholecystectomy, Nov. 12, 1918; cure.

Operation and Result.—May 28, a left nephrectomy was performed by Capt. D. Borden and Captain Kemble. The pathologic report on the kidney and on the gallbladders in this series has been made by Capt. M. W. Lyon, Jr.:

"C. W. 15 s W. R. G. H. Kidney, 0.130 by 70 mm., weight 212 gm. It shows marked grade of hydronephrosis. The pelvis and calices are enormously dilated, the kidney being reduced to a shell varying from 2 to 5 mm. in thickness. Microscopic examination of one of the thin parts of the kidney shell shows an absence of kidney structure, the outer portion being a wall of new fibrous tissue and the inner a mass of infiltrating small round mononuclear cells" (Fig. 1).

The contents of the pelvis consisted of a thin turbid fluid containing leukocytes and a pure culture of typhoid bacilli. The wound was drained and the patient made an uninterrupted recovery. Cultures of the urine after operation for *B. typhosus* were as follows: May 20, +; June 1, +; June 3, —; June 10, —; June 30, —. Since June 30, the urine has been constantly negative. A small fistula was present for five weeks after operation. A culture from this was negative for typhoid bacilli. July 6, cystoscopy revealed a bladder mucous membrane somewhat grayish in appearance and a mild degree of trabeculation; otherwise normal. August 29, the bladder was normal.

The patient went to limited service duty in good condition. This is a remarkable case of a typhoid carrier of six years' standing whose left kidney had become practically functionless but who had never had any symptoms. He was a cook and his urine was as rich in typhoid bacilli as a broth culture. Fortunately such cases are comparatively rare, but a somewhat similar case was recently reported by Ruediger.[7]

Case 2.—A. V. McD., private, Unassn. Tr. Det., Camp Lee, Va., aged 27 (home, Lynchburg, Va.), was admitted in June, 1918, with typhoid fever. Typhoid vaccinations were given: one dose, June 3, 1918, and (patient's statement) three doses in 1917 before entering the army. Diagnosis of "typhoid carrier" was made by the laboratory at Walter Reed General Hospital from cultures of duodenal contents, Aug. 27, 1918. The urine was negative.

Nov. 19, 1918, the gallbladder was removed by Major J. A. Hill. "McD., A. V. 98 s W. R. G. H.; gallbladder; rather small and contracted, measures about 60 by 20 mm. The vessels are rather conspicuously dilated. The mucosa is dull reddish brown in color and under the surface the vessels are rather prominent. No stones are present." Contents of bladder showed a pure culture of typhoid bacilli.

Recovery was prompt and the patient is now in good physical condition. He was discharged as cured after two successive negative cultures of duodenal contents, March 4, 1919.

Case 3.—W. O. L., private, 11th Cavalry, Fort Myer, Va., aged 22, was admitted, July, 1918, with typhoid fever. Typhoid vaccination was given, June, 1917. The patient was diagnosed as an intestinal carrier by Captain Spruit at the Embarkation Laboratory, Newport News, during convalescence. He was sent to duty by mistake, but was traced and sent to Walter Reed General Hospital, Jan. 31, 1919. Diagnosis of carrier was confirmed by duodenal culture.

Cholecystectomy was performed, Feb. 26, 1919, by Major E. M. Jones. "L., W. O. 164 s W. R. G. H., gallbladder, 70 by 30 mm. Its walls appear slightly thickened, but in general the organ appears essentially normal. The mucosa shows a few hyperemic spots and varies in color from a dull pinkish gray to much larger areas stained greenish brown by bile. A subspherical stone almost black in color is present, about 8 mm. in diameter. It is roughened, resembling a mulberry."

TABLE 1.—RESULTS OF EXAMINATION FOR TYPHOID BACILLI, CASE 2*

	Aug.			Sept.			Oct.	Nov.	Dec.	Jan.							Feb.	
	25	27	29	12	19	30	14	19	4	20	22	23	26	27	30	31	10	21
Urine	..	—	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..
Feces	—	—	—	..	..	..	..	..	..	..	—	..	—	—	..	—	..	..
Bile	..	+	..	+	+	+	+	(+)	+	..	..	—	—	..	+	..	—	—

* The plus sign (+) refers to result of bile from gallbladder at operation.

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7. Ruediger, E. H.: Bacillus Typhosus Associated with Pyonephrosis, J. A. M. A. **70**: 367 (Feb. 9) 1918.

The contents of the bladder showed a pure culture of typhoid bacilli. Recovery was prompt and the patient was sent to duty in good physical condition after three negative cultures of duodenal contents.

Case 4.—M. L. W., Army Nurse Corps, Camp Green, N. C., aged 45 (home, Baltimore), had had typhoid fever in August, 1911. Triple typhoid vaccinations were given in February, 1918. Diagnosis of typhoid carrier was made from cultures of feces at Camp Green, N. C., Aug. 29, 1918. The patient was admitted to Walter Reed General Hospital, Oct. 18, 1918. The diagnosis was confirmed by cultures of duodenal contents. Nov. 12, 1918, the gallbladder was removed by Major J. A. Hill.

TABLE 2.—RESULTS OF EXAMINATION FOR TYPHOID BACILLI, CASE 3

	February					March		April						
	3	6	9	15	26	22	26	2	8	14	17	21	22	28
Urine	..	..	—	..	..	..	..	..	..	—	..	—	..	..
Feces	..	—	—	..	..	—	—	—	..	..	—	—	—	—
Bile	+	..	..	+	(+)	..	+	..	+	..	—	..	—	—

TABLE 3.—RESULTS OF EXAMINATION FOR TYPHOID BACILLI, CASE 4

	October			Nov.		Dec.	Jan.		March
	20	26	30	12	26	3	23	27	31
Urine	—	—	..	..	..	..	..	..	..
Feces	+	+	..	..	—	..	—	..	..
Bile	..	..	+	(+)	..	—	..	—	—

"W., M. 95 s W. R. G. H., gallbladder, 60 by 30 mm. The walls are of normal thickness. The large blood vessels in it are conspicuously dilated. The mucosa is hyperemic and light in color but otherwise appears normal. It contains a large, ellipsoidal, blackish brown stone, about 12 by 7 by 7 mm. In the wall of the bladder is an ill defined impression apparently caused by pressure of the stone" (Fig. 2).

The contents were golden brown and were positive for typhoid bacilli. Recovery was prompt and patient is now in good physical condition, and is on duty again without restrictions.

Case 5.—J. L., cook, 106th Field Artillery, Camp Wadsworth, S. C., aged 39 (home, Niagara Falls, N. Y.), had had typhoid fever in 1911. Nine typhoid vaccinations were given in the three previous years. Diagnosis of typhoid carrier was made at the Army Medical School from cultures of feces made in routine examination of food handlers, Dec. 25, 1917. The patient was admitted to Walter Reed General Hospital, Jan. 9, 1918. Diagnosis was confirmed by examination of duodenal contents, Jan. 15, 1918. Medical treatment with sodium bicarbonate and other drugs was unsuccessful. July 29, the patient's gallbladder was removed by Major F. J. Cotton.

TABLE 4.—RESULTS OF EXAMINATIONS FOR TYPHOID BACILLI, CASE 5

	Jan., 1918				Feb.	Mch.	April	July	
	14	16	19	31	15	2	20	22	29
Urine	.	—	—	—	..	—	—	—	..
Feces	—	+	..	+	..	+	+	+	..
Bile	..	..	..	..	+	..	..	..	(+)

	August										
	3	5	8	9	10	11	16	19	21	23	26
Urine	—	..	..	..	..	..	..	..	..	..	..
Feces	—	—	—	—	—	—	—	—	..	+	—
Bile	..	..	..	..	..	..	..	..	+	..	..

	Sept.	Oct.		Nov.		Dec.	Jan., 1919		Feb.			
	1	2	14	7	24	15	5	9	5	12	20	26
Urine	..	..	..	..	..	..	..	..	..	..	..	..
Feces	..	..	..	..	..	..	..	—	+	+	+	—
Bile	+	+	+	+	+	+	+	..	..	..	..	..

	March			April					
	7	15	25	1	2	3	14	17	21
Urine	..	..	..	—	..	..	—	..	—
Feces	—	..	..	..	..	+	..	..	—
Bile	..	+	+	..	+	..	..	+	+

"L., J. 42 s W. R. G. H., gallbladder. The gallbladder is much torn. The open organ measures about 50 by 35 mm. It shows marked engorgement of vessels and the mucosa is pinkish to dark reddish in color. The organ appears small and the fundus contains five well marked stones of very irregular shape and ranging in size from about 10 to about 5 or 6 mm. in the largest diameter. About ten or twelve much smaller stones are present, also of irregular shape. The stones appear to be fragments of a larger stone and vary in color from a dull grayish to a pinkish and dark brownish. The stones appear to be confined to the fundic portion and have left well marked erosions on the mucosa. Around the neck of the bladder the mucosa appears more normal though it is congested." A pure culture of typhoid bacilli was recovered from the contents of the bladder.

This case was a surgical success but a bacteriologic failure, as thirteen successive duodenal contents cultures in eight months were positive. The patient was finally discharged with consent of the board of health of the state to which he went.

Case 6.—E. P., private, 327th Infantry, Camp Gordon, Ga., aged 26 (home, Newberryport, Mass.); had had typhoid fever in 1900. Typhoid vaccination course was completed, Oct. 21, 1917. Diagnosis of typhoid carrier made by department laboratory, Southeastern Department, from cultures of feces made in routine examinations of food handlers, Jan. 8, 1918. The patient was admitted to Walter Reed General Hospital, March 28, 1918. Diagnosis was confirmed by examination of duodenal contents, April 22, 1918. Medical treatment with hexamethylenamin and vaccines had been unsuccessful and, April 26, 1918, the gallbladder was removed.

TABLE 5.—RESULTS OF EXAMINATION FOR TYPHOID BACILLI, CASE 6

	Mch., '18	April			May					
	30	16	22	26	15	19	25	27	29	30
Urine	—	—	..	..	..	..	..	..	..	..
Feces	—	—	+	..	+	—	—	+	—	—
Bile	..	..	+	(+)	..	..	..	..	..	..

	June								July				
	2	4	5	8	9	13	15	19	20	22	26	30	31
Urine	..	..	..	..	..	..	..	..	..	..	..	..	..
Feces	—	—	—	—	—	+	—	—	—	..	..	—	—
Bile	..	..	..	..	..	..	..	..	..	—	+	..	..

	August								Oct.	Nov.		December			
	2	5	6	9	15	17	19	24	1	16	22	14	23	24	30
Urine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feces	—	—	—	—	—	—	..	—	..	..	..	..	—	..	..
Bile	..	..	..	..	..	..	+	..	—	+	+	+	..	+	+

	February			March		April				
	5	12	17	12	16	2	5	14	17	21
Urine	..	..	..	..	..	..	..	—	..	—
Feces	+	+	+	—	..	—	..	—	..	+
Bile	..	..	..	..	+	..	+	..	—	..

"E. P., 1 s W. R. G. H., gallbladder. It appears rather small, measuring about 50 by 30 mm. It appears slightly thickened, the mucosa is rather bright reddish and the outside of the bladder shows considerable congestion. It contains a single spheroidal stone, about 10 by 7 mm. varying in color from light to dark brownish. On removal of the stone a distinct impression is left in the mucosa and submucosa."

The contents which were colorless contained a pure culture of typhoid bacilli. The bladder ruptured during removal and the operative area was infected and convalescence was somewhat slow, but the patient entirely recovered and is now in good physical condition. However, his duodenal contents are still positive for typhoid bacilli, indicating that there is a focus probably in the bile passages of the liver. He has finally been discharged from the service with the consent of the board of health of the state to which he went.

Case 7.—(1) M. M., private, first class, 2d Batt. Engrs., aged 38, had had typhoid fever, probably in September, 1910, in the Philippine Islands, "gastro-enteritis with fever." Diagnosis as typhoid carrier was made at Letterman General Hospital, San Francisco, from cultures of feces, Nov. 20, 1910. He was admitted to the Walter Reed General Hospital, April 10, 1911.

Diagnosis of typhoid carrier was confirmed at this hospital in April, 1911. The patient was given medical treatments with calomel, buttermilk, sodium sulphite, hexamethylenamin and salol, ipecac and vaccines (stock and autogenous) for four months; all of which proved to be unsuccessful. Jan. 21, 1913, cholecystectomy was performed by Lieutenant Leary and the gallbladder was found to be enlarged and to contain a stone. Culture of the contents showed a pure culture of typhoid bacilli. Recovery was prompt and the patient was discharged, May 19, 1913, as cured.

The patient was examined in January, 1916, by Nichols in El Paso, Texas. His physical condition was good and all cultures, including those of the duodenal contents, were negative.

TABLE 6.—RESULTS OF EXAMINATION FOR TYPHOID BACILLI, CASE 7

	January, 1913							February				Jan.,	May,
	20	21	24	25	27	29	31	3	5	7	8	1916	1919
Urine	—	—	..	..	..	..	..	—	—	—	—	—	—
Fæces	+	+	—	+	+	—	—	—	—	—	—	—	—
Bile	..	(+)	..	..	..	..	..	..	..	..	..	—	—

The patient was reexamined, May 7, 1919, at this hospital. His physical condition was good and cultures of feces, urine and duodenal contents were negative.

COMMENT

The picture presented by sections of the gallbladder walls can be considered in one place, as it varied only in degree. The essential lesion is an infiltration of the submucosa with leukocytes of the mononuclear type and a few eosinophils. The epithelium is intact and no abscesses are seen in the muscular or fibrous coats. In the carriers of short duration the cells are confined to the submucosa; in the older cases a few cells are seen in the muscularis and fibrous coat, while the submucosa shows a chronic thickening.

TABLE 7.—SUMMARY OF CASES

No.	Initial	Organization	Age	Typhoid Fever	Symptoms	Operation	Date	Interval	Condition Found	Result and Remarks
1	C. W. R.	Cook, 16 Bal. Co.	21	Oct., 1912	None	Nephrectomy	May 28, 1918	6 years	Marked pyonephrosis	Cure; cystitis resolved
2	A. V. Mc.	Pvt. Tr. Det.	27	June, 1918	None	Cholecystectomy	Nov. 19, 1918	5 months	Cholecystitis	Cure
3	W. O. L.	Pvt. 11 Cav.	22	July, 1918	None	Cholecystectomy	Feb. 26, 1919	7 months	Stone	Cure
4	M. L. W.	Army Nurse Corps	45	Aug., 1911	None	Cholecystectomy	Nov. 12, 1918	7 years	Dilated, stone	Cure
5	J. L.	Cook, 106 F. A.	39	1911	None	Cholecystectomy	July 29, 1918	7 years	Cholecystitis with stone	Failure; cultures of duodenal contents still regularly positive
6	M. P.	Cook, 327 Inf.	26	1900	None	Cholecystectomy	Apr. 26, 1918	18 years	Cholecystitis with stone	Failure; cultures of duodenal contents still regularly positive
7	M. M.	Pvt. 1 cl. 2d Eng.	38	1910	None	Cholecystectomy	Jan. 21, 1913	3 years	Cholecystitis with stone	Cure; duodenal contents negative in 1916 and 1919

In other words, the histologic evidence supports the conception that the cholecystitis occurs through infection of the bile, rather than of the blood.[8] The same picture has been seen in an instance of cholecystitis occurring during typhoid fever, which probably represents the start of the carrier condition.

The standard of cure in these cases has been three successive negative cultures of duodenal contents, and is believed to be reliable provided good specimens are obtained from the patient and provided they are properly handled in the laboratory. The specimen should be neutral or slightly alkaline in reaction to litmus paper, and should show a golden yellow color and syrupy consistency characteristic of bile. The specimen should be cultivated directly, and also should be incubated for twenty-four hours and recultivated before a final report is made. Under these conditions we believe that a culture of duodenal contents is synonymous with culture of the bile. The point has been made that typhoid bacilli might reach the duodenum from the pancreas or from an infected diverticulum of the duodenum itself. There is no record in the literature of any lesion of the pancreas, and experimentally it has been found impossible to make typhoid bacilli pass through a gland which resembles the pancreas, namely, the salivary gland. On the other hand, there is ample experimental evidence[8] that typhoid bacilli pass readily from the blood into the bile and in some cases establish themselves in the bile passages, especially in the gallbladder. We believe that culture of the good specimen obtained through the duodenal tube is equivalent to a culture of the bile and that this culture is the best evidence we can get on what is going on in the bile passages. Such cultures are of course much superior, from this point of view, to cultures of the feces,[9] as may be seen from the failures reported above. Case 6 had eight successive negative feces cultures in one month, followed by a positive duodenal culture; and in several cases a negative feces culture and a positive bile culture occurred in the same day. We are of the opinion that in bile passage carriers the bacilli are regularly excreted in the bile and that the term "intermittent" carrier should be dropped.

The principle underlying the surgical treatment of typhoid carriers is the excision of the focus of infection. The same principle applies to the now well established surgical treatment of diphtheria, streptococcus and meningococcus carriers by tonsillectomy. The foci of infection in chronic typhoid carriers are in the two chief excreting organs, the kidneys and the liver; or more specifically in their ducts: (1) the hilum of the kidney; (2) the biliary passages, especially the gallbladder. Pure "intestinal" carriers are not believed to occur any more than pure "urinary" carriers.

1. From an infected hilum, typhoid bacilli are fed into the urinary tract and appear in the urine. They may produce a secondary uretritis and cystitis; if only one kidney is involved and this is removed, the secondary inflammation disappears and the patient is cured.

2. From the bile passages, typhoid bacilli are fed into the intestine and appear in the intestinal contents only so long as the focus is present. There are three possibilities in regard to infection of the bile passages. (*a*) The gallbladder alone may be infected. In this case cholecystectomy results in cure. (*b*) The gall-

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[8] Nichols, H. J.: Gall-Bladder Infections, J. Exp. M. **24**: 497 (Nov.) 1916.

[9] Nichols, H. J.: Alkaline Treatment of Early Gallbladder Carriers, J. A. M. A. **68**: 958 (March 31) 1917.

bladder and bile ducts in the liver may both be infected. In this case cholecystectomy does not cure the carrier condition. Cultures of duodenal contents are still positive. We have no way of determining in which of these two classes a given case falls except actual trial, but it is known that gallbladder carriers are more common than bile duct carriers. There is a third possibility (*c*), namely, the gallbladder might be normal and the bile passages alone might be infected. In this case also cholecystectomy would not be curative; but, from the evidence at hand, such cases must be very rare, if indeed they occur at all.

We are not competent to discuss the strictly surgical aspects of these cases, but are, of course, interested in the outcome from an operative as well as from a bacteriologic point of view. In operations such as these, which are done more for the good of the group than of the individual, it is necessary to insist on excellent surgical technic and judgment, in order to avoid a fateful tragedy such as that which befell a medical officer who had been taking care of meningitis cases and who expected to go home on leave to visit his wife and baby. Although his throat cultures were negative for meningococci, in order to be doubly sure that he was not a carrier he had his tonsils removed and died of hemorrhage.

In the cases mentioned, the operative results were good, although in one case there was what is called a stormy convalescence. The gallbladder was removed from below in some cases and from above in others. The cystic duct was found normal in all. It is obvious that these cases should be worked out with full cooperation between the pathologist and the surgeon. Whether a new specialty of "carrier surgery" should be established to handle this growing field need not be discussed here, but there should be a full understanding about the situation. The laboratory man has taken the initiative in this field and has asked for assistance from the surgeon. The surgeon should be in sympathy with and familiar with the problem. Most surgeons do not refuse an indicated operation, but apparently some surgeons do not agree that a person should be operated on for the good of the group in the absence of personal symptoms. Such surgeons can hardly be expected to do good carrier surgery. But, even with the personal point of view uppermost, these operations come under personal prophylactic surgery, as the organs are always chronically inflamed and the gallbladders usually contain stones.

In cholera the pathology of carriers is apparently identical with that in typhoid carriers, with the exception that there is some question as to the mechanism of gallbladder infection, whether it is through the portal circulation and bile or whether it is an ascending or lymphatic infection. The same principles in surgical treatment should hold in case of cholera, and the surgical treatment of carriers can be expected to be of even more value than in typhoid, as the disease has a more definite seasonal occurrence. In dysentery the evidence is not sufficient to warrant definite statements, but by analogy the same situation may also obtain.

SUMMARY AND CONCLUSIONS

1. So-called "urinary" typhoid carriers are really kidney carriers and can be cured by nephrectomy. An additional argument for operation is present if the infected kidney is functionless. One such case is recorded.

2. "Intestinal" carriers are really bile passage carriers of two kinds:

(*a*) Cases in which the gallbladder alone is infected. These can be cured by cholecystectomy. Four such cases are recorded.

(*b*) Cases in which the gallbladder and bile passages are both infected. In these cases cholecystetcomy does not cure the carrier condition and the condition is incurable at present. Two such cases are recorded.

3. The surgical treatment of typhoid carriers, while not perfect, is the best available.

MUSTARD GAS *

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One of the best known of all the war gases[1] and perhaps the most interesting is the so-called "mustard gas" or dichlorethylsulphid. This gas was first used by the Germans in July, 1917, and received its name from its smell, which resembles the odor of garlic or mustard. It is not a gas at all, but a high boiling, oily liquid, which vaporizes slowly in the air. It is a very poisonous substance and exerts a local action on the respiratory tract, eyes and skin, and a general systemic action when absorbed in sufficient concentration into the blood stream. In the concentrations of this "gas" which are present in the field, probably very little systemic action is generally noticed. The systemic action of the substance is of importance, however, as it leads us to a better understanding of the mechanism of action of the poison, and hence to an intelligent pursuit for a rational method of treatment.

DIFFICULTY OF DETERMINING TOXICITY

One of the first points which must be carefully determined in investigating a substance of this kind is its toxicity. It is important that this be determined very carefully for numerous reasons: (1) to learn what concentrations are dangerous in the field; (2) to ascertain how effective protective devices have to be to remove the "gas," and (3) to furnish a basis for accurate experimental work on treatment. This necessitates the determination of the toxicity of the substance in the form of vapor, and not by the ordinary method of administration by mouth, subcutaneously or intravenously. The simplest method of determining its toxicity in the form of vapor would appear to be to place animals in a gas-tight box and introduce a known amount of the substance in the form of vapor. But difficulties arise. The concentration is not accurately known unless chemical analyses of the air are made, and then it is found to be much less than that calculated from the amount of substance introduced, mainly because of condensation on the walls of the chamber, of absorption of the substance by the skin and the hair of the animals and, probably, in some cases, of decomposition of the substance by moisture in the air. Moreover, it is found that the concentration decreases markedly with time. Because f these factors, the figure used for the concentration is more or less guesswork. To overcome hese difficulties, a chamber is used through which a ontinuous current of air, containing a known and contant amount of the poisonous vapor, is passed. In fact, the air in the chamber is changed once or twice a minute.[2]

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* The experimental investigations on which this paper is based were conducted by the Pharmacological Research Section, Medical Division, Chemical Warfare Service, at the American University Experiment Station, Washington, D. C.

[1] For description of gases used by the Germans, see Auld: J. Washington Acad. Sc. **8**: 45, 1918.

Another point of difficulty is the great individual variation in the susceptibility of animals. This is probably greater than when the poison is administered subcutaneously or intravenously. It necessitates the use of a large number of animals in making a determinaion of the toxicity of a gas. Again, the toxicity for different species may vary, and as our ultimate aim is a knowledge of the toxicity for man, a great many different species must be used. If the toxicity is widely different for different animal species, it is hard o arrive at a conclusion as to the toxicity on man. In the case of mustard gas, determinations on dogs, rabbits, guinea-pigs, rats, mice, goats and monkeys have shown that there is no wide species variation as with some other gases. Hence, the figures obtained on animals will probably apply to man.

EXTREME TOXIC EFFECT

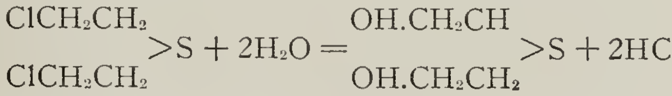
Without giving detailed figures, it may be said hat this gas is an extremely toxic one. Five-tenths mg. per liter of air (or one part in 14,000) will kill an animal on an exposure of less than five minutes, while less than 0.01 mg. per liter (or about one part in 1,000,000) will prove fatal on eight hours' exposure. Death will not be immediate, of course, but will take place some days later. Concentrations smaller than the lethal ones will produce toxic effects.

For instance 0.0005 mg. per liter (or about one part in 14,000,000) will cause conjunctivitis on a prolonged exposure, and may incapacitate a man. About 0.002 mg. per liter (or about one part in 3,000,000) will cause a skin burn in a sensitive person on prolonged exposure. The reason why mustard gas has proved to be more an incapacitating gas than a lethal gas, under warfare conditions, is undoubtedly its very low vapor pressure. Very low concentrations are obtained in the field with this substance for any length of time.

SYMPTOMS AND SYSTEMIC EFFECTS

The symptoms which arise from exposure to mustard gas are now too well known to need detailed description.[3] They consist essentially of local irritation of the upper respiratory tract, eyes and skin, giving rise to conjunctivitis and superficial necrosis of the cornea, hyperemia, edema, vesication, and later necrosis of the skin, leading to a skin lesion of great chronicity, and congestion and necrosis of the epithelial lining of the pharynx, trachea and bronchi. In animals exposed to high concentrations of this gas, vomiting and diarrhea, hyperexcitability and convulsions, and effects on the heart suggest an absorption into the blood stream and a systemic action.

Experiments demonstrate clearly that there is an absorption through the lungs of dichlorethylsulphid. When this substance is injected either subcutaneously or intravenously into a dog, the following symptoms make their appearance after a latent period: salivation; hyperexcitability and convulsions; vomiting and bloody diarrhea; a slow and irregular heart, which becomes rapid before death; muscular weakness, and finally, coma and death. Necropsy reveals a more or less intense congestion of the intestinal mucosa, which is frequently accompanied by hemorrhage into the lumen of the intestine. These effects on the heart, the gastro-intestinal tract and the central nervous system can practically all be observed in dogs poisoned by inhalation of high concentrations of mustard gas. This leaves little room for doubt that in high concentrations this gas is absorbed through the lungs and produces systemic effects in the body. Further proof of the absorption through the lungs is furnished by the detection of one of the decomposition products of mustard gas in the urine of gassed animals. On contact with water, mustard gas hydrolyzes very readily and gives rise to hydrochloric acid and dihydroxyethylsulphid:[4]



$$\begin{matrix} ClCH_2CH_2 \\ ClCH_2CH_2 \end{matrix} > S + 2H_2O = \begin{matrix} OH.CH_2CH \\ OH.CH_2CH_2 \end{matrix} > S + 2HCl$$

Dihydroxyethylsulphid was injected into a dog, and the urine was collected and examined for this substance. A positive test was obtained. This proves that the substance is excreted, in part at least, unchanged. The injection of dichlorethylsulphid was next tried and the urine found to contain the dihydroxyethylsulphid. The latter substance was then detected in the urine of animals which had been poisoned by inhalation of mustard gas.

MECHANISM OF ACTION

The latent period in the development of the effects of mustard gas either when inhaled or injected, suggests that the substance may be altered chemically in the body before exhibiting its characteristic effects. The simplest chemical change which the substance undergoes in the test tube is a hydrolysis into hydrochloric acid and dihydroxyethylsulphid. That this change also takes place, in part at least, in the animal organism is evidenced by the excretion of dihydroxyethylsulphid in the urine. The injection, however, of a completely hydrolyzed solution of mustard gas is followed by absolutely no symptoms. The dihydroxyethylsulphid has no irritating effect on the skin and is comparatively a nontoxic substance when injected intravenously. This decomposition product is, therefore, not responsible for the effects of mustard gas. Hydrochloric acid, the other product of hydrolysis, is not a very toxic substance. It can be injected in small doses without very much effect. The buffer system of the blood immediately neutralizes the acid, and the tissues are really never exposed to it. When the body is flooded with large doses of acid, however, death results. An acid reaction is incompatible with life. Both products of hydrolysis of mustard gas are readily soluble in water and sparingly soluble in organic solvents, while mustard gas is very sparingly soluble in water and freely soluble in organic solvents. The hydrolytic products have a low lipoid solubility and would not be expected to penetrate cells easily, while mustard gas has a high lipoid solubility and would probably penetrate cells readily.[5] Its effects on the skin prove its power of penetration. Having penetrated into the cell, it would undoubtedly hydrolyze in the aqueous phase of the cell. The liberation of free hydrochloric acid within the cell would produce serious results and might explain the effects of dichlorethylsulphid. To summarize, then, the mechanism of the action of dichlorethylsulphid appears to be:

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[2] Marshall and Kolls: J. Pharmacol. & Exper. Therap. **12**: 385 (March) 1919.

[3] Lynch, Smith and Marshall: J. Pharmacol. & Exper. Therap. **12**: 291 (Dec.) 1918. Warthin et al.: J. Lab. & Clin. M. **3**: 447 (May) 1918; **4**: 785 (Oct.) 1918; **4**: 833 (Oct.) 1918; **4**: 229 (Feb.) 1919; **4**: 265 (Feb.) 1919.

[4] Hopkins: J. Pharmacol. & Exper. Therap. **12**: 393, 1919.

[5] Harvey: Publication 212, Carnegie Inst. of Washington, 1915, p. 143.

1. Rapid penetration of the substance into the cell by virtue of its high liquid solubility.
2. Hydrolysis by the water within the cell, to form hydrochloric acid and dihydroxyethylsulphid.
3. Destruction by hydrochloric acid of some part or mechanism of the cell.

Accumulated knowledge of various other facts tends to substantiate this theory of the intracellular liberation of hydrochloric acid as the mechanism of the action of mustard gas.[6] The ideal treatment for mustard gas poisoning would be to employ some nontoxic substance which would penetrate the cell and neutralize the effects of the hydrochloric acid. Efforts made in this direction have not been entirely successful.

It is interesting to note that all the war gases contain a halogen and can give rise to hydrochloric or hydrobromic acid on decomposition. One might, therefore, speculate on the possibility of the action of all war gases being due to the liberation of acid. At present, however, this is merely speculation.

In regard to the action of mustard gas on the skin, it is well known that some persons are more readily affected than others. We have been able to devise simple tests for determining the susceptibility of the skin of an individual to mustard gas. Without going into detail as to the methods used, I may summarize certain interesting facts which have been discovered. One man may be 600 times as susceptible to the action of mustard gas as another. Negroes, as a race, are far more resistant than white men. About 2 to 3 per cent. of white men are hypersensitive, while 20 to 40 per cent. are resistant. If a hypersensitive and resistant man are exposed to mustard gas, the former will undoubtedly receive severe skin burns, while the latter may entirely escape them.[7]

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[6] Lynch, Smith and Marshall: J. Pharmacol. & Exper. Therap. **12**: 265 (Dec.) 1918. Lillie, Clowes and Chambers: Science **48**: 382, 1919.

[7] Smith, Clowes and Marshall: J. Pharmacol. & Exper. Therap. **13**: 1, (Jan.) 1919. Marshall, Lynch and Smith (Footnote 3).

Birth Rate of Whites During War Normal.—To ascertain whether the war affected the birth rate of Maryland and Baltimore, because of agitation regarding this subject abroad and elsewhere in the United States, Dr. Frederick V. Beitler, Halethorp, Md., of the bureau of vital statistics, has compiled statistics covering the period from 1915 to July 1, 1919, inclusive, and the conclusions which the study of the figures presented revealed that the birth rate, whatever has happened abroad, has not been affected appreciably in Maryland. On the contrary, births in 1918 and thus far in 1919 have been normal. The only doubt which might exist that they may perhaps make the rate appear a shade less than normal lies in the inability to estimate properly the growth of population in the state during those months of the war period — that is, the growth from outside sources — from migration here from other sections of the country. Just what this has been no one seems to know with any certainty, but that it has not been sufficient to weigh heavily on the side of diminution of birth rate is a generally accepted fact among those who have given the matter serious attention. In 1918 the death rate exceeded the birth rate, a condition which had not been noted before since the health wardens have been tabulating the returns. This was caused by the influenza epidemic and ailments incident thereto and it is reflected in the early returns of 1919, but the present year, unless there is a recurrence of the malady, will about measure up to other years in proportion to the population.

POISONING WITH THE LETHAL WAR GASES *

PHYSIOLOGY AND EXPERIMENTAL TREATMENT *

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The most important members of the group of lethal gases are chlorin, phosgen and chlorpicrin. These substances are alike in that they act on the respiratory tract, producing edema and congestion. Chlorin acts with extreme rapidity. The toxic action of phosgen is slower, probably because, to produce its effects, it must undergo chemical change. This fact has earned for phosgen the name of having a delayed action. Chlorpicrin appears to stand somewhere between chlorin and phosgen, both in regard to the type of influence provoked and in the rate of production of intensive edema.

From an extensive investigation, on dogs and goats, of the acute effects of gassing, it is quite evident that the detrimental influence of these gases is confined to the respiratory tract and that all other effects must be regarded as secondary, since it has been impossible to determine the absorption of these gases into the blood stream. Exposure to them results in a variety of changes in the organism, in addition to the development of pulmonary edema. Thus, gassing has a definite influence on the respiration, heart beat, temperature, concentration of the blood, the water content of the lungs and other tissues, the chlorid content of the blood and tissues (with resulting changes in chlorid excretion by way of the kidney), the number of red and white cells of the blood and the respiratory function of the blood, leading to dyspnea and partial asphyxia. Acidosis is present at times, and there is a distinct influence on protein metabolism.

When one attempts to correlate these various effects, the task at first seems well nigh impossible. Closer inspection, however, brings to light one significant feature, namely, changes in the concentration of the blood. Viewed from this standpoint, the picture presented by a typical lethal gas, namely, phosgen, shows that acute gas poisoning may be divided into three stages.

STAGES IN PHOSGEN POISONING

In the first stage, which lasts from five to eight hours, there is usually a very significant dilution of the blood. In this period, pulmonary edema is developing. In the first part of this period the temperature may fall markedly; in the latter part of the period there is a greatly accelerated pulse, accompanied by a rise in temperature considerably above the normal.

The second stage, which reaches its maximum between the fifth and twenty-fourth hours, is characterized by a very marked concentration of the blood. In this period the temperature may be well maintained, or there may be a distinct drop below normal. If the temperature is well maintained, the condition of the individual is considered good. On the other hand, if the temperature suddenly falls, the outcome is usually fatal.

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The third stage is characterized by a readjustment to rmal conditions with respect to both concentration the blood and temperature.

AN INTERPRETATION OF GAS POISONING

The interpretation which may be placed on the dif- rent stages of phosgen poisoning is as follows:

In the first stage there is marked dilution of the ood. There are at least two ways in which this dilu- on may be explained. In the first place, it may mean increased blood volume, the excess fluid finding its ay into the blood from the tissues in response to the rong irritation stimulus exerted by the gas on the spiratory tract. Or secondly, a diluted blood would sult if the red cells were removed in part and depos- ed in some organ or tissue. In the present investiga- on no studies have been made to determine actual ianges in blood volume. Reports by Eyster and leek, however, who have made such estimations, tend the conclusion that in the stage of phosgen poisoning nder discussion, blood volume is not increased, and iey account for the dilution of the blood on the ypothesis that red cells are stored in the lungs, at least mporarily. Whichever explanation is correct, it is rtain that during this first stage two features may be uite prominent, namely, edema of the lungs and dila- tion of the heart. Edema can be explained very adily on the hypothesis of increased blood volume, nd it is also possible that such a condition might lead a dilated heart. On the other hand, the deposition f corpuscles in the lungs, by causing an obstruction in e circulation, would lead to a dilated heart. The elatively large transport of fluid to the lungs during is period is, however, not so easily explained by this ypothesis. Whichever hypothesis is accepted, edema f the lungs prevails, and there may be a dilated right eart.

In the second period, edema has reached its maxi- ium development, and here, also, blood concentration at its height. The latter state is undoubtedly induced y the withdrawal of fluid which finds its way into the ings. During the interval of blood concentration, the lood volume is definitely decreased, and the heart may e noticeably diminished in size (Eyster). This, pre- umably, would result in a decreased efficiency of this rgan and lead to an inadequate circulation. Later, hen the blood resumes its normal degree of concen- ration, normal heart action is reestablished.

The development of edema induces a mobilization of hlorids in the lungs at the expense of the chlorids of he blood, the lowered chlorid content of which may e explained in part by loss of chlorids through the idneys, since at this period the output of chlorids in he urine is appreciably augmented. Later, during the econd stage, the chlorids of the lungs reach a maxi- num, the blood content is not called on, and, therefore, n approximately normal blood chlorid content may be ound, which is maintained thereafter. This chlorid etention by the lungs coincides with the fact that on he second day of phosgen poisoning the urinary xcretion of chlorids is usually below normal. The eriod of readjustment now follows, during which dema subsides in the lungs, and presumably both fluid nd chlorids are demobilized by the lungs and find their way into the blood. The excess of chlorids over the ormal in the blood is eliminated through the kidneys. This circumstance would account for the large output on the third day after gassing.

The changes in oxygen capacity, erythrocytes and hemoglobin follow the curve of alterations in blood concentration throughout the entire course of phosgen poisoning, which might well be anticipated. The oxygen content of arterial blood shows, in general, relatively unimportant changes, whereas that of venous blood progressively diminishes throughout the first and second periods of phosgen poisoning. This may be explained in the first period by the fact that the blood is diluted, and, in the second period, is undoubtedly caused by the longer contact of the blood with the tissues, induced by an inefficient circulation.

The respiratory changes are correlated with the impaired respiratory functions of the blood, such as lowered oxygen content and incomplete saturation of the hemoglobin with oxygen.

In the first stage, the decreased heart rate may be explained best perhaps on the hypothesis of nervous inhibition. The later rapid pulse is directly induced by the viscous character of the blood, which causes oxygen want. Although specific data are lacking, it appears quite evident that there is a distinct fall of blood pressure. One may assume a direct relationship between the heart's efficiency and temperature. Thus, in the first part of the first stage, the heart action is slow, there is inefficient circulation, and the temperature falls. Later, the greatly accelerated pulse is accompanied by a rise in temperature far above the normal. From this it would appear possible that the heart has temporarily overcompensated, resulting in an efficiency of the circulation above the normal.

Now follows the stage of concentration of the blood. This concentrated blood is, without doubt, more difficult to circulate through the body, and, if the heart is doing only its normal work, there will be, as a result of the thickened blood, a circulation of less than normal efficiency; and such a condition apparently results in a falling temperature. In case the heart responds with a much higher rate during the period of concentration, so that even with the thickened blood it appears that a circulation of close to normal efficiency is being maintained, it will be found that the temperature is also well maintained.

In the animals which are less seriously affected, and in which only a slight edema of the lungs develops, with a consequent slight loss of fluid from the blood, it will be found that the temperature is well maintained, provided the heart rate is normal. Even in such cases, however, the continuous, even though slight, loss of fluid from the blood will eventually result in a concentration of the blood which will bring the circulation below normal efficiency, even with a high pulse rate; and the temperature will slowly drop until, at about the twenty-fourth hour, it is about 1 degree Centigrade below the normal. On the other hand, in the animals which are seriously affected, the blood concentrates very rapidly. The heart, even though the rate is maintained far above normal, is nevertheless not able, apparently, to maintain a circulation of normal efficiency; the temperature drops very rapidly, and the animal dies within less than twenty-four hours after gassing.

In brief, then, it seems plausible that the temperature is directly related to the efficiency of the circulation, and this in turn is determined, in part at least, by the concentration of the blood and by the pulse rate.

This view seems to be further strengthened by the results obtained from a study of animals gassed with chlorin and chlorpicrin. In both of these cases there is, in general, a state of concentration of the blood beginning immediately after gassing. Only in rare instances does dilution of the blood occur, and then it is only for a short time. From the first, then, in animals poisoned with the last named gases, there obtains a condition in which the blood is above normal in concentration, and, in correspondence with this, the temperature remains below normal; and the more seriously the animal is affected and the greater the concentration of the blood, the greater will be the fall in temperature.

Phosgen poisoning has been considered in detail, since it is unique in showing among its effects the initial stage of dilution of the blood. At times, chlorpicrin presents a similar stage, but the interval is never so pronounced in length, nor the dilution in degree, as obtains in phosgen poisoning. Usually a preliminary dilution period is lacking. It is this period that undoubtedly gives to phosgen the distinction of possessing a so-called "delayed action." Chlorin gas rarely, if ever, causes a period of blood dilution. In general, if one should consider the changes in blood concentration outlined for phosgen, minus the initial dilution period, the remaining curve would represent fairly accurately the alterations occurring in the blood in both chlorin and chlorpicrin poisoning. This would, of course, entail differences in time relationships; but, under the conditions noted, the changes in blood concentration, in cases of chlorin and chlorpicrin poisoning would be accompanied by the same general type of effects which is produced by phosgen. Under these circumstances, it appears superfluous to recite further the correlation of the effects of chlorin and chlorpicrin poisoning.

CAUSE OF DEATH

It is usually assumed that pulmonary edema is the cause of death in gas poisoning. While it is true that pulmonary edema and changes in blood concentration are intimately associated in gas poisoning, the edema being the cause of the concentrated blood, nevertheless, the direct cause of death is the extreme concentration of the blood rather than the presence of fluid in the lungs. Death is caused by something more than simple inability of the blood to absorb oxygen, by something more than a physical obstacle in the lungs. It is quite logical, therefore, to assume that blood concentration is immediately responsible for death. Blood concentration means a failing circulation, an inefficient oxygen carrier, oxygen starvation of the tissues, fall of temperature and, finally, suspension of vital activities.

The whole aim of treatment in acute gas poisoning has been to prevent blood concentration, or else to restore it to a level more nearly normal. When this is accomplished, the individual survives in spite of the fact that the lungs may be very edematous. If it is recognized that changes in the concentration of the blood are responsible for death and that treatment for gas poisoning consists in the restoration of the blood concentration to a level more normal, then it is apparent that there should be criteria which shall give indication of the animal's condition. Such criteria are to be found in changes in temperature and in hemoglobin estimations. It may be stated that either criterion may be used alone, but that greater dependence may be placed on the combination of the two.

TREATMENT

The principle of the method of treatment of acute gas poisoning consists of venesection in the period of blood dilution and of the introduction of fluid into the body during the period of blood concentration. Venesection is practiced as soon as practicable after gassing, to the extent of approximately 0.5 per cent. of the body weight. Hemoglobin and temperature changes are then observed at one-half hour intervals. So long as the temperature remains normal and the blood concentration does not diminish, further treatment is not necessary. When, however, the temperature rises rapidly and a fall in blood concentration occurs (the two changes take place simultaneously), a second venesection of 0.5 per cent. of the body weight is practiced. This procedure may be repeated a second time, that is, until blood to the extent of 1.5 per cent. of the body weight has been withdrawn. In a large majority of cases there is needed no further treatment, and practically every animal survives.

If, in spite of intensive treatment in the first stage, the blood becomes markedly concentrated, and a notable fall in temperature takes place, the condition must be considered very serious, and if the animal is left untreated it will surely die. At this point, of course, infusion of a solution is indicated. The essential feature in the stage of blood concentration is to diminish, if possible, the degree of concentration, and it has been found by experience that it matters little how this is done. Thus, this purpose may be accomplished by the infusion of salt solution, by oral administration of water, or even by intraperitoneal injection of salt solution. Probably one-half the animals in a serious condition in this stage of blood concentration may be saved by following either procedure.

Since edema and a highly concentrated blood lead to deficiency of oxygen in the blood and tissues, the problem of the relation of oxygen administration to the treatment of gas poisoning is presented. It will suffice here to state that oxygen treatment alone in gas poisoning does not save life. This follows from the fact that oxygen administration does not change the concentration of the blood, which is the direct cause of death. When, however, the concentration of the blood is restored to a more nearly normal condition, the addition of oxygen administration to the treatment is of obvious benefit, since under these circumstances the blood regains its normal respiratory functions.

With respect to the treatment of chlorin and chlorpicrin poisoning, the principles enunciated for phosgen hold true. While the principles are the same, there is a difference in the time of application, for, in general, in chlorin and in chlorpicrin poisoning the initial stage of dilution of the blood is lacking. With phosgen, early bleeding and delayed infusion are advocated. With chlorin and with chlorpicrin, early bleeding and early infusion are imperative. Moreover, in chlorin poisoning there is evidence of a significant acidosis; hence, the administration of sodium bicarbonate by mouth is advocated, in addition to the treatment outlined for phosgen. As a result of the treatment outlined, the recoveries are increased threefold.

Aside from the interest which attaches to these principles in the treatment of gas poisoning, they may be of special significance in other pathologic states in which inflammation or edema are especially prominent. A recognition of the salient features attendant on changes in the concentration of the blood in various abnormal conditions would necessitate new points of view with respect to treatment. It is hoped that in the near future an opportunity may be afforded whereby an extensive investigation may be made with this idea in mind.

CHRONIC LESIONS OF THE RESPIRATORY TRACT

INITIATED BY THE INHALATION OF IRRITATING GASES *

M. C. WINTERNITZ, M.D.
NEW HAVEN, CONN.

The majority of the gases which have been utilized in the recent war owe their efficiency to their irritative and escharotic action on the respiratory tract. This action causes an inflammatory edema, which is followed by a cellular exudate, both in the upper air passages and in the pulmonary parenchyma. While the highest mortality occurs in the acute, or edema, stage, a second peak in the mortality curve is encountered with the pneumonia process. The type of the latter inflammatory reaction is largely determined by the extent of the primary destruction. Many gases produce such deep seated necrosis that if death does not ensue in the acute edema stage or at the height of the pneumonia process, organization of the exudate within the alveoli and, more frequently, of that in the bronchioles, may occur. The contraction of the scar may lead to serious and progressive mechanical difficulties, not only with the ingress and egress of air into the alveoli, but also with the pulmonary circulation, and ultimately with the aeration of the blood in the lungs. Chronic suppurative inflammatory processes, too, may persist, especially in the bronchi, with a typical picture of a tubular, or even of a saccular, bronchiectasis or bronchiolectasis.

The various gases of the respiratory irritant group have a similar action, but differ in the localization and extent of their necrotizing effect. A brief review of the pathology of mustard gas, chlorin and phosgen will emphasize this difference.

Not only does mustard gas, in lethal concentrations, destroy the lining of the entire bronchial tree, but its necrotizing action involves the lung itself. In more dilute form, it produces necrosis of the epithelium of the trachea, which, however, becomes less marked toward the finer ramifications of the bronchi. The gas seemingly spends itself in the upper air passages. It either does not reach the bronchioles and alveoli, or it reaches them in such a diluted or changed state that the occurrence of chronic pulmonary lesions after this gas is rare.

After chlorin inhalation, there is also an injury to the lining of the entire respiratory tract, even to the ducti alveolares and to the alveolar walls themselves. The epithelium is blistered, but the necrosis in the trachea and in the larger bronchi is not as deep and extensive as it is with mustard gas. Probably on account of its less efficient corrosive action, the injury of the pulmonary parenchyma, not so severe even in the acutely fatal cases, results more frequently in chronic lesions, which may cause death long after the initial symptoms have passed.

Phosgen has the least severe action on the respiratory tract, but in its wake the most frequent and persistent lesions are left. Organization of bronchiolar and peribronchiolar exudates, with obliteration or dilatation of the lumina of the bronchi, leads naturally to serious and progressive obstruction to the passage of air and the circulation of blood in the lungs.

That there is immediate death of the epithelial lining cells of the respiratory tract after exposure to these poisonous gases may be demonstrated with vital stains. Within two hours after inhalation of chlorin, dogs whose circulation had been previously heavily laden with trypan blue show deep blue nuclei in the mucous membrane of the trachea, bronchi and bronchioles, and even a staining of entire alveolar walls.

This injury is the anatomic expression of the destruction of the normal protective mechanism of the upper respiratory tract, and is followed by an invasion into the lung of the bacterial flora of the mouth. This has been demonstrated repeatedly by mouth cultures before exposure to poisonous gas, and by subsequent cultures, not only of trachea and bronchi, but also of the lung itself.

It has been shown that the high mortality in the most acute or edema stage is not due to the accumulation of fluid within the air sacs. Pulmonary edema must be regarded as the expression of a more deep seated process, and in itself is probably never a satisfactory explanation for death. When death does not terminate the process, the inflammatory exudate which supervenes is readily explained by the presence of large numbers of bacteria that find in the trachea and lung, injured by the action of the gas, a fertile medium for development.

Interesting as these two stages may be, it is most important to recognize that the primary escharotic action of these gases frequently leads to much more extensive lesions of the respiratory tract than are usually encountered. Even though the animal may survive, the necrotizing tracheitis, bronchitis and pneumonia characteristic of the acute stages do not allow restoration to normal of the respiratory tract. The initial damage is followed by organization, which may be sufficiently extensive after mustard gas inhalation to produce stenosis of the larynx or trachea. After chlorin, phosgen, superpalite, cyanogen bromid, chlorpicrin, etc., a progressive fibrosis with obliteration or dilatation of the smaller air passages may result. This occurs not only when the acute effects of the gas have been manifest, but, with the phosgen group especially, it may follow even when no marked expression of acute damage has been observed. With bronchiectasis, metastatic infection in the parenchymatous organs has been noted; but in general the changes, both during the life of the animal and at necropsy, are characteristic of this condition. With obliteration of the smaller air passages, pulmonary emphysema and atelectasis lead to a progressive respiratory disturbance which is much more manifest with physical exertion.

For the present, the chronic or residual lesions, after inhalation of these poisonous gases, are decidedly the most important. It seems possible that graded respiratory exercises may prevent the contraction of the scars in the finer ramifications of the bronchi during the period of their formation and, in this way, aid at least, in the amelioration of the distressing condition which may follow.

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* From the Department of Pathology, Yale University School of Medicine.

* Read before the Section on Pathology and Physiology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MARSHALL, UNDERHILL AND WINTERNITZ

Dr. A. M. Pappenheimer, New York: I should like to ask Dr. Marshall if he came to any conclusion as to whether the intestinal lesions following the injection of mustard gas were due to the elimination of the gas by the intestine. Lesions of the alimentary tract were found in a certain proportion of the human cases, sometimes erosions of the stomach, sometimes hemorrhages in the small intestine; but we could not decide whether they were an essential of the pathologic picture of mustard gas poisoning. As regards the possible systemic toxicity in the human, there are certain suggestive observations. There was a group of cases in which the burns of the skin or of the respiratory tract did not seem to account for the severity of the symptoms, cases with widespread pigmentation, great prostration and apathy, low blood pressure and curious mental symptoms. Another bit of evidence in favor of the systemic effect is the marked leukopenia present in severely gassed patients, as described by Zunz and Krumbhaar, and observed also after intravenous injection in rabbits. In regard to the experimental methods of treatment brought out by the work of Dr. Underhill, there is unfortunately one factor which complicates their application in the human cases of phosgen poisoning, that is the early onset of bacterial infection. We did not have an opportunity to examine material from a large series of phosgen cases, but of four acute cases, the patients dying within twenty-four hours after gassing, several manifested even at that time a widespread streptococcic invasion of the lungs.

Dr. Winternitz's paper is of special importance in its emphasis on the permanent changes in the respiratory organs, which may develop after gassing. He has described in detail the late results of phosgen poisoning, but I am sure the changes after mustard gas poisoning must be equally important. Although many detailed studies have been made of early cases of mustard gas poisoning, the one practical question which remains now is to find out to what extent permanent lung injury is to be expected and how far that is going to explain the persistent disability in many of the gassed soldiers. In addition to the not infrequent development of bronchiolectases and bronchiectases, we have been struck by the very regular occurrence in the later mustard poisoning cases, of a widespread metaplasia of tracheal and bronchial epithelium into the squamous cell type. We are not yet able to state whether this is a permanent change, but as a possible predisposing factor in favoring the onset of secondary bacterial infections, it seems to be worth noting.

Dr. E. R. Le Count, Chicago: I wish to ask Dr. Marshall about the hemorrhages observed in the stomach and bowel and as to whether they might be explained by the changes in blood volume and circulation, and, therefore, whether they may be, perhaps, in a small degree analogous to infarction hemorrhages.

Dr. W. M. L. Coplin, Philadelphia: One of the important things to remember is the influence of desquamation and deciliation. These patients come in at varying periods after gassing, some after a week, at which time the ciliated epithelium has disappeared from the trachea and cannot be demonstrated postmortem even in the bronchi. I have seen gangrene in these lungs twenty-six days after gassing and I have seen some tracheal mucosa resemble the dense skin of pachyderms with superposed eczematous surface. The mucosa would break in fissures when the bronchus was opened, so that the passage has not only lost the normal method of removing contained discharges by means of ciliæ, but the rigidity of the tube is such that the coughing mechanism is destroyed even assuming that bechesthesis still persists or is possible. A very interesting symptom is the paroxysmal attacks that come on any time from days to weeks after gassing. These patients will sometimes be going about the hospital grounds when they are seized with intense dyspnea, air hunger and cyanosis; occasionally a grayish pallor is present. This may be preceded by or follow cyanosis and occasionally is terminal only. One naturally thinks that these are instances of recurring edema, which no doubt is a factor, but in reality they are simply cases where desquamation, with packing of pus and cell detritus causes bronchial obstruction, with possibly some element of spasm. I have seen the bronchus completely filled with necrotic masses. If the changes are not too great and infection does not supervene, some occluded tracks go on to organization. Intestinal ulceration may be present; pyloric or duodenal ulcer is not seen frequently; ulcers in the small intestine, duodenum and stomach are not unlike those associated with extensive burns of the skin. We cannot help thinking of the same explanation, because for a week or ten days the appearance is not what is observed after severe burns. I do not believe that severe destructive lesions in the bronchi will ever reciliate. It is surprising to what degree clinical recovery may progress.

Another interesting feature that we had an opportunity to observe is the susceptibility of gassed patients to respiratory irritants. There is a hypersensibility of the bronchial mucosa. Often these patients cannot endure the least trace of smoke. I believe that the irritability occurs in practically every instance. One other point is the change in the walls. One may see areas in the mucosa fairly well preserved, and immediately adjacent or extending in irregular plaques, usually in the long axis of the tube, there is an area of extensive necrosis with sometimes a definite ulcer and sometimes with a hard, breakable mucosa. I think Dr. Le Count's explanation that it might possibly be due to infarction, is worthy of acceptance. The intense hemorrhage in the intestine seen in some of these cases, resembles acute hemorrhagic septicemia, and it is quite possible that it is due to infection; certainly a few weeks following injury the lungs are often found as full of bacteria, almost, as are lungs that have been retained postmortem outside the body. I saw very few cases of gassing in the early stages, but never one in which bacteria were not abundant in secretions and pulmonary tissue. In the early hours, certainly within twenty-four hours, the bacterial invasion is frequently streptococcic, often intense, and more gas bacilli may be found in these lungs than in those of patients who have died of gas gangrene.

Dr. H. E. Robertson, Minneapolis: I have had the opportunity of observing both clinically and at postmortem the skin reactions in gassed soldiers who had a varying amount of pigmentation of the skin. I can confirm Dr. Marshall's observation that the negroes are comparatively insusceptible. We had side by side in one hospital negro troops and white troops, who had suffered about the same exposure and the whites were burned more severely than the negroes. While the negroes were comparatively free from skin burns, their respiratory tracts were as severely affected, if not more so, than those of the whites. We investigated the question of relative susceptibility between dark and fair skinned individuals, but we could not determine that the blonde types are more susceptible than the brunette types. May I ask Dr. Marshall how he believes the negro's pigmentation acts as a protector of the skin? Also is there any protection against mustard gas given by the darker skin of white people? I confirm Dr. Pappenheimer's observations in regard to bacterial invasion of the respiratory tract. I have never seen a case where the bacteria were not numerous. We found an interesting series of cases in which all evidences of intoxication had disappeared and after ten or twelve days the patients were apparently progressing toward convalescence. Some of these patients were then moved to the ambulatory rooms in the wards and were pronounced on the road to recovery. These patients would suddenly develop a bronchitis, bronchopneumonia and die. At the time of the postmortem in these cases it was clearly evident that the lesion produced by the gas had not cleared up, and why they should show such marked improvement physically and mentally when their bronchi were in such dangerous condition, I cannot understand, except that there is a return to normal of the blood. This secondary infection, because it was a secondary infection which took these patients, was generally extremely virulent. Streptococci, pneumococci and often influenza bacilli were found.

Dr. W. M. L. Coplin, Philadelphia: Regarding this question of skin susceptibility, I know one officer who had a severe gas burn involving most of his face outside of the shaven beard line. I asked what his explanation was regarding the escape from burn of the shaven portion of the face; he said he had difficulty in shaving, his skin was tender and he was in the habit of using some sort of ointment; he did not know what the ointment contained. I was wondering if some constituent of the ointment possibly might have acted as a protective against these gasses.

Dr. Francis Carter Wood, New York: I suppose no one has seen the early chlorin cases. What about it in experimental animals? Is the infection likely to occur in animals the same as pure chlorin gas poisoning as regards bacterial invasion?

Dr. W. M. L. Coplin, Philadelphia: There are instances of pigmentation occurring in men who had never been gassed sufficiently to blister, or who did not know they had been gassed. It would be interesting to know whether the pigment of these men acted as a protector against irritation. That would warrant some investigation on pigment producing a protective influence independent of the local action.

Dr. E. K. Marshall, Jr., Baltimore: In regard to the intestinal lesions of mustard gas, I have no experiments that would tend to substantiate any definite explanation. It is true that the intestinal lesions in dogs vary from a simple congestion of the intestine with few hemorrhages to a complete hemorrhagic condition of the duodenum and cecum. In regard to these lesions being due to changes in the blood, as Dr. Le Count suggests, or to secondary changes brought abount by gas poisoning, it seems somewhat improbable in that they do not occur with any of the other gases, chlorin, phosgen, etc., which produce the same changes in the blood which mustard gas does. One might possibly expect that the mustard gas is secreted in the bile. We made tests in the bile of animals but have been unable to demonstrate the presence of mustard gas. Of course, it is possible that the mustard gas might be excreted through the cells of the intestines. No proof is at hand, however. In regard to the question of Dr. Robertson about the skin reaction and the explanation for it, I have an explanation which some data substantiate. The explanation for the conditions in the skin and the susceptibility is based on the following observations: First, it has been found that even a half hour after mustard gas is applied to the skin, if the skin is washed and scrubbed with an organic substance like kerosene in which mustard gas is soluble, the burns can either be prevented or reduced in severity. This shows that you can draw out the mustard gas from the skin a half hour after it is applied. If one covers the area with a glass cap so as to prevent evaporation of the mustard gas a much more severe burn results. The fact is that the sensitive man absorbs more gas than the nonsensitive man absorbs. We can make a definite exposure on the arm of the sensitive man and immediately after exposure apply the arm of the resistant man and the sensitive man will not burn, whereas the resistant man will. In other words, the resistant man can extract the gas from the sensitive man. We have come to the conclusion that sensitivity depends on the amount of fat and lipoids present in the skin. In a resistant man the gas is first absorbed in the fats and lipoids, there being a large reservoir of fats and lipoids in his skin. It is slowly evaporated and slowly carried inward into the cells where the damage is done. The transfer is so slow that there is never in the cells a concentration above the threshold. The sensitive man having a smaller amount of fats and lipoids is more apt to be damaged by the gas. In answer to Dr. Coplin's question, I think that is quite possible. You can get quite a severe burn with mustard gas which in some instances will not cause any pain and which will lead to pigmentation.

Dr. Frank P. Underhill, New Haven, Conn.: With respect to the first question on the treatment of lethal gas poisoning and the difference between the acute attacks and attacks of infection in the human cases, the same holds true in animals. Just a few hours after gassing you may have this same type of infection. The type of treatment which we outlined is effective only when the individual has been received shortly after gassing. If ten, twelve or fifteen hours have elapsed previous to any attempt at treatment, then this treatment is quite unsatisfactory. At the time the armistice was signed attempts were being made to facilitate transportation to the gas hospitals so that treatment could be obtained earlier than had hitherto been possible. In answer to Dr. Wood's question, I will say, no.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

COLON BACILLUS VACCINE (See New and Nonofficial Remedies, 1919, p. 283).

Fred I. Lackenbach, San Francisco.

B. Coli Bacterin (*Special Bacterial Vaccine No. 12*).—Marketed in 10-Cc. vials, each cubic centimeter containing 5,000 million killed *Bacillus coli.*

GONOCOCCUS VACCINE (See New and Nonofficial Remedies, 1919, p. 285).

Fred I. Lackenbach, San Francisco.

Gonococcus Bacterin (*Special Bacterial Vaccine No. 9*).—Marketed in 10-Cc. vials, each cubic centimeter containing 1,000 million killed *Gonococcus.*

MIXED BACTERIAL VACCINES (See New and Nonofficial Remedies, 1919, p. 296).

Fred I. Lackenbach, San Francisco.

Staph-Acne Bacterin (*Special Bacterial Vaccine No. 6*).—Marketed in 10-Cc. vials, each cubic centimeter containing 500 million killed *Staphylococcus albus,* 500 million killed *Staphylococcus aureus,* and 50 million killed *Bacillus acne.*

PERTUSSIS BACILLUS VACCINE (See New and Nonofficial Remedies, 1919, p. 287).

Fred I. Lackenbach, San Francisco.

Whooping Cough Bacterin (*Special Bacterial Vaccine No. 14*).—Marketed in 10-Cc. vials, each cubic centimeter containing 2,000 million killed *B. Pertussis.*

STAPHYLOCOCCUS VACCINES (See New and Nonofficial Remedies, 1919, p. 289).

Fred I. Lackenbach, San Francisco.

Staphylococcus Bacterin (*Special Bacterial Vaccine No. 1*).—Marketed in 10-Cc. vials, each cubic centimeter containing 2,000 million killed *Staphylococcus albus,* 2,000 million killed *Staphylococcus aureus,* and 1,000 million killed *Staphylococcus citreus.*

STREPTOCOCCUS VACCINE (See New and Nonofficial Remedies, 1919, p. 291).

Fred I. Lackenbach, San Francisco.

Streptococcus Bacterin (*Special Bacterial Vaccine No. 10.*)—Marketed in 10-Cc. vials, each cubic centimeter containing 1,000 million killed *Streptococcus.*

TYPHOID VACCINE (See New and Nonofficial Remedies, 1919, p. 292).

Fred I. Lackenbach, San Francisco.

Typhoid Bacterin (*Special Bacterial Vaccine No. 17*).—Marketed in 10-Cc. vials, each cubic centimeter containing 1,000 million killed *B. Typhosus.*

Typhoid-Paratyphoid Bacterin (*Special Bacterial Vaccine No. 13*).—Marketed in 10-Cc. vials, each cubic centimeter containing 1,000 million killed *B. Typhos.* 750 million killed *B. Paratyphos. "A",* and 750 million killed *B. Paratyphos. "B."*

TETANUS ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1919, p. 266).

Eli Lilly and Co., Indianapolis, Ind.

Tetanus Antitoxin—For Human Use: Purified, Concentrated (*Globulin*).—Marketed in syringes containing 1,500 and 5,000 units; in ampules containing 10,000 units, with apparatus for injection.

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SATURDAY, AUGUST 30, 1919

LEONARDO DA VINCI AS ANATOMIST

(1452-1519)

When Leonardo da Vinci died (May 2, 1519) his anatomic notes and sketches passed by will to his faithful friend Melzi who, while he lived, guarded them as his most precious possessions; but unfortunately this reverence did not pass with them to his heirs. Yet, notwithstanding their extensive, roundabout, and still in large degree untracked travels, a very large part of Leonardo's anatomic manuscripts and drawings at last found safe abodes and became available for study and reproduction under favorable conditions.[1] How much has been lost will never be known. The quadricentennial anniversary of Leonardo's death has brought out a number of articles[2] in which his work, particularly in anatomy and physiology, is discussed in the light of the latest investigations that anatomists, historians and linguists have made of it.

It appears to be established beyond any question of doubt that Leonardo commenced to dissect when he was about 37 years old in the hospital of Santa Maria Nova in Florence, that he continued this work in Milan, and that he dissected in Rome in 1513, when he was 61 years old, at which time Leo X forbade further work of that kind. It is stated that in all he dissected more than thirty bodies of men and women at various ages, besides various animals. Nor is there any longer any question about the absolute originality and complete independence of his anatomic work, which he carried far beyond the requirements of anatomy as pertaining to art. This is shown in the remarkable circumstance that he paid more and closer attention to the internal organs than even Vesalius or the other anatomists of that period. What interest has the artist in the cerebral ventricles, the internal arrangement of the heart, the course of the deeper nerves and vessels? It was a great love of anatomic and physiologic investigation, of science, that led him to work on and on through the years, stealthily, no doubt, with poor illumination and under many other difficulties, but to what amazing results!

Hopstock, one of the editors of Leonardo's Windsor manuscripts,[3] himself an anatomist, after a careful review of all the published manuscripts, gives in essence this estimate of Leonardo as anatomist:

No one before him dissected so many bodies and no one understood the results of his dissection so well as he; no one before him represented in drawings the muscles, vessels and nerves as they are, which he did; no one before him knew the heart so well, but whether he understood the circulation, or thought he had a definite idea of the correct explanation of the circulation of the blood, remains doubtful. He was the first to describe the uterus as an organ with one chamber, to represent correctly the skeleton, to inject vessels with a solidifying mass, to make casts of the ventricles of the brain, to practice serial sections. As revealed by the notes, which cover a period of thirty years, and his marvelous red chalk drawings and impromptu sketches by the side of the dissected body, his work throughout is characterized by an almost uncanny accuracy, deep physiologic insight, untiring zeal, and an unfailing sense of the beautiful.

The painter of "Mona Lisa" and "The Last Supper" is the first great scientific anatomist, and yet, although he accomplished so much toward a correct understanding of the human body, his work was destined to have no tangible, traceable influence on the immediate development of anatomy and of medicine, because it was not to become known generally until many generations had passed and then only through fragmentary records. Van den Broek[2] points out that Leonardo's work in other sciences also remained sterile in the same sense as his work in anatomy. He is said to have studied the question of aviation over many years and to have declared that the flying machine must be built like the body of a bird so that the aviator "can balance himself and move through the air like a big bird, to the everlasting glory of the nest where he was born."

As further examples of the scope of his interests may be mentioned his studies of plant life, his interpretation of the sea shells on the mountain tops around Florence, and then the note in large letters on one of his sketches: "The sun does not move." A child of free love, disinherited, disliked by his stepbrother, and often misunderstood, Leonardo, after four hundred years, is taking his right place in history as one of the most gifted of men and as one of the most versatile and original of investigators. Perhaps the more remote effects of his work in illustrating the capacity of the human intellect, when directed to intensive effort by self-control and love of nature, will make up for the lost chance to influence the earlier development of science.

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[1] Concerning the fate of Leonardo's manuscripts, one may consult Klebs, A. C.: Leonardo da Vinci and His Anatomical Studies, Bull. Soc. Med. Hist. of Chicago, **4**: 66, 1916.

[2] Hopstock, H.: Anatomen Leonardo, Norsk Mag. f. Lægevidensk., 1919. Van den Broek, A. J. P.: The Work of Leonardo da Vinci, Nederlandsch Tijdsch. v. Geneesk. **1**: 1555, 1919.

[3] Under the name of Fogli A and B, Sabachnikoff and Puimati in 1898 and 1901 published sixty of the anatomic manuscripts of Leonardo known as the Windsor manuscripts. Fogli A and B contain facsimiles of about 400 drawings with transcription of the notes (Leonardo used mirror writing) and French translation. The rest of the Windsor manuscripts (129) with facsimiles of some 1,050 drawings with transcription and English and German translations have been published by Vangensten, Fonahn and Hopstock under the title Quaderni d'anatomia, I-VI, Christiania, Jacob Dybwad, 1911-1916.

ARE THE CAPILLARIES CONTRACTILE?

In ultimate analysis, the nutritive functions of the tissues are closely dependent on the capillary circulation within them. It is only through the medium traversing the smallest vessels of the circulatory system that the living cells secure the oxygen and energy-yielding compounds, on the one hand, and on the other divest themselves of the products which may represent waste of valuable secretions. There exists a general recognition of the fact that the passage of blood through these minute branches leading from the greater highways of transport varies greatly, the rate of flow being very inconstant. The explanation usually given is that, since the capillaries are assumed to be passive structures, these variations in flow within them are probably associated with alterations in the vasomotor conditions of the small arteries or arterioles supplying them. In other words, the rate of flow in the capillary circulation is determined, according to the most prevalent conception, by the state of contraction or dilatation of the corresponding arteriole. Dilatation of the latter will bring about a rise of pressure in the capillary which will correspondingly expand, ready to resume its original form whenever the relief from arterial pressure permits the inherent elasticity of the minute vessel to come into play again.

Certain facts are not easily reconciled with such an explanation. It has been observed many times that even within the same circumscribed tissue the blood may be flowing though some of its capillaries are empty. There are objections to the assumption that these different capillaries have unlike coefficients of elasticity so that they require different pressures to open them. An alternative and comparatively novel hypothesis endows the capillaries with the capacity of active contraction and dilatation. Long ago it was argued that the cell substance in these structures is arranged in strands running from the nuclei around the capillary. By contraction of these strands in some parts of the circulation the vessels were asserted to be narrowed to obliteration.

The original observations on capillary contraction were made by Stricker in 1865 on the nictitating membrane of the frog. Krogh[1] of Copenhagen University has recently presented new evidence showing that the capillaries are not merely passively dilated by blood pressure but constantly perform active changes in caliber. In resting muscles most of the capillaries are in a state of contraction and closed to the passage of blood. In certain cases it was demonstrated that the maximum amount of blood that can be present in the capillaries is not less than 750 times the minimum. The arterial blood supply is not thus variable. Consequently the blood color of a tissue depends practically on the state of contraction of the capillaries and not primarily on that of the arterioles. Krogh is quick to point out the consequent deduction that the capillariomotor regulation must play an enormous rôle not only in muscles, but in the skin and in all mucous membranes, in which changes in color are the most obvious signs of vasomotor influences. The hyperemic condition (in the clinical sense) of any organ is brought about by a large number of capillaries being open and more or less dilated; and in the anemic condition most of the capillaries are closed, and most of those which remain open are more or less contracted.

If a contractile power is widely present in the capillaries it can doubtless be affected profoundly by chemical substances produced as the result of metabolism, either normal or abnormal, in the surrounding tissues. Dale and Richards[2] have intimated a belief in a mechanism capable of regulating capillary tone and situated in the capillaries themselves. This factor has in fact been depended on to support some of the recent hypotheses concerning the genesis of shock.[3] The entire conception of a caliber-regulating potency within the capillary wall, assigning to the minutest vessels powers formerly ascribed solely to the smaller arteries, is all but revolutionary in present-day physiology. Its obvious importance makes added confirmatory researches and the establishment of the nature and susceptibility of the contractile factors imperative.

FEVER AND THE WATER RESERVE: A PHYSICOCHEMICAL THEORY

In the course of the important studies by Woodyatt[4] and his associates on intermediate carbohydrate metabolism, timed injections of glucose and other substances being given intravenously by means of ingenious motor-driven pumps, it was observed that under certain conditions fever would result.[5] Fever came on when glucose was injected in such quantities that marked glycosuria and diuresis developed, provided that in the mean time, water was withheld until the body lost some weight. Under such conditions chills were noted also. Naturally the thought arose that under these conditions there might not be enough available water left in the body to cool it by evaporation, but of course the possibility that the sugar injections in some way disturbed a nervous heat-regulating center has to be considered.

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[1] Krogh, A.: The Supply of Oxygen to the Tissues and the Regulation of the Capillary Circulation, J. Physiol. **52**: 457 (May 20) 1919.

[2] Dale and Richards: Vasodilator Action of Histamine, J. Physiol. **52**: 110 (July) 1918.

[3] Tissue Poisons in the Genesis of Shock, editorial, J. A. M. A. **73**: 38 (July 5) 1919.

[4] Woodyatt, R. T.: Studies in Intermediate Carbohydrate Metabolism, Harvey Lectures, 1915-1916, p. 326.

[5] Balcar, J. O.; Sansum, W. D., and Woodyatt, R. T.: Fever and the Water Reserve of the Body, Arch. Int. Med. **24**: 116 (July) 1919.

Pediatricians have previously discussed these and other possible explanations of so-called sugar, salt and thirst fever, without reaching any definite settlement. The results of the new experiments by Woodyatt and his associates, being made under the best controlled conditions so far attainable, make a significant contribution not only to the study of experimental fever but also to the theory of fever in general. It is remarkable to what heights the temperature of the body may be driven by the method used in these experiments: fever of 111 F. is produced readily, and in one case the temperature of a dog in the course of ninety minutes, rose to 125.6 F., the highest animal temperature on record, as the consequence of a timed intravenous injection of glucose solution during which the fluid output exceeded the intake by 616 c.c. (66.2 c.c. per kilogram). The results show further that increased combustion of glucose is not a necessary factor, and that fever can be produced in dogs that have been rendered poikilothermic by severance of the cervical cord; hence this fever is not dependent on a nervous heat-regulating center.

The outstanding fact in these experiments is that single injections of glucose (and certain other substances like salt and lactose) may produce fever when the body is depleted of water. The condition is similar to the inanition fever of the new-born described by McLane and Crandell, and to the salt and sugar fevers of infants, all of which are relieved by water. These fevers consequently may be looked on as "thirst fevers" due to reduction of the amount of water in the body available for evaporation at the normal temperature. The question arises: Is the fever of the ordinary febrile diseases of the same nature?

Balcar, Sansum and Woodyatt have discussed the possibility that the fever of typhoid and other febrile diseases may be the result of a lack of free water, available for evaporation, because the colloids of the body are changed by the poisons of the infection, so that they take up and bind more water than in health. They point out that this idea receives support from the concentration of the blood and secretions in infectious fevers, the cloudy swelling of the cells, the thirst, and the sudden release of large amounts of water in the urine and sweat when the fever ends by crisis, as in pneumonia. The liters of water given off during a few hours in such a crisis can be accounted for only on the score of water retention during the febrile stage. Whether we shall be able to measure the variations in the amount of free water in the blood that may occur in fevers remains to be determined, but it is not at all unreasonable to expect that a method that might be suitable for clinical use may be devised for this purpose. We know that plenty of water is beneficial in many febrile diseases, but "probably no one has yet daringly pushed the administration of water in fever to the ultimate limits which might be necessary to ascertain whether every fever can be made to disappear entirely if enough water is given."

The results in this direction mentioned by Balcar, Sansum and Woodyatt are, of course, only tentative as yet, and the outcome of the work in progress will be awaited with much interest. For the present, emphasis is placed on the fact that a new, well formulated and well founded theory of fever is advanced, according to which fever may result from the lack in the body of water available for evaporation, and in infectious diseases such lack may be caused by an abnormal increase in the power of the proteins of the body to absorb and bind water. Undoubtedly this physicochemical theory of fever will prove of much value in stimulating experimental work, and it is possible that it may lead to important advances in the treatment of febrile diseases.

THE METABOLISM OF BILE ACIDS

The daily discharge of a pint of secretion containing more than half an ounce (15 gm.) of substances, of which several are chemically unique, into the alimentary tract is a phenomenon that ought to excite considerable interest and speculation. Abnormalities of the biliary functions, to which we obviously refer here, are a frequent problem for surgical consideration as well as a source of pathologic manifestations that every physician is called on to treat. Nevertheless, the physiology of the bile still continues to be enshrouded in no little mystery. The importance of the bile in certain of the digestive functions, particularly in relation to the utilization of fats, has come to be well realized. It is sometimes claimed of late that this secretion acts as a regulator of intestinal putrefaction, because of a slight laxative property whereby the intestinal contents are expelled before bacteria develop in them to any great extent; and perhaps this theory accounts for the occasional employment of bile preparations in therapy. Whether the bile, which has unusual properties as a solvent, on this account represents an excretory vehicle of special importance is also questionable.

There is almost as much uncertainty regarding the origin of the bile constituents as seems to exist with respect to their performance in the organism. Gradually new items of information are coming to light. Many years ago the Genevan physiologist Schiff[1] became sponsor for the belief that there is a "circulation of the bile," by which is meant a reabsorption of bile discharged into the intestine. With respect to the bile pigments, those long known, peculiar biochemical substances, Hooper and Whipple[2] of San Francisco have furnished definite proof that they are not absorbed from the intestine at least. Other recent investigations conducted at the George Williams Hooper Foundation for Medical Research at the University of California have greatly enhanced our knowledge regarding the metabolism of the bile acids.[3] In experiments on fistula dogs they have demonstrated anew the familiar cholagogue action of bile, bile salts, and the billiary acids. When these are given by mouth, the increment of excretion is exhibited within the following four to six hours.

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[1] Schiff, M.: Arch. f. d. ges. Physiol. **3**: 598, 1870.

[2] Hooper, C. W., and Whipple, G. H.: Am. J. Physiol. **43**: 264 (Jan.) 1917.

This cholagogic effect is apparently not attributable primarily to the amino-acid component of the conjugated bile acids ingested; for taurin (derived from taurocholic acid) has no effect on the output. On the other hand, cholic acid by mouth usually causes a distinct cholagogue effect. Cholic acid fed during long periods of fasting gives a minimal output of bile acids, but fed during full diet periods gives a maximal output of bile acids. This outcome probably depends on the available supply of taurin, which is much reduced after fasting, but is abundantly available during full diet periods. In other words, according to Foster, Hooper and Whipple,[3] cholic acid is the limiting factor which determines the level of bile acid excretion in the bile. The sulphur-containing taurin is derived in all probability from the amino-acid cystin of the food or body protein. Taurin, like its analogue glycocoll, appears to be present in excess of the amount needed to combine with the cholic acid of normal metabolism. Somehow the literature relative to the bile has transmitted the conjecture that cholesterol and cholic acid are in some way genetically interrelated. However, since neither cholesterol fed alone or combined with taurin nor hemolyzed red blood cells caused a change in the excretion of bile acids, Foster, Hooper and Whipple give no credence to the traditional statement.

One cannot study the reports of the California laboratory without gaining the conviction expressed in them that both endogenous and exogenous factors are concerned in the metabolism of bile acids. Thus, in the dog which excretes this acid only, there is a reasonably constant output of taurocholic acid during fasting periods, and the output may be somewhat diminished by feeding carbohydrates. The relative diminution of urinary nitrogen and of bile acid excretion under these circumstances is quite in harmony with the well known protein-sparing effects of carbohydrates in metabolism. It is equally clear, to quote Whipple and his associates, that there is an important relationship between the output of taurocholic acid and the intake of certain food proteins. On certain diets a uniform level of bile acid excretion may be observed for days; and a sudden shift to a similar diet, containing double the amount of food nitrogen, may cause a sudden doubling of bile acid excretion. Meat protein seems to be particularly efficacious.

It is now known that bile pigments can be formed outside of the liver and excreted in the bile secondarily. For the bile acids the evidence points to the liver cells as the essential seat of formation. At any rate, on a standard diet a functionally deficient liver produces far less than the normal amount of bile.

Current Comment

ANTHRAX

During the past eighteen months, attention has been especially directed to anthrax in this country by the considerable number of shaving brush cases reported from various army camps. But, for some years before the United States entered the war, anthrax had apparently been gaining in frequency and had been a cause of increasing concern to health officers in many places. In Massachusetts, twenty-five cases were reported in 1916 during a period of little over four months, and in Louisiana in the same year ten cases were reported in a single month. Other recent cases have occurred in Mississippi, Wisconsin, New Jersey, Connecticut and Kansas. In the whole United States there have been probably at least fifty deaths a year from anthrax since the beginning of 1915. As is well known, anthrax is primarily a disease of herbivorous animals and is communicated to man chiefly through contact with hides and other animal products. It is believed that the disturbance of the usual channels of import by the war, combined with the scarcity of labor, has led to a less efficient preliminary disinfection and so has permitted the introduction of anthrax-contaminated hides, bristles, etc., from parts of Asia and South America. The present increased scarcity of leather is likely to draw still further on out-of-the-way and uncontrolled sources. There are only about twenty establishments in the United States that manufacture shaving brushes, and the U. S. Public Health Service has found the widest range of practical efficiency in their methods of sterilizing the hair or bristles. Safety, however, can be very simply attained. Boiling or steaming the hair has been found a satisfactory means of treatment. The apparent increase of anthrax cases due to contaminated shaving brushes raises the question whether there has been a real increase in infection or whether the better opportunities for early diagnosis and bacterial examination are responsible for bringing to light a larger proportion of cases. It is to be hoped that, for some time to come, infections simulating anthrax whether in country or city will be scrutinized with this possibility in mind. The increase in anthrax that occurred before our own mobilization suggests that the infection may have been even more widespread than was recognized. At all events, the future development of this dangerous disease should be watched with care. The Public Health Service has found reason to state recently that "without doubt there are now in the market many brushes which are potentially dangerous."

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[3] Foster, M. G., and Hooper, C. W.: The Metabolism of Bile Acids, I, A Quantitative Method for Analysis of Bile Acids in Dog's Bile, J. Biol. Chem. 38: 355 (June) 1919. Foster, M. G.; Hooper, C. W., and Whipple, G. H.: II, Normal Fluctuations in Healthy Bile Fistula Dogs, ibid., p. 367; III, Administration by Stomach of Bile, Bile Acids, Taurine, and Cholic Acid to Show the Influence on Bile Acid Elimination, ibid., p. 379; IV, Endogenous and Exogenous Factors, ibid., p. 393; V, Control of Bile Ingestion and Food Factors, ibid., p. 413; VI, Origin of Taurocholic Acid, ibid., p. 431.

EARLY AWARDS OF THE WAR RISK INSURANCE BUREAU

The Federal Board for Vocational Education has recently published an analysis of the awards of compensation for disability in the first 15,245 cases examined and adjusted by the War Risk Insurance Bureau. It represents approximately reports of awards to June 20, 1919, and will serve to give some advance indication of the types of specific disabilities most frequently demanding consideration. We have already pointed out that during the present war only 2 per cent. of the disabilities are attributed to loss of limbs, whereas in the industries 26,000 limbs, equivalent to six times the number of amputations among American soldiers in the year of war, are lost each year. Hence the justification for the pertinent query reiterated by government publications until it has almost become a postwar slogan: "As soon as we have made peace in Europe can't we do something to prevent the wounding of workmen at home?" Nearly one half (46.6 per cent.) of the cases with a specified class of disability in the War Risk Insurance Bureau report are comprised under the title "Disease," in contrast with amputations, ankylosis, injuries, impairment of sight or hearing, paralysis, etc. Tuberculosis has first place with a record of more than 3,000 out of a total of 7,103 disease cases. Heart affections take second rank in the frequency of their incidence. Arthritis, empyema, nephritis, pneumonia, pleurisy and rheumatism each represent about 2 per cent. of the "diseases" recorded. Next in the order of frequency were the injuries not involving amputations or ankylosis. Out of the 26 per cent. of disabilities in this class, the arms and legs were most frequently involved. Total blindness was not a prominent misfortune; it included only twelve out of 536 cases of impairment of vision. Two hundred and eighty-six persons were accepted as "gassed." Out of the entire number of claims, 74 per cent. were awarded a compensation of $30 a month, most of the remainder receiving a slightly higher allowance.

THE CARRIER PROBLEM IN MENINGITIS

"With the advance of scientific research our old pet theories go on the scrap heap while new theories are evolved. Now that transmission of disease through the air and by fomites has been disproved, the present explanation is that communicable disease is transmitted only by means of infected persons, unrecognized cases and healthy carriers." This statement by Shaw,[1] which many will hesitate to accept in toto, forms the basis for an appeal for public health legislation in regard to the carrier problem. A questionnaire sent to the various state departments of health brought answers showing how unlike are the methods pursued in different localities with respect to the carriers of meningitis organisms. As Shaw has demonstrated by the record of a so-called sporadic case of meningitis on an isolated farm in which a visiting soldier was found to be responsible for the infection, it is no longer sufficient merely to isolate the known cases—a procedure which constitutes the sole preventive measure in certain states. In this country the extremes of attitude are represented, on the one hand, by a state like Missouri, in which the state board of health has no statutory authority in the case of communicable diseases, and on the other hand, by New York. There contact carriers are excluded from public assemblies. If the patients with meningitis are not isolated, others in the household are quarantined. Carriers are made subject to special rules and regulations of the state department of health. Patients are isolated, if possible, until three successive cultures from the nasopharynx at intervals of not less than five days are free from meningococci. If we recall the assertion that there are ten carriers to every patient,[2] and that "carriers beget carriers," it must be manifest that some uniform legislation regarding the latter is highly essential if substantial prophylactic progress is to be made. No state can succeed, however careful its preventive measures against infection may be, so long as an indifferent neighbor neglects an obvious hygienic duty.

REPORT OF HEALTH INSURANCE COMMISSION OF THE STATE OF ILLINOIS

Elsewhere in this issue[3] appears a summary of the report issued by the Health Insurance Commission of the State of Illinois. This statement of conclusions will afford a brief insight into some of the problems investigated by the commission. The report affords, moreover, a most valuable study of a number of medical sociological problems which should be read with interest by every physician who is interested in the social aspects of his profession. It includes, in addition to its investigation of the extent, cost, causes and results of sickness and death among wage earners and their families, sixteen special investigations. These concern a study of dispensaries and clinics in Illinois, occupational diseases, the health of coal miners, fraternal insurance, the present status of health work in the public schools, and an analysis of sickness insurance as it has developed to date in Germany, Great Britain and the United States. The material seems to have been carefully worked up, and the report contains such valuable data that it will be of decided help to sociological workers.

Group Medicine.—Certainly the time has come when, on the one hand, the coming together of physicians for organized practice should be permitted both by law and by public opinion. On the other hand, no such organization, whether called a hospital, a mutual medical organization, or any other group, should be permitted to carry on the diagnosis and treatment of disease except under some form of public supervision.—M. M. Davis, *Am. J. Pub. Health* **9**:360, 1919.

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[1] Shaw, H. L. K.: The Cause of a "Sporadic" Case of Cerebrospinal Meningitis, Am. J. Dis. Child. **18**: 101 (Aug.) 1919.

[2] Simon, C. E.: Human Infection Carriers, Philadelphia, Lea & Febiger, 1919.

[3] General News, p. 703.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending August 22, there were 8,166 officers in the Medical Corps, a decrease of 729 from the previous week. The Medical Reserve Corps contained 3,287. The total number of physicians discharged since the beginning of the war is 23,967.

Military Surgeons to Meet

The Association of Military Surgeons of the United States will hold its 1919 meeting in St. Louis, October 13 to 15, under the presidency of Henry P. Birmingham, Brig.-Gen., M. C., U. S. Army. Dr. Nathaniel Allison is chairman of the local committee of arrangements and has appointed the following chairmen of subcommittees: program, Dr. Eugene L. Opie; reception, Dr. Walter Fischel; entertainment, Dr. William H. Mook; finance, Dr. Hanau W. Loeb; ladies, Dr. Vilrag P. Blair, all of St. Louis. This is the first meeting of the association since the end of the world war and some questions of considerable importance are expected to be decided during the session.

Senate Passes Bill for Retiring Army Nurses

The United States Senate has passed a bill introduced by Senator Wadsworth of New York to authorize the retirement of the members of the United States Army Nurse Corps. The measure provides that members of the Army Nurse Corps who have twenty years' active service, including time served as contract nurses, are to be placed on a retired list and receive 75 per cent., exclusive of foreign pay, of the amount they were receiving on active service. The measure has been referred to the House of Representatives for action, and it is thought that the House will pass it. Members entitled to the benefits of this act must make application to the Secretary of War. The measure passed the Senate without a roll call.

New Division in Surgeon-General's Office

A division of coordination, organization and equipment has been created in the Office of the Surgeon-General, with Alexander N. Stark, Col., M. C., as chief, and Albert P. Clark, Col., M. C., and Arnold D. Tuttle, Col., M. C., as assistants. The object of this division is to study medical department organization, with a view to recommending improvements, to maintain liaison with the corresponding divisions of other bureaus, with a view to standardization, equipment, transportation and activities in general; to revise, produce and maintain up to date all medical department service manuals; prepare organization charts and graphics of medical department activities for peace and war; to prepare and maintain tables of organization affecting the medical department; study the provisions of all general orders, circulars, etc., involving medical department policy prior to publication, and to perform such other functions as from time to time may be designated by the Surgeon-General.

Pictorial History of Medical Service

A pictorial history of the activities of the Medical Department of the Army during operations overseas, comprising about 75,000 feet of motion pictures, and 10,000 still pictures, has been turned over to the Surgeon-General's Office. Two prints of each picture made were filed and cross-filed according to organization, number and region. Fifteen pictures were taken of each hospital, showing personnel and aerial view of the buildings, views of the operating rooms and wards, sanitary features, views of patients and views of men under operation (the latter designed for instruction purposes), views of medical officers and men and surgical operations. Some of the pictures taken at the front show field hospitals and evacuation hospitals receiving and removing patients, medical supply depots, medical officers and men working in the field, and equipment they carried, showing contrast between what the personnel are taught in training camps in this country and how they actually work on a battlefield. The pictures show regimental surgeons going to the aid of men stricken on the field.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Athens—Glaze, A. L., Jr. (M.)
Birmingham—Jackson, R. (C.)
  Mason, J. M. (M.)
  Nelson, R. (C.)
  Sherrill, J. D. (C.)
  Simpson, H. M. (C.)
Garden City—Sudduth, T. H. (L.)
Midway—Rankin, H. P. (C.)

ARIZONA

Bisbee—Charleston, V. C. (L.)
Globe—Kennedy, R. D. (C.)
  Sturgeon, C. T. (L. C.)

ARKANSAS

Arkadelphia—Moore, J. S. (C.)
Bauxite—Scott, H. (M.)
Bay—Raines, H. L. (L.)
Harrison—Barker, N. L. (C.)
Hartford—McKellar, G. G. (C.)
Judsonia—Felts, W. R. (L.)
Little Rock—Browning, H. W. (L.)
  Wagley, P. V. (C.)
  Watson, A. C. (L.)
Russellville—Wright, J. (C.)
Scott—Wells, J. B. (C.)
Texarkana—Smiley, H. H. (M.)
Wabash—Eubanks, G. W. (C.)

CALIFORNIA

Agnew—Myers, G. E. (C.)
Burlingame—Kiersted, H. S. (M.)
Culver City—Simpson, B. R. (M.)
Fresno—Mitchell, C. O. (C.)
Lankershim—Smart, E. P. (C.)
Los Angeles—Bay, S. G. (C.)
  Bayley, W. A. (C.)
  Frary, B. S. (C.)
  Commons, E. L. (C.)
  O'Reilly, T. W. (M.)
  Schaefer, J. H. (L.)
  Steinberg, J. (M.)
  Ware, J. C. (L.)
Moneta—Bensinger, C. H. (C.)
Oakdale—Doane, B. L. (M.)
Oakland—Drucks, E. S. (C.)
Pittsburg—Marks, S. H. (C.)
San Francisco—Davis, A. L. (C.)
  Greenwood, E. N. (C.)
  Kerr, W. J. (M.)
  Powers, R. A. (L.)
Soldiers Home—Bishop, W. D. (C.)
Sonora—Wrigley, G. C. (L.)

COLORADO

Boulder—Jolley, W. A. (L. C.)
Denver—Pecony, J. W. (C.)
Fair Play—Dunkle, F. (L.)
Kremmling—Young, J. J. (C.)
Ouray—Cook, L. C. (L. C.)
Salida—Phalen, C. S. (C.)
Steamboat Spring—Blackmer, F. J. (C.)

CONNECTICUT

Bridgeport—Hawley, G. W. (L. C.)
  Taylor, C. C. (C.)
Hartford—Weld, S. B. (L.)
Litchfield—Keller, J. E., Jr. (M.)
New Haven—Hynes, F. H. (C.)
  Recca, J. (L.)
  Stewart, H. E. (L.)
New London—Lee, H. M. (L. C.)
Norwich—Blackmar, J. S. (C.)
Waterbury—Ciminera, J. A. (C.)
  Jackson, A. J. (C.)

DELAWARE

Milford—Marshall, S. M. (C.)
  Marshall, W., Jr. (M.)

DISTRICT OF COLUMBIA

Washington—Bell, C. (C.)
  Moore, W. C. (L. C.)

FLORIDA

Fort Myers—Parnell, H. E. (C.)
Gainesville—Pickett, W. H. (C.)
Jacksonville—Birge, E. G. (C.)
  Limbaugh, L. M. (C.)
  McKenzie, A. C. (L.)
Micanopy—Feaster, O. O. (M.)
Tampa—Efird, L. J. (L. C.)
Walnut Hill—McClure, H. A. (L.)

GEORGIA

Atlanta—Blackmon, R. L. (L.)
  Waits, C. E. (L.)
Cedartown—Hall, H. M. (L. C.)
Charing—Cook, J. M. (L.)
Gainesville—Banister, H. G. (L.)
  Crow, H. E. (L.)
Macon—Daniel, O. (L.)
Midland—Jenkins, W. F. (L.)
Rome—Dean, W. A. (L.)
Savannah—Hesse, H. W. (C.)
  Kieffer, U. M. (C.)
  Lovelace, T. C. (L.)
  Rubin, H. (M.)
Soperton—Thompson, E. F. (L.)
Sylvania—Faggart, G. H. (C.)
Thomasville—Lawson, E. L. (L.)
Toccoa—Isbell, J. E. D. (L.)
Washington—Wood, O. S. (C.)
West Green—Hall, W. L. (C.)

IDAHO

Moscow—Dodd, J. A. (M.)
Pocatello—Spague, C. H. (C.)
Wallace—Quigley, F. L. (C.)

ILLINOIS

Carthage—Frazier, W. P. (L.)
Chicago—Arzt, G. E. (L.)
  Beers, B. R. (C.)
  Boone, J. F. (C.)
  Brereton, G. E. (L.)
  Carr, A. M., Jr. (C.)
  Cobb, R. B. (C.)
  Coffler, M. S. (L.)
  Conway, B. P. (C.)
  Dowson, A. W. (L.)
  Gray H. (L.)
  Harner, L. H. (L.)
  Kleinpell, H. H. (M.)
  Kostrzewski, M. J. (L.)
  Lindholm, H. O. (C.)
  McMullen, C. J. (L.)
  Miller, W. H. (L.)
  Opitz, J. H. (L.)
  Renn, T. H. (C.)
  Roche, N. J. (L.)
  Ross, V. A. (L.)
  Rowell, C. L. (L.)
  Ryerson, E. W. (M.)
  Thometz, F. P. (L.)
  Weldy, F. M. (C.)
Dahinda—Bedford, R. J. (L.)
Dana—Saul, O. R. (L.)
Evanston—Fogo, H. M. (C.)
Freeport—Rideout, W. J. (C.)
Galesburg—Maley, W. H. (M.)
Homewood—Scupham, G. W. (M.)
Jacksonville—Ewerhardt, P. J. (L.)
Joliet—Fahrner, A. H. (L.)
Keithsburg—Childs, A. B. (L.)
Litchfield—Zoller, C. H. (C.)
Mendota—Cook, E. C. (L.)
Oak Forest—Richman, S. H. (C.)
Oregon—Cottlow, B. A. (L.)
Patterson—Muren, A. L. (L.)
Rockton—Mauricau, V. (L.)
Savana—Schreiter, J. B. (C.)
Wood River—Gillis, H. M. (C.)

INDIANA

Berne—Jones, H. O. (C.)
Bluffton—Redding, J. L. (L.)
Booneville—Wilson, U. R. (L.)
Daleville—Kilgore, F. T. (C.)
Depauw—Sutter, C. C. (L.)
Earl Park—Bundy, C. T. (C.)
Elkhart—Hetsler, O. L. (C.)
Evansville—Davidson, W. R. (C.)
  Walden, R. M. (C.)
Frankfort—Lutes, D. L. (C.)
Goshen—Kirby, G. W. (C.)
Greensburg—Gray, E. C. (L.)
Hope—Heilman, W. C. (L.)
Indianapolis—Frazier, C. N. (L.)
  Gick, H. H. (L.)
  Guthrie, G. L. (M.)
  Hendricks, R. G. (C.)
  McElroy, J. L. (M.)
  Mumford, E. B. (C.)
  Overshiner, L. (C.)
Kokomo—Bock, C. L. (C.)
  Thompson, B. A. (M.)
La Porte—Thompson, H. J. (C.)
Maxwell—Clayton, S. D. (C.)
Michigan City—Kerrigan, J. V. (L.)
Milford—Young, F. J. (C.)
Mooresville—Cook, G. M. (L.)
Muncie—Molloy, W. J. (C.)
Nineveh—Chenoweth, E. B. (C.)
Nobleville—Haworth, G. D. (C.)
Richmond—Hunt, G. B. (C.)
Russiaville—Oilar, A. L. (L.)
Rushville—Coleman, W. S. (C.)
Seymour—Kyte, E. G. (C.)
Shelbyville—Waltermire, T. C. (C.)

Sheridan—Johnson, P. S. (L.)
Terre Haute—Casey, O. (L.)
Wakarusa—Amick, C. L. (L.)
Zenas—McFarlin, C. C. (L.)

IOWA

Carroll—Shirley, W. M. (L.)
Cedar Rapids—Cooper, T. C. (L.)
Center Point—Doty, C. H. (L.)
Council Bluffs—Henninger, L. L. (M.)
Eagle Grove—McNaughton, L. D. (L.)
Fort Dodge—Jones, S. D. (L.)
Gilmore City—Jones, C. L. (M.)
Hornick—Palmquist, N. (C.)
Independence — Lindsay, S. C. (M.)
Shellito, J. C. (C.)
Lacona—Cruzen, J. L. (L.)
Letts—King, E. R. (C.)
Nora Springs—Shenoweth, C. E. (C.)
Struble—Rubel, H. F. (L.)
Waterloo—Everall, B. C. (M.)

KANSAS

Coldwater—Ireland, E. M. (L.)
Fulton—Jones, T. L. (C.)
Great Bend—Russell, M. F. (L.)
Kansas City—Palmer, W. R. (C.)
Niles—Haerle, E. J. (L.)
Richmond—Smith, D. H. (L.)
Topeka—Billings, A. E. (C.)

KENTUCKY

Allensville—Farmer, J. L. (M.)
Bowling Green—Neel, W. H. (C.)
Cadiz—Morris, J. H. (C.)
Colesburg—Craig, T. E. (L.)
Cromwell—Smith, H. (L.)
Hopkinsville—Rudd, T. D. (L.)
Lexington—Reddish, W. D. (M.)
Louisville—Dwyer, G. F. (C.)
Goodman, A. O. (C.)
Grant, E. O. (M.)
Hibbitt, C. W. (L. C.)
Miller, O. R. (C.)
Richardson, C. (C.)
Shacklette, J. P. (L.)
Webb, R. A., Jr. (C.)
Madisonville—Sory, R. (L.)
Nicholasville—Denman, F. E. (L.)
Pembroke—Thomas, I. (C.)
Pryorsburg—Miller, Y. Y. (L.)
Quicksand—Brown, B. M. (L.)
Redbird—Inman, E. L. (L.)
Simmons—Lake, W. (C.)
Vine Grove—Montgomery, E. W. (C.)
Waverly Hill—Trabue, E. M. (C.)

LOUISIANA

Baton Rouge — Paulsen, T. C. (M.)
Locust Ridge—Adams, J. M. (C.)
New Orleans—Adiger, D. D. (C.)
Chetta, F. (L.)
Edrington, N. K. (L.)
Leckert, E. L. (C.)
Meyer, M. F. (L.)
New Roads—Cazayaux, J. F. (L.)

MAINE

Boothbay Harbor—Barrows, H. C. (L.)
Cherryfield — Cummings, D. F. (C.)
Damariscotta — Loughlin, J. W. (M.)
Lewiston—Stevens, H. E. E. (C.)
Portland—Foster, T. A. (C.)
Winch A. W. (C.)
Saco—Powell, L. L. (C.)
Sangerville—Freeman, F. H. (L.)
Searsmont—Kinghorn, C. W. (C.)
South Paris—Stewart, D. M. (C.)
Wytopitlock — Johnson, H. W. (C.)

MARYLAND

Baltimore—Douthirt, C. H. (C.)
Gailey, H. A. (L.)
Geraghty, W. R. (C.)
Growt, B. H. (L.)
Sisco, H. N. (C.)
Ullrich, J. H. (L. C.)
Vest, C. W. (C.)
Brookeville—Janney, J. H., Jr. (C.)
Crisfield—Norris, R. R. (M.)
Hyattsville—Woodruff, C. (C.)
Jarboesville—Bean, P. J. (L.)
Kensington — Shorkley, T. M. (C.)
New Market — Magruder, C. L. (C.)
Oakland—Mitchell, H. S. (L.)
Wallville—Peterson, G. (L.)
Westernpoint—Kalbaugh, A. B. (L.)
Westport—Duff, J. A. (M.)

MASSACHUSETTS

Attleboro—McCaffrey, J. J. (L.)
Boston—Allen, A. W. (C.)
Chaffin, G. L. (L.)
Janney, J. C. (M.)
McQuesten, P. (L.)
Meserve, E. A. (C.)
Rogers, E. A. (C.)
Rumage, W. T. (L.)
Stevens, H. W. (M.)
Wilcox, C. F., Jr. (L.)
Wyman, E. T. (M.)
Brockton—Budreski, A. F. (L.)
Cambridge—Chalfen, S. E. (C.)
Fall River—Blood, G. W. (L.)
Holyoke—Hussey, E. J. (M.)
Lynn—Johnson, H. A. (M.)
Marlboro—Buckley, J. T. (M.)
Swift, H. M. (M.)
Natick—Annis, S. B. (L.)
Newton—Adams, E. A. (L.)
Wilbur, G. B. (L.)
North Adams—Curran, G. L. (C.)
Salem—Haywood, R. W. (L.)
Rushford, E. A. (M.)
Somerville—DeWolf, C. W. (C.)
Springfield—Budington, H. F. (C.)
Gates, E. A. (M.)
Westfield—Cosgrove, J. J. (L.)
Worcester—Denning, W. E. (C.)
Harriman, F. E. (L.)

MICHIGAN

Ann Arbor — Salisbury, W. N. (M.)
Battle Creek—Holes, J. J. (C.)
Calumet—Schroeder, L. P. (L.)
Cass City—McCoy, I. D. (C.)
Detroit—Beattie, R. (M.)
Belyea, J. A. (C.)
Bittker, I. I. (L.)
Bolio, E. W. (C.)
Chapman, A. L. (L.)
Cowen, L. B. (L.)
Gardner, F. F. (L.)
Hall A. C. (L.)
Hudson, A. W. (C.)
Hull, L. W. (L.)
Mollica, S. G. (L.)
Reed, H. W. (L.)
Runo, H. H. (M.)
Schultz, E. C. (C.)
Stefanski, C. (C.)
Flint—Hackman, H. C. (L.)
Highland Park—Caveney, M. W. (C.)
Hillman—Lister, G. F. (C.)
Kalamazoo—Hoebeke, W. G. (L.)
Mesick—Gruber, J. F. (C.)
Metamora—Johnson, O. G. (C.)
Muskegon—Swartout, W. C. (L.)
Pigeon—Yale, A. E. W. (C.)
Saginaw—Harris, L. B. (C.)
Kollig, M. (C.)
Sample, J. T. (L. C.)
St. Joseph—Crofton, J. F. (L.)
Trenton—Kinyon, H. B. (C.)

MINNESOTA

Bemidji—McCann, D. F. (C.)
Blooming Prairie—Dailey, W. J. (C.)
Jordan—Leonard, L. J. (L.)
Kimball — Leavenworth, R. O. (L.)
Lake Crystal—Franchere, F. W. (L.)
Minneapolis—Connor, C. E. (C.)
Knudtson, H. M. (L.)
Moersch, F. P. (C.)
St. Paul—Abbott, J. S. (C.)
Libert, J. N. (L.)

MISSISSIPPI

Biloxi—Carroll, G. F. (L. C.)
Blue Mountain—Scott, Z. J. (C.)
Jackson—Lewis, W. B. (C.)
Johns—Boykin, S. R. (L.)
Lamkin—Reid, J. S. (C.)
McBride—Harper, R. B. (C.)
Meridian—Leigh, R. M. (C.)
Mount Olive — McIntosh, J. S. (C.)
Oakvale—Denson, G. C. (C.)
Philadelphia — Harrison, C. H. (C.)
Scott—Lane, S. L. (L.)
Vicksburg—Denson, H. C. (C.)

MISSOURI

Ewing—Cole, P. F. (C.)
Kansas City—Davis, C. F. (C.)
Kyner, T. A. (C.)
Rhodes, C. C. (C.)
Salzberg, B. A. (L.)
St. Joseph—Wallace, H. K. (C.)
St. Louis—Barlow, R. L. (L.)
Bechtold, E. (L.)
Beedle, H. B. (C.)
Dahms, G. (L.)
Harris, D. L. (M.)
Harris, I. J. (C.)
Hurford, P. G. (C.)
St. Louis—Kennedy, W. U. (M.)
Levin, S. S. (L.)
McCarty, E. D. (L.)
Mitchell, W. F. (C.)
Peacock, K. C. (L.)
Poos, E. E. (C.)
Rose, D. K. (L.)
Rothman, J. (C.)
Ryan, L. A. (C.)
Windsor—Jennings, R. J. (L.)

MONTANA

Bozeman—Jump, C. F. (M.)
Cascade—McLennan, D. A. (C.)
Great Falls—Irwin, J. H. (M.)
Hamilton—Owens, R. L. (M.)
Livingston—Marquis, T. B. (C.)
Roundup—Lewis, G. A. (L.)
Washoe—Beltzer, C. E. (C.)

NEBRASKA

Axtell—Wells, F. A. (C.)
Lincoln—Spivey, C. D. (C.)
Norfolk—Nelson, L. L. (L.)
Omaha—Barr, A. L. (L.)
Dermody, L. A. (L.)
Stearns, R. J. (L.)

NEVADA

Bauvard—Paradis, H. A. (L.)

NEW HAMPSHIRE

Manchester—Miller, S. (C.)

NEW JERSEY

Bloomfield—Morse, G. V. (C.)
Camden—Meyer, G. P. (C.)
Chrome—Mark, J. S. (L.)
Englewood—Teeter, J. N. (M.)
Greystone Park—Young, F. C. (C.)
Jersey City—Fardelmann, A. V. (C.)
Newman, A. J. (C.)
Leonia—Edwards, J. B. (M.)
Wycoff, J. T. (L. C.)
Mont Clair—Cox, W. W. (L.)
Holland, J. A. (C.)
Moorestown — Wintersteen, J. B. (C.)
Newark—Berardinelli, C. G. (M.)
Blackburne, G. (M.)
English, J. T. (C.)
Newson, J. S. (C.)
Paul, F. M. (M.)
Orange—Moffat, B. W. (C.)
Paterson—Bohl, L. I. (L.)
Dwyer, W. A. (C.)
Mitchell, C. R. (C.)
Sarla, M. (L.)
Rahway—Sell, F. W. (C.)
Secaucus—Stewart, R. F. (L.)
Trenton—Kirkpatrick, M. B. (L.)
Treiber, B. A. (L.)
Tuckahoe—Knowles, J. S. (C.)
Wyckoff—Walker, H. G. (C.)

NEW MEXICO

Hurley—Kindall, C. E. (L.)
Laplata—Weber, W. C. (L.)

NEW YORK

Albany—Chapman, B. E. (C.)
Freund, E. M. (C.)
Amityville—Johnson, E. S. (C.)
Ballston Spa—Deming, R. M. (C.)
Brooklyn—Beck, A. W. (L.)
Blaber, M. P. (C.)
Boñvicino, L. A. (L.)
Cauble, W. C. (C.)
Currin, F. W. (L.)
Lefkowitsh, H. M. (C.)
Linden, M. H. (C.)
Looram, J. F. X. (L.)
Mathews, L. B. (L.)
O'Connor, A. J. (L.)
Rohr, L. M. (L.)
Sambur, S. J. (C.)
Schultz, A. (L.)
Shockley, F. M. (C.)
Volk, L. D. (L.)
Wilson, E. E. (C.)
Zuckerman, W. (L.)
Buffalo—Schaefer, A. C. (M.)
Trudnowski, J. F. (L.)
Wright, T. (L. C.)
Castleton—Timmers, G. W. (M.)
Clifton Springs — Wentworth, J. A. (L.)
Corning—McNamara, T. L. (L.)
Crescent—Grunewald, W. R. (C.)
Elmira—Voorhees, B. G. (C.)
Zimmerman, C. G. (L.)
Fort Plain—Fox, W. C. (C.)
Fredonia—Trippe, F. A. (L.)
Genesee—Toole, C. D. (L.)
Gloversville—McKillip, B. G. (C.)
Wheaton, H. W. (L.)
Haverstraw—Gibb, W. B. (C.)
Ilion—Johnson, W. K. (C.)
Ithaca—Utzinger, O. E. (C.)
Jamestown—Goodwin, F. P. (M.)
Illston, B. F. (C.)
Johnstown — Neuendorf, F. M. (C.)
Lackawanna—Smith, K. A. (L.)
Leicaster—Fiero, C. M. (C.)
Mechanicsville—Green, G. A. (C.)
Middletown—Moody, R. W. (L.)
Morrisville—Dare, G. D. (C.)
New York — Alexander, H. L. (M.)
Austin, D. L. (L.)
Bacharach, D. (C.)
Banta, E. W. (C.)
Blakeslee, G. A. (M.)
Bridgman, T. F. (C.)
Brod, B. (L.)
Davin, E. J. (C.)
Decker, J. W. (C.)
Fetzer, P. W. (L.)
Fleming, W. V. (L.)
Hannon, W. C. (L.)
Herzfeld, M. G. (M.)
Horwitz, J. (C.)
Judge, T. F. (L.)
Kahn, I. W. (L.)
Keyes, J. M. (C.)
Kortright, W. P. (L.)
Kramer, D. (M.)
Larsen, N. P. (M.)
Leavy, I. M. (L.)
Lubarsky, D. A. (L.)
Montgomery, F. E. (L.)
Morison, R. A. (C.)
Natanson, D. M. (L.)
Orr, F. B. (L.)
Paleg, S. (L.)
Pascale, V. (C.)
Pinkham, E. W. (Col.)
Reitzfeld, I. (C.)
Siebeneichen, H. A. (L.)
Smith, E. W. (L.)
Smith, J. V. (C.)
Stevens, N. C. (C.)
Thacherd, H. C. (M.)
Niagara Falls—Hutter, H. J. (C.)
Otto—Campbell, H. S. (C.)
Richmondville—Low, W. E., Jr. (C.)
Rochester—Atwater, D. H. (C.)
Barnard, M. A. (L.)
Sachs, J. (C.)
Ruyter—Woglom, W. W. (L.)
Schenectady—Holt, R. G. (C.)
Staten Island—Rimer, E. S. (M.)
Sterner, B. L. (L.)
Utica—Lyman, H. C. (C.)
Warwick—Bradner, M. R. (C.)
Krug, B. M. (L.)
White Plains—Purdy, S. (M.)
Willard—McNeill, J. F. (L.)
Woodhaven—Schneble, J. P. (C.)
Yonkers—Katz, M. (C.)

NORTH CAROLINA

Chapel Hill—Bullitt, J. B. (M.)
Charlotte—King, P. M. (C.)
Conetoe—Williams, T. G. (L.)
Greensboro—Ashby, E. C. (C.)
Hillsboro—Hayes, R. B. (C.)
Raleigh—Ray, H. (L.)
Rocky Mount—McCall, A. C. (C.)
Sanatorium—Thompson, S. W., Jr. (C.)
Silver City—Wrenn, F. R. (C.)

NORTH DAKOTA

Bismarck—Arnson, J. O. (C.)
Epping—Wheelock, D. O. (L.)
Rolla—Verret, B. D. (L.)

OHIO

Akron—Reichelderfer, V. D. (C.)
Amanda—Hosler, R. S. (L.)
Arcanum—Smith, W. J. (C.)
Bellefontaine—McCracken, A. J. (C.)
Pratt, R B. (L. C.)
Bellevue—Harding, C. L. (C.)
Bowling Green—Bolles, J. R. (C.)
Byesville—Danford, V. H. (C.)
Cambridge—Lane, F. W. (M.)
Celina—Ayers, F. E. (L.)
Chillicothe—Holmes, R. W. (M.)
Cincinnati—Foertmeyer, A. W. (C.)
Heizer, L. W. (C.)
Heyn, D. S. (C.)
McGrath, E. R. (L.)
Peterson, M. L. (M)
Steinharter, E. C. (L.)
Topmoeller, W. J. (C.)
West, A. L (L.)
Zielonka, S. (C.)
Cleveland—Aland, A. H. (L.)
Feil, H. (L.)
Fliedner, G. B. (C.)
McClelland, J. E. (C.)
Osmann, L. N. (C.)
Rees, D. L. (L.)
Savage, H. J. (L.)
Columbus—Dunn, J. M. (C.)
Edelman, S. D. (L.)
Fletcher, F. (L. C.)

Columbus—Meek, G. T. (C.)
Nichols, J. H. (L.)
Winders, F. (L. C.)
Wood, E. C. (L.)
Conneaut—Leet, W. H. (L. C.)
Crestline—Harris, R. R. (C.)
Elyria—Metcalf, H. M. (L.)
Galion—Helfrich, M. L. (C.)
Geneva—Austin, H. J. (L.)
Gettysburg—VanLue, J. W. (L.)
Greenfield—Varney, J. D. (M.)
Hamilton—Smedley, C. D. (M.)
Jewell—Stephan, J. E. (L.)
Lima—Jones, A. L. (C.)
Weadock, E. G. (L.)
Metamora—Heffron, C. H. (L.)
Milford—Kennedy, E. J. (C.)
Terwilligar, C. B. (C.)
Minerva—Casey, L. E. (M.)
New Philadelphia — Shauwecker, K. E. (M.)
Painesville—Barnett, G. F. (L.)
Selden—Nisley, G. (L.)
Steubenville—Montgomery, J. R. (C.)
Warren—Hoover, D. E. (M.)
Washington C. H.—Howell, L. P. (C.)
West Union—Ellison, S. J. (C.)
Youngstown—Mariner, J. S. (C.)
Smeltzer, D. H. (C.)
Thomas, E. R. (C.)

OKLAHOMA

Billings—Renfrow, T. F. (C.)
Bristow—Nabhan, J. J. (C.)
Enid—Aitken, W. A. (M.)
Faxon—Chumley, C. P. (L.)
Muskogee—Fite, W. P. (C.)
Nesbitt, P. P. (M.)
Norman—Day, J. L. (M.)
Oklahoma City—Sapper, H. V. L. (C.)
Sparks—Brown, F. C. (L.)
Stigler—Sims, H. J. L. (L.)

OREGON

Eugene—Zimmerman, E. L. (L.)
Forest Grove—Bates, H. E. (C.)
Gold Beach—Robbins, C. W. (L.)
Portland—Grant, D. (C.)
McColl, C. R. (C.)
Weston—Smith, C. H. (C.)

PENNSYLVANIA

Altoona—Bohn, D. (C.)
Archbald—Kearney, J. V. (C.)
McDonnell, P. J. (M.)
Barnesboro—Garman, H. F. (C.)
Bedford—Ayres, W. (C.)
Butler—Hughes, E. M. (L.)
Catasauqua—Kemp, M. (L.)
Charleroi—Repman, H. J. (M.)
Chester—Kilduffe, R. A. (M.)
Colwyn—Long, C. S. (C.)
Danville—Hammers, J. S. (L. C.)
Defiance—McCabe, S. T. (L.)
Dorranceton—Rumbaugh, M C. (C.)
Elmora—King, C. E. (C.)
Falls Creek — McConnell, A. B. (C).
Fountain Springs—Biddle, R. M. (L.)
Frackville—Donohue, J. J. (C.)
Grays Landing—Brady, H. (C.)
Harlansburg — Cleland, W. D. (M.)
Harrisburg—Yoffe, R. (C.)
Homer City—Kirk, C. H. (C.)
Homewood—McCullough, T. L. (C.)
Kennett Square—Bickell. U. G. (L.)
Kulpsville—Scholl, H. N. (L.)
Latrobe—Schall, L. A. (L.)
Lebanon—Strickler, A. D. (C.)
Monongahela—Bailey, H. F. (C.)
Norristown—Blair, W. A. (C.)
Philadelphia—Asnis, E. J. (M.)
Bartley, J. H., Jr. (L.)
Codman, C. A. E. (L. C.)
Cohen, M. S. (C)
Davidson, H. S. (L.)
Davis, R. S. (M.)
Felderman, L. (C.)
Frazier, C. H. (L. C.)
Ginsburg, G. (L.)
Hagedorn, H. M. (L.)
Haig, C. R., Jr. (L.)
Horger, U. P. (C.)
Johnson, W. C. (L)
Krauss, W. R. (L)
Leedom, J. (C.)
Livingstone, W. R. (L.)
McGinnis, G. E. (M.)
McMillan, T. M., Jr. (L.)
Meriwether, J. A., Jr. (L.)
Mikelberg, H. B. (L.)
Moore, A. H. (C.)
Perkins, W. H. (L.)
Poulson, W. C. (C.)
Philadelphia—Ramsey, W. G. (C.)
Robinson, B. (C.)
Stubbs, F. G. (L.)
Tait, C. H. (L. C.)
Tyson, R. M. (C.)
Van Korb, W. (C.)
Voegelin, A. E. (L.)
Wiley, L. R. (C.)
Wolfe, J. B. (C.)
Pittsburgh—Askin, R. J. (L.)
Chaffee, B. S. (C.)
Crawford, J. S. (C.)
Duff, A. W. (M.)
Gannon, N. D. (L.)
Grayson, T. W. (M.)
Holland, H. A. (L.)
Ingram, C. H. (M.)
Johnston, G. C. (Col.)
Landon, L. H. (M.)
Magoffin, M. B. (L.)
McConnell. W. J. (C.)
Ochsenhirt, N. C. (L.)
Sosnowski, J. J., Jr. (L.)
Point Marion—Devlin, C. J. (L.)
Pottsville—Heller, J. B. (L.)
Quarryville—Signor, D. (M.)
Scranton—Lonsdorf, J. J., Jr. (C.)
Smigelskv, I. E. (L.)
Smethport—Hamilton, R. (M.)
Sunbury—Schoffstall, J. W. (C.)
Uniontown—Griffin, G. H. (L.)
Wilkes Barre—Jacobsky, C. (C.)
Kalmutz, G. G. (C.)
Mundy, L. C. (M.)

RHODE ISLAND

Howard—Gagnon, A. J. (L.)
Providence—Dwinell, W. G. (M.)
Hamilton, J., Jr. (M.)
Pitts, H. C. (M.)

SOUTH CAROLINA

Columbia—Durham, R. B. (C.)
Watson, J. J. (C.)
Gaffney—Ferguson, R. T. (M.)
Honea Path—Knight, J. P. (L.)
Latta—Major, E. C. (M.)
Nesmith—Willcox, A. M. (L.)
Sumter—Burgess, W. S. (C.)
Townville—Webb, J. N. (C.)
Williston—Blanchard, A. S. (L.)

SOUTH DAKOTA

Buffalo—Raber, D. D. (C.)
Carter—Malster, R. M. (C.)
Sisseton—Longstreth, W. I. (C.)

TENNESSEE

Bristol—Newland, L. W. (C.)
Carter—Ensor, D. B. (L.)
Chattanooga—Hubbard, S. T. (C.)
Means. R. M. (C.)
Darden—Maxwell, E. G. (C.)
Dresden—Walker, S. E. (L.)
Lexington—Parker, S. T. (L.)
Memphis—Morgan, J. L. (M.)
Sanders, R. L. (M.)
Spnigarn, M. G. (C.)
Morristown—Howell, W. E. (C.)
Nashville—Anderson, C. F. (M.)
Springfield—Lee, F. W. (C.)
Tullahoma—Griffith, C. M. (C.)

TEXAS

Bryan—Sims, B. U. (C.)
Burton—Hodde, F. H. (L.)
Claude—Warner, W. A. (L.)
Cleburne—Yater, R. E. L. (C.)
Gainesville—Warren, C. H. (L.)
Galveston—Fisher, W. C., Jr. (C.)
Hillsboro—Anderson, K. A. (C.)
Houston—Cody, C. C., Jr. (M.)
Robstown—Carter, N. D. (C.)
San Antonio—Haggard, F. N. (L.)
Wilson, H. T. (M.)
Shiro—Franclow, C. D. (L.)
Teneha—Martindale, A. H. (L.)
Three Rivers—Neal, W. S. (C.)
Waco—Connally, H. F. (L. C.)

UTAH

Roosevelt—Browning, W. J. (C.)
Salt Lake City — Kirtley, H. P. (M.)
Scott, H. S. (C.)

VERMONT

Bennington—Houle, A. E. (C.)
Burlington—Courtney, J. W. (C.)
Grafton—Gilbert, F. L. (M.)
Hardwick—Rublee, G. C. (L.)
Montpelier—Carey, M. D. (L.)
Northfield—Hurley, W. H. (L.)
Springfield—Lawrence, H. H. (L.)

VIRGINIA

Mattoax—Burton, L. C. (L.)
Richmond—Coffman, M. B. (C.)
Coleman, C. C. (M.)
Cook, G. B. (M.)
Fitts, J. B. (L.)
Roanoke—Folkes, C. A. (L.)

WASHINGTON

Dayton—Brunjes, D. G. (C.)
Kirkland—McKibben, E. C. (C.)
Leavenworth—McKeown, A. R. (L.)
North Yakima — Boone, W. H. (L.)
Skinner, H. H. (L.)
Seattle—Coffin, S. D. (C.)
Simpson, A. U. (M.)
Spokane—O'Shea, W. M. (C.)
Sprowl, F. G. (M.)
Tacoma—DeMartini, S. A. (C.)
Twisp—Couche. J. B. (L.)

WEST VIRGINIA

Blandville—O'Brien, J., Jr. (L.)
Cameron—Sammons, W. P. (L.)
Charleston—Gordon, P. L. (C.)
Huntington—Keatley, H. W. (C.)
Pence Springs—Pence, G. L. (C.)
Princeton—Hays, H. C. (C.)

WISCONSIN

Ashland—Sincock, H. A. (L.)
Blair—Kelly, C. D. (C.)
Clinton—Dodge, C. H. (L.)
Fond du Lac—Longley, J. R. (M.)
Janesville—Clarke, C. P. (M.)
Lone Rock—Eagan, R. L. (L.)
Madison—Blanton, S. (C.)
Milwaukee—Hogue, G. I. (L. C.)
Klein, J. T. (L.)
Oconto—Linger, E. A. (L.)
Oshkosh—Lockhart, J. W. (C.)
Prairie du Chien—Scanlan, P. L. (C.)
Racine—Johnston, W. W. (M.)
Rib Lake—Lapham, E. A. (C.)
Stoughton—Keenan, H. A. (C.)
Waukesha—Carberry, E. A. (C.)

WYOMING

Kaycee—Mitchell, L. E. (L.)

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Held as Narcotic Law Violator.—Dr. S. F. Walker, Texarkana, is said to have been arrested on a federal warrant charging violation of the narcotic law, and after a hearing before the United States commissioner is said to have been held for the grand jury in bonds of $2,000.

Medical Board Reorganized.—At the annual meeting of the state medical board for reorganization, at Little Rock, Dr. Julius A. Bogart, Forrest City, was elected president, and Dr. Thomas J. Stout, Brinkley, and Edward F. Ellis, Fayetteville, were reelected secretary and treasurer, respectively.——Dr. William H. Toland, Nashville, has been appointed a member of the state medical board, suceeding Dr. Francis J. Isbell, Horatio.

Personal.—Dr. Lemuel E. Willis, Newport, is reported to be seriously ill at his home.——Dr. Henry H. Atkinson, Fordyce, has succeeded Dr. Claiborne J. March, Fordyce, resigned, as health officer of Dallas County.——Dr. Charles S. Holt, Fort Smith, has been appointed division surgeon of the Missouri Pacific system with headquarters at Fort Smith.——Dr. P. P. Boggan, Forrest City, has been reappointed health officer of St. Francis County.

ILLINOIS

New Hospital.—A new maternity hospital is to be built in Chicago, at Forty-Seventh and Mozart Streets, by Archbishop Mundelein. It will be known as Misericordia Maternity Hospital and will house 100 mothers and 150 infants. The initial expense of the institution will exceed $100,000.

Base Hospital Officers Organize.—August 19, twenty-six officers of Northwestern University Base Hospital No. 12, held a meeting in Chicago to form a peace-time organization to hold together the personnel of the unit which achieved such notable success in France. Payson L. Nussbaum, Major, M. C., U. S. Army, was elected president; Kellogg Speed, Lieut.-Col., M. C., U. S. Army, vice president, and Stanley W. Clark, Capt., M. C., U S. Army, secretary-treasurer, all of Chicago.

Paris-Chicago Hospital Foundation.—The Paris-Chicago Hospital Foundation has been incorporated in Illinois with offices in the Marquette Building, Chicago. The officers and directors of the association are: president, Dr. Charles H. Johnson; vice presidents, Dr. Truman W. Brophy and Mrs. E. C. Thomas; secretary, Mrs. Milan H. Hulbert, and treasurer, Mrs. Archibald Freer, and the medical members of the board of directors are: Drs. Edmund J. Doering, William H. Wilder, Thomas J. Watkins and Lewis L. McArthur.

Personal.—Dr. Alice Barlow Brown, Winnetka, has returned after twenty-two months' service in France.——Dr. Antony Biankini, Chicago, one of the founders of the Jugo-Slav National League of America and president of the league for several years, has been decorated by the Jugo-Slav government with the Order of St. Sava.——Dr. John A. Kappelman, Chicago, has been appointed full-time health officer of

Canton with a yearly salary of $3,300.——George G. Davis, Lieut.-Col., M. C., U. S. Army, Chicago, arrived in New York from France on the *Northern Pacific*, August 12.——Dr. Gertrude Moulton, Urbana, has been appointed assistant health officer and advisory physician for women students at the University of Illinois, Urbana.

IOWA

Physician Held to Grand Jury.—Dr. John W. Conaway, Hartley, charged with performing a criminal operation, which resulted in the death of a woman in Spencer, July 27, was held to the O'Brien County grand jury at bonds fixed at $5,000.

Personal.—Dr. Louis Baumann, formerly director of research and assistant professor of medicine in the State University of Iowa, Iowa City, has been appointed associate in medicine at Columbia University and assistant visiting physician at the Presbyterian Hospital, New York City.——Dr. Henry Schumacher, Walcott, sustained a serious stab wound of the leg in a quarrel, August 19.——Dr. William J. McDonald, recently Major, M. C., U. S. Army, sanitary inspector of the Thirty-Fifth Division, has been placed in charge of the students' health service at the state university, Iowa City.——Dr. Herman Fischer, Burlington, chief medical examiner of the Burlington system, with headquarters at West Burlington, has resigned to resume private practice, and has been succeeded by Dr. A. D. George, formerly examiner for the company at Lincoln, Neb.——Dr. John C. Newlon, Exira, is reported to be seriously ill.——Dr. George F. Severs, Centerville, has been elected president of the state board of health, suceeding Dr. Walter L. Bierring, Des Moines.——Dr. Jeannette F. Throckmorton, Chariton, has begun work in Des Moines under the supervision of Dr. Wilbur F. Conkling, recently appointed director for venereal disease work in Iowa.——Dr. Charles F. Noe, Amana, and Dr. Gershom H. Hill, Des Moines, have been elected members of the board of curators of the state historical society.

KENTUCKY

New Hospital.—Drs. Amerida M. Gross and Robert L. Collins have purchased a residence at Hazard and are remodeling it for use as a hospital.

Chiropractors Arrested.—The state board of health, June 30, arrested six chiropractors and naturopractors on charges of practicing medicine without a license. The six are: C. B. Sutherland, J. T. Finch, W. T. Ausbrook, W. H. Dunn, A. Losey and H. C. Pirtle.

Clinic Holding Company Incorporates.—The Clinic Holding Company, Lexington, filed articles of incorporation with the Fayette County clerk, August 12. The corporation has a capitalization of $100,000 and is empowered to hold real estate and personal property for the purposes of holding clinics, and to carry on a general practice. The incorporators are Drs. David Barrow, Waller O. Bullock, Ernest B. Bradley, Julian T. McClymonds, Charles C. Carr, Frank H. Clarke, William T. Briggs, Walter S. Wyatt and D. Woolfolk Barrow, all of Lexington.

LOUISIANA

Camp Hygeia Title Transferred.—The Orleans Anti-Tuberculosis League has acquired the title to Camp Hygeia in St. Tammany Parish, and the charter for the league has been issued.

Hospital Completed.—Emory Hospital, New Orleans, has been completed by the Southern Pacific Railway for the first-aid treatment of its employees. It is located at Atlantic Avenue and Evelina Street.

Appeal for Funds for Lepers.—A committee has recently been formed in New Orleans to secure $5,000 for an amusement fund for 150 men and women who are inmates of the Louisiana Lepers' Home, Carville.

MARYLAND

Plans to Combat Influenza.—The Baltimore City Health Department is making preparations and taking every precaution to combat an influenza epidemic, should there be a recrudescence of the malady this fall.

Drug Clinic Opened.—A clinic for drug addicts of Baltimore has been put into operation at the headquarters of the Volunteers of America by Captain Loga, in cooperation with the city health department and the internal revenue bureau. More than 300 patients can be cared for by the clinic, which already has three physicians in attendance, with the expectation of a fourth. It is estimated that there are not 300 genuine addicts of the habit in Baltimore, at least not that many who are too far gripped by the habit to take care of themselves.

MASSACHUSETTS

Semicentennial of State Health Department.—The Massachusetts State Health Department will celebrate its semicentennial at the State House, Boston, September 15, under the auspices of the Massachusetts Medical Society, and the associated boards of health and the state health department.

Third School for Feebleminded Provided.—The legislature of 1919 appropriated $250,000 for the Belchertown School for Feebleminded. The present farm colony is being enlarged and a railroad spur is being laid to the plant. The appropriation will provide for the erection of a store house, bakery, laundry, power house and custodial building for 140 inmates, a dormitory for 105 and the necessary building and road constructions.

Administrative Functions Reorganized.—In accordance with the provision of the revised state constitution the functions of the department of public health are set forth as follows: "The Department of Public Health shall consist of the State Department of Health and include a division of sanitoria, with the power of the board of trustees of the hospitals for consumptives, which is abolished. Penikese Hospital shall also be in this division."——The department of mental diseases includes the commission on mental diseases and the control and supervision of the Norfolk State Hospital.

Personal.—Frederick T. Clark, Westfield, Capt., M. C., U. S. Army, chief of the ophthalmic service at U. S. Army General Hospital No. 1, New York City, has been promoted to the rank of major, M. C., and been made chief of the combined ophthalmic and otolaryngologic service in that hospital.——The increase in the salaries of medical examiners (coroners) Leary and McGrath, Boston, from $4,000 a year to $5,000 a year was approved by Mayor Peters, August 5.——The active work of Dr. Dudley A. Sargent, Cambridge, as director of the gymnasium at Harvard, has closed with the completion of forty years of service in that capacity. No successor has as yet been appointed.——Dr. S. Burt Wolbach, Boston, has returned from Mexico where he spent more than a month in study and research work as to the cause of typhus fever.——Dr. Loring B. Packard has resigned as superintendent of the Brockton Hospital on account of ill health.

MISSOURI

Advisory Board Appointed.—Dr. Thomas B. M. Craig, superintendent of State Hospital No. 3, Nevada, has selected a number of physicians throughout the state to act as an advisory board of the hospital and the plans have received the approval of the board of managers. This is believed to be the first time the superintendent of a state hospital has created a board for the purpose of cooperating with the superintendent in an advisory capacity.

Society Establishes Clinical Section.—About 100 members of the St. Louis Medical Society have established a clinical section of the society and have organized the clinical material available for graduate instruction. There will be clinics in general surgery and medicine as well as in the various special branches so that visiting physicians will have an opportunity to obtain graduate instruction not hitherto open to them in St. Louis. It is announced that these clinics will be ready, October 1.

Personal.—Dr. Emmett S. Ballard, St. Joseph, has been elected a member of the school board to succeed Mr. S. I. Motter, resigned, and Dr. Hasbrouck DeLamater has been reelected director of hygiene in the schools of St. Joseph.——Dr. Borden S. Veeder, St. Louis, has received from Great Britain the decoration of Companion of the Order of St. Michael and St. George.——Dr. Dudley S. Conley has been appointed to succeed Dr. Max Meyer in the medical faculty of the State University, medical department, Kansas City.

NEW YORK

Red Cross Workers Honored by Serbia.—According to a recent report from Belgrade, Red Cross workers from nine cities in New York have been decorated by Prince Alexandria of Serbia. Among this number are Major F. L. Emerson of New York and Dr. Regina F. Keyes of Buffalo who received the Order of the White Eagle. Dr. Francis M. Flood of Elmira received the Order of St. Sava.

New York City

Deaths from Wood Alcohol.—Within two days three deaths from wood alcohol were reported from a locality in the Bronx. Following these fatalities Nathan Allowitz and his wife were arrested and held in $20,000 bail for selling wood alcohol. They were found to be in possession of 13 gallons of a liquid which the health department stated was wood alcohol.

Personal.—Dr. S. Josephine Baker, director of the bureau of child hygiene, was recently appointed a member of the advisory committee for the Federal Children's Bureau at Washington, and as such has been designated special agent of the children's bureau in New York City.——Dr. Lucius P. Brown, director of the bureau of food and drugs of the department of health, has been honorably discharged from the service and has resumed his duties with the health department.

New Health Department Building.—Health Commissioner Royal S. Copeland announced, August 19, the tentative approval of a plan for a twelve-story, health headquarters' building on Thirtieth Street, between Sixth and Seventh avenues, to cost $1,000,000. The building will occupy a site already belonging to the city. Three or four floors will be given up to laboratories. There will be an auditorium, clinic rooms, model health stations, room for vaccinations, records, etc.

Jacobi Memorial Plans Expanded.—Some time ago it was announced that in the fall a campaign would be carried on to raise funds for a hospital in the Washington Heights section of New York as a memorial to Dr. Abraham Jacobi. These plans have been developed in a somewhat different way and it is now announced that appeals will be sent to 140,000 physicians in the United States for contributions to a $1,000,000 fund, a large part of which will be devoted to the endowment of the institution after it is built. It is now stated that the memorial will be for children only and will probably be erected as an annex to the Jewish Memorial Hospital. The institution will be nonsectarian in character and an endeavor will be made to endow as many free beds in the hospital as possible as a tribute to Dr. Jacobi's labors among the poor of the city.

NORTH CAROLINA

Library for Medical Society.—A medical library to contain the latest medical works and periodicals is planned by the Mecklenburg County Medical Society, the members of which have already subscribed $1,000 toward building up the present medical society library at Charlotte.

Venereal Disease Clinics Established.—The eighth clinic for the treatment of venereal disease in North Carolina has been established at Clinton, and is under the charge of Dr. Eddie T. Collingsworth. Other clinics are now in operation at Charlotte, Rocky Mount, Wilmington, Fayetteville, Asheville and Winston-Salem, and it is expected a clinic will be opened at Greensboro in a short time.

Hospital Notes.—At the meeting of the Gaston County Medical Society, August 6, efforts looking toward the erection of a municipally owned hospital for Gastonia, Gaston County, were unanimously endorsed.——Laurel Hospital at White Rock, Madison County, was recently completed and will be under the charge of Dr. George H. Packard.——Drs. Kinchin C. Moore, Henry B. Best, Ernest S. Strickland and P. P. Lane are interested in the organization of a hospital for Wilson with a forty-bed capacity and to cost $50,000. ——Work has been started on an addition to the Appalachian Hall Sanatorium, Asheville, to cost $15,000.

Personal.—Dr. Wilbur A. McPhaul, Lumberton, who has been health officer of Robeson County for two years, has resigned to accept the position of director of rural sanitation of the state of Alabama.——Drs. Frederick M. Hanes and Thomas W. Davis, Winston-Salem, have been elected members of the Winston-Salem City Hospital Commission. ——Drs. Richard H. Lewis, Raleigh, and E. J. Tucker, Roxboro, have been appointed members of the state board of health to fill vacancies.——Dr. C. Curtis Hudson, city health officer of Charlotte, has been appointed chairman of the section of public health of the Medical Society of the State of North Carolina.

OHIO

Personal.—Dr. Clifton F. McClintic, assistant dean of the medical department of the University of Cincinnati, has resigned. His resignation will take effect, September 1. He has accepted a position in the Detroit College of Medicine and Surgery.——Dr. Jonathan Forman, Austinburg, has resigned as assistant professor of pathology in the Ohio State University.——Dr. George Huntley, Oberlin, for thirty years a medical missionary of Shanghai, China, has returned on leave of absence of a year.

Trachoma Campaign.—The state department of health has opened a campaign to rid Ohio of trachoma which is especially prevalent in the counties bordering on the Ohio River, where the disease is believed to have been spread from the mountain districts of Kentucky and West Virginia. An intensive campaign is to begin at once in Scioto County. The state authorities will be aided by trachoma experts from the United States Public Health Service. Every schoolchild in the county will be examined as soon as school opens and free clinics for persons unable to pay for the necessary medical treatment will be established in September.

Training Course for Hospital Executives.—A division of hospital administration will be added to the department of industrial medicine and public health of the Medical College of the University of Cincinnati. Instruction will begin with the opening of the fall semester of the medical college, and will consist of twelve months of didactic and practical training. The work will be so arranged as to provide for practical instruction in the various cooperating hospitals of the Cincinnati district during the morning hours. The afternoon hours will be devoted to didactic lectures, round table conferences, quizzes, discussions and survey trips in groups. The courses of instruction will not be confined to physicians, but will be available to all persons whose individual qualifications are approved by the director, and whose preliminary education will permit them to matriculate in the university. Certificates will be awarded to students satisfactorily completing the prescribed courses, which will indicate the nature and extent of the work pursued.

OKLAHOMA

Health Conference.—The second annual Oklahoma State Public Health Conference will be held in Oklahoma City, September 23 and 24, under the auspices of the Oklahoma Tuberculosis Association and the state department of health.

State Board Elections.—At the meeting for organization of the state board of medical examiners, July 10, H. C. Montague, Muskogee, was elected president; Dr. Lewis E. Emanuel, Chickasha, vice president; Dr. James M. Byrum, Shawnee, secretary, and Daniel W. Miller, Blackwell, treasurer.

Field Secretary Employed.—The Oklahoma Tuberculosis Association has employed a medical field secretary, whose duty will be to tour the state, advise other physicians on modern methods of diagnosis and treatment of tuberculosis and also to conduct clinics in various cities of the state.

PENNSYLVANIA

Enlarge Insane Hospital.—The board of trustees of the Homeopathic Hospital for the Insane at Rittersville awarded contracts for the construction of four new buildings, including a home for women nurses, a nurses' dining room, sleeping quarters for employees and a double farm house. The total cost will be more than $75,000.

Personal.—Dr. James R. Montgomery, Bloomsburg, has been appointed county medical officer by the state department of health, succeeding Dr. Samuel B. Arment.——Dr. William L. Estes has been appointed chief of the Genito-Urinary Dispensary of South Bethlehem by Commissioner of Health Edward Martin.——Dr. Lloyd McCarthy, Altoona, announces his retirement from practice.

Conference of Industrial Physicians.—The ninth conference of Industrial Physicians and Surgeons of the State Department of Labor and Industry will be held at the State Capitol, Harrisburg, September 22, in cooperation with the annual session of the Medical Society of the State of Pennsylvania. The program includes a symposium on health insurance, and papers dealing with the workmen's compensation act, and the sanitary disposal of sewage and trade wastes.

Philadelphia

Personal.—Dr. Samuel T. Orton of the University of Pennsylvania Hospital has been secured as head of the new psychopathic hospital at Iowa City, which is being erected at a cost of $150,000.——Dr. Matthew F. Czubak has been elected surgeon-general of the Foreign War Veterans.—— Dr. Arthur Dare, Lieut.-Col., M. C., U. S. Army, has returned home after several months' service abroad.

Hospital Seeks Fund.—A drive to obtain $50,000 for the Frederick Douglass Memorial Hospital began, August 20. So far, more than $800 has been collected. The bill awarding the annual state appropriation of $22,000 to the institution provided that if the board of managers of the hospital refused to dismiss Dr. Nathan F. Mossell, as head of the hospital, the appropriation should not be granted.

SOUTH CAROLINA

Personal.—Frank D. Mower, Major, M. C., S. C. N. G., Newberry, has been appointed a member of the staff of Governor Cooper, with the rank of lieutenant-colonel.——Dr. James A. Hayne, Columbia, state health officer, who has been ill in a hospital in Washington for several weeks, returned to his home, July 7, convalescent.

Hospital News.—A commission was issued, July 25, to the Edgefield Hospital which has a capital stock of $50,000. The incorporators are Drs. Albert R. Nicholson, Robert A. Marsh, Edgefield, and John N. Crafton, Colliers.——Excavation was commenced, July 21, for the new Spartanburg Hospital on North Church Street. The building will be four stories with basement in height, fireproof, and will cost about $200,000. The new hospital will absorb the Good Samaritan Hospital and Spartanburg Hospital, and it is expected the building will be ready for occupancy Jan. 1, 1920.——A hospital building is being erected at Chesnee, by Dr. Joseph B. Cash, at a cost of about $30,000. The hospital will have six wards and twenty-seven rooms, and it is expected that it will be ready to receive patients by November 1.——The annex of the Piedmont City Hospital will be ready for occupancy about the middle of September.——The campaign for the first unit of the Palmetto Sanitarium for Negroes, Columbia, was terminated, July 10, when a sum of $6,000 raised by negroes of the state was presented to the state board of health. A sum of $10,000 was provided by the last legislature for the purpose of providing a sanatorium for negroes of the state. ——The Steedly Clinic and Sanitarium, at Chick Springs, was formally opened, July 10. The institution is under the care of Dr. Benjamin B. Steedly, Spartanburg.

SOUTH DAKOTA

Work on Asylum Site Begun.—Work on the improvement of the site for the Northern Hospital for the Insane, located just south of Watertown, has been commenced.

New Hospital.—The state board of charities and corrections has purchased 153 acres of land between the State Hospital and the city of Yankton, for the use of the hospital.——It has been decided to erect a hospital in Beresford to cost between $60,000 and $65,000.——Work has been started on a new hospital building at Sisseton, which will be under the charge of Dr. John W. Powell, and will provide quarters for fifteen patients.——Articles have been filed by Dr. Robert S. Westaby, J. A. Johnson and R. W. Rooney for a new hospital at Madison with a capital of $100,000.

WASHINGTON

Personal.—William L. McClure, Lieut.-Col., M. C., U. S. Army, North Yakima, has returned after two and a quarter years' service abroad.

Tuberculosis Clinic to Open.—It is announced that the Spokane County Tuberculosis Clinic will be opened by September 1, with headquarters in Spokane.

State Society Meeting.—The Washington State Medical Association will hold its annual meeting in Spokane, September 11 to 13, under the presidency of Dr. Herman P. Marshall, Spokane.

Smallpox.—For the first six months in 1919, smallpox headed the list of communicable diseases in Washington, with 2,138 cases; mumps followed with 2,076; chickenpox, with 1,585; scarlet fever, with 1,464, and measles, with, 1,396.

Building for Medical Men.—The Medical Building Company was recently incorporated at Seattle, with the following officers: president, Edward B. Frick; vice president, Dr. Philip V. von Phul; secretary-treasurer, William E. Robinson, and trustees, J. W. Sharpless and Dr. Homer D. Dudley, Seattle. The object of the organization is to build a modern office building for the exclusive use of physicians and dentists.

Medical and Safety Board Meeting.—The oath of office was administered, July 8, at Olympia, to members of the state medical and safety board. The state medical board is composed of Drs. John W. Mowell, Olympia, and J. S. Kloeber, and Mr. Martin Flyzik, and the advisory members are State Labor Commissioner C. H. Younger, and State Mine Inspector Bagley. The board has appointed Mr. John W. Pace as secretary and statistician..

GENERAL

Army Dental Surgeons Meet.—At the annual meeting of the Association of Military Dental Surgeons, Dr. E. P. R. Ryan was elected president; Dr. J. L. Brown, vice president; Dr. R. W. Waddell, secretary-treasurer, and Dr. William C. Fisher, editor.

Public Health Service Issues Pamphlet on Cancer.—The United States Public Health Service has just issued bulletins entitled "Cancer Facts which Every Adult Should Know." It is a 32-page pocket size pamphlet, giving the main facts regarding the prevalence of the disease and chief danger signals.

Meeting of Medical Veterans.—The trustees of the Medical Veterans of the World War will have a meeting in St. Louis at the same time of the meeting of the Association of Military Surgeons. The trustees of the veterans are: Col. Francis A. Winter, M. C., U. S. Army; Drs. Hubert Work, Pueblo, Colo.; Joel E. Goldthwait, Boston; George E. Brewer, New York City; John M. Dodson, Chicago, and Holman Taylor, Fort Worth, Texas.

Weeds and Hay-Fever.—As an endorsement of the efforts being made by the American Hay-Fever Association toward the reduction of the amount of pollen in the air, and the prevention or relief of suffering of many persons subject to hay-fever, the mayor of New Orleans issued a proclamation, August 17, urging all citizens to assist in the weed-cutting campaign, and asking the especial cooperation of the department of public property and the city board of health to the attainment of this end.

Occupational Therapy Society Meeting. — The National Society for the Promotion of Occupational Therapy will hold its third annual meeting in Chicago, September 8-11, at Bowen Hall at Polk and Halsted streets, under the presidency of Dr. William Rush Duncan, Jr. The general headquarters of the society during the conference will be at the Henry B. Favill School of Occupations, 825 West Polk Street. The annual banquet will be held, September 9, at the Hotel LaSalle, and September 11 will be spent in Milwaukee visiting hospitals in which occupational therapy is being employed.

Legislation for Study of Mentally Defective.—The study of feebleminded, backward and otherwise mentally handicapped schoolchildren by the Bureau of Education is provided for in a bill introduced by Congressman L. C. Dyer of Missouri. (H. R. 8479.) The measure provides for the establishment of a new bureau in the Bureau of Education to collect information regarding feebleminded children and for a mental laboratory to determine standards. A psychoeducational clinic is also provided. The sum of $30,000 annually for the maintenance of this bureau is appropriated. A director is to be appointed at a salary of $4,500.

Bequests and Donations.—The following bequests and donations have recently been announced:

Reading, Pa., Hospital, $12,500, on the death of his son, Leonard, by the will of J. C. Illig.

Tuxedo Hospital, Tuxedo Park, N. Y., $100,000, by the will of Augustus D. Juillard.

Methodist Hospital, Charlotte, N. C., a conditional bequest of $15,000, by the will of B. D. Heath.

For endowment of hospital bed in memory of Dr. Stephen Seymour, Chicago, $100,000, by the will of his daughter, Mrs. Catherine E. Brown.

Johns Hopkins University, Baltimore, $20,000, by the will of Mrs. Hannah J. R. Creswell, Elkton, Md.

National Exposition of Chemical Industries.—No profession in the United States has been benefited more greatly by the war than that of chemistry; the tentacles of foreign monopoly in this field are cast aside, and America, with her vast resources, especially in minerals and coal tar, trusts in the ingenuity of her own chemists. In the past two years the strides of our chemical accomplishments have come up to expectations; it is simply necessary now to reveal what will be the probable progress of a promising future. In this connection the forthcoming "National Exposition of Chemical Industries" at the Coliseum and First Regiment Armory in Chicago, September 22 to 27, will be of great interest to all scientists—indeed it promises to be the epitomized exhibit of the new flourishing advances in chemistry. The fields of organic chemistry pertaining to dyes, pharmaceuticals, and various organic technical products are being developed in America in a most commendable manner; in fact, the best achievement of the organic chemist during the war was along these lines and not the explorations in the realm of poisonous gases. To the physician, the exposition may thus be well worthy of investigation. Also, the United States Bureau of Mines will feature the protection of the employee from disease, accident or hazard arising from the development of this new industry. Meeting in connection with the exposition are a number of technical societies, thus assuring a comprehensive program.

Report of Illinois Health Insurance Commission.—The Illinois Health Insurance Commission, appointed by legislative act in 1917, has just issued its report in a book of 647 pages. The report includes a general investigation as to the extent, cost, causes and results of sickness and death among wage earners and their families, and a number of reports of special investigations. After a brief report of the general findings of the committee, a majority and minority report are submitted. The majority report, signed by William Beye, chairman, William Butterworth, Dr. E. B. Coolley, Edna L. Foley, Mary McEnerney and M. J. Wright, first states the general amount of sickness existing according to the survey. It is estimated that probably 20 per cent. of all wage earners will be disabled for more than seven days in the course of a year by a sickness or nonindustrial accident, with an average of between twenty-seven and twenty-nine days for each wage earner disabled. It is estimated also that the cost of disabling sickness of wage earners alone in Illinois is about $57,000,000 annually; and, if to this is added the medical bills paid for dependents, the cost of sickness in wage earning families is between $80,000,000 and $86,000,000 per year. It was found that sickness was the cause, or an accompanying condition of the dependency in from one third to one half the cases in which charity was asked. Tuberculosis and other chronic conditions are found in from 20 to 25 per cent. of the cases in which sickness is a cause or condition of dependency. In an analysis of the vital statistics of the state, an unfavorable showing is made by the data available for Chicago, relating to deaths of children under 2 years of age, from enteritis and diarrhea. These figures have increased in Chicago while in New York, St. Louis, Boston and some other cities, they have decreased.

The majority report also analyzes existing legislation for public health, the tuberculosis problem, venereal problem, maternity care and infant welfare work, hospital facilities and public health nursing. In its consideration of health insurance, it concludes that "it is apparent that a compulsory Health Insurance system comes in contact with so many interests of the individuals or groups who constitute society and affects them so vitally that the question must be solved in the light of a public demand or necessity and the welfare of the people of the state as a whole." Analyzing results in those countries which already have such systems, the committee finds that "it seems clear that compulsory Health Insurance is not an important factor in the prevention of diseases or in the conservation of health." The majority report concludes, finally, that it is the opinion of the commission that its findings do not justify it in recommending compulsory health insurance.

The minority report, signed by Dr. Alice Hamilton and Mr. John E. Ransom, states that the investigations made for the commission are "conclusive evidence of the need for a system of compulsory health insurance which would be applicable to practically all members of the wage earning group and would more equitably distribute the burden of the costs of sickness and would make more adequate provision for the medical care of wage earners and their dependents who become sick."

FOREIGN

International Physiology Congress.—Preparations are said to be well under way for a gathering at Paris in July, 1920, of scientists especially interested in physiology. The meeting is being organized by representatives from Great Britain, France and America, and invitations are to be sent to the neutral nations.

French Urologic Congress.—The Nineteenth Congress of the Association française d'urologie is to convene at Paris, Oct. 8, 1919. The only subject yet announced for discussion is the treatment of nontuberculous pyelonephritis in man. The opening address on this topic is to be by Dr. Ertzbischoff of Paris. The secretary of the congress is Dr. O. Pasteau, avenue de Villars 13, Paris.

French Surgical Congress.—The Twenty-Eighth Congress of the Association française de Chirurgie is to convene at Paris, Oct. 6, 1919, Dr. C. Walther presiding. The three subjects appointed for discussion are: simple traumatic lesions of the wrist; tumors in the vicinity of the kidneys; and cancer of the tongue. The secretary-general is M. J. L. Faure, 10 rue de Seine, Paris.

Volunteer to Fight Typhus.—Ninety men from the First and Third Divisions, all soldiers who speak Polish, have volunteered to work in Poland against the typhus epidemic, and have left the Coblenz area, on the first stage of the journey to Warsaw. The unit from the American Expeditionary Forces will number 550, and will be under the command of Col. Harry L. Gilchrist and Lieut.-Col. Lee R. Dunbar, Medical Corps. There will be required to transport the equipment and chemicals of the expedition, 800 railway cars and 700 motor trucks.

Institute for Sexual Science Founded at Berlin.—The *Nederlandsch Tijdschrift voor Geneeskunde* relates that the *Deutsche medizinische Wochenschrift* describes the opening, July 1, of an institute for *Sexualwissenschaft.* It says, "It is housed in a special building in the Thiergarten at Berlin, and is in charge of Dr. Max Hirschfeld. There are departments for sexual biology, sociology, ethnology and medicine. It is equipped for psychotherapy, electrotherapy, organotherapy and radiotherapy, and has a laboratory for microscopic and chemical research."

Deaths in the Profession Abroad.—Dr. **A. Gouget**, recently appointed to the chair of general pathology and therapeutics at the Paris medical faculty after long service as *agrégé*, aged 51. He was co-director of the *Presse médicale* and had published numerous works on the influence on the kidneys of disease in the liver, on insufficiency of the liver, etc. During the war he was at the head of the military hospital at Toul.——Dr. **J. Gómez Ocaña,** professor of physiology at the University of Madrid, author and an international authority on physiology, life senator, president of the recent First National Medical Congress in Spain, aged 59.——Dr. **A. Demoulin** of Paris, instructor in surgery and well known by his *expertises chirurgicales,* aged 59.——Dr. **A. Raventos Aviño,** a prominent surgeon of Madrid.——Dr. **P. Reynier,** professeur agrégé of the Paris medical faculty, surgeon to the hospitals.

Association of Radiologists of the Northland.—The *Ugeskrift for Læger* mentions that the Norwegian radiologist, Dr. Heyerdahl, invited the radiologists of the Scandinavian countries to meet at Christiania in July, on the occasion of the Surgical Congress. At the meeting it was decided to found the Nordisk Forening for medicinisk Radiologie, and the first representative meeting is to be held at Copenhagen in 1921. A number of communications were presented, on deformity of the eyeball with duodenal ulcer; on radium treatment of vulvar cancer, and on gallstones from the radiologic standpoint. Our exchange adds that Sweden has gone to the front in radiology under Professor Forsell's leadership. The board of the new association is to comprise two members from each of the countries of the Northland, besides the president, Prof. J. F. Fischer. The appendix and exophthalmic goiter are the topics for next year's meeting.

LATIN AMERICA

New Leprosarium in Brazil. — There has been begun in Brazil the construction of a model leprosarium near Santo Angelo, which will be the best of its kind in all South America and have all facilities for the isolation and treatment of lepers.

Prize to Guglialmelli and Delbon.—The *Semana Médica* of Buenos Aires mentions that the Felix de Azara prize for the two years 1915 and 1916 has been awarded recently to Dr. L. Guglialmelli and Dra. A. Delbon for their work entitled "Study of Textile Fibers of Animal and Vegetable Origin."

Death of Dr. Triani.—The death of Dr. Juan Triani is reported from Uruguay. He was 86 years old, was in his youth a medical officer of the Italian Army and had been fifty years in Uruguay. He was one of the founders of the School of Medicine of Montevideo and professor of legal medicine there.

Brazilian Psychiatry Journal.—The foundation is announced of the *Archivos Brasileiros de Neuriatria e Psychiatria,* the first number of which has already appeared. There are four directors, all professors in these specialties, including Austregesilo and Vianna, and the editorial staff consists of four other specialists.

Child Welfare Work at Lima.—The *Reforma Médica* of Lima, Peru, describes the foundation and the purposes of the Sociedad Protectora de la Infancia recently organized there under the initiative of the alcalde of the city. It aims to include also in its scope proper housing of wage earners and prophylaxis of transmissible diseases.

Institute of Physiology at Rio de Janeiro.—The Instituto Oswaldo Cruz has recently organized a section for physiology, with its special institute which has been placed in charge of Dr. M. Ozorio de Almeida. The only two other institutes in South America for teaching and research in physiology exclusively are at Montevideo and Córdoba.

New Preparatory School in Argentina.—A new preparatory medical school has been inaugurated at the University of La Plata where students will be able to study the first three years of the medical course. There is room for 200 students and the school will follow the plan of studies in force in the University of Buenos Aires. Dr. Pedro Belon is the dean.

Fiftieth Professional Anniversary of Rio de Janeiro Physician.—The Rio de Janeiro Medical Faculty and the board of the Muzeu Nacional joined together to do honor recently to the "golden jubilee" of Prof. B. F. Ramiz Galvão of the University of Rio de Janeiro. He was called on for a speech and he traced the history of the medical department of the university as he has witnessed it develop from small beginnings during the half century of his work there.

Inauguration of Institute of Radiology at Rio.—The new Instituto de Radiologia da Faculdade de Medicina at Rio de Janeiro was formally opened with much ceremony recently. The main floor is devoted to roentgen work and the radium and radioactive service is above. The latter is in charge of Profs. Fernando Terra and E. Rabello, while the chief of the roentgen department is Dr. R. Duque Estrada, assisted by Dr. Alipio Machado. Prof. Aloysio de Castro has been mainly instrumental in securing this addition to the equipment of the medical school.

Deaths in the Profession.—Dr. **José M. Jorge,** a well known physician and medical writer of Buenos Aires, whose son, José M. Jorge H. is on the editorial staff of the *Revista de la Asociacion Médica Argentina.*——Dr. **D. de Almeida Sampaio,** professor of forensic medicine at the University of Rio de Janeiro, medical expert for the courts and author of various works on medicolegal questions, aged 34.——Dr. **J. Testaseca,** formerly professor of pathology at the University of Montevideo, aged 84.——Dr. **B. Bonifacio,** member of the national legislature from Buenos Aires, professor of botany and zoology in the university and vice president of the *Circulo Médico,* aged 32.——Dr. **E. Mazzini** of Rosario, Argentina, victim of professional infection.——Dr. **Santiago Fornos** of Chivilcoy, near Buenos Aires, aged 55.——Dr. **J. N. Adamo,** a leading gynecologist and obstetrician of Mendoza, Argentina.——Dr. **J. Viaggio** of San Fernando, Argentina, aged 39.——Dr. **A. L. Cavo** of Buenos Aires, aged 49.

RIO DE JANEIRO LETTER

Rio de Janeiro, July 20, 1919.

Yellow Fever

No new case has been registered in Rio de Janeiro. The federal commissions in the northern states are actively engaged in combating the disease. In Bahia new cases have developed. In Alagoas and Sergipe, isolated cases have been reported. Since our last letter commissions have been sent to Pernambuco and Piauhy, but up to date no new cases have been reported.

New Hospital

The mayor of the city has opened a credit of $1,000,000 for the building of a charity hospital. It will be built in the vicinity of the medical school and will be regarded as an annex to that institution. It will contain all modern improvements and will be divided into different pavilions for medicine, surgery, obstetrics, skin diseases, etc.

The National Academy of Medicine

At the meeting, July 3, the National Academy of Medicine elected the following officers: president, Prof. Miguel Couto; vice president, Prof. Aloysio de Castro; first secretary, Garfield de Almeida; second secretary, Belmiro Valverde; speaker, Nascimento Gurgel; chairmen of the different committees: Austregesilo, Pinto Portella, Abreu Fialho, Carlos Seidl, Oscar de Sousa and Orlando Rangel.

Medical Bibliography

The National Academy of Medicine and the Medico-Surgical Society are compiling a catalogue of all medical publications that have appeared in Brazil within the last hundred years. This catalogue will be distributed in 1920 at the centennial of independence. At the same time a medical congress will be held in Rio de Janeiro under the supervision of Prof. Fernando Magalhães, president of the Sociedade de Medicina e Cirurgia. The program has not yet been definitely.

Child Welfare Congress

A child welfare congress is to be held in Rio de Janeiro in 1920. Its promotor is Dr. Moncorvo, director of the Instituto de Protecção á Infancia.

Death of Prof. Diogenes Sampaio

Diogenes Sampaio, professor of chemistry at the Rio de Janeiro University and one of the most prominent doctors in the medicolegal service, is dead. He was only 33 years old and stood high in his profession. The Society of Neurology, Psychiatry and Legal Medicine will hold a special session in his honor.

A New Medical Journal

The first number of the *Archivos de Neuriatria e Psychiatria* has appeared under the direction of Juliano Moreira, A. Austregesilo and Ulysses Vianna. This journal will be devoted principally to neurologic subjects. The *Archivos de Neurologia, Psychiatria e Medicina Legal* will treat principally of psychiatry and medicolegal questions.

Protection for Workmen

The government has passed a law for the protection of workmen against industrial accidents. A consulting commission of prominent physicians and lawyers has been appointed. The medical profession is represented by the director of the hospital for the insane, director of the medical school and the professors of hygiene and legal medicine.

The Question of Prof. Miguel Pereira's Successor

There are six candidates competing for the professional chair occupied by the late Dr. Miguel Pereira. Each of them has presented a thesis which will be defended before a committee of five professors to be chosen by the members of the medical school. The thesis of Dr. Rocha Vaz treats of "The Stomach and the Duodenum: Their Pathological Relations"; Dr. Clark's subject is "Syphilis of the Myocardium"; Dr. MacDowell has written on "New Human Spirochete Infections"; Dr. Henrique Duque will present a critical essay on "The Various Tests of Cardiac Efficiency"; Dr. Romeiro will discuss "Medical Semeiology," and Dr. Silva Mello will defend "Diagnosis of the Diseases of the Stomach: A Critical Study."

BUENOS AIRES LETTER

Buenos Aires, July 17, 1919.

Typhus Fever

We also had this year some cases of typhus fever in the northern part of the country, but the number was very small and the mortality very limited. This disease has prevailed to some extent in Santiago de Chile and in some other towns of the neighboring country, but apparently it has not crossed the Andes Mountains, and, for the time being, at least, there is no danger of this happening, since the heavy snow has completely interrupted all communication across the mountains.

Public Health Matters

Dr. Emilio Coni's resignation as president of the advisory council of the National Department of Hygiene has been accepted. Dr. Julio Méndez has been chosen to succeed him.

A commission has been appointed to submit a report on the best way to eradicate bubonic plague, a few sporadic cases of which occasionally occur in various parts of the country.

Antituberculosis Conference

The work of organization in anticipation of the second antituberculosis conference, which will be held at El Rosario, September 6-8, is proceeding with great enthusiasm. Various important organizations will be represented at the exposition which will be held in connection with the conference. The subjects for discussion will be: (1) best methods of prophylaxis; (2) compulsory health insurance, and (3) cheap sanitary lodgings.

Congress on Chemistry

The First National Congress on Chemistry was held in this city, July 9-16. The work of the congress scored an even greater success than was expected.

Male Sterility

Drs. Widacovich and Deluca call attention to the large proportion of men whose semen contains no spermatozoa, which amounts to 10 per cent. of those examined. These figures correspond to those recorded in other countries and show that in most cases the husband is responsible for the failure to have children.

Personal

The School of Medicine of the National University of Buenos Aires has submitted to the rector three lists of candidates from which to fill the professional vacancies in the departments of clinical epidemiology, otorhinolaryngology and genito-urinary diseases. The lists are headed by Drs. F. Destefano, E. V. Segura and B. Maraini, respectively.——The government has appointed the well known sanitarian, Dr. Emilio Coni, as director of the Santa Maria Sanatorium, which is the most important tuberculosis institution that exists in this country. Dr. Fonso Gandolfo will succeed him at the Buenos Aires dispensary.——The School of Medicine has appointed Dr. Alfredo Lanari as dean and Dr. J. B. Gonzalez as member of the council.——The Medical Association of Argentina has chosen Dr. Pedro Escudero president. The scientific meetings for the year have already begun at the new quarters of the association.

Exchange of Professors

Lectures have been given in the School of Medicine and before the medical association by Profs. F. Magalhães, Nascimento Gurgel and O. D'Utra Silva from Brazil, and by H. Garcia Lagos and D. Pratt from Uruguay. Other lectures by professors from Uruguay have been announced.

PARIS LETTER

Paris, July 31, 1919.

Franco-American Medical Relations

In a previous letter (The Journal, Aug. 16, 1919, p. 546) I called attention to the appointment of a committee whose duty it should be to promote closer relations between French and American medical men.

Dr. Tuffier, professor on the faculty of the Paris School of Medicine, was assigned the task of reporting on the desirability of such a union and the best means of bringing it about. At the meeting of the Academy of Medicine, July 22, Dr. Tuffier presented his report. The available means of accomplishing the desired end may be grouped under three heads: exchange of ideas, exchange of students and exchange of scientific material. The first may be realized by Franco-American scientific periodicals published in French and English; by the exchange of all theses printed or made public at the various French and American universities, and by the exchange of professors with a view of securing at first hand the exposition of the results of their investigations. In the matter of exchange of students there are several questions to be considered. The undergraduate students will find it difficult to change countries on account of the necessity of preparing for their examinations. The postgraduate students who will make up the majority of those who will come to France to complete their studies in our clinics and in our laboratories, to visit our specialists and to carry on personal investigations—these are the ones to be chiefly considered from the standpoint of French medical instruction. The exchange of scientific material should include permanent exhibits of French instruments at all the universities of the United States.

The organization recently formed in Paris for the development of Franco-American medical relations will provide for daily instruction distributed throughout the day. Almost all the clinical instructors have evinced an interest in the organization. Furthermore, under the name of Collège des Etats-Unis à Paris, a number of American and French savants have established a bureau of information where Americans arriving in France may secure information in regard to all the courses given or to be given at the various scientific institutions of Paris. This "collège" will keep in correspondence with all American universities and all French institutions of learning.

Homage to Professor Vincent

Under the chairmanship of Dr. Louis Mourier, under-secretary of state for the army medical corps, the friends, admirers and pupils of Dr. Vincent, general medical inspector of the army and professor on the faculty of the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grace; were entertained, July 29, at a banquet held in honor of Dr. Vincent's elevation to the rank of grand officer of the Legion of Honor.

Dr. Mourier gave a sketch of the life of Dr. Vincent and called attention to the part played in the winning of the war by the army medical corps in general and by the guest of honor in particular in saving from death and disease the thousands of French soldiers. M. Edmond Perrier, director of the museum of natural history; Dr. Baudet, surgeon of the hôpitaux de Paris, and Dr. Francois Helme also delivered speeches eulogizing Dr. Vincent.

The Conference of Chemists at London

The delegates of the Confédération chimique interalliée, representing approximately 30,000 chemists, recently met in conference at London, under the chairmanship of Dr. Charles Moureu, professor of organic chemistry in the Collège de France and a member of the Academy of Science. Some important business was transacted at this meeting. One of the most important resolutions concerns adoption of a common system of bibliographic documentation which will be carried out in England and in France.

At the close of the conference a delegation proceeded to Brussels to get in touch with the committee of the Conseil international de recherches with which the Confédération chimique interalliée is to be incorporated under the name of the Union internationale de la chimique pure et appliquée. The next conference will be held in Italy in June, 1920.

Establishment of a Place of Refuge for the Homeless

Near the outside fortifications of Paris a place of refuge destined to harbor temporarily the inhabitants of the devastated regions has been established. It is intended for refugees who are seeking to return to their homes and also for demobilized soldiers who are without shelter. Six barracks have been selected to furnish lodging. In the vicinity of the barracks there have been erected: a bath-house, a lavatory, an infirmary, a guard-house and a recreation hall for children, etc.

Personal

Dr. Lambert, professor on the faculty of the Nancy School of Medicine, has recently been transferred to the professorship of physics as applied to medicine.

Death of Dr. Albert Gouget

The death of Dr. Albert Gouget, a physician of the hôpitaux de Paris, recently appointed professor of general pathology and therapeutics at the Paris School of Medicine, has been announced.

Death of Dr. George Bertillon

Dr. George Bertillon, president of the Fédération des Syndicats médicaux, died recently at Maisson-Laffitte (department of the Seine-et-Oise). He was a brother of Alphonse Bertillon, the inventor of the system of anthropometric measurements used extensively in criminology, and also of Dr. Jacques Bertillon, director of the medical and surgical statistics bureau of the army.

LONDON LETTER

London, Aug. 5, 1919.

The Presentation to Sir William Osler

The presentation to Sir William Osler of a collection of essays on the eve of his seventieth birthday at the house of the Royal Society of Medicine has been announced in a previous letter. A large audience, which included many leaders of the profession and the heads of the medical departments of the army and navy, assembled. The function was a remarkable, indeed a unique one, for the presentation was made by Sir Clifford Allbutt, the Nestor of the profession. Thus were brought together as the principal actors of the scene the Regius professors of the two great English universities, the greatest medical teachers of the day, each distinguished not only by medical eminence but by scholarship and literary power. Sir Clifford Allbutt, who claimed to be one of Sir William Osler's oldest friends, said that in him we saw the fruitfulness of the marriage of science and letters, and the long inheritance of a culture which amid the manifold forms of life and through many a winter and summer has survived to inspire and adorn a civilization which so lately narrowly escaped the fury of the barbarian. Sir William Osler, who at times spoke with emotion, said that the pride a man might justly feel at this demonstration of affection by colleagues on both sides of the Atlantic was deepened by two circumstances—the fact that amid so much mental and physical tribulation his friends should have had the courage to undertake this heavy two-volume task, and that the honor was received at the hands of his brother Regius. Paying Sir Clifford Allbutt a graceful compliment, he said that to him had been given in fuller measure than to any other person in our generation a rare privilege: to him, when young, the old listened as eagerly as do now, when old, the young. The long list of contributors to the volumes recalled his vagrant career: Toronto, Montreal, London, Berlin and Vienna as a student; Montreal, Philadelphia, Baltimore and Oxford as a teacher. "To have had the benediction of friendship follow one like a shadow, to have always had the sense of comradeship in work, without the petty pinpricks of jealousies and controversies, to be able to rehearse in the sessions of sweet, silent thought the experiences of long years without a single bitter memory, fill the heart with gratitude. That three transplantations have been borne successfully is a witness to the brotherly care with which you have tended me. Loving our profession, and believing ardently in its future, I have been content to live in it and for it. A moving ambition to become a good teacher and a sound clinician was fostered by opportunities of an exceptional character, and any success I may have attained must be attributed in large part to the unceasing kindness of colleagues and to a long series of devoted pupils whose success in life is my special pride."

The contributions to the volumes number 150, and are from the pens of professional leaders on both sides of the Atlantic —physicians, surgeons, physiologists, anatomists, pathologists and historians. In keeping with Sir William Osler's interests, many of the subjects are educational. Among those contributed in this country are the introduction, by Sir Clifford Allbutt; "The Oxford Museum," by Dr. T. Dyke Acland; "The Oxford Medical School in the Eighteenth Century," by Dr. Arnold Chaplin; "The Problem of Graduate Medical Study in London," by Dr. J. G. Adami; "The Organization of Medical Research," by Sir Walter Morley Fletcher; "The Laboratory and the Ward," by Sir A. E. Garrod; "The Cradle of the Hunterian School," by Prof. Arthur Keith, and "Ideals for a Medical Library," by Mr. J. Y. W. MacAlister.

The Law and Professional Secrecy

Recently (The Journal, July 12, p. 124) I called attention to a case in which a girl was prosecuted for concealment of birth. A physician called in did not think it was his duty to inform the police, as it would have been a breach of professional confidence. The judge took occasion to lecture the physician, telling him that he was wrong, as there could be no professional confidence in criminal cases. If a patient cut another person's throat it would be his duty to inform the police. There was no difference between the two cases. This view is certainly not accepted by the medical profession, as a letter to the *British Medical Journal* from Sir John Tweedy, president of the Medical Defense Union, shows. He states that the council of the union is unable to accept the analogy as a fair one. The standpoint of the medical profession has more than once been challenged by the legal profession. The council nevertheless maintains that the duty of a physician to his patient is paramount, and advises any member seeking guidance that any communication made to him by a patient and any information acquired in such attendance are confidential, and that without the authority of the patient a physician is precluded by the canons of his profession from disclosing such information.

The British Medical Association Rejects Trade Unionism

At the annual meeting of the representatives of the British Medical Association, the question of trade unionism came up again. The following resolution was moved by the Bournemouth representative: "That, although the council of the association should be given every opportunity of circulating its reasons against the organizing of the profession on trade union lines, it should not endeavor to prevent such members of the association as may not be convinced by the arguments used from joining any other body which is attempting to combine the profession on such lines, and should encourage conferences with all bodies, representing members of the profession, to secure joint action to obtain satisfactory conditions of practice." The resolution, of course, referred to the Medicopolitical Union, a body described previously in The Journal. An animated discussion followed in which the hostility of the union to the association, while at the same time proffering cooperation, was the subject of comment. The chairman of the council said there was scarcely a single line of activity in which the union had not vilified the association. The motion was rejected by a majority of 75 to 17.

Marriages

Herbert Rowell Stoltz, Capt., M. C., U. S. Army, Stanford University, California, on duty with the American Army of Occupation, to Miss Sarah E. Adams of St. Joseph, Mo., in Paris, recently.

Clarence Pennell Baxter, Major, M. C., U. S. Army, on duty in Porto Rico, to Miss Mary Lyons Hartley of Washington, D. C., August 20.

Michael Xavier Sullivan, U. S. P. H. S., Spartanburg, S. C., to Miss Rachel Brook of Carrollton, Ga., at Asheville, N. C., July 28.

Richard Horace Hoffman to Miss Martha Janet Beecher Wyndham, both of New York City, at Pelham Bay, N. Y., August 10.

William Hart Elmer, Rockford, Ill., to Miss Lenore Crompton of Beaconsville, P. Q., Can., August 12.

Oliver Paxton Board, Birmingham, Ala., to Miss Helen Shaw of England, at Detroit, recently.

Ira Lincoln Fetterhoff, Baltimore, to Miss M. Alice Burton of Washington, D. C., August 13.

Jean Felix Picard, Lausanne, Switzerland, to Miss Jeannette Ridlon of Chicago, August 19.

Joseph Michael Blake, Chicago, to Miss Cecile Mary Schug of Moline, Ill., July 12.

Horace Ernest Ayers to Miss Muriel Randle Peck, both of New York City, August 6.

Ralph L. Maxwell to Mrs. Maude M. Maxwell, both of Little Rock, Ark., August 8.

Harold Albert Bachmann to Miss Craita Reiss, both of Sheboygan, Wis., recently.

Deaths

Henrietta Martha Thomas, Baltimore; Woman's Medical College of Baltimore, 1904; aged 40; a member of the staff of the Thomas Wilson Sanatorium for Children, Mount Wilson, Baltimore County; who went to England in 1914, and associated herself with the Society for the Relief of Destitute Aliens, and after the United States entered the war, devoted herself to work among the destitute alien children in England; died suddenly in York, England, August 4, from heart disease.

Charles L. Gregory, Greenville, Texas; University of Tennessee, Nashville, 1890; once city physician of Greenville; for two terms president of the Hunt County (Texas) Medical Society; formerly superintendent of the North Texas Insane Asylum, Terrell, and recently appointed superintendent of the new state hospital at Rust; president and superintendent of the Parkview Retreat, Greenville; died suddenly in that institution, August 11.

Herman Edward Street, Brooklyn; New York Homeopathic Medical College, 1892; aged 73; visiting dermatologist to the Cumberland Street Hospital, Brooklyn; a member of the consulting staff of the Brooklyn Memorial Hospital for Women, and an examiner in lunacy; died in the Peck Memorial Hospital, Brooklyn, August 18, two days after an operation for peritonitis.

Arthur Meeker Collier, Utica, N. Y.; College of Physicians and Surgeons, 1889; aged 54; from 1891 to 1895 physician at the Binghamton State Hospital; and then for a year first assistant physician at the New York State Hospital, Ogdensburg; died in St. Luke's Hospital, Utica, August 4, from paralysis.

John Russell Dickson, Gettysburg, Pa.; University of Pennsylvania, Philadelphia, 1880; aged 66; physician to the Adams County Poor Farm for nine years; county medical inspector and physician in charge of the State Tuberculosis Dispensary since 1908; died at his home, August 13, from cerebral hemorrhage.

John Henry Barnes ⊕ Enid, Okla.; Hospital College of Medicine, Louisville, 1901; aged 47; secretary of the Garfield County Medical Society in 1908; a specialist on diseases of the eye, ear, nose and throat; died at a hospital in Minneapolis, August 8, from valvular heart disease.

⊕ Indicates "Fellow" of the American Medical Association.

Julia Pauline Larson, San Francisco; University of California, San Francisco, 1900; resident physician of the Children's Hospital, San Francisco, for five years, and a member of the surgical staff for eight years; died in Stephenson, Merced County, Calif., July 17.

William R. Rodes, Mexico, Mo.; Jefferson Medical College, 1859; aged 83; a member of the Missouri State Medical Association; once superintendent of State Hospital No. 3, Nevada, Mo.; died at his home, August 4, from valvular heart disease.

John A. Pettit, Buffalo; University of Buffalo, 1874; aged 76; a member of the Medical Society of the State of New York; from 1895 to 1899 deputy health commissioner of Buffalo; died at his home, August 6, from pernicious anemia.

Mary Blair Moody ⊕ West Haven, Conn.; University of Buffalo, N. Y., 1876; aged 82; the first woman graduate of the medical department of the University of Buffalo; a botanist of high repute; died at her home, August 18.

John Ruggles Greenleaf, Gardner, Mass.; College of Physicians and Surgeons in the City of New York, 1865; aged 78; a member of the Massachusetts Medical Society; died at his home, June 8, from acute dilatation of the heart.

Thomas Hagarty, East St. Louis, Ill.; St. Louis College of Physicians and Surgeons, 1896; aged 54; a member of the Illinois State Medical Society; was run over and killed by an interurban car in East St. Louis, August 14.

Franklin Harmon Godfrey ⊕ Bloomington, Ill.; Miami Medical College, Cincinnati, 1877; aged 71; president of the McLean County Medical Society from 1900 to 1902; died at his home, August 8, from cerebral hemorrhage.

Ulysses Grant Galloway, South Bend, Ind.; Kentucky School of Medicine, Louisville, 1893; aged 52; a member of the Indiana State Medical Association; died at his home, August 12, from malignant disease.

Lyell J. Lescher, Mount Carmel, Ill.; Jefferson Medical College, 1877; aged 62; a member of the Illinois State Medical Society; died at his home, July 21, from ulcerative endocarditis following influenza.

Pedro Florentine Francke, New York City; College of Physicians and Surgeons in the City of New York, 1892; aged 53; died in the Peter Bent Brigham Hospital, Boston, August 19.

Fred Heller ⊕ Brownstown, Ind.; Kentucky School of Medicine, Louisville, 1898; aged 51; a member of the Brownstown school board; died suddenly, August 11, from heart disease.

Edward Baron Chandler, Moncton, N. B.; College of Physicians and Surgeons in the City of New York, 1871; aged 71; died at his home, May 13, from valvular heart disease.

Howard Cecil Sarver ⊕ **Lieut., M. C., U. S. Army,** Charleston, W. Va.; American College, St. Louis, 1912; aged 31; died at his home, July 24, from cerebral hemorrhage.

Joseph Frank Meagher, San Francisco; University of California, San Francisco, 1902; aged 42; died at his home, August 15, from endocarditis following influenza.

Edward McDonald ⊕ Cuba, Wis.; Rush Medical College, 1879; aged 68; a member of the Grant County board; died at his home, August 7, from cerebral hemorrhage.

Lewis Lorenzo Lacey, Austin, Texas; Bellevue Hospital Medical College, 1874; aged 68; died in the City Hospital, Austin, May 11, from cerebral hemorrhage.

John Marquand Wagner, Newman, Ill.; Bellevue Hospital Medical College, 1878; aged 76; died at his home, June 10, from chronic diffuse nephritis.

Nathan L. Bailey, Lake Preston, S. D.; Keokuk (Iowa) Medical College, 1892; aged 58; once mayor of Lake Preston; died at his home, August 5.

Carl Herman Stein ⊕ Pittsburgh; University of Pittsburgh, 1912; aged 44; died at the home of his sister in Pittsburgh, August 5, from pneumonia.

Marcus Claude Terry ⊕ Brighton, Iowa (license, years of practice, Iowa, 1886); aged 75; a practitioner since 1864; died at his home, recently.

Robert S. Bosher, Jr. ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1900; aged 45; died at his home, July 20.

William Harrison Lane, Miller, S. D.; Bellevue Hospital Medical College, 1882; aged 75; died at his home, in July.

George C. Somers, Los Angeles; Rush Medical College, 1880; aged 77; died at his home, July 6.

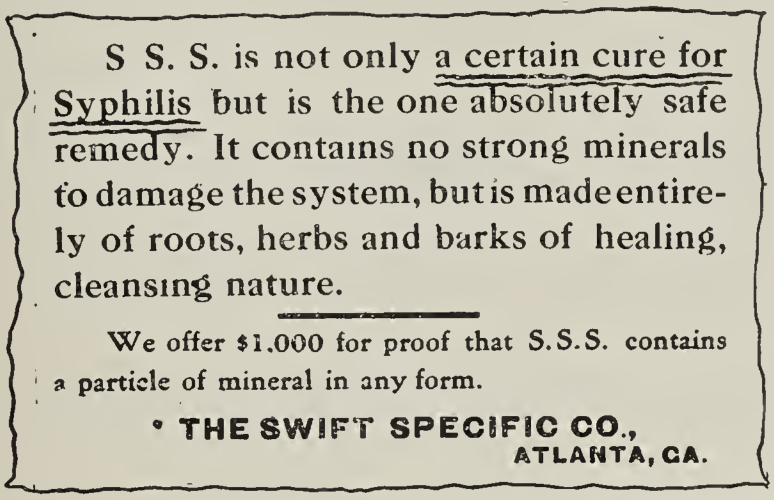
The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

S. S. S.

The One-Time Cure for "Contagious Blood Poison" Becomes a Remedy for Rheumatism

As a general thing, federal laws get action where state laws fail. One has only to call to mind the innocuousness of the average state law—there are happy exceptions—governing the sale of food and drugs, and compare it with the federal law covering much the same field, to realize the advantages of national legislation over state legislation. Occasionally it happens that the states are able to bring about reforms in the interest of the public that the federal government has failed to achieve. Readers of The Journal will remember the case referred to a few years ago regarding the result of North Dakota's net-weight law. Before there was any national legislation on the subject of requiring package goods to be plainly labeled with the net-weight of the contents, North Dakota had such a law, and what is more important, enforced it. As a result, one of the largest manufacturers of biscuits withdrew its business from that state rather than comply with the law. The people of North Dakota, however, were favorably situated to go into the biscuit making business themselves, and did so, putting out their products in compliance with the laws of their own state. After a few years the concern which had withdrawn its business from North Dakota reentered that state with its products labeled in accordance with the requirements of the North Dakota law. The important point is that the people in every state of the Union benefited by the reforms brought about by the law of one state.



S S. S. is not only a certain cure for Syphilis but is the one absolutely safe remedy. It contains no strong minerals to damage the system, but is made entirely of roots, herbs and barks of healing, cleansing nature.

We offer $1,000 for proof that S.S.S. contains a particle of mineral in any form.

THE SWIFT SPECIFIC CO.,
ATLANTA, GA.

A page from one of the older booklets sent out by the Swift Specific Company. At that time the concern made no secret of the claim that S. S. S. was offered as "the one absolutely safe" and "certain cure for syphilis."

Still another instance of a state law benefiting the nation arose in the case of the prosecution against "Hall's Catarrh Cure" by the state of Nebraska. For years after smaller and less powerful "patent medicine" makers had been forced by the federal authorities to remove the word "cure" from their trade packages, the Hall nostrum was sold as a "cure." Finally the company was prosecuted under the Nebraska laws. Later this item appeared in a drug journal:

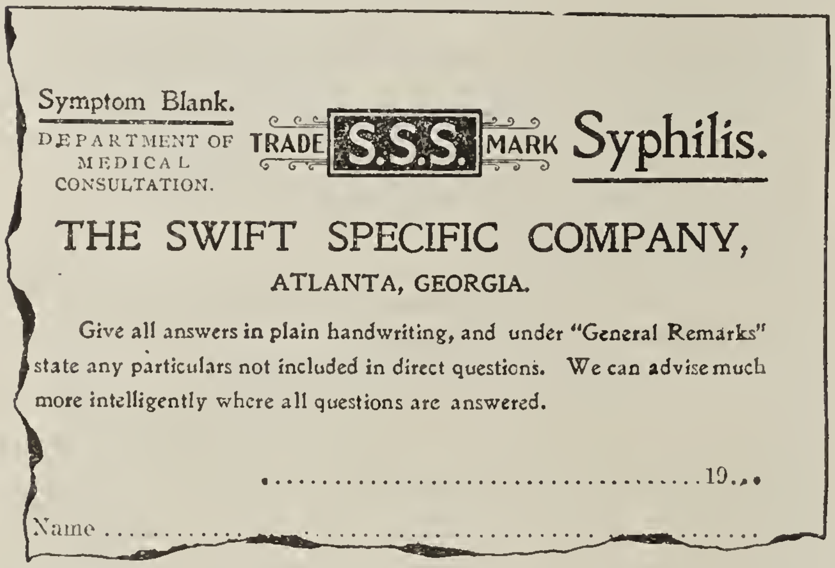
> "Cheney & Co., of Toledo, Ohio, asked leave to dismiss their appeal to a district court in Nebraska, in the action of the state food and drug department to have 'Hall's Catarrh Cure' declared misbranded in the use of the word cure. The company also expressed its purpose of changing the name of its preparation to 'Hall's Catarrh Medicine.'"

Soon thereafter it became "Hall's Catarrh Medicine" all over the United States; it continued to be a "cure" in Canada for some years.

Now comes the state of Louisiana in the rôle of a possible national benefactor. That state has a law prohibiting the sale of venereal disease remedies except on the written prescription of a licensed physician. In May of this year the Bureau of Venereal Diseases of the Louisiana State Board of Health notified the druggists of Louisiana that the sale of "S. S. S." ("Swift's Syphilitic Specific" or "Swift's Sure Specific") would meet with the same law enforcement measures as were being waged against any venereal disease nostrum. The immediate result of this notice was a letter sent to various drug stores in Louisiana by the sales manager of the Swift Specific Company, breathing, alike, injured innocence and defiance. The company was inexpressibly shocked to learn that its product should be classed as a venereal remedy. Said the sales manager:

> "We wish to state emphatically that this is a misrepresentation of facts. Please accept this letter as our positive guarantee that S. S. S. is not recommended or advertised as a Venereal medicine. We challenge any one to find on our package or in any of our advertising in the newspapers or elsewhere any statement or claim that S. S. S. is good for Venereal diseases.
>
> "It is difficult to understand why such a ruling could be made, and would suggest that you challenge, by letter, the right of the State Board of Health to forbid you to sell S. S. S., or anything else, on such a pretext. Doesn't it appear very peculiar that they should construe S. S. S. to be a Venereal remedy, and prevent you from selling it, when it is positively not so advertised or recommended? In no other state has its sale ever been questioned."

The letter closed with a suggestion to the effect that the druggist go ahead and sell S. S. S., and that they would be supported by the company. Was it "very peculiar" that the Bureau of Venereal Diseases of the State Board of Health of Louisiana "should construe S. S. S. to be a Venereal remedy?" Let us see: It was only a few years ago that S. S. S. was boldly and blatantly heralded in large display newspaper advertisements as a "cure" for syphilis, or, as it was more euphemistically described in the advertisements, "Contagious Blood Poison." As newspapers became a little more careful of the type of "patent medicine" copy they would accept, the Contagious Blood Poison advertisements were soft-pedaled, while "Rheumatism," "Catarrh," and "Impure Blood" were played up as the ailments for which S. S. S. was recommended. In the trade packages, however, the purchaser of S. S. S. was urged to write for the "special book on the blood," which he was told "goes deeply into the subject of mercury, iodid of potash, arsenic and other mineral drugs." Those who sent for the booklet learned from it that it would "enable one to properly treat syphilis under the use of S. S. S., together with such medical advice as we give gratis by correspondence." They learned further from this booklet that:



Symptom Blank.
DEPARTMENT OF MEDICAL CONSULTATION.
TRADE S.S.S. MARK Syphilis.

THE SWIFT SPECIFIC COMPANY,
ATLANTA, GEORGIA.

Give all answers in plain handwriting, and under "General Remarks" state any particulars not included in direct questions. We can advise much more intelligently where all questions are answered.

....19..

Name ....

Photographic reproduction (reduced) of part of a "symptom blank" sent out in November, 1916, by the S. S. S. concern to a person who wanted medical advice in the treatment of syphilis.

> ". . . those unfortunates who have fallen into the clutches of that great enemy, Syphilis . . . may be said to have been without an adequate treatment until the virtues of S. S. S. were made known to them."

According to this booklet, further, S. S. S. had:

> ". . . become a household necessity in various forms of blood poisoning, and especially effective in that most destructive and distressing of all forms of it, the contagious poison, known as Syphilis."

Letters that have been sent out by the Swift Specific Company during the past few years, and which The Journal has in its files—letters that were written to individuals who had indicated to the company that they had syphilis—have made such claims as:

> "In S. S. S. we have the only vegetable antidote to Syphilis that has ever been discovered . . ."
>
> "For more than 40 years S. S. S. has been recognized as the one remedy for Syphilis. Thousands upon thousands have been cured through its use."

In one of the older booklets, a portion of which is reproduced with this article, the claim appeared in black, bold-faced type:

> "S. S. S. is not only a certain cure for Syphilis, but is the one absolutely safe remedy."

We could continue to quote statement after statement, made in the S. S. S. advertising, advocating both by the most direct of statements and also by inference the claim that S. S. S. is a cure for syphilis.

But the Swift Specific Company evidently saw—in the action of the authorities in Louisiana—the hand-writing on the wall and a few weeks ago the State Board of Health of Louisiana received this letter from the general manager of the Swift Specific Company:

> "In accordance with a resolution adopted by the Board of Directors of the Swift Specific Company, a copy of which resolution I am herewith enclosing you, the S. S. S. Company, through me as the Manager of said company, does hereby guarantee that in every advertisement published in the State of Louisiana, as well as on the labels and cartons containing the product of the Swift Specific Company, there will be a statement in the same size type as the rest of their advertising that S. S. S. is not sold for the treatment, for the cure or as a remedy for venereal diseases."

This letter was dated June 26, 1919. On Aug. 20, 1919, a bottle of S. S. S. was purchased in Chicago. The drug clerk was asked particularly whether it was "new stock," he declared that they "got it in a few days ago." The carton in which this bottle came still holds out by inference the claim that S. S. S. is a remedy for syphilis. Thus:

> "$1000 is offered for proof that it contains one particle of Mercury, Potash, Arsenic, or any other mineral drugs."
>
> "Persons who for any reason do not wish to use mercury, potash, arsenic, or other minerals, may take S. S. S. with the full assurance that it contains none of these ingredients."

On the circular that came with the bottle—"adopted and approved" Jan. 1, 1918—there is this statement:

> "S. S. S., being compounded of vegetable plants, and having no Mercury, Potash, Arsenic, or other mineral drugs in its composition, may be taken for an indefinite period."

There is no statement anywhere to the effect that "S. S. S. is not sold for the treatment, for the cure or as a remedy for venereal diseases." Does this mean that the Swift Specific Company is going to put up special cartons and advertising copy for the state of Louisiana, or does it mean that the bottle purchased a few days ago in Chicago had been in the hands of a jobber for some months?

On Aug. 21, 1919, a bottle of S. S. S. was purchased in Louisiana. The $1,000 "offer" quoted from the carton of the Chicago sample, read in the case of the Louisiana sample, thus:

> "$1000 is offered for proof that it contains one particle of mineral drugs."

On the circular that came with the bottle—"adopted and approved" June 25, 1919—there is this statement:

> "S. S. S. being compounded of vegetable plants and having no Mercury, Potash or other mineral drugs in its composition may be taken for an indefinite period. Its effect is recognized as being beneficial to the system."

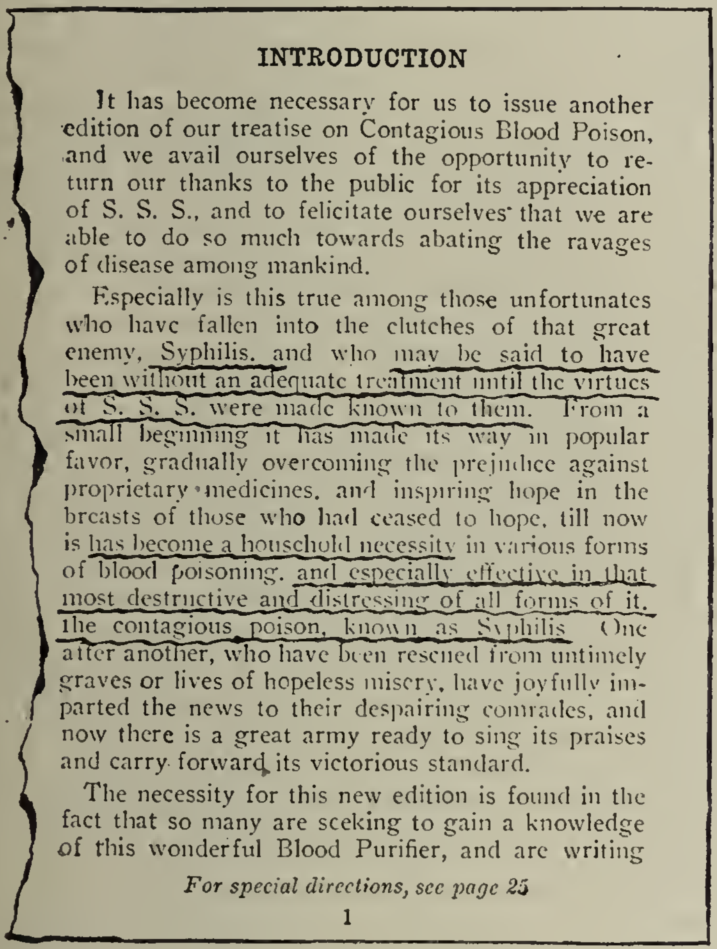
The circular also bore the following paragraph:

> "S. S. S. is a medicinal agent indicated in the treatment of Rheumatism, Catarrh, Malaria, Eczema and Skin Diseases, arising from conditions of the blood. It has been extensively employed in the treatment of such diseases. Under certain laws, remedies and treatments for venereal diseases must be sold on written prescription of a licensed physician. This preparation is not sold for such diseases."

The paragraph just quoted also appeared on a small sticker pasted on the carton.

Years ago S. S. S. was solemnly announced as a cure for cancer: "That S. S. S. cures cancer is a fact that experience has placed beyond doubt." But public opinion has long frowned on the "cancer cure" business and for some years nothing seems to have appeared in the S. S S. literature regarding its alleged curative effects in that disease. The public is now waking up to a fact that the medical profession has been attempting to hammer home for years: the self-treatment of venereal disease is not only fraught with danger to the individual, it is a menace to the community.

Public opinion has reached the stage at which it will support laws prohibiting the sale of nostrums for the self-treatment of venereal disease; this, too, in spite of the fact that the "patent medicine" interests insist that there is no valid reason why the individual should be deprived of the right to buy and use remedies for the self-treatment of venereal disease. Such being the case, S. S. S. will perforce drop its long advertised claim as a remedy for syphilis. Even so it will not be possible to eliminate from the consciousness or subconsciousness of thousands of individuals who have read the advertisements in the past or have been given the information by word of mouth, the belief that S. S. S. *is* a remedy for syphilis! There are on the market today a score of worthless nostrums purchased by foolish women in the belief that they are abortifacients; yet in no instance do the manufacturers of these products dare specifically to announce them as such. The hundreds of thousands of dollars expended in the past by the Swift Specific Company to bring home to a certain part of the population the alleged fact that S. S. S. is a "purely vegetable" cure for "Contagious Blood Poison" cannot be wiped out of the public consciousness by the declaration on the part of the manufacturers that "S. S. S. is not sold for the treatment, for the cure or as a remedy for venereal diseases." Furthermore, it is worth noting that the manufacturers do not actually disclaim their previous pretenses. They do not come out boldly and say "S. S. S. will not cure venereal disease." All they do is more cautiously to announce that it is "*not sold for* such diseases."



INTRODUCTION

It has become necessary for us to issue another edition of our treatise on Contagious Blood Poison, and we avail ourselves of the opportunity to return our thanks to the public for its appreciation of S. S. S., and to felicitate ourselves that we are able to do so much towards abating the ravages of disease among mankind.

Especially is this true among those unfortunates who have fallen into the clutches of that great enemy, Syphilis, and who may be said to have been without an adequate treatment until the virtues of S. S. S. were made known to them. From a small beginning it has made its way in popular favor, gradually overcoming the prejudice against proprietary medicines, and inspiring hope in the breasts of those who had ceased to hope, till now is has become a household necessity in various forms of blood poisoning, and especially effective in that most destructive and distressing of all forms of it, the contagious poison, known as Syphilis. One after another, who have been rescued from untimely graves or lives of hopeless misery, have joyfully imparted the news to their despairing comrades, and now there is a great army ready to sing its praises and carry forward its victorious standard.

The necessity for this new edition is found in the fact that so many are seeking to gain a knowledge of this wonderful Blood Purifier, and are writing

For special directions, see page 25

1

Photographic reproduction, (reduced) of page 1 of a booklet sent to the same individual who received the "symptom blank," a part of which is reproduced with this article. Note the statements which we have underlined.

The principle on which most "patent medicines" are exploited seems to be: Lie when you can; tell as little of the truth as you must.

Correspondence

SIR WALTER SCOTT'S LAMENESS

To the Editor:—Reference has recently been made, by Crookshank and others, to the childhood lameness of Sir Walter Scott as a definite case of infantile poliomyelitis. The attack came on in 1773, when Scott was about 18 months old, some ten years before the publication of Michael Underwood's well-known account of the disease (1784). The details, as given in Lockhart's Life of Scott, may be not uninteresting to American physicians:

> I showed every sign of health and strength until I was about eighteen months old. One night, I have often been told, I showed great reluctance to be caught and put to bed, and after being chased about the room, was apprehended and consigned to my dormitory with some difficulty. It was the last time I was to show such personal agility. In the morning I was discovered to be affected with the fever, which often accompanies the cutting of large teeth. It held me three days. On the fourth, when they went to bathe me as usual, they discovered that I had lost the power of my right leg. My grandfather, an excellent anatomist as well as physician, the late worthy Alexander Wood, and many others of the most respectable of the faculty, were consulted. There appeared to be no dislocation or sprain; blisters and other topical remedies were applied in vain. When the efforts of regular physicians had been exhausted, without the slightest success, my anxious parents, during the course of many years, eagerly grasped at every prospect of cure which was held out by the promise of empirics, or of ancient ladies or gentlemen who conceived themselves entitled to recommend various remedies, some of which were of a nature sufficiently singular. But the advice of my grandfather, Dr. Rutherford, that I should be sent to reside in the country, to give the chance of natural exertion, excited by free air and liberty, was first resorted to, and before I have the recollection of the slightest event, I was, agreeably to this friendly counsel, an inmate in the farmhouse of Sandy-Knowe. . . . It is here at Sandy-Knowe, in the residence of my paternal grandfather, already mentioned, that I have the first consciousness of existence; and I recollect distinctly that my situation and appearance were a little whimsical. Among the odd remedies recurred to to aid my lameness, some one had recommended that so often as a sheep was killed for the use of the family, I should be stripped and swathed up in the skin, warm as it was flayed from the carcass of the animal. In this Tartar-like habiliment I well remember my grandfather, a venerable old man with white hair, used every excitement to make me try to crawl. I also distinctly remember the late Sir George MacDougal of Makerstoun, father of the present Sir Henry Hay MacDougal, joining in this kindly attempt. He was, God knows how, a relation of ours, and I still recollect him in his old-fashioned military habit (he had been colonel of the Greys), with a small cocked hat, deeply laced, and embroidered scarlet waistcoat, and a light-coloured coat, with milk-white locks tied in a military fashion, kneeling on the ground before me, and dragging his watch along the carpet to induce me to follow it. The benevolent old soldier and the infant wrapped in his sheepskin would have afforded an odd group to uninterested spectators. This must have happened about my third year, for Sir George MacDougal and my grandfather both died shortly after that period. . . . I was in my fourth year when my father was advised that the Bath waters might be of some advantage to my lameness. My affectionate aunt, although such a journey promised to a person of her retired habits anything but pleasure or amusement, undertook as readily to accompany me to the wells of Bladud, as if she had expected all the delight that ever the prospect of a water-place held out to its most impatient visitants. My health was by this time a good deal confirmed by the country air, and the influence of that imperceptible and unfatiguing exercise to which the good sense of my grandfather had subjected me; for when the day was fine, I was usually carried out and laid down beside the old shepherd, among the crags or rocks round which he fed his sheep. The impatience of a child soon inclined me to struggle with my infirmity, and I began by degrees to stand, to walk, and to run. Although the limb affected was much shrunk and contracted, my general health, which was of more importance, was much strengthened by being frequently in the open air, and, in a word, I who in a city had probably been condemned to hopeless and helpless decrepitude was now a healthy, high-spirited, and, my lameness apart, a sturdy child—*non sine diis animosus infans.*

The shrinking and contraction of the limb is strongly suggestive of the affection described by Underwood and Heine. There have even been apparent figurations of the disease in art, for instance, on an Egyptian stele of the eighteenth dynasty in the Carlsberg Glyptothek at Copenhagen (*Bull. Soc. franc. d'hist. de méd.*, Paris, **10**:408, 1911); or the picture of the paralytic beggar boy by Ribera in the Vienna gallery. In a footnote to the article on Sir Walter Scott in the ninth edition of the Encyclopaedia Britannica (p. 545), Dr. Charles Creighton says that Scott's primary trouble was "a swelling at the ankle, and either consisted in or gave rise to arrest of the bone-forming function along the growing line of cartilage which connects the lower epiphysis of each of the two leg-bones with its shaft. . . . The limb would have been blighted very much more if the arrest of growth had taken place at the upper epiphysis of the tibia or the lower epiphysis of the femur. The narrowness and peculiar depth of Scott's head point to some more general congenital error of bone-making allied to rickets, but certainly not the same as that malady. The vault of the skull is the typical 'scaphoid' or boat-shaped formation, due to premature union of the two parietal bones along the sagittal suture." Creighton goes on to say that this synostosis of cranial bones is characteristic in microcephalous idiots, and he relates that an eminent French anthropologist, who saw a microcephalic skull in the Cambridge Museum of Anatomy, pointed to the scaphoid vault of the crown and the effaced sagittal suture, with the exclamation: "Voilà Walter Scott!" Scott's brain was found to be small in size after death, a fact of little moment in itself, since there is apparently no special relation between cranial capacity, brain weight and ability. Turgenieff and Cuvier had the largest and heaviest brains, Shelley, Scott, Mozart, Gambetta and others, among the smallest.

F. H. GARRISON, M.D., Washington, D. C.

"THE ADMINISTRATION OF ARSPHENAMIN"

To the Editor:—In the letter by Director McCoy of the Hygienic Laboratory, "The Administration of Arsphenamin" (THE JOURNAL, July 12, 1919, p. 130), there appears the statement that when only one of several physicians using arsphenamin of the same batch "registers complaint as to the quality of the drug, and the others use it with satisfaction, there seems to be no other conclusion than that the mode of administration in the exceptional case was at fault."

In such case I believe there is at least one other justifiable conclusion: that arsphenamin, perhaps insufficiently dried, will in the course of six months or a year develop toxic by-products in the ampule, and that the amount present will vary with the length of time that elapses before the contents are used and perhaps according to the conditions under which it has been stored. Conceivably such a product may pass the biologic tests at the time of manufacture, and later produce distressing symptoms in human beings. Dr. Hugo Freund, who had been using the "product which enjoys a particularly high reputation" with entire satisfaction, recently reported to me four successive delayed reactions in as many patients. The symptoms were vomiting and an itching dermatitis, occurring from one to four days after administration of the drug. An ampule was examined and was found to be sound, but the contents gave a solution with the characteristic gun-metal tinge due to oxidation. It can be readily demonstrated that arsphenamin will shed metallic arsenic when it has become oxidized, whereas the unchanged base will not do so when reduced with zinc and hydrochloric acid. The so-called nitritoid reactions may also be induced by factors other than dilution and alkalization, however important the latter may be. Ehrlich and Bertheim, in 1912, stated that "salvarsan" contained about 7 per cent. of methyl alcohol, after having been dried for two hours, and in 1918 the two brands of American arsphenamin examined by me were similarly found to contain it. I believed then, as I do now, that this alcohol acts on the base in the ampule, and that a certain amount of methyl arsin may thus accumulate, and when intravenously injected may cause the nitritoid reactions; and according to the amount that may thus have accumulated, the rapidity of injection and the concentration of the solution, cardiac paralysis may result. Kober, working independently, has reached much the same conclusions, and has further succeeded in preparing arsphenamin, free of methyl alcohol, and according to his tests of a lower toxicity. Neo-arsphenamin can be made without the use of methyl alcohol, and this undoubtedly explains the long series of injections reported by Dr. H. McClure Young (THE JOURNAL, July 12, p. 131), who used a French brand, in high concentrations, without reactions.

In the decade that has elapsed since the introduction of arsphenamin into therapeutics, the majority of practitioners surely should have been able to master the technic of measuring water and counting drops of alkali according to printed directions. I believe there is room for improvement in the drug itself as well as in our methods of administering it.

JOHN B. RIEGER, M.D., Detroit.

STETHOSCOPE OR STETHOPHONE

To the Editor:—Referring to your editorial on Laënnec and the stethoscope, you give the Greek word *σκοπεῖν* to mean "to examine." Could not the word also be translated "to view" or "to observe"? The ending "scope" being associated with all instruments used for examining by sight, as the telescope, microscope, spectroscope, etc., it seems an error to couple it with a sound-transmitting instrument, the ending "phone" or "fone" being universally used in the latter connection, as telephone, microphone, etc.

EUGENE KERR, M.D., Towson, Md.

[COMMENT.—As stated, *σκοπεῖν* may mean "to view"; in fact, that is the ordinary meaning of the word, while "to look to, to consider, to examine" are common figurative meanings. Compare, in this connection, "to look into" in English, which has also the figurative meaning "to examine into"; as, for instance, "I will look into the matter." With regard to the question as to whether it would be more accurate to call the stethoscope a stethophone: The term "stethophone" has already been proposed by others who regard it as a more accurate designation for a sound-transmitting instrument, and it will be found duly listed in "The American Medical Dictionary." In regard to *φωνεῖν*, the second component part of stethophone, it may be said that it means primarily "to produce a sound or to speak." It does not seem to mean "to sound," as we speak of sounding the depths of the sea; if it did, "stethophone," chest sounder, might be very appropriate. A "stethophone," then, signifies an instrument for making the chest to *sound* or to *resound.* Since it does make almost inaudible sounds distinctly audible it may perhaps be said, figuratively speaking, to make the chest *resound;* but, from an actual standpoint, it has no appreciable effect on the quality of the chest sounds per se. The word "microphone" might have been appropriately used for the stethoscope, since it is an instrument for magnifying sounds. As to the term "stethoscope," since the instrument in question, to which Laënnec himself gave the name, serves to examine the chest, it does not seem inappropriate to call it a "stethoscope," a chest examiner. When, however, the same instrument is used to examine the arteries or the beat of the fetal heart, one has the feeling that the name "stethoscope" is not a broad enough term. It might well be termed a "phonoscope," an instrument for testing sounds, or a "microphonoscope," an instrument for examining scarcely audible sounds, or a "stethophonoscope," when the instrument has been especially adapted for examining the sounds of the chest; or suffering humanity could, if necessary, be inflicted with the term "stethomicrophonoscope," which would mean an instrument for examining the scarcely audible sounds of the chest. This term ought to be "descriptive" enough to satisfy anybody. For short, "stethoscope" does very well. It may be added that the modern Greeks have accepted the term "stethoscope," since they call the instrument *στηθοσκόπιον.*—ED.]

CENTENARY OF THE STETHOSCOPE

To the Editor:—Recently, in looking over a first edition of Laënnec's "Auscultation Médiate" I noticed that it bore the date 1819. The first issues of the book appeared in Paris in September of that year—just a hundred years ago. An editorial in THE JOURNAL of August 9 emphasizes this fact. Should there not be some general recognition of this anniversary by the American medical profession? The centenary of the stethoscope! It is at least an opportunity to acknowledge gracefully a part of the great regard we must feel for all France just now, and particularly, with us, for the members of the medical profession in France. If no general act can be accomplished, I would suggest that the various county societies have a Laënnec program early in their fall meetings.

LOGAN CLENDENING, Kansas City, Mo.
Instructor in Physical Diagnosis, University
of Kansas School of Medicine.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HEALTH STATUS AND HEALTH PECULIARITIES OF THE JEWISH RACE

To the Editor:—Please suggest a list of books, magazine articles, statistical data, etc., dealing with the question of health status and health peculiarities of the Jewish race in all countries. Any material dealing with the susceptibilities and tendencies to certain maladies is especially desired.

H. A. S., M.D., Pittsburgh.

Answer.—The following references may be consulted:

Feldman, W. M.: The Jewish Child, $4, New York: Bloch Publishing Company.
Fishberg, M.: The Jews: A Study of Race and Environment, $1.50, New York: Charles Scribner & Sons.
Brill, A. A.: Adjustment of Jews to the American Environment, *Mental Hygiene,* April, 1918.
Kreinermann, S.: Pulmonary Tuberculosis Among the Jews, *Cor.-Bl. f. schweiz. Aerzte,* Dec. 4, 1915; abstr. The Journal, Jan. 29, 1916, p. 387.
Hexter, M. B.: Tuberculosis Work Among Jews of Cincinnati, *Lancet-Clinic,* May 8, 1915.
Jews and Consumption, London Letter, The Journal, Sept. 12, 1914, p. 958.
Salaman, R. N.: Heredity and the Jew, *Eugenics Rev.* **3**: 187, 1911-1912; ibid. **4**: 91, 1912-1913.
Flinker, A.: Cretinism Among the Jews, *Wien klin. Wchnschr.,* Dec. 29, 1910.
Are Jews Immune to Pellagra? Correspondence, The Journal, Aug. 5, 1911, p. 496.

THE COEFFICIENT OF ROBUSTNESS

To the Editor:—What rule is to be applied to secure the coefficient of robustness?

H. Ayuso y O'Horibe, M.D., Merida, Mexico.

Answer.—Pignet, a French military surgeon, in the course of certain anthropologic studies on soldiers evolved an empirical standard of physical fitness or so-called coefficient of robustness which has been used to a great extent in Europe, especially for the purpose of determining the physique of soldiers. His formula is: $F = H - (C + W)$. H is height in centimeters, C the chest measurement in centimeters at greatest expiration, and W weight in kilograms. The larger the factor, the poorer the physique. When F is less than 10, a person is very strong; between 10 and 15, strong; between 15 and 20, good; 20 and 25, medium; 25 and 30, weak; above 30, very weak. In rare cases, F becomes negative.

An attempt was made by Capt. J. A. Black of the Royal Army Medical Corps to adapt Pignet's formula to English measurements with the following results: $F = (W + C) - H$. W is weight in pounds, C the chest measurement in inches at full inspiration, and H the height in inches. When F is over 120 a man is classed as very strong; between 110 and 120, strong; between 100 and 110, good; between 90 and 100, fair; between 80 and 90, weak; under 80, very weak.

Pignet's formula can, of course, serve as a basis of comparison, but it is far from being a definite standard.

ELIMINATION OF ANTS

To the Editor:—In The Journal, Aug. 2, 1919, Dr. Brandon of Essex, Mo., asks for an efficient device for the eradication of ants. Two years ago we conquered an invasion of ants, but found the "microscopic brain of the ant" for the time being fully as intelligent as Sir John Lubbock claimed in his interesting account of them. The successful repulsion of these Huns was not effected until we employed lime, whitewashing profusely and completely the walls, steps and sills where ingress could be made. The cellar floor was also liberally whitewashed, and food placed in uncontaminated receptacles on the whitewashed floor temporarily until the insects could be given a barrage of whitewash wherever they had been. We have had no trouble since, as we repeat the external whitewashing every spring; and as they no longer pass, they have evidently met their Verdun.

H. P. Ashe, M.D., Pittsburgh.

Per Capita Cost of Insanity.—The total cost of maintenance of insane patients in the state hospitals in the fiscal year 1917 was $43,926,888.88. The average per capita cost based on the average daily patient population was $207.28. The highest per capita cost, $306.97, was reported by the state of Maine; the lowest, $135.90 by the state of Virginia.—*State Hospital Quarterly,* Utica, N. Y., May, 1919.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.
Arizona: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
Colorado: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
District of Columbia: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
Georgia: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.
Hawaii: Honolulu, Sept. 8-10. Sec., Dr. J. R. Judd, Honolulu, Hawaii.
Idaho: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.
Illinois: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.
Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.
Kansas: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.
Massachusetts: Boston, Sept. 9-11. Sec., Dr. Walter P. Bowers, State House, Boston, Mass.
Michigan: Lansing, Oct. 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.
Missouri: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.
Montana: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
New Hampshire: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.
New Mexico: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.
New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.
Oklahoma: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.
Rhode Island: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
Utah: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.
West Virginia: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.
Wyoming: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

Idaho April Examination

Hon. Robert O. Jones, commissioner of the Idaho Department of Law Enforcement, reports the written examination held at Boise, April 1-2, 1919. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Eleven candidates were examined, all of whom passed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago Hospital College of Medicine		(1918)	77
Hering Medical College, Chicago		(1901)	78
Loyola University, Chicago		(1918)	77
Rush Medical College	(1880) 75, (1914) 78,	(1917)	80, 83
Hospital College of Medicine, Louisville		(1892)	75
Medical School of Maine		(1897)	75
Eclectic Medical University, Kansas City, Mo.		(1914)	80
University of Cincinnati		(1916)	79

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1918)	Washington
Leland Stanford Jr. University		(1917)	California
Denver and Gross College of Medicine		(1905)	Utah
Rush Medical College	(1903) Washington,	(1914)	Wyoming
Keokuk Medical College		(1905)	Arizona
University of Louisville		(1910)	Wyoming
Kansas City Medical College		(1891)	Montana
University of Oregon	(1918) Washington,	(1918, 2)	Oregon
Jefferson Medical College		(1891)	Utah

Utah April Examination

Dr. G. F. Harding, Secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 7-8, 1919. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Six candidates were examined, all of whom passed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1918) 87.4;*	(1919)	87.8
Harvard University		(1916)	85.5
University of Nebraska		(1918)	84.5
Columbia University, College of Phys. & Surgs.		(1918)	81.7, 84.4

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Chicago Medical College	(1889)	Iowa
Marion-Sims College of Medicine	(1899)	Colorado
University of Tennessee	(1882)	S. Carolina
National University, Athens	(1897)	Illinois

* Granted M.B. Degree in 1918 after completing four year course; will receive M.D. after completing his intern year.

Arkansas May Examination

Dr. T. J. Stout, secretary of the Arkansas State Board of Medical Examiners, reports the written examination held at Little Rock, May 2, 1919. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 33 candidates examined, 30 passed and 3 failed. Eighteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Phys. and Surgs. Little Rock	(1910)	76.6
Arkansas Industrial University	(1896)	82.6
University of Arkansas (1904) 85.1, (1906) 82.1, 82.7, (1908) 84, (1916) 84.8, (1919) 83.4, 84, 84.5, 85.2, 89.1, 92.4.		
Hospital College of Med., Louisville	(1903)	84.5
Tulane University (1903) 82.4,	(1918)	86.4
University of Maryland	(1917)	79.5
Hamline University	(1897)	75.1
Cornell University	(1906)	92
Meharry Medical College (1919) 75.6, 79.1, 80.4.		
University of the South	(1898)	85.7
University of Tennessee, College of Medicine (1918) 85.5, (1919) 82.5, 83.5, 90.5, 90.6, 91.		
Vanderbilt University	(1918)	82
FAILED		
University of Arkansas	(1918)	70.1
Meharry Medical College	(1918)	68.3
Memphis Hospital Medical College	(1911)	70.8

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Howard University	(1909)	Texas
College of Physicians and Surgeons, Chicago	(1906)	Texas
Indiana University, School of Medicine	(1913)	Tennessee
University of Maryland	(1893)	Oklahoma
College of Physicians and Surgeons, Memphis	(1907)	Mississippi
Meharry Medical College	(1905) (1910) (1914) (1917) (1918)	Tennessee
Memphis Hospital Medical College	(1908)	Texas
	(1909) (1910, 2)	Tennessee
University of Nashville	(1905)	Mississippi
Vanderbilt Univ. (1892) Oklahoma, (1896) Texas,	(1917)	Tennessee

Hawaii May Examination

Dr. J. R. Judd, secretary of the Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, May 5-8, 1919. The examination covered 8 subjects and included 64 questions. An average of 75 per cent. was required to pass. Of the 5 candidates examined, 2 passed and 3 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Illinois	(1914)	80.4
Tokyo Imperial University	(1910)	79.7
FAILED		
University of Louisville	(1910)	73.4
Fort Worth School of Medicine	(1917)	74
Tokyo Imperial University	(1916)	61.6

Nevada May Examination

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 5-7, 1919. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Eight candidates were examined and passed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Medical Evangelists	(1917)	94
Boston University	(1917)	82
Kansas City University of Physicians and Surgeons	(1919)	81.2
Columbia University, College of Physicians and Surg.	(1905)	89.6
University of Buffalo	(1917)	83.7
Jefferson Medical College	(1916)	88.1
Tokyo Charity Hospital Special Med. School	(1907)	81.9
Trinity Medical College	(1885)	81.9

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Georgia College of Eclectic Medicine and Surgery	(1914)	Arkansas
Kentucky School of Medicine	(1906)	Penna.
Eclectic Medical University, Kansas City	(1905)	Texas
Albany Medical College	(1909)	Illinois

Book Notices

The Elementary Nervous System. By G. H. Parker, Sc. D., Professor of Zoology, Harvard University. Cloth. Price, $2.50 net. Pp. 229, with 53 illustrations. Philadelphia: J. B. Lippincott Company, 1919.

This volume, the second of a series of monographs on experimental biology by American investigators, includes an "extended discussion of only the simplest examples of the elementary nervous system" as Parker himself states in the opening sentence of the last chapter. The author shows that contractile tissue (as effectors in the form of muscle cells) appears before any form of nervous tissue. Subsequently, there is added a receptor or modified epithelial cell which influences the effector more quickly because it is more sensitive to the external stimuli (chiefly physical) which originally acted on the effector organ directly. It is a "trigger, so to speak, to discharge the underlying muscle, and judging from the quickness with which this discharge is accomplished as compared with that with which the independent effectors discharge, the efficiency of the new system is beyond doubt." To this receptor-effector system is added later on a third type of cell, situated between the receptor and effector, designated by Parker the protoneuron, the ancestor of the neuron of more complex types of animals. The nerve net is thus evolved. The migration inward of this nerve net with its diffuse transmission of impulses leads to the beginning of the adjustor organ (central nervous system) in that the transmitting fibers arrange themselves into tracts showing physiologic polarity of conduction. The protoneurons of the nerve net evolve into the neurons of the nervous system. The first and last chapters of the book outline admirably the author's conceptions and the morphologic and physiologic data which lend support to these views. The remaining twelve chapters present the evidence in great detail as obtained from anatomic studies and physiologic experiment from various types of invertebrates (sponges, coelenterates and ctenophores). Most readers, except specialists, will no doubt judge that the contents could have been incorporated in a volume half its size. This is due in great part to the development of the theme along historical lines. The most interesting example of the latter is the delightful account of the development of our knowledge concerning the structure of nerve, nerve cells and nerve nets (Chapter IX). The book is written in an admirable style.

The New Physiology and Other Addresses. By J. S. Haldane, M.D., LL.D., F.R.S. Cloth. Price, $2.75 net. Pp. 156. Philadelphia: J. B. Lippincott Company, 1919

The six addresses discuss biologic knowledge in relation to other departments of knowledge. The main point emphasized and developed from various points of view is that biology is an independent science and not merely applied physics and chemistry. The titles of the addresses are: "The Relation of Physiology to Physics and Chemistry"; "The Place of Biology in Human Knowledge and Endeavor"; "The New Physiology"; "The Relation of Physiology to Medicine"; "The Theory of the Development by Natural Selection," and "Are Physical, Biological, and Psychological Categories Irriducible?" In the first address the main contention is that "in physiology, and biology generally, we are dealing with phenomena which, so far as our present knowledge goes, not only differ in complexity, but differ in kind from physical and chemical phenomena; and that the fundamental working hypothesis of physiology must differ correspondingly from those of physics and chemistry." In the second address it is pointed out that the hypothesis that living organisms exist as such, and that their structure and activities are the expression of their existence, has the same defects as other working hypotheses, but that it is necessary for the biologist, though inconsistent with physicochemical conception of the universe. The third address centers around the claim that the attempts to analyze living organisms into physical and chemical mechanisms is a colossal failure and concludes with an interesting statement of the relations of practical medicine to biologic as distinguished from mechanistic physiology. In the fourth address the relation of physiology to medicine is discussed more fully, and stress is laid on the great need at present for basing the study of anatomy, physiology, pathology and pharmacology on "the distinctively biological conception of organic regulation." In the two remaining addresses the inadequacy of mechanistic explanations of life and its activities is canvassed with special reference to natural selection and psychology. The addresses are interesting and animating, and should be read widely by physicians because they tend to broaden the point of view and to prevent empiricism and stagnation.

The Anatomy of the Peripheral Nerves. By A. Melville Paterson, M.D., F.R.C.S., Lieut. Colonel R. A. M. C., Assistant Inspector of Special Military Surgical Hospitals. Cloth. Price, $4.50. Pp. 165, with 64 illustrations. New York: Oxford University Press, 1919.

The percentage of peripheral nerve lesions among the casualties of the late war was so high that brief accounts of the anatomy, physiology and pathology of peripheral nerves fill a very important part in the present literature. In this book the author presents briefly the anatomy of the peripheral nerves for the use of students and surgeons, particularly for those engaged in military orthopedic work. The contents of the book consist of chapters on the anatomy of the peripheral nerves, the distribution of the spinal nerves, the sympathetic system, and the cranial nerves. It would have been better if some of the views of the author relative to regeneration and degeneration of nerves, in view of their unsettled nature, had been omitted from the text. It is by no means established that living fibers are found in the distal as well as the proximal portion of a divided nerve, and that new growing axons are derived from both of these portions. The author's statement relative to restoration of function following a section of a nerve and its immediate suture cannot withstand a critical analysis. Communications between the various nerves are described in a manner which permits one to understand the retention of power ordinarily supposed to be lost following the interruption of a particular nerve. As the book was intended primarily for surgeons in the military service, it would perhaps have added to its value to include in the description of the cranial nerves their relation to each other at the base of the skull. The original illustrations are very good, but the reproductions of illustrations from other sources could be improved. In general, the volume is a useful one to the readers for whom it was intended.

Health Education in Rural Schools. By J. Mace Andress, Ph.D., Head of the Department of Psychology and Child Study, Boston Normal School. Cloth. Price, $1.60. Pp. 321, with illustrations. Boston: Houghton, Mifflin Company, 1919.

This book is intended primarily for teachers in rural schools, with a view to aiding them to present to their classes the elements of hygiene. The author, we are informed, was born in the country, attended rural schools, taught in rural schools, served as a member of the county board, and has been for several years an instructor in hygiene and child study in normal schools. With this excellent equipment he has prepared a book which is well worth while. It presents the elements of the subject in simple language, and follows each chapter with suggestive class exercises and a list of bibliographic references, which will enable those wishing further knowledge to find it. It is to be hoped that those interested in the administration of our rural schools will avail themselves of the opportunity offered them to improve hygiene and hygienic instruction through the use of this textbook.

Cheerio! By Harold M. Hays, Major, M. C., U. S. A. Cloth. Price, $1.50 net. Pp. 291. New York: Alfred A. Knopf, 1919.

The war resulted in a flood of books relative to the experiences of men in the various services. Some half dozen books of medical experiences have already been noted in this department. All are of interest as showing the particular point of view of the authors. All have been marked by the cheerfulness with which the officers viewed the many hardships of their service. Major Hays' book reflects a cheerful disposition under adverse circumstances. He and his unit seem to have been looking for the brighter side of things. The book is a pleasantly reminiscent one.

Medicolegal

Mental Capacity Required to Transact Business

(Sutcliffe v. Heatley (Mass.), 122 N. E. R. 317)

The Supreme Judicial Court of Massachusetts holds that a note and mortgage were void when they were signed by a woman who had been subject to epileptic fits for about ten years and her mind had become permanently impaired and she did not have sufficient mental strength to care properly for her property and to understand the effect of the mortgage and note, and derived no benefit from signing them, the entire proceeds going directly to her brother, through whose undue influence she was induced to sign them, though she had sufficient capacity to understand that she was signing a note and mortgage, and did so understand, but was not of sufficient capacity to realize the effect it might have on her estate and to judge of the wisdom or unwisdom of the transaction. The court says that the test in cases of this kind is whether the person executing the instrument had sufficient mental capacity to be capable of transacting the business. If she could not understand the nature and quality of the transaction or grasp its significance, then it was not the act of a person of sound mind. There may be intellectual weakness not amounting to lack of power to comprehend. But an inability to realize the true purport of the matter in hand is equivalent to mental incapacity. When this is established, then a contract is voidable. It is no defense that the other party acted fairly and without knowledge of the want of mental faculty or of any circumstances which ought to have put him on inquiry. This case came within this rule.

Misrepresentations by Applicants for Insurance

(Myers v. Mutual Life Ins. Co. of New York (W. Va.), 98 S. E. R. 424)

The Supreme Court of Appeals of West Virginia, which distinguishes between representations and warranties, holds that, in determining whether or not an applicant for insurance has been treated by a physician so as to render voidable a policy of insurance issued to him on the representation that he has not been so treated, prescriptions for slight temporary ailments will not be considered; neither will such slight temporary ailments be taken into consideration in determining the truth or falsity of a representation as to diseases or maladies with which the insured may have been afflicted. But a policy of insurance, issued on an application therefor, in which the representation is made, in answer to a question asked, that the insured had not consulted or been treated by a physician within five years next preceding the making of the application, will be avoided at the instance of the insurer on a showing that the insured within that time had been treated for several consecutive months for a chronic malady with which he was then suffering. A policy of insurance will also be avoided at the instance of the insurer, when the insured, in answer to a question in his application for insurance, states that he has since childhood suffered only from certain named complaints, from which he has fully recovered, when the evidence shows that he was treated for several months at a long time subsequent to the complaints mentioned by him for a disease with which he was then suffering.

Correct Practice Relative to Expert Testimony

(Commonwealth v. Russ (Mass.), 122 N. E. R. 176)

The Supreme Judicial Court of Massachusetts, in holding that, in this case, wherein it was an issue at the trial whether the death of the defendant's wife was due to strangulation or to hemorrhage, it was a subject about which expert testimony was competent, says that the correct practice as to the introduction of such testimony is well settled. The competency of an expert witness to testify to his opinion rests on unusual knowledge and extraordinary experience, superior to that of ordinary persons. The witness, being qualified in this particular, then may base his opinion on facts observed by himself or within his own knowledge and testified to by himself, or on facts assumed in the questions put to him and supported either by admitted facts or by the testimony of other witnesses already given or to be given at the trial, or on facts derived partly from one source and partly from the other. It is not necessary in all cases that the facts be stated in the form of a hypothetic question, although this is generally permissible. When an opinion is sought on substantially uncontradicted testimony heard by the witness with or without personal observation on his part, the question may be asked on that express or implied assumption without reciting the testimony in the question.

When there is conflicting testimony, a witness, who has been present in court and heard it, may be asked if he has formed an opinion as to a material point, respecting which his skill gives him requisite qualification to express an opinion, based on that testimony or parts of it. If his answer is in the affirmative, then he may select and state the facts given in testimony which in his opinion, if true, are most significant and pertinent as aids in the formation of an opinion and to what conclusion his mind is led by the consideration of such facts.

In the trial of a criminal or other case, it is permissible to ask an expert witness if he has formed an opinion from his observations and examination and from testimony heard in court as to the point in issue about which he is qualified to give evidence. On answering in the affirmative he may be asked to state that opinion. The direct examination then may stop, leaving the other side to develop the reasons in whatever detail may be desired. The forms of question given in decided cases may not be exclusive of all others.

It is essential, however, that in giving testimony the expert witness should not undertake to pass on the truth of the fundamental hypothesis on which his opinion rests unless it is within his own observation and knowledge. He simply must assume those facts as the basis of his opinion. It is the province of the jury alone to decide whether those facts are established. If they are established in substance to the satisfaction of the jury, then and not until then can the value of the expert evidence be taken up by them. If such facts are not so established, then the jury does not reach at all the consideration of the expert testimony.

Manifestly an opinion not grounded either on facts observed by the witness or on facts assumed and specified in the question or on facts in evidence through other witnesses, but based on facts taken on the hearsay of others out of court and not in evidence and not put in the form of a supposition in the question, is not admissible in evidence. Such an opinion would or might well be founded on facts, the truth of which could not in the nature of things be established to the satisfaction of the jury because no competent evidence respecting them would be before the jury.

As to the order of introduction of evidence and the form of questions, much must be left to the discretion of the presiding judge.

An expert witness cannot fortify his opinion by putting in evidence incompetent facts.

Liability of Husband for Medical Services to Wife

(*Ward v. Johnson* (*Ga.*), *98 S. E. R. 405*)

The Court of Appeals of Georgia, Division No. 2, in reversing a judgment of nonsuit, holds that, on the trial of a suit against a husband for medical services rendered by the plaintiff to the defendant's wife, evidence that before the date of the rendition of the services by the plaintiff, the defendant left the state as a fugitive from justice, carried his wife with him, and that she later returned to the former community and lived on land belonging to the husband, the husband still remaining away, does not necessarily demand the inference that the parties were living in a state of separation as husband and wife under such circumstances that the husband would not be liable for necessaries, such as medical services furnished by the plaintiff to the wife. Whether credit was extended to the husband or to the wife, and whether the parties were living in a state of separation as husband and wife and under such circumstances as would make him liable for necessaries furnished her, were questions for the jury.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Tri-State District Medical Society, Rockford, Ill., Sept. 1-4.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Vermont State Medical Society, Burlington, Oct. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting held in Atlantic City, N. J., June 14, 1919

(*Continued from page 639*)

Blood Examinations of Trinitrotoluene Workers

Dr. George R. Minot, Boston: Two hundred and thirty-three essentially unselected individuals were studied. Red cell abnormalities were found to be very frequent. The most interesting abnormality was the frequent finding of fragmented or fragmenting red cells which have a definite histologic character. These cells appear to afford evidence of a rapid increased destruction of the red cells. Evidence shows that distinct increases of these cells are to be looked on as a significant sign of a considerable degree of poisoning; and probably when they occur in large numbers, they indicate some degree of toxic jaundice. Among other red cell abnormalities noted were the following: Polychromatophilia occurred in 83 per cent. of the cases, often to a marked degree. Howell-Jolly bodies, stippling and blasts were found, and increased numbers of reticulated red cells. The red cell count averaged in the mildest cases 4,500,000, and in the severest 3,800,000. It was found that there was usually a definite relationship between the total amount of red cell changes and the symptoms. Methemoglobin or some form of changed hemoglobin is apparent in these cases.

The white blood cells do not furnish as much information concerning the worker's condition as do the red cells. Slightly increased white cell counts were common. The observations showed that an individual may become distinctly and severely poisoned with a normal, or an absolute or relative increased, lymphocyte count, or with an increased or normal polymorphonuclear count. However lymphocytosis is to be looked on as an undesirable sign, but does not necessarily indicate that significant poisoning will occur or is occurring, except when there is a leukopenia. Slight eosinophilia (more than 5 per cent.) occurred in 10 per cent. of the cases. It was more common in cases with slight symptoms than in those with marked.

The blood platelets were usually slightly increased. Their diminution was observed twice and in both cases there was a relative lymphocytosis. Such a condition should certainly be regarded as evidence of a severe effect on the marrow, indicating aplasia. Webster's test for changed trinitrotoluene in the urine was found to be less valuable than blood examination to indicate the worker's condition.

Value of Urobilin and Urobilinogen of Stool and Urine in Diagnosis and Prognosis of Pernicious Anemia

Drs. G. H. Hansmann and C. P. Howard, Iowa City: Our material consisted of twenty-seven cases of pernicious anemia and nine miscellaneous conditions. The method used was a modification of the Wilbur and Addis spectroscopic method described by J. D. Boyd. The evidence of abnormal hemolysis occurs first in the stools, secondly in the duodenal contents, and lastly in the urine. An increase of the urobilin and urobilinogen in the urine and stools above 12,000 dilutions is a constant finding in pernicious anemia during the period of remission. The presence of even small amounts of urobilinogen in the urine is evidence of a probable pernicious anemia in the absence of signs of biliary or hepatic disease.

A low red cell count with a low urobilin and urobilinogen content indicates an arrest of the activity of the disease process, and that a period of improvement may be anticipated. On the other hand, a high red cell count with a high urobilin-urobilinogen content indicates a marked hemolysis and often precedes a steadily falling blood count, as was also demonstrated by McCrudden.

Active Immunity Against Experimental Pneumococcus Pneumonia

Drs. Russell L. Cecil and Francis G. Blake, Washington, D. C.: The production experimentally of typical lobar pneumonia in monkeys affords an ideal method of testing the value of various pneumococcus vaccines. The injection of killed cultures of pneumococcus into ordinary laboratory animals will protect them against lethal doses of virulent pneumococci injected intravenously; but this is not equivalent to preventing the disease itself. An equally efficient immunity exists in monkeys following an attack of experimental pneumococcus pneumonia. This immunity appears to be similar in all respects to that following vaccination with a living culture. It has been found possible to produce lobar pneumonia in monkeys by the intratracheal inoculation of minute amounts of pneumococcus culture. The disease produced is entirely comparable to lobar pneumonia as seen in man both in its clinical and in its pathologic features. The opportunity presented to study the histogenesis of lobar pneumonia from the earliest stages of invasion of the lung by the pneumococcus to beginning resolution has brought out some interesting facts. The pneumococci primarily penetrate the mucous membrane of the larger bronchi near the central portion of the lung and there set up an inflammation of the perivascular and peribronchial tissue as shown by infiltration with polymorphonuclear leukocytes and edema. The process advances by direct extension to the adjacent alveolar walls and by way of the lymphatics toward the periphery of the lung, being at first entirely interstitial in character before actual exudation into the alveolar spaces has occurred. Consolidation subsequently occurs by the pouring out of the exudate into the alveolar spaces, at first serous and then cellular, until complete hepatization of one or more lobes has occurred.

DISCUSSION

Dr. Francis G. Blake, Washington, D. C.: The perivascular infiltration and interstitial character of the process in the early stages of lobar pneumonia as seen in monkeys, either killed or dying soon after inoculation, is not commonly seen in man because men do not die sufficiently early in the disease for this feature of the pathologic condition to be at all prominent. It is in many respects comparable to the early stages of pneumococcus pneumonia following influenza except so far as the picture has been modified by the preceding or concomitant influenzal infection.

Dr. S. J. Meltzer, New York: In the course of last winter, Wollstein and I again carried out a large series of experiments in the production of pneumonia in dogs by the method of insufflation. The insufflated dogs either died within twenty-four hours or after from six to ten days with characteristic clinical symptoms. Some dogs temporarily recovered from the disease to die or to be killed later. The pathologic pictures revealed at the various necropsies manifold lesions, depending on the degree of the virulence of the culture, on the quantity insufflated, and on the time of the year when the experiment was conducted.

Bone Marrow Changes in Mustard Gas Poisoning

Dr. E. B. Krumbhaar, Philadelphia: When yellow cross gas (mustard gas) was first used against the Allies in July, 1917, we found that an extraordinary leukopenia developed in the severe cases, often reaching less than 1,000 cells per cubic millimeter. This leukopenia (chiefly due to diminution in the polymorphonuclears and disappearance of eosinophils) followed an initial leukocytosis and reached its climax during the second week after gassing, at the time when the mortality curve was highest. It was therefore thought that the lack of leukocytes in the circulating blood might have an important bearing on the lack of resistance to secondary infections that was shown by such cases. A study of the bone marrow in fifty-five fatal cases showed an inhibition of the blood regenerative process, which, as it occurred both in the absence of infection and in the presence of pyogenic infection, was taken to be due to a directly toxic action of the poison on the bone marrow. Fourteen marrows showed an almost complete aplasia, and twenty-eight a very slight and thirteen a moderate hyperplasia, but in none was hematopoiesis as active as in marrows from such acute infections as pneumonia, meningitis, typhoid and influenza. The cellular constituents of the hematopietic areas also emphasized the inadequacy of the attempts at regeneration. Immature forms were most prominent, together with fair numbers of phagocytes and pigment indicators of increased blood destruction. Blast forms were uncommon, but polymorphonuclears were even rarer, and in some cases almost entirely absent. In the case of those patients who died after the second week, when leukopenia no longer existed, hyperplasia of the marrow was more marked, and polymorphonuclears and normoblasts were more in evidence.

(*To be continued*)

ASSOCIATION OF AMERICAN PHYSICIANS

*Thirty-Fourth Annual Meeting, held at Atlantic City, N. J.,
June 16-18, 1919*

(*Concluded from page 637*)

Experiments with Cultures of Streptococci, with Special Reference to Empyema

Dr. F. P. Gay, Berkeley, Calif.: I succeeded in producing empyema in the rabbit by injection of a streptococcus culture into the pleural cavity; I have not succeeded in producing empyema by introduction through the respiratory tract. The cultures which will produce empyema will not produce septicemia; the organisms remain in the circulation for three or four days, but the animal does not die. The culture will not produce peritonitis. Vaccines such as are used in the vaccination of human beings have had no effect in preventing this empyema. Experimental animals are rendered more susceptible, except in cases of long continued inoculation for six weeks or more, when it becomes immune; but no serum or vaccine capable of curing the animal of empyema has been obtained.

New Method for Testing Immunity by Means of the Whole Blood, with Especial Reference to Pneumonia and Its Prophylaxis by Bacterination

Drs. S. S. Cohen and G. H. Heist, Philadelphia: We wished to know whether certain drugs modified the development of the disease; also, whether the existence of natural or artificial immunity in men or animals can be demonstrated by a better or simpler method than agglutination, and whether the existence of protective substances in the blood, or recovery without their development, can be demonstrated after certain prophylactic or therapeutic measures. The results with serum, defibrinated blood and citrated blood were inconstant and contradictory. Remembering an observation of Wright's which, however, he had not published, namely, that the whole blood of immunized animals, as it flowed from the vein, killed pneumococci, we tried to develop a simple and workable way of testing this germicidal power of the whole, unaltered, flowing blood, in which only a small quantity of blood need be used, and the manipulations can be completed before coagulation began. The solution of the problem came from Prof. B. F. Lacy, of the department of physics of the Central High School of Philadelphia, and the technic was worked out by Dr. Heist. It is therefore termed the "Lacy-Heist" method. A capillary glass tube is filled up to a mark with broth culture of pneumococci and then emptied of fluid by touching its tip to a piece of moist gauze. A film containing a certain number of pneumococci remains sticking to the wall of the tube. Blood as it came from the capillary or vein was allowed to flow up the seeded tube to the mark; and it was then sealed and incubated for twenty-four hours at 37 C., when a drop was blown on a slide and stained. By using a multiple fan shaped pipet, such as Wright used for coagulation, several dilutions of the culture in multiples of five or ten might be used and an approximately quantitative result obtained. If the blood had no bactericidal action, the pneumococci multiplied freely. If it was bactericidal, they were killed and no growth resulted. The reaction was sharp—either there was abundant growth, or the bacteria were killed, as shown by the absence of colonies on centrifugalization and plating. This test gave constant results. Pigeons are naturally immune to pneumococcal infections. Their blood destroyed virulent cultures that flourished in mouse and rabbit blood. On the other hand, the blood of mice and rabbits suitably immunized destroyed the cultures. No bacterial action resulted from the serum of the defibrinated blood either of the naturally immune pigeon or the inoculated rabbit. Similar observations were made on human blood, showing some men to be naturally immune, others to be susceptible, and others to have acquired immunity by inoculation or by recovery from pneumonia. Cultures that failed to grow in unimmunized rabbits' blood proved to have lost their virulence. The animals survived large doses. When the virulence was restored by passage through mice and rabbits, the bacteria grew in the capillary tubes. The living culture killed the animal. Such cultures were used as tests for immunity. After inoculation with killed pneumococci by a special method of preparing the vaccine, Dr. Heist was able to produce immunity to Type III as well as to Types I and II and to demonstrate this immunity by the method here described. Even when agglutination tests failed or as in Type III were inapplicable, tests were made with other organisms, pathogenic and nonpathogenic, including *B. subtilis,* meningococci, and the globoid bodies of poliomyelitis. We concluded from these uniform results that bacteria which would not grow in the whole blood of an animal or man were nonpathogenic for that species or individual, while those that did so grow were pathogenic. We concluded, likewise, that in both natural and artificial immunity there is in the whole blood a protective force or quality not to be found in any fraction of it. We do not know what this is, nor do we know that it is the same in the two instances. Very probably it is not.

Rapidity and Persistance of Action of Digitalis on the Heart

Dr. G. Canby Robinson, St. Louis: A study of digitalis was made on patients suffering from a form of cardiac disorder which is so influenced by digitalis that it could be determined definitely when the drug begins to take effect, and in most cases when its action ceases. Digitalis was usually administered in one large dose in the form of the tincture which had been assayed by the cat method of Hatcher and Brodie, and was given by mouth. The dose was determined by the method described by Eggleston, and 0.15 c.c. was given per pound of body weight. In a few instances this dose was reduced on account of certain clinical findings. Twenty-six cases were studied and tabulated. The maximum effect of digitalis, as judged by the slowest ventricular rate, was usually observed in from fifteen to twenty-six hours. In thirteen cases the heart remained under the influence of digitalis from four to twenty-two days, or an average of nine days and eight hours. In one case the effect lasted only one day, while in the others no definite statement is justified, because subsequent doses of the drug were given before the effect of the first dose had disappeared or, as in one case, the patient died. The study of these cases demonstrates that a single large dose of the tincture of digitalis given by mouth affects the heart soon after administration, and at relatively uniform time, indicating that the drug is well absorbed, at a uniform rate. It also demonstrates that the maximum effect is usually obtained in about twenty-four hours and generally continues to be effectual for nearly ten days.

Thrombosis of Coronary Arteries

Dr. Emanuel Libman, New York: The term "angina pectoris" should be dropped and replaced by "cardiac pain." The most common causes of pain in the cardiac area are: (1) hypertension with dilatation of the arch of the aorta with or without narrowing of the arch; (2) Hodgkin's disease; (3) syphilis of any part of the vascular system, and (4) disease of the coronary arteries. The usual sequence of events in cases of coronary thrombosis is, first, the closure of the artery; second, the infarction of the artery; and then a later period in which there is cardiac pain and, perhaps, rupture of the heart. Infarction can be diagnosed by the active pericarditis, but the infarction may be in the back of the heart. In thrombosis, a valuable sign is leukocytosis. A hint is given by feeling other arteries in the body; the patient may have had intermittent claudication. Search the history for evidence of ptomain poisoning, and whether after recovery the patient had difficulty in walking. Another symptom of thrombosis of the coronary arteries is a peculiar leaden tint, although not every patient develops this color. In thrombosis of the right coronary artery there is apt to be acute enlargement of the liver.

Early Diagnosis of Intestinal Tuberculosis

Drs. Lawrason Brown and H. L. Sampson, Saranac Lake, N. Y.: Ulcerative peritonitis is difficult to diagnose clinically. A patient with a lung lesion who complained of indigestion and constipation, with long persistent elevation of temperature, was found to have a tuberculous colitis. A study of the roentgenograms showed the barium located in the cecum. Of seven cases of ulcerative colitis examined, in six there was tuberculous colitis. The diagnosis was founded on hypermotility of the tract, as shown by the roentgen ray, and filling defects which were interpreted as spasm. One patient had tuberculosis of the hepatic flexure with a membrane at that point. Often it was noted that when the barium had been evacuated at the end of twenty-four hours, there remained an ileac stasis, in which the barium did not pass the ileocecal valve. In almost every case there was spasm of the cecum. Pain, nervous diarrhea, and gas are prominent symptoms in these cases, which are often difficult of diagnosis, but which may be benefited by operation.

A Case of Ayerza's Disease (Chronic Cyanosis, Chronic Dyspnea, Erythremia, Enlargement of the Liver and Spleen and Hyperplasia of Bone Marrow) Associated with Syphilitic Sclerosis of the Pulmonary Artery

Dr. A. S. Warthin, Ann Arbor, Mich.: This is a case of chronic cyanosis, dyspnea and erythremia, observed clinically over a space of five years. It was at first supposed to be one of mediastinal tumor, as the roentgen ray disclosed a large, well marked shadow above the heart. This did not increase in size. The patient was a laborer. He showed chronic cyanosis and polycythemia. The red blood count was from 7 to 8 million cells. Later the case was recognized as one of Osler-Vaquez disease. The clinical course was characterized by attacks of angina, hypercyanotica, cyanosis, increasing weakness, drowsiness, edema, asthma, dyspnea, enlargement of the spleen and liver, multiple telangiectasis, and constant erythremia. The man was fairly comfortable for some time but finally developed large spleen and liver, and very marked somnolence, which was in accord with the Spanish description of the disease.

At the postmortem examination the findings were: extreme atherosclerosis of the pulmonary artery and all its branches, extreme dilatation of the right heart, fibrosis and emphysema of the lungs, extreme angiectasia of the entire vascular system, enlargement of the liver and spleen, and hyperplasia of the bone marrow. The microscopic examination revealed the presence of a typical syphilitic mesarteritis of the pulmonary artery and aorta, chronic fibroid myocarditis, pancreatitis, orchitis, leptomeningitis, suprarenal infiltration of plasma cells, and also changes in the stomach wall of a syphilitic character.

Cancer of Pancreas

Dr. T. B. Futcher, Baltimore: Fifty-eight cases have been noted among 41,000 patients admitted at the Johns Hopkins Hospital. We studied thirty cases in which the diagnosis was confirmed by exploratory operation or by necropsy. Twenty-one were in males, nine in females. Most of the patients were in the fifth decade of life. Pain was a prominent symptom in all but six cases, and was located in the upper section of the abdomen. Jaundice was the most constant symptom. This was progressive, persistent and intense. One patient was almost black and had the appearance of argyria. A palpable tumor was present in twelve cases, in the apex of the epigastrium; this did not descend on deep inspiration. A distended gallbladder seemed to be an important diagnostic physical sign, and was different from the blocking of the common duct by stone, which did not cause distention of the gallbladder. In nearly all cases there was enlargement of the liver due to jaundice, but this lacked the features of ordinary catarrhal jaundice. This was sometimes due to lack of function of the pancreas, and acholic stools were noted with excess of fat. Such stools were present in twenty-two out of thirty cases. In two there was actual fatty diarrhea with from twelve to fourteen large, fatty, white stools in twenty-four hours, due to the growth's shutting off the pancreatic ferment from the intestinal tract. Glycosuria was present in 10 per cent. of the cases. The tumor was usually situated at the head of the pancreas; one was in the body. Eight were primary cases; two were secondary to carcinoma of the stomach and gallbladder, respectively. These were adenocarcinomas. There was one case of hemangioma endothelioma.

A New Roentgen-Ray Sign of Perinephritic Abscess

Drs. H. M. Fussell and H. K. Pancoast, Philadelphia: A wavy appearance of the diaphragm on fluoroscopic examination is a valuable diagnostic sign in early detection of perinephritic abscess.

AMERICAN ORTHOPEDIC ASSOCIATION

Thirty-Third Annual Meeting, Atlantic City, N. J., June 14-17, 1919

(Continued from page 635)

Operative Treatment of Paralytic Conditions of the Upper Extremity

Dr. Arthur Steindler, Iowa City: Essential requirements for function of the upper extremity are: active abduction, or apposition of abduction of shoulder; ability of flexion of elbow; ability of pronation of forearm; hyperextension of wrist, either active or passive; active flexion of the metacarpophalangeal joints; free play of the fingers and power of opposing the thumb to the fingers. In flail shoulder there does not seem to be any reliable method of tendon transplantation. The indication here seems to be arthrodesis; this need not be complete, however. The problem of flail elbow is difficult as the arthrodesis cannot be undertaken in children under 14 or 15 years of age. Even then it is doubtful. Operation consists in causing the flexors and extensors of the wrist to act as flexors of the elbow; but flexion is limited and is of use only when the muscles are not weakened. A plaster cast is used for two months, and then a splint with a stop lock for six months, not more than 90 degrees of extension being allowed. In drop hand and flail wrist, stabilization of the wrist is an advantageous procedure. The result of the operation is not a complete arthrodesis, but rather limited wrist motion, from 10 to 30 degrees of extension. Tendon transplantation is done in addition in several cases. The operation of flexorplasty is done with advantage in restoring opposition of the thumb and thus the function of the hand. This operation is often performed in addition to other work on the hand and forearm. Lack of extension of the thumb is corrected by the method of Mayer and Biesalski, by taking the extensor of the index finger as a check to the flexors of the thumb. For flexion of wrist in "main-en-griffe" flexorplasty is done in some cases, and the cock-up splint, of the kind devised by Sir Robert Jones, is used in other cases. Flexorplasty of the elbow combined with arthrodesis of the shoulder, gave better functional results than in cases in which arthrodesis of the shoulder was not done. If arthrodesis of the wrist had been carried out in connection with elbowplasty, the elbow results would have been better.

DISCUSSION

Dr. Clarence L. Starr, Toronto: We are now studying results on from 450 to 500 cases of nerve suture, after nerve separation from scar, and are attempting to find out what we have succeeded in doing. The results are very interesting. Early cases were those of bullet wounds and machine gun wounds, which generally healed within two weeks, but left complete separation of the nerve. In these, operation was performed early, and these have formed a large percentage of complete recoveries and restoration. In other cases that were supposed to be septic and in which the patients were brought home for treatment from eighteen months or two years after the injury there has been a very small percentage of recovery, so that they are almost hopeless. One has to choose the best time to operate. Dr. Kidner said that a large percentage of these men would recover if left alone, but many of them will not come anywhere near approximation, even if left till the crack of doom. Tennell's sign is a good one, but it is not reliable. Operation should not be delayed when it is found that the muscle power is going down, as tested by faradic and galvanic stimulation. Operation done under these indications usually shows what is expected. I have never seen a satisfactory case of nerve bridging, with ultimate recovery. One can get recovery in nerves with purely motor function like the musculospiral and the sciatic. It seems occasionally as if there were rotation of the nerve and that the axis cylinders find their way from motor areas to sensory areas. A piece of shrapnel may twist a nerve a number of times, and it is almost impossible to get approximation of the proper fibers. Best recoveries have been seen in the sciatic, the median and the musculospiral. In the upper extremity one has a good substitute in muscle transplantation, particularly in the musculospiral, in which one only has to overcome gravity. There is almost enough power to use the flexor tendons of the forearm and thumb, the wrist next and the fingers last. With a musculospiral injury one can transplant muscles and make a useful hand. The pronator radii teres can be taken from its insertion and inserted into the wrist, the pollicis longus can be transferred to the flexor of the thumb, the flexor carpi radialis to the extensors of the fingers. Tendon transplantation has been so satisfactory that one does not feel bad if the musculospiral is separated.

Dr. Charles Bagley, Jr., Baltimore: Considerable experience is necessary before one can interpret the action of the muscles. Often there is simulated action. The time element does not need consideration, but all cases without improvement need operation. The Tennell sign is merely additional evidence; one cannot depend greatly on it. Operation is not done till the wound is healed completely, and sometimes, while one is waiting for operation, the nerve has started to regenerate. After liberation of the nerve, and no sign of return of function, or in cases in which the nerve is tied up with scar tissue, or perhaps neuroma, it is better to do an end to end suture. Sometimes too much tension makes reoperation necessary. If nerve suture is done under favorable conditions, reoperation is not justified. The ideal time for operation would be when the wound had just healed. In cases in which circulation has been much interfered with, on account of extensive *débridement,* one is puzzled as to whether or not to free the nerve from scars, as this might interfere still further with circulation and make amputation necessary.

Dr. Sidney M. Cone, Baltimore: Some things have perhaps been said too emphatically, for instance, Starr's statement that one cannot have a graft of nerve toward the periphery, when there is a large gap, as there is no connecting link between the two. There is much good clinical and laboratory work which refutes that statement. I believe that there are other methods of nerve growth than those actually seen, that is, from the central end. Even the most hopeful workers in clinical and laboratory study cannot say definitely whether growth is continuous or whether it takes place by effusion. I have no doubt that the proximal end, surrounded by Schwann's sheath cells, has a better chance to grow. I think also that nerve formation may take place in the distal ends of the scar formation of Déjerine. There is good reason why there should be more growth from the proximal end than from the trophic center. How, then, does the nerve find its way to the periphery? There are a number of questions in diagnosis, such as the character of the wound, the character of the muscle, the duration of the wound, the health of the individual, the time of year, the position of the patient when struck, nerve growth, and protein changes in the wound. The physiology of scar formation has to be considered, and infections of various kinds, the degrees of which have not been well studied. Probably nerves caught in a cellular embryonic state may produce growth which simulates growth by first intention. Growth under pathologic conditions may be a different question. Often nerves have been seen showing wild growth through the sheath after operation. Scar tissue, however, prevents this. Even with foreign bodies, symmetrical nerve bulbs are seen, growing quite close up to the foreign body. There is also the question of the blood supply to the nerve. In cases in which the musculospiral and ulnar nerves have been completely separated for months, the amputated arm was studied, and a suggestion of growth of new nerve was found down to the wrist, not complete, but a suggestion of an attempt to form new nerve all the way along and some adult nerve with funnels.

Dr. Frederick C. Kidner, Detroit: The operative side of nerve surgery has been condemned unnecessarily. It is not necessary to wait long periods of time before operating on nerves. Usually it is safe to operate early by a two-stage method. One can go in within from two to three weeks after the skin has closed and find out what the condition is surrounding the nerves. Then one can close up and watch for sepsis, and if none appears, finish the operation. That will save the patient from six to nine months of waiting. The preliminary operation does not do any harm. Badly damaged nerves do not need operative interference except removal of bands of scar tissue. Badly chewed up nerves recover surprisingly well. For severed nerves, the earlier suture is done the better the prognosis. It is almost impossible to tell whether the nerve is severed or not. By waiting to find out, time is wasted. The simpler the operation the better. One sometimes finds cases of interposed foreign body, muscle or membrane actually preventing the union of nerve. This should be removed, and the ends brought together in an easy position with the finest silk suture. It is then replaced in the best bed it is possible to find, with relaxation of the suture line by the joints in the neighborhood. It is better to wait for nerve recovery rather than do tendon transplantation. This gives good results for four or five months, then stretches, and leaves the patient unimproved. In injuries of the musculospiral, the hand adapts itself and becomes a useful hand, so that it hardly seems necessary to perform complicated and difficult operations. When one is in doubt about division of the nerve, it is useless to wait and prove the interruption; it is better to operate as soon as active sepsis has ceased. If there is any fibrous continuity whatever, one should wait two or three years; time and again such patients have recovered. If there is any fibrous continuity, the nerve would push through. Often at operation one can get a strong electrical response from tissue which looks like nothing but scar tissue, which proves that there are nerve fibers coming through. Even if there is no electrical reaction it is well to err on the safe side. In case of a gap in which end to end suture is impossible, one can perform a spinal laminectomy and tip up the joint. Grafting is the last resort.

Dr. J. Torrence Rugh, Philadelphia: Splints with pressure should be applied extremely carefully. The dorsum of the fingers will not stand pressure.

Dr. E. W. Ryerson, Chicago: It is interesting to know whether any forms of filling in nerve gaps will succeed. Professor Huber seems to think that planting the sciatic of the calf will succeed in certain cases. Might it not be a good plan to adopt the policy of the French, and shorten the two bones of the forearm?

Dr. H. P. H. Galloway, Winnipeg, Manit.: I can speak enthusiastically of tendon transplantation in those cases of musculospiral paralysis in which there is no hope whatever of restoring power to the muscles.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

Aug. 1, 1919, **49**, No. 3

*Studies in Secondary Traumatic Shock. III. Circulatory Failure Due to Epinephrin. J. Erlanger and H. S. Gasser, St. Louis.—p. 345
*Physiologic Studies on Planaria. I. Oxygen Consumption in Relation to Feeding and Starvation. L. H. Hyman, Chicago.—p. 377.
Susceptibility to Lack of Oxygen During Starvation in Planaria. C. M. Child, Chicago.—p. 403.
Quantitative Studies on Rate of Respiratory Metabolism in Planaria. II. Rate of Oxygen Consumption During Starvation, Feeding, Growth and Regeneration in Relation to Method of Susceptibility to Potassium Cyanid as a Measure of Rate of Metabolism. G. E. Allen, Minneapolis.—p. 420.
Experimental Studies on Ureter. Y. Satani, Baltimore.—p. 474.

Circulatory Failure Due to Epinephrin.—The experiments reported by Erlanger and Gasser show that the injection of epinephrin for a period of from twenty to thirty minutes at such a rate as to maintain a high arterial pressure invariably constricts the arteries of both the somatic and the splanchnic areas. With large doses this constriction may be maximal and outlasts the injection period, it may be, for as long as two hours. This continued constriction is partly due to central action. After sufficiently large doses, the arterial pressure, barring occasional intercurrent phenomena, fall steadily and slowly until the animal dies. The jugular pressure, during or after large injections shows no constant alteration, at least not of a kind that indicates inefficiency of the heart. The heart may become irregular for a while and occasionally stop suddenly while the arterial pressure still is high. The respiration after large doses often is slowed and may suddenly or gradually fail. The portal pressure is increased, often markedly, during their injection, and may remain high subsequently; but not uncommonly it soon returns to the normal level. Evidence is presented indicating that accumulation of blood in the portal area as a result of the increased portal hepatic resistance is not in itself the cause of the failure of the circulation. The failure of the circulation is rather to be attributed to the extreme slowing of the blood flow throughout the body caused by the constricting action of the epinephrin of the arteries. It is concluded that the cause of the failure is the same as is operative after temporary partial obstruction of the vena cava or of the aorta.

Oxygen Consumption in Feeding and Starvation.—The results of Hyman's observation on planaria are applicable to other organisms also. He found that starvation increases the metabolic rate of organisms, and that starved organisms are metabolically in a condition similar to that of young organisms.

American Journal of Syphilis, St. Louis

July, 1919, **3**, No. 3

*Intraspinal Therapy in Neurosyphilis. J. A. Fordyce, New York.—p. 337.
*Syphilis of Digestive Tract. T. R. Brown, and E. H. Gaither, Baltimore.—p. 376.
Syphilis in Negro. L. Thompson, Hot Springs, Ark., and L. B. Kingery, Ann Arbor, Mich.—p. 384.
*Pneumonias Following Injections of Arsenobenzol. O. M. Schwerdtfeger, and M. B. Tinker, Ithaca, N. Y.—p. 398.
Comment on Article of Majors Schwerdtfeger and Tinker on "Pneumonias Following Injections of Arsenobenzol." J. F. Schamberg, Philadelphia.—p. 404.
Standardization of Wassermann Reaction. IV. General Study of Complements of Various Animals with Special Reference to Human and Guinea-Pig Complements and Methods of Collection. J. A. Kolmer, T. Matsunami and M. E. Trist, Philadelphia.—p. 407.
Intensive Treatment of Women with Arsenobenzol (Schamberg). Procedure and Results at Hospital Jail, San Juan, P. R. H. Goodman, New York.—p. 449.
Case of Anal Chancre Resulting from Pederasty. C. H. Marshall, Ann Arbor.—p. 454.

Intraspinal Therapy in Neurosyphilis.—Fordyce emphasizes again that the results following the treatment of syphilis are largely dependent on the age of the infection. For this ason the importance of early diagnosis and energetic treatment has been emphasized. A serologic cure in cases of yphilis in the late secondary stage and following this is ifficult to obtain and requires expert knowledge in the use f therapeutic agents. When the central nervous system is ıvaded the problem is complicated by the highly organized ature of the tissues, the results of secondary degenerations ıd the inaccessibility of the spirochetes in certain types of eurosyphilis. Success or failure in the use of intraspinal ıerapy depends on the technic employed and the persistence f the physician in carrying it out. Above all, it depends on ıe cytobiologic indications which are present in the spinal uid for initiating or persisting in this mode of therapy. The rder in which the various reactions disappear is indicated y Fordyce. The cytology is usually the first phase to be ıfluenced in persistent infections. In some cases treatment ıust be continued for from one to two years before a definite npression is made on the globulin content or the Wasserıann reaction. Modification in the intensity of the globulin action is usually followed by a weakening in the strength f the Wassermann reaction and by a change in the colloidal old reaction. Rapid changes in the Wassermann reaction hen strongly positive in the high dilutions, in Fordyce's xperience, do not occur except in cases of early syphilitic ıeningitis. In old cases of neurosyphilis a gradual diminuon in the intensity of the Wassermann reaction is of good rognostic import, and when it finally became negative Foryce has reexamined patients after one, two, and three years ho have shown no return of any of the previous phases.

Syphilis of Digestive Tract.—Syphilis plays a very much ıore important rôle in gastro-intestinal pathology, according Brown and Gaither, than is usually supposed. They are onvinced that if such possibilities are thought of, if the istory is taken carefully, if the physical examination is comlete, with, of course, careful study of blood or even of spinal uid, if indicated—that an increasing number of gastroıtestinal lesions regarded as due to other causes, will, in eality, be shown to be syphilitic in origin.

Pneumonias Following Injection of Arsenobenzol.—Nine atients who had syphilis were injected with exactly the same olution and technic, each having an immediate reaction hich was followed by a bronchopneumonia. All patients ere critically ill, extreme dyspnea being the outstanding ature. The recovery was complete in each case.

Archives of Internal Medicine, Chicago

Aug. 15, 1919, **24**, No. 2

Immunity of City Bred Recruits. A. G. Love and C. B. Davenport, Washington, D. C.—p. 129.
Pathologic Anatomy and Bacteriology of Influenza, Epidemic of Autumn, 1918. B. Lucke, Philadelphia, T. Wight, Santa Monica, Calif., E. Kime, Indianapolis.—p. 154.
Incidence of Pulmonary Tuberculosis in Soldiers with Irritable Heart. J. T. King, Baltimore.—p. 238.
Increase of Extract Nitrogen in Tissues, with Chronic Nephritis. N. B. Foster, New York.—p. 242.

Immunity in City Bred Recruits.—In mobilization camps, ommunicable diseases have produced the least admission ıd death rate in those camps which drew from areas that ere prevailingly urban. Love and Davenport base this conusion on the studies made of measles, mumps, lobar pneuıonia, cerebrospinal meningitis, scarlet fever and influenza. he explanation given of this relation is that recruits from revailingly urban territory had acquired immunity through aving had the disease in their youth. However, this hypoıesis does not cover the case of the rarer diseases of childood, such as cerebrospinal meningitis. Another hypothesis that the immunity is due to a selective elimination of susptibles. It is assumed to be greater in densely populated ıan in sparsely populated areas. This hypothesis fails, hower, to account for immunity in the case of mumps which oes not kill children. Another hypothesis is that life in rban communities produces a general resistance to disease f which the observed resistance to measles, mumps, lobar ıeumonia, cerebrospinal meningitis and scarlet fever are ıly special instances. Many collateral facts speak strongly r this hypothesis.

Influenza.—Both the length and detail of this article preclude a brief abstract. However, a few of the authors' findings may be emphasized. For instance: The incidence of influenza is greater among whites than among negroes, but the mortality rate is higher among the latter. The anatomic and bacteriologic findings vary with the stage of the epidemic and of the disease and depend to a certain extent on the endemic bacterial flora. Influenza produces widespread changes throughout the body, and while the lungs commonly present the most spectacular lesions, pronounced alterations are also encountered in the nervous, cardiovascular and other systems. The most general changes produced by influenza are pronounced congestions, hemorrhages, toxic degenerative lesions and hemorrhagic inflammations. The true pneumonitis of influenza is characterized by extreme proliferation of pulmonary epithelium, pronounced hyperemia and hemorrhages. The commonly present secondary invaders produce a pneumonitis which grossly and microscopically consists of a number of separate, dissimilar pathologic processes. Throughout the disease there is a relative paucity of polymorphonuclear leukocytes and a proliferation of the lymphoid tissue; this would seem to point to myeloid intoxication and to lymphoid stimulation. Chronic influenza is characterized by relative absence of vascular changes, connective tissue proliferation and diffuse suppuration. The influenza bacillus, although not found in every one of the 126 cases analyzed was present in a sufficiently high percentage, and often enough in acute fatally ending infections, for the authors to consider it, if not the prime cause, at least the most important indicator of epidemic influenza. As the patients lived longer and the epidemic progressed, bacterial agents, well established as the cause of respiratory tract disease, notably the nonhemolytic streptococcus and pneumococcus, appeared as secondary invaders and modified the bacterial readings and anatomic changes. It is noteworthy that all the secondary invaders were more fatal in symbiosis than alone. Later in the epidemic the hemolytic streptococcus assumed the ascendency as a tertiary invader, crowding out the secondary invaders, and was of special importance in cases of long duration. Staphylococcus and *M. catarrhalis* made their appearance toward the end of the epidemic and to some extent modified the pathology.

Tuberculosis and Irritable Heart.—No evidence has been found by King that there exists more than accidental relationship between irritable heart and pulmonary tuberculosis.

Extract Nitrogen in Tissues.—The data offered by Foster are neither complete nor conclusive. The evidence at hand simply supports an inference that has always been made, namely, that retained nitrogen cannot be retained exclusively in the blood. There seems also a possibility that disturbances of protein metabolism is a characteristic of nephritis generally, and that difference with types of nephritis are differences only of degree.

Boston Medical and Surgical Journal

Aug. 14, 1919, **181**, No. 7

Mental Hygiene in School. H. M. Pollock, Albany, N. Y.—p. 193.
Treatment of Pruritus Ani By Ionic Medication. W. A. Rolfe, Boston. —p. 196.
Souvenirs of a Medical Student's Life in Paris a Long While Ago. B Robinson, New York.—p. 199.
*A Neurologic Syndrome Constant or Frequent in Psychopathoses Which Is Not Described in Literature. C. J. Enebuske, Boston.—p. 201.

A Neurologic Syndrome.—Three symptoms—increased cerebrospinal tension, increased maximum radialis arterial tension and toxemia, are discussed by Enebuske as the syndrome of dyshydrocephalotony, dysarteriotony and toxemia. He discusses the clinical course of these cases in detail.

Bulletin of Johns Hopkins Hospital, Baltimore

August, 1919, **30**, No. 342

*Formation of Single Ovum Twins. G. L. Streeter, Washington.—p. 235.
*Changes in Skin Sensitiveness to Tuberculin During Epidemic Influenza. A. L. Bloomfield and J. G. Mateer, Baltimore.—p. 238.
*Hemorrhage into a Postscarlatinal Cervical Abscess; Ligation of Common Carotid; Recovery. T. M. Rivers.—p. 240.
*Analysis of Cerebrospinal Fluids of Cats with Meningeal Infections. L. D. Felton, U. S. Army.—p. 242.

Horace Green and His Probang. W. S. Miller, Madison.—p. 246.
Correlation of Roentgen Ray Findings and Physical Signs in Chest In Uncomplicated Epidemic Influenza. A. L. Bloomfield and C. A. Waters, Baltimore.—p. 252.
Dr. George Peirce. J. H. M. Knox, Jr.—p. 254.

Formation of Single Ovum Twins.—Streeter suggests that a careful search at the placental attachment of the umbilical cord would frequently reveal the presence of minute epithelial vesicles the remains of stunted twins, showing that the tendency toward twinning in man is even greater than is now supposed.

Changes in Skin Sensitiveness to Tuberculin During Epidemic Influenza.—During the recent epidemic of influenza Bloomfield and Mateer were struck by the remarkably low leukocyte counts encountered even in mild or ambulatory cases. This suggested that at least some of the reactive processes of the body were in abeyance. It seemed of interest, therefore, to study skin sensitiveness in this disease. The present report deals with the results of cutaneous tuberculin tests in nineteen consecutive cases of epidemic influenza. The diagnosis was based on the symptoms, the presence of hyperemic phenomena of the skin and mucous membranes, the character and duration of the febrile reaction, and the leukopenia. Most of the cases were mild and the disappearance of the skin reaction was therefore in no way associated with general collapse. Three of the patients developed bronchopneumonia, but all made uneventful recoveries. None of them showed clinical signs of active tuberculosis. Old tuberculin was used. Two drops were placed on the forearm about 5 cm. apart. Linear scarification with a dull scalpel was done through the drops of tuberculin after a control scratch had been made distal to them. The tuberculin was allowed to dry on the arm. The tests were all made by the same observers and read at one, two and three days intervals, the character and extent of the redness and induration being noted. Tests were done during the febrile stage and after the temperature had become normal. Skin sensitiveness to tuberculin was absent in every case but one, both mild and severe, during the febrile stage. During convalescence reactivity returned in 89.4 per cent. of the cases, which corresponds to what one would expect in a group of normal individuals of the same age. The return to maximum reactivity was gradual in most cases, as shown by successive tests. In two patients a positive skin test was not obtained during the period of observation, even after the temperature had been normal for from six to eight days.

Hemorrhage Into Postscarlatinal Cervical Abscess.—Following a severe attack of angina, diagnosed as diphtheria by the attending physician, a diffuse, dull, red macular papular rash appeared. The patient was considered by her physician to have nephritis following diphtheria and thus came under Rivers' care. Part of the tonsil, soft palate and posterior pillar on the right side had sloughed, leaving a ragged hole lined with greenish white pus. The glands on both sides of the neck were enlarged. There was a mass the size of a lemon, deeply situated below the angle of the jaw on the right side, that was obscurely fluctuating and was obviously an abscess. The cervical abscess was opened by means of a small puncture and at least 2 ounces of pus were obtained from which a hemolytic streptococcus was grown. The patient seemed to be doing well for three days, when she was found in a large pool of blood, exsanguinated, pulseless and gasping for breath. The bleeding had stopped spontaneously and the wound was not disturbed. There were two hemorrhages in the morning of the following day. At 1 p. m. blood began to spurt from the wound. The resident surgeon enlarged the incision into the abscess and found an erosion of the lingual and external carotid arteries and of the internal jugular vein and that the hemorrhage was from these three sources. A ligature was placed around the common carotid artery and the bleeding from the internal jugular was controlled by packing. There was sugar in the urine for one week after the operation, but the blood sugar was always normal. The patient developed generalized edema, insensibility to pain, waxy flexibility, Chvostek's sign, a double Babinski, exaggerated reflexes, double ankle clonus and a distinct loss of memory for recent events. Gradually she improved. The wound healed slowly under treatment. Rivers calls attention to the fact that adenitis with abscess formation, especially about the neck, is one of the complications of scarlet fever.

Analysis of Cerebrospinal Fluids of Cats with Meningeal Infections.—A method is given by Felton for the measurement of protein in the cerebrospinal fluid. It has been found to be of as great value in acute meningeal infections as the Pandy or Ross Jones tests in differentiating the cerebrospinal fluid of normal cats from those with chronic lesions in the central nervous system. It is simply a Micro-Esbach, consisting in the precipitation of the protein of 1 c.c. of cerebrospinal fluid in a small graduated tube by means of 0.8 c.c. of Tsuchiya's regent. The test is described in detail.

California State Journal of Medicine, San Francisco

August, 1919, **17**, No. 8

Medical Profession "After the War." C. Van Zwalenburg, Riverside, Calif.—p. 267.
Prostitution in Its Relation to Public Health in San Francisco. W. C. Hassler.—p. 270.
*Treatment of Hay Fever by Alcoholic Injection. D. H. Trowbridge, Fresno, Calif.—p. 275.
Children's Year in California. A. Brown, San Francisco.—p. 276.
Unsatisfactory Results Following Noninfected Finger Injuries in Industrial Accidents with Special Reference to Amputations. R. W. Harbaugh, G. F. Helsley and C. H. Hensley.—p. 278.
Problem of Woman Venereal Disease Carrier. E. M. Watters, San Francisco.—p. 284.
Treatment of Gonorrhea and Syphilis in Women. W. E. Stevens, and M. Heppner, San Francisco.—p. 287.
Obstetric Situation in France Today. T. Coffey, Los Angeles.—p. 289.
Perforation in Gastric and Duodenal Ulcers. Case Reports. J. H. O'Connor, San Francisco.—p. 293.
Treatment of Diphtheria Carrier, with Special Reference to Tonsillectomy and Adenoidectomy. Report of Cases. F. E. Detling, Los Angeles.—p. 295.
Use of Homatropin in Refraction. P. Sumner, San Francisco.—p. 296.

Treatment of Hay-Fever by Alcoholic Injection.—Trowbridge injects 95 per cent. alcohol directly into the turbinate, also into the sides of the septum. The treatment is somewhat painful, even though the nasal cavity has been anesthetized thoroughly. There is no pain at the entrance of the needle but on the injection of the alcohol into the tissues the patient complains of considerable pain for a few moments at each injection, provided the alcohol is properly injected. Several injections should be made on each side, considerable reaction following the treatment, lasting from two to seven days. Relief from the sneezing is usually immediate. Trowbridge usually prescribes an antiseptic spray to relieve the congestion.

Delaware State Medical Journal, Wilmington

April, May and June, 1919, **10**, No. 2

Building a Hospital Over Night. J. M. Stadter, Wilmington.—p. 4.
Socialistic Subjugation of the Medical Profession. W. P. Cunningham, New York.—p. 8.

Georgia Medical Association Journal, Atlanta

June, 1919, **9**, No. 2

Some Surgical Problems in Surgery of Neck. E. G. Jones, Atlanta.—p. 21.
Blood Transfusion As a Therapeutic Measure in Septicemia. W. P. Harbin, Rome.—p. 25.

Journal of Nervous and Mental Diseases, New York and Lancaster, Pa.

June, 1919, **49**, No. 6

*Paralysis of Glossopharyngeal, Pneumogastric and Spinal Accessory Nerves with Cerebellar Symptoms. W. G. Spiller, Philadelphia.—p. 481.
The Dispensary and Psychiatry. M. Osnato, New York.—p. 485.

Paralysis of Glossopharyngeal, Pneumogastric and Spinal Accessory Nerves with Cerebellar Symptoms.—The case reported by Spiller affords evidence of the distinct nuclear representations of the motor supply of the soft palate and larynx and of the rare occurrence of paralysis of the glossopharyngeal and pneumogastric nerves without other cranial nerve palsy, except palsy of the pneumogastric portion of the spinal accessory nerve, and without trauma as a cause. A detailed report of the case is made.

Journal of Immunology, Baltimore

May, 1919, **4**, No. 3

- *Effect of Agglutinins. B. Fujimoto, Tokyo.—p. 67.
- *Comparative Study of Hemolytic Complement and Antibodies in Oxalated Plasma and Serum. S. Watanabe, Philadelphia.—p. 77.
- Method for Production of Homogeneous Suspension of Bacillus Anthracis to be Used in Agglutination Reactions. A. Noble, Detroit.—p. 105.
- *Nature of Eclampsia. I. Obata, Tokyo.—p. 111.
- *Production of Antihuman Hemolysin. E. B. Vedder, U. S. Army.—p. 141.

Effect of Agglutinins.—The experiments reported by Fujinoto showed that the glycolytic action of the living *B. coli* nay be markedly weakened by agglutinin, and that the agglutinin is able so to change the cell membrane of the bacteria that their endoenzyme can permeate it. Neither agglutinin nor hemagglutinin alters the permeability of bacteria and red blood corpuscles for glucose. The resistance of the blood corpuscles to hypotonic solutions is slightly decreased by agglutinin or hemolysin.

Hemolytic Complement and Antibodies.—A method for the ollection of plasma is described by Watanabe which has yielded uniform success and simplified this difficult technical problem. This technic involves the use of dried sodium oxalate after a method devised by Meeker, and a paraffined ube. Sodium oxalate in the proportion of 0.001 gm. per ubic centimeter of blood prevents coagulation and does not xert any injurious influence on hemolytic complement or antibodies; in amounts of 0.004 gm. per cubic centimeter of blood sodium oxalate may prove to be anticomplementary. The oxalated plasmas of normal and syphilitic persons and normal and immunized rabbits contains hemolytic complement in the same or somewhat greater amounts than the orresponding serums. The oxalated plasmas of syphilitic persons contain the same amounts of Wassermann antibody as he corresponding serums. The oxalated plasmas of persons nd rabbits contain the same or occasionally slightly greater mounts of such natural antibodies as antisheep hemolysin nd typhoid agglutinin as the corresponding serums. The xalated plasmas of normal and immunized rabbits contain as much specific and nonspecific complement fixing substances nd specific bacterial and hemagglutinins as the corresponding serums. The general conclusion reached by Watanabe is hat hemolytic complement and natural and immune antiodies exist free and performed in the circulating plasma f the blood.

Nature of Eclampsia.—Obata's investigation showed that in its capacity to neutralize the poisonous action of placental xtract the serum of eclamptic women is much inferior to hat of normal individuals, whether male or female, and that the normal capacity of the serum, in this respect, is restored, in eclamptic women, on the fourth or fifth day after labor. The investigation showed also that this abnormality of the erum in eclampsia is not brought about by the convulsion itself. Furthermore, not only has a marked resemblance been ointed out between the symptoms produced with the placental xtract and those of the eclamptic attack, but an almost perfect agreement has been found between the anatomic features f eclampsia and those of the animals which were killed by repeated injections of placental extract. From these facts Obata feels justified in drawing the eonclusion that the true ature of eclampsia is nothing other than an intoxication by the placental poison which is made possible by a weakening in its normal capacity of neutralization on the part of the maternal blood.

Production of Antihuman Hemolysin.—Vedder has found that the hemolysin is either a globulin or is precipitated with the globulins; more probably the former hypothesis is correct for the total hemolytic power of a serum is contained in the lobulins whether precipitated out by salting or by dialysis. In this case, therefore, an antigen consisting of a specific lbumin produces an antibody consisting of a specific lobulin.

Laryngoscope, St. Louis

July, 1919, **29**, No. 7

- Rhinophyma. G. N. New, Rochester.—p. 391.
- Two Cases of Abducens Paralysis Occurring in Acute Suppurative Otitis Media with Mastoiditis. O. Stickney, Atlantic City.—p. 395.
- Blood Examinations in Surgery of Nose and Throat. S. Oppenheimer and M. J. Gottlieb, New York.—p. 400.
- Definite Solution of Stammering Problem. E. Tompkins, Los Angeles.—p. 409.
- Voice and Vocal Projection. J. J. Levbarg, New York.—p. 419.
- Surgical Treatment of Cancer of Tonsil, With a Report of Cases. J. McCoy, New York.—p. 422.
- Case of Fulminating Ethmoiditis with Metastasis. I. Frank, Chicago.—p. 424.
- Malignant Tumor of Larynx; Operation By Direct Laryngoscopy. J. W. Jervey, Greenville, S. C.—p. 428.
- Brain Abscess Drain. A. Kahn, New York.—p. 430.

Medical Record, New York

Aug. 16, 1919, **96**, No. 7

- *Apical Tuberculosis and Orthograde Postude; An Hypothesis to Account for Apex of Lung as Locus of Incipient Pulmonary Tuberculosis. W. F. R. Phillips, Charleston, S. C.—p. 265.
- Maloney Method in Treatment of Ataxia. M. Grossman, New York.—p. 268.
- Abuse of Catharsis and Laxatives in Infancy and Childhood. L. Fischer, New York.—p. 275.
- Tuberculosis Regimen. J. B. Huber, New York.—p. 278.
- Case of Repeated Toxemias of Pregnancy. L. F. Herz, New York.—p. 279.
- Dermatoses of the War. H. MacCormac, London.—p. 280.

Apical Tuberculosis and Orthograde Posture.—The hypothesis formulated by Phillips may be stated thus: In the assumption of the orthograde posture, gravity causes the bulk of the blood of the pulmonary circulation to flow through the lower portions of the lungs; the capillaries of these portions are filled to a certain degree of overdistention, while the capillaries of the upper portions, particularly the apexes, are but meagerly filled with blood and their walls are more or less collapsed; the resultant being that conditions are produced which afford opportunity for the lodgment and development of the tubercle bacillus in one or more ways. As a lemma to this hypothesis, if under the hydrostatic conditions imposed on the circulatory mechanism by the assumption of the upright posture the organism is able to maintain a certain minimum circulation through the apexes of the lungs, apical tuberculosis will not develop, and, as a corollary, pulmonary tuberculosis as a primary disease will not occur. However, Phillips says, this hypothesis should not be taken too rigorously, because we must admit that there is still question as to just where it is essentially a lesion of the pulmonary parenchyma or an extension by way of the lymphatics from the lymphatic glands, or by the blood stream from these glands, or from some other primary locus elsewhere, and, finally, whether there is any locus of the lungs more peculiarly susceptible to tuberculosis than another.

Missouri State Medical Association Journal, St. Louis

August, 1919, **16**, No. 8

- Osteosarcoma; Roentgen-Ray Treatment. E. B. Knerr, Kansas City.—p. 251.
- Ureteral Calculi. C. E. Burford, St. Louis.—p. 255.
- Recurrent Vomiting in Young Children. E. Moody, Joplin, Mo.—p. 257.
- Frequency and Characteristics of Functional Heart Murmurs. F. B. Kyer, Kansas City, and J. E. Benjamin, Cincinnati.—p. 258.
- Case of Lethargic Encephalitis in Later Months of Pregnancy. O. Putnam, Marceline, Mo.—p. 260.
- Effect of Castration on Female. W. Kerwin, St. Louis.—p. 261.
- Removal of Foreign Bodies from Cornea and Treatment to Prevent Ulceration. E. J. Jennings, St. Louis.—p. 263.

New York Medical Journal

Aug. 16, 1919, **110**, No. 7

- Mechanism and Psysiologic Action of Motor Reeducation. P. Kouindjy, France.—p. 265.
- Experience in an Evacuation Hospital. E. Eliot, Jr., New York.—p. 268.
- *Nature of Neurocirculatory Asthenia. E. P. Boas, New York.—p. 273.
- Gunshot Injuries of Head. K. W. Ney, New Orleans.—p. 275.
- Mechanical and Physiologic Considerations in Tonsillectomy. H. C. Masland, Philadelphia.—p. 277.
- Neurosyphilis. P. Goldfader, Brooklyn.—p. 278.
- Universal Health Laws. H. Greenstein, New York.—p. 284.
- Early Diagnosis of Pulmonary Tuberculosis. A. Minnig, Denver.—p. 286.

Neurocirculatory Asthenia.—Among soldiers and civilians one frequently encounters persons with congenital, often hereditary nervous instability. This, Boas continues, may manifest itself in different ways, giving what may be called a cardiovascular, a gastro-intestinal, a mental and a respiratory syndrome. These patients are unable to withstand unusual strains or stresses, be they physical or mental. In children one meets a similar condition in orthostatic albuminuria. It is essential to recognize the close interrelationship of these symptom complexes, and their occurrence in unstable individuals, who often conform to a distinct body type.

Psychobiology, Baltimore

July, 1917, **1**, No. 1

*Retention of Habits by Rat After Destruction of Frontal Portion of Cerebrum. S. I. Franz and K. S. Lashley, Baltimore.—p. 3.
*Action of Some Opium Alkaloids on Psychologic Reaction Time. D. I. Macht and S. Isaacs, Baltimore.—p. 19.
*Cerebral Motor Control: The Recovery from Experimentally Produced Hemiplegia. R. Ogden and S. I. Franz, Washington, D. C.—p. 33.
Effect of Delayed Feeding on Learning. J. B Watson, Baltimore—p. 51.
Internal Secretion in Learning. K. Dunlap, Baltimore.—p. 61.

Retention of Habits by Rat After Partial Decerebration.—The question propounded by Franz and Lashley and which led to making the experiments reported in this paper, viz., Do rats retain habits of recent formation after the destruction of certain cerebral regions? is answered in the affirmative. Rats were taught to ramble through a simple maze and then portions of the anterior cortex were removed surgically. Later the rats were placed in the maze and their actions noted. It was found that the rats which were not overtrained required 29 per cent. less time for the first fifteen trials after the destruction of the frontal lobes and made 53 per cent. fewer errors than they did in learning the maze. This in itself is evidence for a partial retention of the habit. In fact, as a whole, the experiments show that in the white rat the removal of large parts of the frontal portions of the brain does not greatly interfere with a learned reaction. The authors regard this as being the more remarkable since it seems probable that the so-called motor area is in that region and that in most, if not all, of the cases there was a destruction or abolition of the motor connections. While it cannot be concluded with certainty, yet it seems likely that the motor derangements which were exhibited by many of the rats were due to the interference with the normal efferent impulses and not to the general anemia (from the hemorrhage of the operation). Some of the animals also showed obvious disturbances of sensibility, the observations indicating that in some the stimuli to the vibrissae and olfactory stimuli did not give normal effects. In view of the importance of these two forms of sensibility in the rat's reactions, the authors are led to wonder whether these retain their predominance in the animal's learned activities, or are replaced by other forms of sensibility, such as the general kinesthetic. Although the results give plain evidence of noninterference (relative, to be sure) with learned reactions when the frontal portions of the brain have been destroyed they also suggest that the habit reaction is not necessarily cortical in these animals.

Action of Opium on Psychologic Reaction Time.—The experiments reported on by Macht and Isaacs were made on twelve normal subjects. They used morphin sulphate, narcotin hydrochlorid, narcophin and pantopon or pantopium. They found that the effect of morphin alone and in combination with other opium alkaloids depends on the dose used and may be manifested by a change in the mean reading, a change in the mean variation of the readings, or by both of these; and in case of association tests, by the number of errors made in performing a mathematical calculation. After small doses of morphin, there is generally a primary stage of stimulation or quickened reaction time; this may or may not be followed by a secondary stage of depression, as indicated by narcosis and prolongation of the reaction time. After larger doses of morphin, the primary stimulation stage is very short and may be overlooked, whereas the secondary stage or stage of depression is predominant. From the experiments made with combinations of morphin with other opium alkaloids in the form of narcophin and pantopon, it appears that morphin given in such a form is more narcotic and correspondingly more depressant to the psychic functions than when the same dose of morphin is administered to the same subject by itself.

Cerebral Motor Control.—Seven cases of hemiplegia produced artificially by Ogden and Franz in four animals were treated in different ways in order to determine some of the conditions favorable to the recovery of voluntary motor, one experiment shows that motor recovery after the production of an hemiplegia does not result if the animal is left to its own devises. Even though the animal be prevented from using the sound (unparalyzed) segments there is little difference in the improvement from that in which no treatment is given unless in addition to the limitation of the possibility of movement there be added some extra stimulation to the muscles and nerves of the paralyzed side, although the recovery is rapid in such a case if treatment by muscle stimulation and nerve vibration be directed to the involved parts and if special stimulation exercises be given to the animal which will provoke the animal to move the paralyzed segments. The method of treatment recommended by neurologists, general massage, does produce a slight amount of improvement but not to an extent to enable the animal to use the arm and hand properly for such ordinary operations as feeding and climbing, although these activities may be carried out after such treatment in an awkward manner. When, however, efforts are directed to the special nerves and muscles, and when the sound side of the animal is restrained so that movements of climbing and feeding must be made, if at all, by the use of the paralyzed segments, the improvement is rapid and the recovery is practically complete. One fact that stands out prominently is that recovery from the hemiplegic state may be very rapid. The results of these experiments also suggest a reconsideration of the whole problem of cerebral motor control and especially that of cortical motor control.

September, 1917, **1**, No. 2

Continuous Stimulations Versus Transitional Shock in Phototactic Response. S. J. Holmes, Berkeley.—p. 65.
*Effects of Cerebral Destruction on Habit Formation and Retention in Albino Rat. K. S. Lashley and S. I. Franz, Baltimore.—p. 71.
Effect of Strychnin and Caffein on the Rate of Learning. K. S. Lashley, Baltimore.—p. 141.
Stop Watch and Association Test. K. Dunlap, Baltimore.—p. 171.

November, 1917, **1**, No. 3

Motor Functions of Cerebral Cortex of Cat. J. D. Stout, Washington, D. C.—p. 177.
Relative Values of Reward and Punishment in Habit Formation. J. D. Dodson, Minneapolis.—p. 231.

Cerebral Function in Partially Decerebrated Rats.—Rats were trained after destruction of various parts of the cerebral cortex, including the frontal, temporal, parietal, and a large part of the orbital surfaces and the influence of the cerebral destruction on their ability to form and retain kinestheticmotor habits was tested. Lashley and Franz found that the habit of turning correctly in the simple maze may be retained after the destruction of any part or all of the cortex lying in front of and above the knee of the corpus callosum and after the destruction of any part of the temporal and parietal regions. The maze habit may be acquired after the destruction of all the cortex included within these areas, and after the destruction of one, perhaps both, of the striate nuclei. The more complex habits involved in opening an inclined plane box are retained after destruction of the temporal regions of the cortex. The complete destruction of the frontol regions of the cortex results in the loss of the inclined plane box habit. The partial destruction of the frontal region does not abolish this habit. So long as the destruction of the frontal pole is not complete the habit is retained, apparently irrespective of what part of the frontal region has been destroyed. No marked motor disturbances appear after the complete destruction of the stumilable areas of the cortex but in certain cases marked hemiparesis seemed to result from the destruction of the corpus striatum.

West Virginia Medical Journal, Huntington

August, 1919, **14**, No. 2

Victory Meeting of the A M. A. W. W. Golden, Elkins, W Va. —p. 48.
Nursing Situation in West Virginia. J. A. Guthrie, Huntington. —p. 54.
Venereal Disease Problem. F. F. Farnsworth, Charleston, W. Va. —p. 56.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

July, 1919, **13**, No. 3

*Ministry of Health in Relation to Tuberculosis. R. C. Wingfield.—p. 108.
Work of American Commission for Prevention of Tuberculosis in France. Rockefeller Foundation. W. C. Klotz.—p. 112.
Coordination of Measures for Prevention and Treatment of Tuberculosis. J. M. Martin.—p. 119.
Care of Tuberculous Children. W. Aston.—p. 124.

Tuberculosis and Ministry of Health.—A plan is suggested by Wingfield by which special attention would be given to tuberculosis. The ministry of health will naturally be the supreme head and should contain a section to deal with tuberculosis, and nothing but tuberculosis, though its own work overlaps that of other sections, thus providing unity of command for tuberculosis and cooperation of the tuberculosis campaign in the general public health scheme. A suggested outline of the governing body of the tuberculosis section would be: administrator, the chairman; financial adviser; medical adviser, who should be the chairman of an advising committee selected from working officers elected in rotation, holding office one, two or three years; and social adviser, to be the chairman of an advising committee selected from working officers elected in rotation, holding office one, two or three years. Having satisfactorily constituted the central governing body, the work and responsibility should be decentralized, and placed on the shoulders of decentralized units. The decentralized until should be: (A) Tuberculosis officer; aftercare worker; nursing staff. (B) Sanatorium officers; aftercare worker; nursing staff. The units must be uniform all over the country. Local homes for advanced cases must be attached to each unit. Homes for the dying are needed, but they need not be definitely local. Working colonies should be provided and placed under the care of the local unit. The important point is that there should be sufficient numbers of these establishments, if they are to be of practical value to the whole scheme. And, arising from this, it seems certain that this or any other scheme will be useless unless hospital and sanatorium beds in ratio to the number of patients are provided before the scheme is introduced to the public.

British Medical Journal, London

July 26, 1919, **2**, No. 3056

*Hospitals for Treatment of Pulmonary and Other Forms of Tuberculosis. A National Need. H. B. Shaw.—p. 97.
*Eclampsia: Its Prevention and Treatment. A. L. Smith.—p. 101.
Dental Conditions at An Antenatal Clinic. J. W. Ballantyne.—p. 103.
Action of Syphilis on Native Complement. B. H. Shaw.—p. 105.
*Ankylostomiasis in London. C. H. Warner—p. 105.

Hospitals for Tuberculosis.—Shaw pleads for greater facilities for the hospital care of tuberculous patients and for the establishment of institutions, invalid homes, where those patients who are rendered incapable may be nursed and treated until they are fit to earn their living or until they die. Such institutions being in the heart of populous centers, and not buried in the country, will allow these invalids to be near their families, without being a burden to them. The opportunities for the study of the disease will be greatly enhanced, and the need for the discovery of better methods of treatment than the present will be better advertised. There will develop quite a definite body of nurses who have been trained in tuberculosis. A saner view will be held about the dangers of contracting the disease by contact, and nurses will not shun the work. The rich who do not wish to send their tuberculous relatives from their homes will be enabled to secure the help of these nurses for home treatment. The scheme would make no attack on the present plan of providing sanatoriums for the poor, or for the rich. Shaw says that to the cry "decent homes for the poor" must be added "decent permanent hospital accommodation for those who are laid aside by pulmonary tuberculosis or any other disease which has reached an incurable stage."

Eclampsia.—In the treatment of eclampsia Smith says that cesarean section performed by an experienced operator is one of the safest operations in surgery for the mother, and that it enormously increases the chances for the child, if performed after the end of the seventh month when the child is viable. The best time to operate is before labor begins and before the woman has been examined by an ungloved hand. There must be three doctors and a good trained nurse if every patient is to be saved. If the proper conditions cannot be obtained at her home, it is better to send her to a good obstetric surgeon at a good hospital.

Ankylostomiasis in London.—Warner records a case of ankylostomiasis in a subject who has neither been abroad nor resided in a mining district. The patient had never been out of England, nor had he visited Cornwall or any other mining district; he had not, in fact, traveled farther from London than Dover. The boy had, however, associated to a considerable extent with soldiers who had been abroad, and it is possible that he acquired the ankylostoma infection in this manner.

Edinburgh Medical Journal

July, 1919, **23**, No. 1

*Etiology of Cholera. E. D. W. Greig.—p. 4.
Field Ambulance in Gallipoli, Egypt, Palestine and France. J. Young.—p. 23. To be cont'd.

Etiology of Cholera.—The results of Greig's investigations on cholera have been published in the *Indian Journal of Medical Research* (1913) in a series of papers, some of which were abstracted in The Journal. In this lecture certain aspects of the work are discussed.

Journal of State Medicine, London

July, 1919, **27**, No. 7

Rôle of Ports in Protection of Health of Nation. E. W. Hope.—p. 193.
Infection and Disinfection in War Time. J. M. Beattie.—p. 205.
Social Aspect of Problem of Consumptive in Relation to a Comprehensive Scheme. N. D. Bardswell.—p. 213.

Lancet, London

July 19, 1919, **2**, No. 5003

Spread of Bacterial Infection. W. W. C. Topley.—p. 91.
Cerebrospinal Fever. J. Dorgan.—p. 97.
*Traumatic Rupture of Intestine. W. H. Battle.—p. 103.
Value of Solid Paraffin Wax in Facial Surgery. S. Mort.—p. 105.
*Expectation of Life in Pulmonary Tuberculosis, with Special Reference to Pensions Assessment. R. M. F. Picken.—p. 106.
*Lymphoidocyte and Its Clinical Significance. A. K. Gordon.—p. 108.

Traumatic Rupture of Intestine.—A case of rupture of the jejunum with laceration of the mesentery and intraperitoneal hemorrhage is reported by Battle. The patient was thrown from a bicyle by a van. At operation Battle found a large transverse rupture of the jejunum about 6 inches from the duodenojejunal junction and extending over five-sixths of the circumference of the bowel, there being only a strip of the mucous membrane on the mesenteric aspect which appeared normal. Excision of this part was performed, for a distance of 3 inches above and 3 inches below the rupture, and an end-to-end union made. The boy recovered.

Expectation of Life in Tuberculosis.—According to Picken the expectation of life of males, aged, on the average, 30 years, notified in Glasgow as suffering from pulmonary tuberculosis is about three and one-half years. The expectation of life of males at a sufficiently early stage of the disease to raise hope of recovery is about six and one-half years. The expectation of life of male sanatorium cases discharged with the disease "arrested" is estimated at somewhere about fourteen years. The normal expectation of life of all males in Glasgow at the age of 30 years may be taken as thirty years, but was probably higher for the period covered by this inquiry. The above calculation, applied to the assessment of soldiers and sailors discharged with pulmonary tuberculosis, justifies a minimum assessment of from 50 to 60 per cent., and this should apply to men in whom the disease appears to be arrested for the time being. All cases where the disease is actively progressive, as measured by general signs and symptoms, physical signs, bacteriologic and roentgen-ray examination, should be assessed at 100 per cent. disability. All others, i. e., cases of low activity such as those of the chronic fibroid type, should be placed in one grade at 70 or 80 per cent. disability.

Lymphoidocyte and Its Clinical Significance.—Gordon is of the opinion that the lymphoidocyte has clinical significance and suggests that it should be looked for in every case as a possible point of value in diagnosis. He has found these cells in the blood of cases of diabetes and cancer but not in influenzal pneumonia or aortic disease.

Archives Mens. d'Obstét. et de Gyn., Paris

January, 1919, **8**, No. 1. Pub'd July, 1919

*History of Obstetrics in France. P. Bar.—p. 3.
*Indications for Medical Abortion. H. Henneberg.—p. 20.
Influenza at Paris Maternity. P. Pellissier.—p. 28.

French Contributions to Obstetrics.—Bar's historical references confirm that podalic version was first placed on a scientific basis by Paré in 1550, cesarean section by Rousset in 1581; the forceps, invented in England, was first made practicable by Levret in 1747, and in 1768-1777 Sigault conceived the idea of and performed an operation to enlarge the pelvis. Scientific embryotomy also dates from Baudelocque, 1829, and Tarnier's forceps, basiotribe and embryotome from the eighties. It was at the Paris Académie de médecine, March 11, 1879, that the alleged multiple causes of puerperal fever were being discussed when Pasteur swept them all aside saying, "Ce qui cause l'épidémie, ce n'est rien de tout cela; c'est la médecine et son personnel qui transportent le microbe d'une femme malade à une femme saine." Hervieux remarked that he did not expect to live to see this wonderful microbe, but Pasteur seized the chalk and drew on the blackboard a streptococcus saying: "Tenez, voici sa figure." Bar adds that there had long been a growing consciousness of the contagiousness of puerperal fever, but Pasteur's four words and chalk drawing brought action, and banished from the world the puerperal epidemics of the past. France also took the lead in welfare work for pregnant women and nursing mothers, and for young children. By instruction of the pregnant and giving a shelter to those in need, an actual science of prophylactic obstetrics has been evolved. Shoulder presentation has practically disappeared, and eclampsia is very rare. To Budin is due the inauguration of the well baby clinic and systematic prenatal care and instruction, while Roussel put through the law for the protection of young infants. Bar declares that this latter is no longer regarded as a charity, but as a state measure vital for the self-preservation of the nation. The question now is how to lighten for working women the burden of child bearing. This opens a new chapter in the history of obstetrics, and here, too, France is making headway.

Medical Abortion.—Henneberg classifies the eighty-one cases in which abortion was induced as a therapeutic measure during the last twenty-five years at the gynecologic clinic at Geneva. Since 1906 all the women with uncontrollable vomiting have been taken from their environment, isolated and kept on a suitable diet, and in all the tendency to vomiting subsided completely. Consequently this is no longer regarded as calling for induction of abortion. In thirty-one cases the abortion was done on account of pulmonary tuberculosis, in fifteen for heart disease. One woman was becoming blind from choroiditis aggravated by each of her four pregnancies, and the ophthalmologists sent her to the clinic to have a new pregnancy arrested and the woman sterilized.

Bulletin de la Société Médicale des Hôpitaux, Paris

June 13, 1919, **43**, No. 20

*Jaundice Secondary to Influenza. Roussel and de Lavergne.—p. 587.
Influenza. P. Merklen.—p. 590.
*Cardiovascular Symptoms After Gassing. A. Clerc and Rousselot.—p. 593.

Jaundice Secondary to Influenza.—Roussel and Lavergne report five cases of what they call "jaundice from liver-kidney derangement," secondary to an influenzal pneumococcus infection. The pneumococcus was cultivated from the blood even at the height of the jaundice. As we know that bile has a potent bactericidal action on the pneumococcus, we must assume that in this case the jaundice cannot be the result of retention of bile salts but only of the bile pigments.

Cardiovascular Symptoms in the Gassed.—Clerc and Rousselot conclude from this study of 396 *ypérités* that the cardiovascular apparatus does not seem to be primarily nor especially affected by mustard gas during the acute phase of its effect. When the myocardium weakens, it is secondarily, under the influence of the progressive asphyxiation or superposed infection. Sequelae in heart and vessels are rare and insignificant in comparison to the sequelae in the lungs and the condition of attenuated infection which persists so long in the gassed. In the discussion that followed, Rist remarked that emphysema was constant in all the gassed sent to him for his specialist verdict. This emphysema and chemical bronchitis hamper functioning, and are an obstacle to physical work. The ultimate outcome can only be surmised at present. In some there has been no improvement in more than two years to date. The prognosis therefore has to be reserved. He advises temporary discharge from military service with pension calculated on a reduction of 30 or 40 per cent. in the earning capacity. Sergent in examination of more than a thousand gassed soldiers has been impressed with the frequency of emphysema and chronic bronchitis. There is often also a cough like that of whooping cough. There is probably a bronchopulmonary sclerosis responsible for this. Most of such cases are classed as tuberculosis suspects, but tuberculosis seems to be absolutely exceptional in the gassed.

Journal de Radiologie et d'Electrologie, Paris

June, 1919, **3**, No. 6

*Regeneration of Bone Tissue. F. Lemaitre.—p. 241.
*Horizontal Displacement after Fracture. Bailleul and Dubois-Roquebert.—p. 251.
*Surgery at the Evacuation Stations. Drevon and Henri-Petit.—p. 257.
Our Present Knowledge of Roentgen Rays. H. Guilleminot.—p. 263.
Radiography of Pott's Disease. Ménard.—p. 270.
*The Dermographic Pencil. H. Béclère.—p. 272.

Osteogenesis After Wounds of the Head.—Lemaitre declares that among the traditions overthrown by the war is the assumption that the periosteum alone is responsible for the generation and regeneration of bone tissue. This does not occur unless there is a layer of bone along with the periosteum, no matter how thin this layer of bone may be. This *ostéo-périoste* is what can be counted on for growth of new bone in situ, and with pedunculater and free bone-periosteum flaps. He gives an illustrated description of cases in which extensive gaps in the upper or lower jaw and skull grew up completely in time. Similar success was realized in reconstruction of the bony framework of the nose with a bone-periosteum implant from the tibia. Even when healing does not occur smoothly, the graft may regenerate as effectually as under normal conditions. Lemaitre is an otolaryngologist, and his article was read at a conference held by the Vichy American Medical Society which specializes in maxillofacial reconstruction work.

Horizontal Displacement with Fracture.—This title is expressed in the French term *décalage*. It is discussed here in relation to radiography of fracture of the humerus.

Evacuation Surgery.—Drevon and Petit comment on the transformation in the surgery of evacuation as the war went on. At first it was merely a wrapping up and packing on of the wounded men, but soon a complicated system of surgical aid was evolved which he describes in detail.

Dermatographic Pencil.—Béclère relates that just before marking the skin with the paper pencil, he wipes off the spot with a scrap of cotton just dipped into a small tumbler of gasoline which he always has at hand. The pencil then makes a very distinct mark on the skin thus lightly smeared with gasoline, and no pressure is required. He has found this a great help for dermographic outlining in the last two years.

Lyon Chirurgical

January-February, 1919, **16**, No. 1

*Immediate Treatment of War Wounds of the Kidney. L. Thévenot.—p. 1.
War Wound of Pedicle of Kidney. P. Santy.—p. 11.
Extraction of Bullet in Pulmonary Artery. C. Viannay.—p. 14.
*Walking Treatment of Simple Fracture of the Leg. H. Colleu.—p. 18.
Restoration of the Thumb. G. Cotte.—p. 45.
*Regeneration of Bone. G. Duhamel.—p. 56; J. P. Lamare.—p. 58.

*Biology of Bone Grafts. Bonnefon.—p. 62.
Surgical Treatment of Loose Shoulder. R. Massart.—p. 77.
*Infectious Pernicious Anemia. N. Fiessinger, P. L. Wertheimer, and J. Meyer.—p. 89.
Morbid Changes in Trochlea of the Humerus. P. Japiot.—p. 100.

War Wound of the Kidney.—Thévenot remarks that in his three years and a half of work in active sectors at the front he encountered only thirty cases in which the kidney had been injured by a projectile. The outcome in these cases shows that nephrectomy is rarely indicated.

Walking Treatment of Fracture of the Leg.—Colleu refers to the use of Delbet's apparatus that allows the patient to be up and about. He extols it as superior to all other measures when the fracture affects the shaft only. Under other conditions, it should be used extremely cautiously or not at all, unless certain that there is no displacement or diastasis.

Regeneration of Bone.—In Duhamel's case the newly regenerated bone closed in two months a gap of 6 cm. in the shaft of the humerus. The bone tissue extended in width even beyond the shaft, but the shadow of course was not dense. In Lamare's case the gap of 8 cm. in the tibia rapidly grew up with bone tissue. He ascribes great importance to the walking cast, the play of the muscles stimulating repair and modeling the new bone.

Biologic Laws Governing Implants.—Bonnefon's views and experiments were reviewed recently, page 300. He reiterates that regeneration is by no means reviviscence.

Pernicious Anemia of Infectious Origin.—In the case described in minute detail the plastic pernicious anemia developed in the course of a suppurating pneumothorax for which the perfringens seemed to be solely responsible, after a shell wound of the chest. The reds dropped from 1,800,000 to 600,000 in six days, with subjaundice, but recovery followed under serotherapy, which arrested the infection, plus operative draining of the focus.

Paris Médical

July 12, 1919, **9**, No. 28

*Normal Alimentary Glycosuria. A. Gilbert and A. Baudouin.—p. 29.
*Diet in Nephritis. A. Lemierre.—p. 34.
*Auscultation of Venous Pulse. M. Perrin and G. Richard.—p. 40.

Normal Alimentary Glycosuria.—Gilbert and Baudouin describe some minor points which have to be observed in testing the urine for sugar, or else the normal content in carbohydrates may prove misleading. For example, the precipitation of creatinin is not instantaneous; it is better to wait for an hour before filtering. They report comparative tests with various technics. In young and normal subjects the sugar content of the urine showed very little increase after ingestion of even large amounts of sugar, never surpassing 0.50 gm. If 1 gm. or more is found, this may be regarded as a sign that the assimilation of sugar is more or less defective. Even minimal hyperglycosuria of this kind may reveal slight disturbance in the metabolism, and hence the importance of a technic of precision to disclose it. The carbohydrates in the urine are complex, not merely sugar alone. They think that the pentoses form most of the reducing substances; the reducing fermentable fraction is not glucose. The best we can do at present is to accept the global figure of the carbohydrates.

Diet in Nephritis.—Lemierre remarks that the discovery of the harmfulness of salt in certain forms of nephritis is one of the most surprising discoveries of recent years. Patients with extreme edema, such as used to be pitilessly restricted to a milk diet over long periods now are seen to improve and thrive under Widal and Javal's menu yielding 1,500 calories. It is made up of 200 gm. bread made without salt; 200 gm. raw meat; 250 gm. potatoes; 50 gm. sugar, and 30 centiliters each of wine and coffee.

With dry uremia, in distinction to uremia with dropsy, Achard and Paisseau recommend a menu containing 50 gm. meat; 200 gm. potato; 100 gm. rice and 50 gm. butter, representing 1,030 calories. If there is no abnormal retention of salt, it is unnecessary to restrict the intake of salt. The intake of water should never be less than 1.5 liters as the kidney may not be able to eliminate the urea unless it is well diluted; the polyuria therefore is necessary. In acute nephritis there is retention of all the elements of the urine, and hence substances that produce these elements must not be taken, while water should be given freely to flush the kidneys. Nothing but water should be allowed, but some of it may be sweetened or flavored with fruit juices; "the sugar affords a few calories while not giving the kidney a molecule to eliminate." The restriction to water should be maintained along with local and general bloodletting, cold enemas and purgatives until the *débâcle polyurique* sweeps out the urea and chlorids that have been retained.

Auscultation of Venous Pulse.—Perrin and Richard describe the most effectual technic for this and interpretation of the findings. They urge that every practitioner should familiarize himself with such procedures and not content himself with regarding admiringly from afar the cardiologic studies of the day. The contraction of the auricle is manifested in the jugular pulse wave as (*a*) corresponding to the first jugular vein sound on auscultation and the upper third of the ascending line in the oscillometer tracing of the humeral pulse. The contraction of the ventricle (*c*), the second vein sound and the peak of the oscillometer line correspond to the apex beat, while the beginning of the diastole (*v*) corresponds to the third vein sound and the lower third of the descending oscillometer line. The record is thus obtained with the eye, the ear, the oscillometer and the hand (apex beat).

Presse Médicale, Paris

July 10, 1919, **27**, No. 39

*Cancer of Body of Uterus of Placental Origin. F. Jayle and I. Halpérine.—p. 381.
*Roentgen Examination of Tuberculosis Suspects. G. Détré.—p. 384.
*Electric Treatment of Degenerated Muscles. H. Laugier.—p. 385.
*Symptomatology with Transverse Section of the Spinal Cord. Deniker.—p. 386.

Cancer of Body of the Uterus.—Jayle and Halpérine prefer this term instead of "chorio-epithelioma," "syncytioma" or other terms which are confusing to all except histologists. These cancers are peculiarly liable to sudden and profuse hemorrhage and to metastasis. Their illustrated description of the structure explains these two tendencies. In a case reported there was evidence of inherited syphilis.

Roentgen Examination of Tuberculosis Suspects.—Détré found in 80.2 per cent. of the 844 soldiers sent to him as suspects that the assumption of tuberculosis was not sustained by the roentgen findings. In these 676 negative cases, the bacteriologic findings were always concordant. The apex shadow frequently looked opaque and grey, but it cleared up and kept clear when the man coughed. By having the subject lean forward or to one side, the second interspace comes into view when otherwise it is hidden by the shadow of the clavicle. In some of the cases with positive findings they need not necessarily be of a tuberculous nature. In 40 per cent. of the positive cases there was a pleural reaction at the base. Some of the cases also presented the findings characteristic of hilum tuberculosis with a glandular focus, such as has recently been described in children. Three illustrations show the typical findings.

Electric Treatment of Degenerated Muscles.—Laugier remarks that the degenerated fibers become so irresponsive to the electic current that, in order to act on them, such strong currents have to be used that the sound muscle fibers suffer from them. This can be avoided by using a weak current and only very slowly increasing its strength. By this means the degenerated muscles are acted on electively. The degree of inexcitability of a muscle fiber is determined by what he calls the *chronaxie*, that is, the interval before the muscle fibers respond to the stimulus. For example, the muscle in the foot of a snail is a slow muscle, with high *chronaxie*, while the gastrocnemius in the frog is a rapid muscle, with low *chronaxie*. If a very slowly increasing current is sent through these two muscles, the snail muscle will contract while the frog muscle will not. It is thus possible to apply the electric stimulus electively to the degenerated muscle fibers while keeping it below the threshold for the sound muscle fibers. He describes mechanical means to control the current to keep it of this slowly increasing type.

One way is to apply to the electrode condensers which retain the current so that it does not reach the electrode in full strength until after the condensers have been charged, and they can be varied at will.

Transverse Section of Spinal Cord.—Deniker outlines the new symptomatology of transverse section of the spinal cord as it has developed during the war.

Progrès Médical, Paris

June 28, 1919, **34**, No. 26

*The Lessons Learned from the War on Treatment of the Wounded. R. Dupont.—p. 249.
Case of Pseudobulbar Paralysis. Laignel-Lavastine.—p. 254.
Spa Treatment of Neuroses. Macé de Lépinay.—p. 256.

Treatment of the Wounded in the War.—Dupont traces the evolution of the treatment of the wounded through the first two years of the war, when every one was trying to improve on the old methods. "The French," he says, "finally succeeded in transforming the whole treatment of wounds and obtaining results hitherto undreamed of. Excision as soon as possible, followed by primary or secondary suture, cured the wounded so fast and so completely that the undersecretary of state for the Army medical department said that we had carried on the war with our wounded (*nous avions fait la guerre avec nos blessés*). The glorious year was thus 1916; the following years merely witnessed the perfecting of this method which is essentially French."

Revue de Médecine, Paris

March-April, 1919, **36**, No. 2

*Sensory Localization in the Cortex. H. Piéron.—p. 129.
Complications of Influenza. L. Bouchut.—p. 158.
*Pneumococcus False Tuberculosis. Lorrain, Hanns and Gillet.—p. 173.
Slow Endocarditis. R. Debré.—p. 199. To be cont'd.
Asthenia plus Mania after Shell Concussion. R. Benon and G. Lerat.—p. 244.
Edema of the Brain; Recovery after Craniectomy. A. Courjon and R. Didier.—p. 252.

Cortical Sensory Centers.—Piéron tabulates the details of twenty-one cases of war wounds of the skull with cortical anesthesia. His table confirms that certain skin sensory phenomena have exact separate centers or a special region in the cortex. The sensations of pain, temperature and deep pressure are modified last. He discusses in detail the sensory rôle of the cortex, the separation of sensory and motor centers, the sensory representation in the cortex of different segments of the surface of the body, and the proportional representation of the different forms of sensation and perception.

Pneumococcus Pseudotuberculosis.—Lorrain and his coworkers describe seven cases in which the diagnosis of pulmonary tuberculosis seemed certain, and the symptoms dragged along for months, but the sputum did not show tubercle bacilli, and conditions finally returned to clinically normal. The congestion of the lungs and the bronchopneumonia passed through an acute phase and then into an interminable subacute phase, without complete defervescence, dragging along for months without any very pronounced signs on auscultation. The subject does not feel sick enough to stay in bed, but he looks badly until he takes a turn for the better and throws off the whole. The focus of congestion may be at the apex, simulating acute tuberculosis. Or there may be a lobar or pseudolobar focus at the base, suggesting the bronchopulmonary form of tuberculosis or cheesy pneumonia. Or there may be some old healed tuberculous lesion along with the recent sequelae of bronchopneumonia. Careful auscultation will reveal that the lesion at the apex keeps stationary, and that the lesion at the base or in the middle of the lung is growing smaller. The recent history of some pneumococcus affection will then give the clue in some cases, but in others nothing but the absence of tubercle bacilli clears up the diagnosis. The benefit from general treatment has long been lauded. Hirtz urges treatment as for actual tuberculosis, with supervision of the functioning of the diaphragm, possibly belting the lower chest to thrust down the abdominal viscera. Radiotherapy has also been advocated to aid in the healing of pneumonia with incomplete resolution. Several pages of bibliographic references are given, classified by prolonged or relapsing pneumonia, prolonged congestion, nontuberculous protracted fevers, pseudotuberculosis of nasal origin, and association of pneumonia and tuberculosis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 3, 1919, **49**, No. 27

The Campaign Against Nonindicated Abortions. Meyer-Rüegg.—p. 985.
*Transfusion of Blood. G. Hotz.—p. 992.
Influenza. K. Frey.—p. 1006.
Hemorrhage in Yellow Spot in Parturients. J. Strebel.—p. 1013.

Transfusion of Blood.—Hotz traces the history of transfusion of blood back to Cardanus' work, published at Basel in 1556, in which he suggested transfusion of blood from a person of good character in the hope to redeem the character of the otherwise hopelessly immoral. The French ambassador at London, he says, was the first to actually practice infusion in man, in 1657. In 1667 cases were reported in which blood from a lamb was infused, with recovery of the apparently moribund patient. Hotz concludes his dissertation on transfusion of blood by commending it as practiced at present as reliable and fully answering its purpose, although we must not in our enthusiasm forget that both for donor and recipient it is a powerful interference in the most intimate and delicate processes of the organism.

Policlinico, Rome

July 6, 1919, **26**, No. 27

*Filtrable Viruses. G. Sampietro.—p. 841.
Neuralgic Angioma. E. Grossi.—p. 849.
Electric Treatment of Laryngeal Disease in the Eighteenth Century. G. Bilancioni.—p. 854.
Benzin in Examination of Typhoid Stools. L. Urizio.—p. 855.
Circulatory Disturbances in Influenza. A. Fortunato.—p. 856.

Filtrable Viruses.—Sampietro remarks that about fifty different kinds of filtrable viruses have been described, although not all of them have been subjected to rigorous tests. Pasteur suggested in 1881 that the virus of rabies must be beyond the scope of our bacteriologic technic, and Sanarelli in 1898 proved that the virus of myxomatous infection in the rabbit was not modified by passing through porcelain that filtered out the smallest bacteria then known. Some spirilla, cocci and spirochetes pass through certain filters but they can be seen with the dark field microscope. The preferable classification of the viruses seems to be in three groups: the ultramicroscope viruses; those with filtrable phases in the life cycle of microscopic parasites, and the actually filtrable bacteria and protozoa. A further classification is in filtrable viruses transmitted by insects, probably of protozoan nature; filtrable viruses of spirochete nature, and those of certain or presumed bacterial nature. He discusses each of these groups, specifying the viruses that belong to each and the relations between them and other bacteria.

The experiences in the recent epidemic of influenza have combined with other findings to sweep away as untenable the hitherto prevailing assumptions in regard to the nature and behavior of the filtrable viruses, so that science is all at sea again with nothing to anchor to at present. The only facts that seem to be established to date are that there is some connection between filtrable viruses and cell inclusions; that certain filtrable viruses form one phase of the life cycle of some protozoa; and that certain bacteria have been found which will actually pass through porcelain. Another fact which seems to be well established is that the extreme contagiousness and wide diffusion of certain infectious diseases are the work of a filtrable virus, but associated bacteria are responsible for the characteristic symptoms and the pathologic anatomy. These associated bacteria he calls "etiologic binomes," and ascribes immense importance to them as they are what determines the characteristic picture of the nosologic entity, while the filtrable virus is responsible for the contagiousness and the diffusibility of the infection.

June 15, 1919, **26**, Surgical Section No. **6**

*Resection of Pylorus. O. Tenani.—p. 185.
Immediate Treatment of Gushot Wounds of Joints. E. Bussa-Lay.—p. 191.
Bone Cysts. B. Polettini.—p. 204. Cont'n.

Resection of Pylorus.—Tenani gives the details of a technic for resection of the pylorus which he has applied in two cases, and lauds as being free from the drawbacks of other methods. It provides for the normal course of the bile and pancreatic juice. This is accomplished by mobilizing the stump of the duodenum after the posterior gastro-enterostomy and resection of the pylorus; then this stump is sutured end-to-side to the efferent loop of the jejunum, a short distance below the point of the gastro-enterostomy. To mobilize the duodenum requires releasing the whole of it from the parietal peritoneum and the duodenorenal peritoneum. The latter is incised the entire length of the second portion of the duodenum, and the gastrohepatic omentum is also incised. The duodenum can then be pushed over to the median line and the stump brought down to the proper point. This brings the duodenum away from the danger zone of the vena cava, and the head of the pancreas and the common bile duct come with it. To ensure the correct slant to the duodenal stump so that the bile and pancreatic juice will have free outlet, he lifts up and sutures the duodenum to the stomach, at a point beyond the mouth of the bile duct. The lips of the incision in the mesocolon are fastened to the posterior wall of the stomach around the gastro-enterostomy opening. This technic, he says, wards off danger of perforation of the duodenal stump, and the physiologic course of the bile and pancreatic juice is restored, aided by gravity instead of forcing them to climb up the afferent loop. They also are poured out into the bowel only as the chyme is passed along. His success in his two clinical cases confirms the practical value of these theoretical premises. The article is not illustrated.

Annaes Paulistas de Med. e Cir., S. Paulo

March, 1919, **10**, No. 3

*Treatment of Diphtheria at São Paulo. J. de Toledo Piza.—p. 49.

Treatment of Diphtheria.—Toledo Piza pleads for larger doses of antitoxin than those generally used, his tabulation of the cases of diphtheria at S. Paulo in the last ten years showing a constant decline in the death rate as the doses were progressively increased. In the nonoperative cases, the mortality in the last two years was only 2.4 and 2.8 per cent. although the number of cases has progressively increased, from sixty-four in 1910 to 490 in 1918. In the sixty-six operative cases, the mortality was 34.8 per cent. but omitting those who died within twenty-four hours, it was only 17.3 per cent. The antitoxin should be given both by intramuscular and subcutaneous injection. In the graver cases a third should be injected by the vein. In mild and moderate cases 10,000 or 20,000 units may suffice but in the graver cases 25,000 or 30,000 must be injected. The whole amount is injected at practically the same time, and he would not hesitate to inject up to 35,000 units in very grave cases. Fractioning the doses is annoying to the patient and is less effectual than the large single dose.

Archivos Brasileiros de Medicina, Rio de Janeiro

March, 1919, **9**, No. 3

*Effects of Radioactivity on the Blood. A. da Silva Mello.—p. 123.
*Abortive Treatment of Syphilis. Z. Goulart.—p. 138.
*Suprarenal Asthenia. J. M. da Fonseca.—p. 149.

Effects of Radioactivity on the Blood and Blood-Producing Organs.—Mello remarks that Senn's announcement in 1904 that he had cured myelogenous leukemia with roentgen exposures was spoken of at first by nearly every writer on the subject as a typical *bluff americano.* Even with all the research since, we know but little more of the true significance of the influence of radioactivity on the blood, the importance of the destruction of these formidable masses of leukocytes, and the significance of the prolonged leukopeny which is a manifestation of radioactive poisoning. The experimental research in this line has been done with doses far larger than are ever used therapeutically. The effects are so fulminating that no conclusions can be drawn from them to aid in treatment, but we have learned that the blood system is extremely susceptible to radioactivity. Even one brief roentgen examination may induce leukocytosis. The lymphatic follicles of the spleen and intestine wall are so sensitive that even five seconds of exposure to a capsule containing 20 mg. of Ra B may induce serious changes in the cells.

These and other facts cited emphasize the necessity for systematic reexamination of blood during roentgen or radium treatment. The degree of leukopeny is an index of the intensity of radiotherapeutic action as it affects the inmost recesses of the blood producing organs. Mello's own research with thorium X showed that the leukocytes might disappear completely from the peripheral circulation and the weight rapidly run down while the reds might persist apparently unmodified in structure or numbers to the animal's death. The blood-producing organs showed, simultaneously, violent destructive processes and processes of normal repair. When the dose used was too large, in man or animals, there was liable to be violent diarrhea as the thorium is eliminated in part through the bowel. Another important feature of the effect of radioactivity is the serious tardy disturbance that may follow the subsidence of a tumor under radiotherapy. Absorption of the tumor masses poisons the whole organism, the patient cured of his tumor but dying from the cure or at least suffering from chronic intoxication.

The progress in averting superficial lesions from radiant energy now enables us to focus our attention on the possible internal injury therefrom, but very little has been published in regard to chronic injury of this kind, and scarcely anything on chronic injury of the blood-producing system. The most important feature of the latter is that the lesions of this system are not usually produced by the direct action of the radioactive substance. Some of the animals in his research showed no signs of leukopeny, anemia and loss of weight from the chronic intoxication, but a second injection of the radioactive substance—even a minute amount—brought on serious manifestations and speedy death. This could not be explained by cumulative action, as the animals long since had eliminated the thorium X, and as thorium X loses all its radioactive properties in about four days.

He often found hyperplasia of the bone marrow accompanying the leukopeny, and hence the latter cannot be regarded as a sign of destructive processes in the blood-producing organs. The reds and the hemoglobin content may be apparently normal even with pronounced leukopeny, and they may regenerate normally after venesection although the organism may be suffering severely from the chronic intoxication left by the radioactive substance, as evidenced by the extreme leukopeny and emaciation. An animal stands the toxic action of thorium X better after it has been bled several times; it may even increase in weight, instead of the otherwise almost inevitable loss in weight. The fact that the reds keep at the normal figure is due to stimulated production, as the reds are unquestionably destroyed under the influence of the radioactivity. The spleen plainly shows the exaggerated destruction of reds, and the pigmentation from this was noted in the spleen even when there was no anemia, confirming the superproduction of reds which conceals the massive destruction going on.

With the chronic intoxication, the spleen showed also regressive changes, but when there was associated infection, the spleen seemed to retain its normal structure or showed myelogenous transformation. This is especially interesting in view of the brilliant success that may be obtained by raying the spleen, especially in cases of myelogenous leukemia. Similar changes in the spleen have been observed in patients after raying of tumors, but the changes in the spleen have always been ascribed hitherto to toxic action from the tumor, and their true significance has been overlooked. Mello emphasizes that it is the salts of radium which have the most pronounced influence on the red corpuscle system, but there is a great difference between the various salts in this respect. For example, thorium X has a much stronger action on the myelogenous than on the lymphatic system; exactly the opposite of the roentgen rays, which act almost explosively on lymphatic tissues. The leukopeny under thorium X is mainly a reduction in the cells of medullary origin, that is, the polymorphonuclears, while the lymphocytes increase relatively in numbers. With the roentgen rays it is the lymphocytes which are electively destroyed.

This explains why in lymphatic leukemia thorium X may induce improvement for a time, but the hyperplasia of the bone marrow and the progressive anemia and the lesions encountered in the spleen amply explain the appearance of the refractory phase. After a series of apparently successful applications there is no further response, and the leukemia continues its fatal course. Mello's work with thorium X was done mainly at Berlin in 1915.

Abortive Treatment of Syphilis.—Goulart says that three unmistakable cases of reinfection after abortive treatment of syphilis have convinced him of the actual efficacy of modern treatment of this disease. He gives the details of those cases and treatment, and also of eight other cases in which the cure seems complete but there has been no reinfection.

Suprarenal Asthenia.—Da Fonseca presents an array of evidence to prove that the muscular weakness in certain conditions is the result of insufficiency of the suprarenal medulla and entire chromaffine system, and only secondarily of the suprarenal cortex. Epinephrin therefore is the treatment par excellence.

Archivos Españoles de Pediatría, Madrid

May, 1919, **3**, No. 5

*Treatment of Congenital Talipes Varus Equinus. P. Borobio y Díaz.—p. 257.
*Spengler's Immune Bodies in Treatment of Tuberculosis in Children. C. S. de los Terreros.—p. 263.
*The Rachitic Penis. V. Juaristi.—p. 286.

Congenital Pes Varus.—Borobio insists that this deformity, which is always accompanied with more or less equinus deformity, is amenable only to surgical measures. If they are applied early, all that is necessary is the Phelps-Kirmisson operation. He describes it in detail as he has applied it in 25 cases. In 16 the deformity was bilateral. All but 8 of the 25 children were boys. Perfect correction of the deformity is impossible, but this realizes all that at present it is possible to attain. He advises against wasting time on nonsurgical measures, as the relative correction possible to be realized grows more and more difficult with delay.

Spengler's Immune Bodies in Treatment of Tuberculosis in Children.—De los Terreros has given the I. K. treatment a thorough trial over four years in treatment of 12 children with various forms of tuberculosis. The results were good in 6; medium in 3, and the disease continued a progressive course in the other 3, 2 of the children dying. The outcome was better the earlier the stage and the older the child. The children seemed to bear the injections perfectly but it is impossible to say whether any have been absolutely cured.

Signs of Rachitis.—Juaristi's further observation has confirmed his statement of three years ago that the eyes of rachitic children are rounder than normal, and show more of the sclera. This is the result of changes in the bony framework behind. He now calls attention to another sign of rachitis, from the same cause, some anomaly in the bone. The child's pubis and abdominal wall slant forward different from the normal aspect, the suspensory ligament is relaxed, and the vascular elements are hypotonic, the result being that the flaccid penis sags low, straight and long.

Crónica Médica, Lima

May, 1919, **36**, No. 671

*Mechanism of Therapeutic Action of Iodid in Hyperthyroidism. H. F. Delgado.—p. 155.
*Serodiagnosis of Typhus. R. E. Ribeyro.—p. 158.
Another Case of Relapsing Fever. C. A. Zevallos.—p. 160.
Bullet in Atlas Ligament. F. Quesada.—p. 164.
*Expert Testimony in Murder Case. G. Fernandez Dávila.—p. 168.
Pathologic Anatomy of the Lymphatic Gland. O. Hercelles.—p. 177.

Iodids with Hyperthyroidism.—Delgado relates that he has obtained excellent results from the use of potassium iodid in certain cases of hyperthyroidism. Whatever the mechanism of its action, the fact of the efficacy of potassium iodid in his cases was established beyond question, and he urges others not to be withheld by their prejudices from its use with hyperthyroidism. In the especially striking case reported, the exophthalmos, tachycardia and enlargement of the thyroid, with hallucinations and distress, had developed after a period of emotional stress and financial worry. Delgado applied psychotherapy and gave daily 4 gm. of potassium iodid, and in two days nearly all the symptoms had disappeared.

Serodiagnosis of Typhus.—Ribeyro reports that in the seven cases of typhus he has encountered, all the serums agglutinated the proteus X without exception, using a strain obtained from Paris. The range was from 1 : 100 to 1 : 10,000. Serum from guinea-pigs infected with typhus did not induce agglutination, and the tests were constantly negative with serum from nontyphus patients.

Medicolegal Report on Murder Case.—Dávila's illustrated report was completed in 1915 but he did not care to publish it before, having waited until the courts had finished with the case. The victim was General Varela, minister of war and premier of Peru at the time, shot while asleep.

Crónica Médico-Quirúrgica, Havana

February, 1919, **45**, No. 2

*Subconjunctival Injection of Cocain. J. Santos Fernández.—p. 55.
Some Medical Aspects of the War. F. M. Fernández.—p. 64.

Subconjunctival Injection of Cocain for Cataract and Glaucoma Operations.—Santos Fernández says that these operations can be done without subconjunctival injection of cocain, but if one wishes to omit nothing that will aid in rendering the operation a success, this is certainly to be recommended. He injects 0.005 gm. of morphin half an hour before the operation and repeats it after the operation, as it is very important to keep the patient in a tranquil frame of mind. To aid in this he does not set a day for the operation, but keeps speaking of preliminary things that have to be done, and the operation can then be performed whenever most convenient and without apprehension on the patient's part.

Revista Médica de Chile, Santiago

May, 1919, **47**, No. 5

*Anti-Anaphylaxis and Anti-Allergy Treatment. R. Kraus.—p. 191.
Case of Banti's Disease. E. González Cortes.—p. 212.
*Dangers of Retrograde Cholecystectomy. Vargas Salcedo.—p. 217.

Anaphylaxis, Allergy and Treatment.—Kraus reviews the history of these conceptions and of treatment based on efforts to combat the allergy. The list includes his own heterobacteriotherapy, autoserotherapy of hemoglobinuria, horse serum in treatment of hemophilia, peptone protein therapy according to Nolf, and the use of peptone in asthma—all these are instances of the modification of the allergic processes by heterogenous substances. Another manifestation of the same principle is the modification of leukemia and certain tumors and psychoses by intercurrent infections. Wagner's attempt to influence general paralysis with tuberculin is another effort in this line.

Technic for Cholecystectomy.—Vargas Salcedo discusses the possible dangers of retrograde cholecystectomy and tells how to avoid them. By lifting up the liver we see the triangle formed by the cystic and hepatic ducts and the right lobe of the liver. The two ducts usually run parallel here for a short distance, and a ligature thrown around the cystic duct here may by mistake include the hepatic also. In about 30 per cent. of all cases the cystic duct empties into the hepatic duct at the opposite side, at the rear or at the front, and in about 2 per cent. it slants upward to it. The arterial supply of the cystic duct is also frequently abnormal, two cystic arteries being found in about 20 per cent. For these and other reasons cited he advises to ligate the cystic duct close to the gallbladder, leaving only a stump 1 or 2 cm. long. The advantages of the retrograde technic are obvious when we have a clear view of this triangle of Budde, as we then can detect any anomalies. But if adhesions, etc., prevent ample oversight of this region, it is a blind and dangerous method. He introduces a short segment of rather hard rubber tubing in anastomosing the bile duct with the duodenum, abandoning this tube to its fate afterward. In a case reported, he inadvertently had included the hepatic duct in his ligature and this had to be corrected at a later operation. The woman long refused to permit this although the jaundice was intense almost from the first and became greenish by the end of six months, but there was no pruritus nor much weakness although the woman had become much emaciated. The much distended hepatic duct contained 300 gm. of bile. Recovery was smooth after anastomosis between the hepatic duct and the duodenum. The article is illustrated.

Revista de Medicina y Cirugía, Havana

July 25, 1919, **24**, No. 14

*The Surgical Trend in Obstetrics. J. F. Arteaga.—p. 369.

The Surgical Trend in Obstetrics.—Arteaga denounces the separation of gynecology and obstetrics, saying that they belong together and should be taught by the same professor. The best obstetricians are those trained in abdominal diagnosis and abdominal surgery.

Revista Médica del Uruguay, Montevideo

June, 1919, **22**, No. 6

*Classification of Gastro-Intestinal Disturbances in Young Infants. R. Berro.—p. 421.
*Latent Tuberculosis in Children. J. P. Garrahan and L. Iraola.—p. 459.
The Child in the Tuberculous Family. R. Iribarne.—p. 466.
Prophylaxis of Child Abandonment. A. Turenne.—p. 469.

Classification of Gastro-Intestinal Disorders in Infants.—Berro quotes the various classifications that have been proposed by different authors, and shows their defects. His own classification separates first the breast and bottle fed. Then the disorders in the bottle fed are classed in three groups according as the food, an infection, or the constitution is involved. The constitution may show a neuropathic, spasmophilic, exudative or hemorrhagic tendency, and the food may be inadequate in quality or quantity or the food may be in excess. The disorders from overfeeding may be acute or chronic; with the acute form there is dyspepsia or intoxication, while the chronic form entails athrepsia, atrophy or hypotrophy. With infection there is gastro-enteritis acute, subacute or relapsing; or else there is enterocolitis, and this may be simple, dysenteriform, dysenteric or secondary. His chart thus shows the sequence and the logical indications for treatment. He concludes with an appeal for the promotion of breast nursing, saying that nothing can replace the mother's breast and the mother's heart, and reiterating that the infant has an inalienable right to its mother's breast.

Frequency of Latent Tuberculosis in Children.—Garrahan and Iraola examined 1214 children from poorer homes and in two orphan asylums at Buenos Aires, and found that 75 per cent. of the children, even though apparently healthy, responded positively to tests for tuberculosis. The proportion of positive responses was 20 per cent. less among the children who had lived all or part of their life in the asylum than among the children who lived at home.

Siglo Médico, Madrid

May 17, 1919, **66**, No. 3414

*Solutions of Sodium Citrate. R. Luis y Yagüe.—393.
*Dangers of Iodin Internally. Id.—p. 394.
*Milk in Colitis. Id.—p. 394.
*Bismuth with Gastric Ulcer. Id.—p. 394.
*Diarrhea and Arsenic Treatment. Id.—p. 395.
Causal Indications according to the Crasis or Constitution. C. Calleja. —p. 395. Cont'n.
*White Swelling in Children. Alvarez-Sierra.—p. 397.
Mercurial Stomatitis, etc. Sicilia.—p. 398.
Influenza in Toledo District. C. Martín y Gonzálcz.—p. 399.

Preparation of Solutions of Sodium Citrate.—Luis warns that pharmacists have been known to dispense sodium bicarbonate plus citric acid instead of the sodium citrate ordered. This is particularly harmful for patients with hyperchlorhydria as it adds more acid to the stomach contents, and may explain certain failures in treatment.

Iodin Internally.—Luis has noted that iodin taken internally seems to cause gastro-intestinal disturbance in those who at some time in the past have had hyperchlorhydria or gastric ulcer. In others it induces rebellious diarrhea. Iodin has been commonly used of late as a preventive of influenza, but it is too dangerous taken internally, he declares, saying that he knows of cases in which it was evidently responsible for gastric ulceration. It should never be given internally without investigating the gastro-intestinal past of the patient, and anything suggesting trouble of this kind, no matter how slight, contraindicates its use by the mouth. It should never be taken on an empty stomach, and the doses should be moderate and the effect supervised.

Milk in Colitis.—Luis remarks that milk is often ordered on account of the hyperchlorhydria which frequently accompanies the colitis. But it has been his experience that patients with colitis do not thrive on milk. It is liable to entail sensations of oppression, flatulence and colic, but usually without diarrhea, the tendency being toward constipation. It is better to refrain from milk in colitis, he says, but if it has to be given, there is less disturbance when it is associated with starch in the form of a gruel.

Bismuth in Treatment of Gastric Ulcer.—Luis explains the reasons for his recommendation to give the bismuth on an empty stomach. When digestion is under way and an excess of hydrochloric acid is being secreted, then it is necessary to give alkalines to neutralize this hyperchlorhydria. They should be taken at the height of digestion or at the first twinge of pain as the hydrochloric acid begins to corrode. The bismuth should always be supplemented with an alkali in this way unless we are certain that there is no excess of hydrochloric acid.

Diarrhea and Arsenic.—Luis advises supervision of the bowels when prescribing arsenic in any form or by any route. It should be given very cautiously when there is a tendency to diarrhea, and the drug should be suspended when it seems to derange intestinal functioning, especially in the debilitated. Fowler's solution seems to have the least disturbing influence of any form.

Tuberculous Arthritis of the Knee in Children.—Alvarez-Sierra says that white swelling seems to be becoming increasingly common in children. As tuberculosis is constantly extending its domain, the number of cases of surgical tuberculosis is proportionately increasing and children form the largest contingent in this category. White swelling of the knee is amenable to proper treatment, but the outcome is directly proportional to the stage of the process when treatment is begun. General treatment is the main thing; the surgical measures are merely the adjuvant, he declares. Heliotherapy is transcendent but it must be applied with careful technic, with brief partial exposures at first and finally of the whole body. For continuous extension, celluloid apparatus for immobilization are better than plaster. He denounces the use of the knife, saying that resection or arthrectomy only exceptionally cures a white swelling; it usually prolongs the disease indefinitely, the lesions spread, and the patient develops general tuberculosis. If the lesions are very deep and there is extensive suppuration, he advises amputation as this avoids the danger of septicemia, metastasis and amyloid degeneration of the viscera, and promptly restores the patient to his normal life. In the early stage, a medical plan of skilful intensification of the organic defense may cure, but the outcome with resection is extremely dubious. If operation is decided on, it should be an amputation and a very radical one.

Mitteilungen a. d. med. Fakultät. d. k. Univ. Tokyo

February 5, 1918, **19**, No. 2. Rec'd June, 1919

*Thymus Functioning. S. Shimidzu.—p. 165.
*Tetragenus Sepsis. T. Tokikuni and S. Tominaga.—p. 213.
*Arrythmia with Beriberi. S. Kato and S. Yamada.—p. 229.
*Electrocardiographic Study of Action of Drugs on Heart. S. Sakai. —p. 245.

Thymus Functioning.—This is Shimidzu's second report of research on thymus functioning. He discusses here "thymus immune serum" with special regard to the reciprocal relations between the thymus and the lymph apparatus. His previous research showed that the thymus immune serum entailed atrophy of the thymus and interfered with the normal development of the animals. His further experiments have confirmed the close conection between the thymus and the lymph apparatus as a whole. He suggests that the condition known as the status thymicolymphaticus may be directly traced to some early acquired injury of the thymus.

Tetragenus Sepsis.—The woman of 31 showed *Tetragenus albus* and *aureus* in blood, joint effusion, skin and mucosa ulcerations and in the urine, but she recovered completely in two months. The first symptoms were noted three months after the birth of her first child: ulceration in mouth and on the genitals. No benefit was derived from antistreptococcus serum, but sodium salicylate seemed to hasten the recovery.

Arrhythmia with Beriberi.—In the two cases reported with diagrams by Kato and Yamada, the arrhythmia did not develop until during convalescence, as the skin symptoms were improving. The arrhythmia was of the sinusal type, and seemed to be due to vagotony.

Electrocardiographic Study of Action of Drugs on Heart.—Sakai gives a number of electrocardiograms of the surviving mammalian heart under the influence of strophanthus, digitalis, and other heart stimulants. Spartein invariably checked in all directions the functioning of the surviving heart. Caffein, theobromin and theocin all alike accelerated the pulse, but theobromin had a depressing action on the conduction of the impulse, while caffein and theocin stimulated it.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

May 17, 1919, **1**, No. 20

Case of Auricular Flutter, Heart Block and Arrhythmia. W. C. Aalsmeer.—p. 1733.
Case of Air in Frontal Sinus. C. E. Benjamins.—p. 1741.
Echinococcus Disease in the Netherlands. A. B. van Deinse.—p. 1746.
*Multiple Sclerosis. H. Bolten.—p. 1749.

Multiple Sclerosis.—Bolten discusses the signs and symptoms of incipient multiple sclerosis as the prognosis is so important, especially at this stage. In the eight cases with an unusually early clinical picture which he reports various types are represented. In one case, a healthy man of 40 fell on his knees during a fencing bout, and spastic paresis developed. By the end of the fifth month there was nystagmus, with other signs of multiple sclerosis. Bolten accepts this disease as the outcome of a congenital inferiority of the central nervous system, the same as paralysis agitans and spastic spinal paralysis. The fact that the nervous system is below standard does not become apparent until, spontaneously or from some external factor, infection, trauma or emotional shock, the unstable balance is upset. The clinical picture then resulting may vary within a wide range. One young man presented for months symptoms of a brain tumor, including double optic neuritis, right deafness and right trigeminal phenomena, the reflexes abolished, but the pulse, mind and stomach were behaving normally. The progress of the case confirmed the diagnosis of multiple sclerosis although the roentgen findings still suggest a possible tumor as first assumed. In another case the man of 50 had presented spastic spinal paralysis for ten years before other symptoms of the multiple sclerosis became apparent. One woman of 34 had complained of dizziness for seven years but nothing could be found to explain it. The dizziness became worse on turning the head, lying down, and in the dark, and sometimes was so severe that she lost her balance. Finally, other symptoms of multiple sclerosis cleared up the case. In another case a man of 20 developed optic neuritis, with hyperalgesia and attacks of pain followed by briefly transient vesicular erruptions. This peculiar play of symptoms kept up for a year before the multiple sclerosis became apparent. One man of 30 with unmistakable multiple sclerosis for several years became suddenly totally blind. The papillae were blanched on both sides, but after a time vision returned and is now two thirds on both sides. The only symptoms at first in one man, now 37, were hemiparesis and nystagmus on the same side and scanning speech. When the paresis comes on gradually, as in this instance, no tendency to recovery can be anticipated.

Hospitalstidende, Copenhagen

June 18, 1919, **62**, No. 25

*Lumbar Puncture with Abscess in Brain. G. V. T. Borries.—p. 753.

Lumbar Puncture with Abscess in Brain.—Borries has found four different types of cerebrospinal fluid at lumbar puncture with suppurative cerebral and subdural processes. The fluid may be absolutely clear when the abscess is free from complications. The suppurative process may even prove fatal—from respiratory paralysis—without the lumbar fluid ever showing signs of pleocytosis. When the fluid is turbid, this indicates propagated irritation although the leptomeningitis may be minimal and not perceptible to the naked eye. The turbidity is not due to irruption of pus as the fluid may be absolutely sterile. The microscope will always reveal the leptomeningitis in such cases, but it is negligible from the clinical standpoint. Even if the patient succumbs to his cerebral lesion, the leptomeningitis may never have got beyond the microscopic phase. It is possible to distinguish between an uncomplicated diffuse leptomeningitic process in the brain by the behavior of the lumbar puncture fluid. If it retains the characteristics of a benign course, as if the meningitis were on the road to recovery, we may accept the assumption of a brain abscess free from complications. The fluid may grow less and less turbid but no one hitherto has thought of utilizing this as a means to differentiate an abscess from meningitis. This is particularly instructive when we compare the changes in the spinal fluid with the course of the case as a whole; the symptoms from the brain abscess may be growing constantly more severe while the puncture fluid is progressively clearing up. He cites several cases from the literature to show this paradoxic course, and reports a case from his own experience in addition to several he has previously published. The lumbar puncture fluid in this latest case was turbid and contained a few bacteria on the first examination but grew sterile and clearer later although cerebral symptoms persisted and necropsy revealed no macroscopic leptomeningitis. One is liable to be misled by the findings at a single lumbar puncture.

Svenska Läkaresällskapets Handlingar, Stockholm

June 30, 1919, **45**, No. 2

*Acute Leukemia. O. Lindbom.—p. 83.

Acute Leukemia.—Lindbom's monograph on the history, clinical picture and pathologic anatomy of acute leukemia fills 255 pages, including fifteen of bibliographic references and one colored plate. Treatment is discussed in a brief paragraph to the effect that, to date, treatment can be only symptomatic. The differential points between lymphatic and myelogenic leukemia are the nuclear structure of the lymphoid cells in the blood, the oxidase reaction, and the histologic changes in the organs. The appearance of promyelocytes in the blood is no certain sign of the myelogenous type, and enlargement of the thymus is not pathognomonic of the lymphatic form. There is much to sustain the view that leukemia is an infectious disease, a sepsis, although attempts to cultivate the germ and transmit the disease have always failed to date. Abnormally high numbers of leukocytes are not a feature of the disease; there may even be leukopeny. Hence the term leukemia should be banished from scientific writings, he says. The number of leukocytes may vary widely in the same person at different times, so that there is no basis for the term "pseudoleukemia," and the term "leukemia" is misleading. Twenty cases are analyzed in minute detail (155 pages), with tabulation of the daily blood findings under sixteen headings over long periods in several of the cases.

Ugeskrift for Læger, Copenhagen

July 3, 1919, **81**, No. 27

*Influenza Pneumonia in Parturients. E. Petersen.—p. 1097.

Influenzal Pneumonia in Parturients.—Petersen's experience in twenty-three cases with a death rate of 43 per cent. confirms that reported from Germany in respect to the gravity of influenzal pneumonia in labor and the puerperium. Benthin reported in Germany a death rate of 54 per cent. and Ottow 76 per cent. Delivery usually proceeded easily and the best results were obtained in the cases in which delivery was left to nature. The period of expulsion is the most dangerous phase, and any anesthetic seems fraught with special peril in these cases.

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DILATATION OF THE URETER AND RENAL PELVIS *

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Dilatation of the ureter and renal pelvis may be caused by these etiologic factors: mechanical obstruction, infection, and disturbance of innervation. The various types may be recognized by differences in (1) outline, as observed in the pyelo-ureterogram, (2) pathology, and (3) clinical data.

MECHANICAL OBSTRUCTION

Continued mechanical obstruction in any portion of the urinary tract is necessarily followed by dilatation of the portion above it. It may be conceivable that an occasional obstruction may cause urinary retention of such short duration that no dilatation in the ureter or pelvis would be apparent; but in the presence of a more or less permanent obstruction causing urinary retention, it would be impossible not to have a visible permanent distention of the ureter and the renal pelvis.

Pelvis.—Dilatation in the pelvis caused by mechanical obstruction is usually characterized by (1) predominance of dilatation in the plevis rather than in the calices or ureter, and (2) comparative regularity of pelvic outline.

The various changes in the pelvic outline resulting from mechanical obstruction are best described by considering them according to degree. As demonstrated by the pyelogram, the following deviations from the normal pelvic outline may be noted:

1. Early hydronephrosis: (*a*) flattening of terminal irregularities; (*b*) broadening of the base of the calix; (*c*) increase in size of the true pelvis, and (*d*) shortening of papillae.
2. Moderate hydronephrosis: (*a*) broadening of the entire calix; (*b*) shortening of papillae; (*c*) change in the angle of insertion of the ureter; (*d*) increase in size of the pelvis, and (*e*) changes of secondary infection.
3. Large hydronephrosis: (*a*) partially filled calices; (*b*) rounded individual areas; (*c*) single calices; (*d*) diffuse outline of rounded sac, and (*e*) dim areas suggestive of diluted opaque fluid.

Early Hydronephrosis.—Probably the first deviation from the normal to be noted in the pyelogram with early hydronephrosis is a flattening of the terminal irregularities of the normal minor calices, together with a slight broadening of the major calix. Immediately following or accompanying these changes may be noted an increase in the size of the true pelvis. With the increase in the size of the pelvis, a shortening or flattening of the papillae projecting between the major calices may be noted.

Moderate Hydronephrosis.—With further increase in size of the hydronephrosis, the major calix becomes considerably broader in its entire extent, as well as shorter, while the terminal irregularities will usually have been effaced. The abbreviation of the calix may proceed to such an extent that one or two irregular indentations in the otherwise rounded contour of the true pelvis may alone remain. Accompanying these changes in the outline of the calix, a marked increase in the size of the true pelvis will usually occur. The pelvic outline is usually even and well rounded along its free border; this is typical of mechanical distention. Its size now makes it easily distinguishable from a large, normal pelvis. This increase in size of the true pelvis may be out of proportion to the more moderate changes seen in the calices. With the increase in size of the true pelvis, the papillae which normally project between the major calices well into the pelvic lumen, become distinctly shorter and may become so flattened as practically to be effaced.

Large Hydronephrosis.—It will usually be difficult to demonstrate the entire contour of a greatly distended pelvis in the pyelogram because of the dilution of the injected medium by the retained fluid. The pelvis is now a large round sac, with rounded calices extending from it. The calices alone may be visible and appear as detached, irregularly rounded areas, particularly when partially filled.

The Ureter.—Dilatation of the ureter because of mechanical obstruction is characterized by an increase in the size of the lumen and by thinning of the ureteral wall. The degree of dilatation is greatest near the point of obstruction, and diminishes gradually as it nears the pelvis. This is in marked distinction to the inflammatory dilatation, which is often greatest at the ureteropelvic juncture and smaller in its lower portion. The degree of dilatation accompanying mechanical obstruction is usually greater than that resulting from infection.

A stricture of the ureter may occur which obstructs the ureteral lumen only temporarily,[1] and it is possible that the ordinary method of cystoscopic examination may fail to disclose the presence of such a stricture, when examined during the interval of patency. A ureterogram may be of considerable value in such cases and may be the only method by which the condition can be demonstrated. Further, even though the existence of a stricture is ascertained by means of the ureteral catheter alone, its extent and the degree of dilatation above it can frequently be ascertained more accurately by means of the pyelo-ureterogram. When encountering an obstruction to the ureteral catheter, considerable difficulty may arise in differentiating between an anatomic and a pathologic condition. The catheter may meet an obstruction at any level of the ureter, as the result of some anatomic condition, such as acute angulation in the course of the ureter, marked elasticity of the ureteral wall, or a loose mesenteric attachment. With most anatomic obstructions, an injected fluid will pass any obstruction offered to the ureteral catheter, and the absence of dilatation or any evidence of abnormality will demonstrate the anatomic nature of the obstruction. With a pathologic obstruction, when the fluid gets by, a nodular dilatation about the obstruction or a diffuse dilatation of the ureter is visible.

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* From the Department of Urology, Mayo Clinic.

* Chairman's Address, read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Braasch, W. F.: Pyelography, Philadelphia, W. B. Saunders Company, 1915, p. 323.

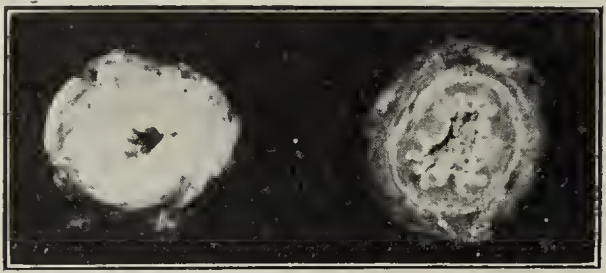

Fig. 1 (244137).—Gross section of ureter with chronic ureteritis. Note thickening of wall and dilatation of lumen.

INFLAMMATORY DILATATION

Any considerable degree of chronic infection involving the renal pelvis and ureter will be followed by dilatation. This dilatation is not caused by a mechanical obstruction, but is the result of either a change in the tissues, and a consequent retraction in the walls of the pelvis and ureter, or of necrosis. The dilatation may vary from scarcely recognizable irregularity of the calices or dilatation of the ureter to complete destruction of the pelvis.

The Pelvis.—Dilatation of the renal pelvis as the result of inflammatory changes in its walls differs from mechanical dilatation largely in these characteristics: (1) predominance of dilatation in the calices or ureter rather than in the true pelvis, and (2) comparative irregularity of outline. It will be found that certain renal infections (evidently those predominant in the tissues adjacent to the renal pelvis) are usually accompanied by a considerable degree of inflammatory dilatation largely in the calices, whereas, in the other renal infections (evidently those predominant in the renal parenchyma), the dilatation is confined to the ureter, with an actual decrease in the size of the pelvis. The changes more commonly found in the outline of the renal pelvis as the result of an inflammatory process are: (1) dilatation confined largely to the calices; (2) dilatation involving the entire pelvis; (3) pyonephrosis; (4) contraction of the pelvis with the dilatation of the ureter; (5) alternating contraction and dilatation, and (6) atrophy.

Dilatation Predominant in the Calices.—The earliest changes in the pelvic outline, as a result of infection, are commonly characterized by a slight broadening and irregular rounding or "clubbing" of the calices, with scarcely recognizable changes in the true pelvis. As the inflammatory process progresses, the dilatation in the calices may become well marked, while little or no dilatation may be apparent in the true pelvis. Marked dilatation of the upper ureter, particularly at the ureteropelvic juncture, is commonly seen with dilatation in the calices.

Dilatation Involving the Entire Pelvis.—With inflammation of long duration, dilatation of the true pelvis to a variable degree, may also result. This occurs secondary to the dilatation in the calices, and is continuous with that in the ureter.

Inflammatory Contraction of the Renal Pelvis.—A decrease in the size of the pelvic outline frequently accompanies infection, which is largely confined to the renal parenchyma, involving the pelvis and ureter secondarily. The pelvis may appear markedly contracted, with narrow slits representing the calices.

Destruction of Pelvic Outline, or Pyonephrosis.—With the extension of the inflammatory process and consequent destruction of the normal outline of the calices, the cortex may be invaded, and the resulting areas of necrosis may merge with the calices. The areas of cortical destruction which extend beyond the calices may be connected by narrow isthmuses with the apexes, so as to give a very irregular outline to the pelvis.

Alternating Contraction and Dilatation.—With a chronic inflammatory process largely confined to the renal pelvis, its outline may become irregularly contracted as well as dilated. This may be due either to contraction as the result of inflammatory changes in the peripelvic tissues, or to encroachment on the lumen by inflammatory proliferation of the pelvic mucosa.

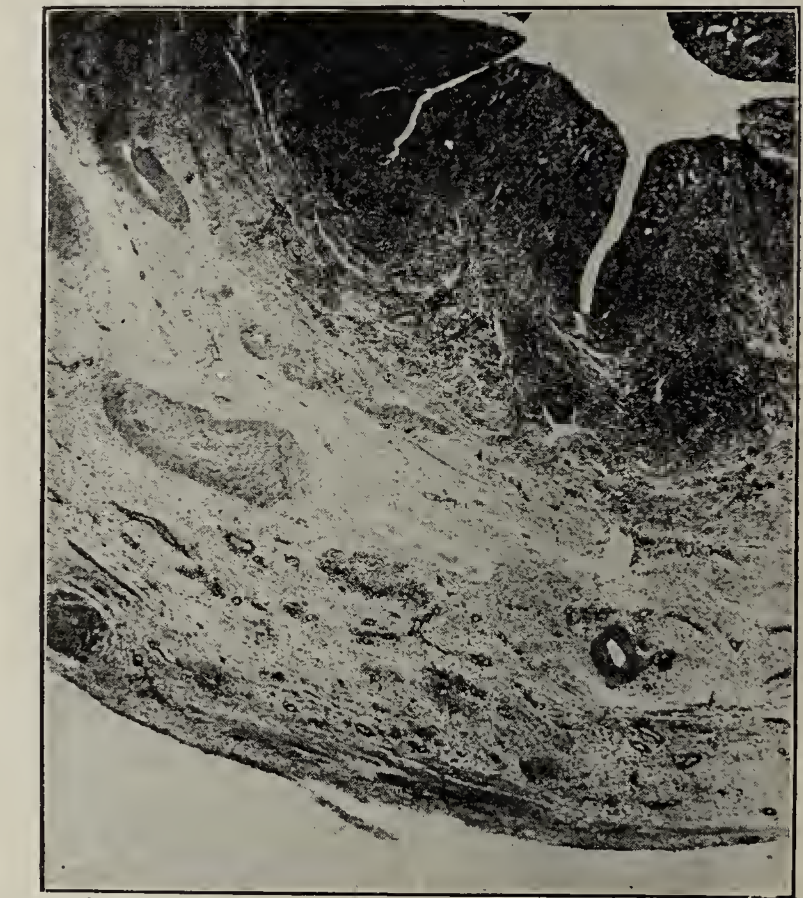

Fig. 2 (224202).—Microscopic section showing increase in size of lumen, leukocytic infiltration of submucosa and cicatricial changes in serosa. Comparative diminution of muscle fibers.

Atrophic Contraction of the Pelvis.—An atrophic condition of one or of both kidneys is occasionally observed. Microscopic examination of the renal tissue often demonstrates the existence of an etiologic inflammatory process. The resulting cicatricial changes may cause diminution in the size of the pelvis commensurate with the decrease in parenchyma.

Inflammatory dilatation of the renal pelvis frequently accompanies renal stone, and may be of diagnostic value. The typical clubbing of the calices, with little or no dilatation of the pelvis or ureter, is frequently observed. That the stone could not cause mechanical obstruction is evident from the fact that the stone may be securely lodged at the end of a calix. Such dilatation may be of definite value in interpreting the identity of a small shadow in the renal area.

The Ureter.—As with inflammatory changes in the renal pelvis, an inflammatory process in the ureter is followed by tissue changes in its walls which cause more or less dilatation. The changes in the pelvic outline may be so slight as to remain unrecognized, whereas the dilatation in the ureter may be the only evidence of a previously existing inflammatory process. The outline of the ureter, if well distended with mediums, will appear dilated as the result of infection. This dilatation is usually greatest near the ureteropelvic juncture, in contrast to the dilatation resulting from stricture of the lower ureter, which is usually greatest near the point of constriction. The ureter, particularly in its upper portion, is frequently tortuous, and occasionally appears markedly angulated.

The portion of the ureter situated in the wall of the bladder will not become dilated to the extent of the ureter above, unless the bladder itself is markedly inflamed. Dilatation of this portion of the ureter is the result of contiguous infection and is usually observed only with marked chronic infection of the bladder wall. On cystoscopic examination, no contraction of the dilated meatus may be visible, which would lead one to believe that with the alteration of tissue in the ureteral wall peristalsis is absent. Such dilatation may often be demonstrated by filling the bladder with an opaque solution and placing the patient in the Trendelenburg position, thus permitting the fluid to enter the ureter by gravity. This method will usually be found impossible unless the ureter in the wall of the bladder is dilated, since the contraction of the meatus and ureteric peristalsis would otherwise prevent the fluid from entering the ureter. Regurgitation of bladder fluid into the ureter, ascribed to insufficiency of the ureteral valve, has been noted by Hagner,[2] Kretschmer[3] and others. Hagner surmised that this was the result of inflammatory changes in the bladder wall.

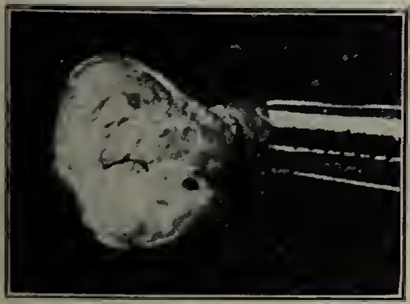

Fig. 3 (25012).—Cross section of tuberculous ureter. Specimen hardened; actual size of ureteral lumen not apparent.

Ureteral dilatation is frequently observed with prostatic obstruction, and is usually ascribed to the result of mechanical distention. While this may be true in most cases, considerable ureteral dilatation has been observed in which the retention never was greater than approximately 50 c.c. This usually occurs in the presence of a variable degree of chronic pyelonephritis, which is evidently the etiologic factor.

Combined Inflammatory and Mechanical Dilatation.—It must, of course, be considered that both inflammatory and mechanical factors may be present with ureteral and pelvic dilatation. Either factor may be the primary cause of dilatation with secondary influence of the other. Thus, a primary inflammatory dilatation, such as occurs with chronic pyelonephritis, may be complicated by a stricture formation, with the usually subjective symptoms of urinary retention. Likewise, a primary stricture of the ureter will sooner or later cause urinary infection, together with an inflammatory invasion of the ureteral wall. In fact, it may be difficult to determine which was the primary factor.

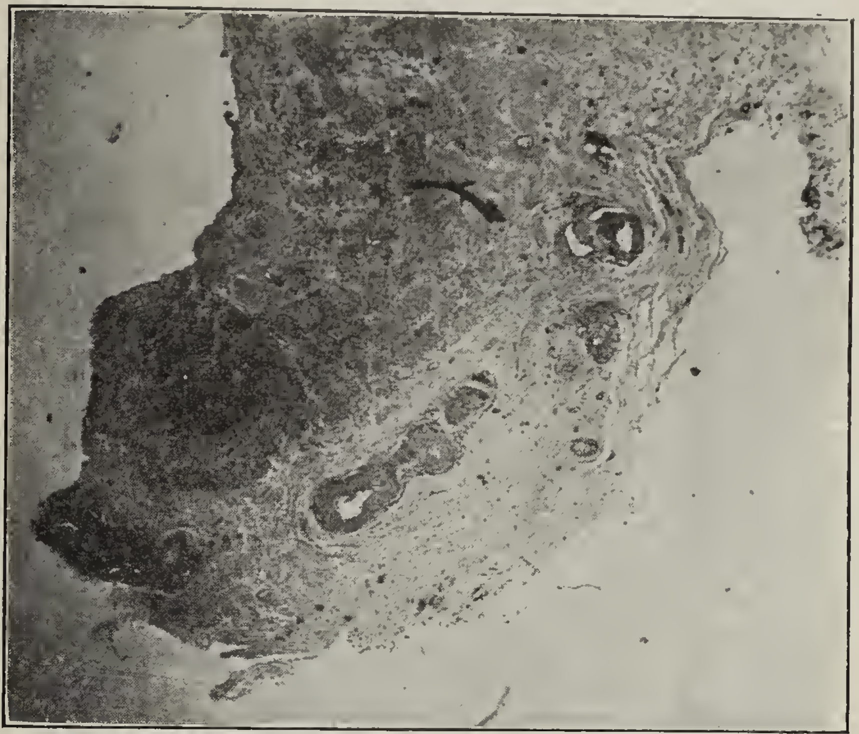

Fig. 4 (25012).—Microscopic section of tuberculous ureter, showing round cell infiltration of submucosa and cicatricial changes in serosa.

Pathology of the Inflamed Pelvis and Ureter.—The frequency with which dilatation of the ureter and pelvis is observed at necropsy, when no evidence of mechanical obstruction can be found, has been noted by various observers.[4] With chronic infection of the pelvis and the ureter, a change takes place in their tissues which is evidently the cause of dilatation. When the pelvis is opened, the calices are usually dilated to a variable degree, and the pelvic wall is thickened. When dilatation of the true pelvis is present, it is not so great as that usually seen with mechanical obstruction to the ureter, nor is there such thinning of the walls. On inspection, the increase in size of the ureter is found to vary from a slight degree to a diameter of 2 cm. Dilatation to a greater degree than this is usually the result of mechanical obstruction. On palpation, the ureter is discovered to be thicker than normal and firmer. This is particularly so with renal tuberculosis. On cross section of the ureter, the walls are seen to be hypertrophied, and the lumen is increased in proportion. With some cases of infection, the changes found in the ureter may be greater than those visible in the pelvis. A microscopic examination of the walls of the pelvis and the ureter reveals the abnormalities: (1) proliferation and often cornification of the mucosa; (2) a variable degree of leukocytic infiltration of the submucosa and musculature; (3) a variable degree of connective change in the submucosa and serosa, and (4) a relative thickening, often to a marked degree, of the serosa. In the main, the inflammatory changes differ from the mechanical in (1) the greater degree of leukocytic infiltration; (2) in more marked connective tissue changes in the submucosa and serosa, and (3) in increase in thickness of the serosa.

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[2] Hagner, F. R.: Regurgitation of Fluid from the Bladder to the Kidney During Ureteral Catheterization, Surg. Gynec. & Obst. **15**: 510 (Oct.) 1912.

[3] Kretschmer, H. L., and Greer, J. R.: Insufficiency at Ureterovesical Junction, Surg. Gynec. & Obst. **12**: 228-231 (Aug.) 1915.

[4] Robinson, B.: Potential Obstruction of Tractus Urinarius; Occasional Nondemonstrable Causes of Uro-Ureter, Internat. J. S. **22**: 367, 1909.

Data with Renal Tuberculosis.—Of particular interest is the dilatation which may occur with renal tuberculosis. The cystoscopic picture of a gaping, dilated meatus, with marked inflammation around it, while the other meatus is quite normal in its aspect, is familiar to us all in the classical picture seen with unilateral renal tuberculosis. The bladder in this condition is usually contracted, and the possibility of any mechanical obstruction in the urethra can usually be excluded; particularly when the condition occurs in the female. If a nephro-ureterectomy is made, the ureter is usually found with one or more strictures above the bladder wall. Occasionally, however, it may be found to be dilated throughout its entire extent,[5] with absolutely no semblance of a constriction in any portion. The pelvis is often found to be slightly dilated; the calices to a variable degree, some very markedly, and some extending into the necrotic cortical areas. It would appear that any possibility of mechanical obstruction could be absolutely excluded, and yet we have a dilatation which remains to be accounted for. On microscopic examination, the walls of the ureter may fail to disclose any particular point of cicatricial narrowing, but will have the typical tissue changes seen with inflammatory reaction.

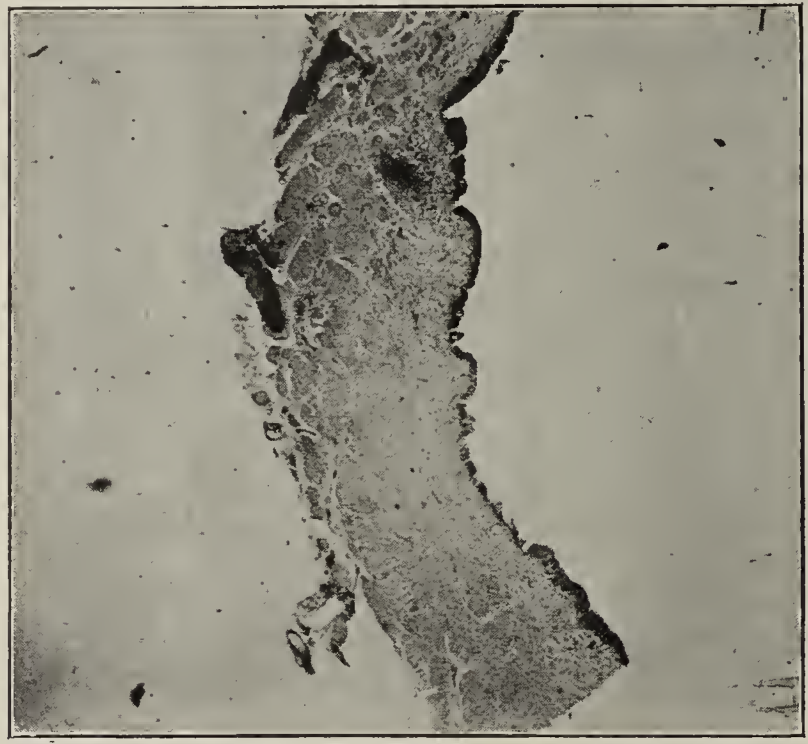

Fig. 5 (181497).—Mechanical dilatation. Microscopic section of a ureter dilated by a stricture. Note thinning of section of serosa and submucosa with comparative hypertrophy of musculature.

ATONIC DILATATION

Dilatation of the ureteral meatus, associated with paralysis of the bladder resulting from disease in the nervous system, was described by Koll.[6] Such a dilatation occurs with only a small proportion of so-called "cord bladders." The dilatation of the ureter is not confined to the lower end, however, but may extend to the renal pelvis. Such a dilatation may in some instances be due to backing of the urine from the overdistended bladder; atonic ureteral dilatation may be found, however, when no residual urine is present. It is more probable that the same disturbance of innervation of the bladder also affects the ureter, particularly in its lower portion. With the relaxation of the bladder musculature, as frequently occurs with spinal cord disease, the ureter may relax to a proportional extent. That such a dilatation may involve the entire ureter can occasionally be demonstrated by a cysto-ureterogram.

Another form of dilatation involving the ureter and pelvis has been described by Fedorow,[7] Israel,[7] Bachrach,[8] Buerger,[9] Kretschmer[3] and others, a form in which no definite etiologic factor is evident. Neither mechanical obstruction, evidence of infection nor disease of the central nervous system may be present. The ureteral meatus is gaping, the entire ureter dilated to a marked extent, and a variable degree of hydronephrosis may exist. This condition is usually bilateral, and has been variously ascribed to atony (Fedorow), spasmodic contracture of the bladder (Israel), inflammatory dilatation (Karaffa-Korbutt), and congenital insufficiency of the ureteral sphincter (Bachrach). While the different authors differ widely in regard to the etiologic factor, they are all agreed in stating that no stricture can be demonstrated. We have observed five such cases at the Mayo Clinic, and the condition was bilateral in all. One of the patients died following a cysto-ureteropyelogram, the medium used being collargol. On postmortem, both ureters were found to be dilated throughout, and the kidneys were hydronephrotic. No evidence of mechanical obstruction was evident in any portion of the urinary tract, nor was there any clinical evidence of disease involving the central nervous system.

Congenital stricture is such a rarity as to be an almost negligible factor. It is probable, furthermore, that many cases of dilatation reported as due to congenital stricture are really the result of an acquired mechanical obstruction.

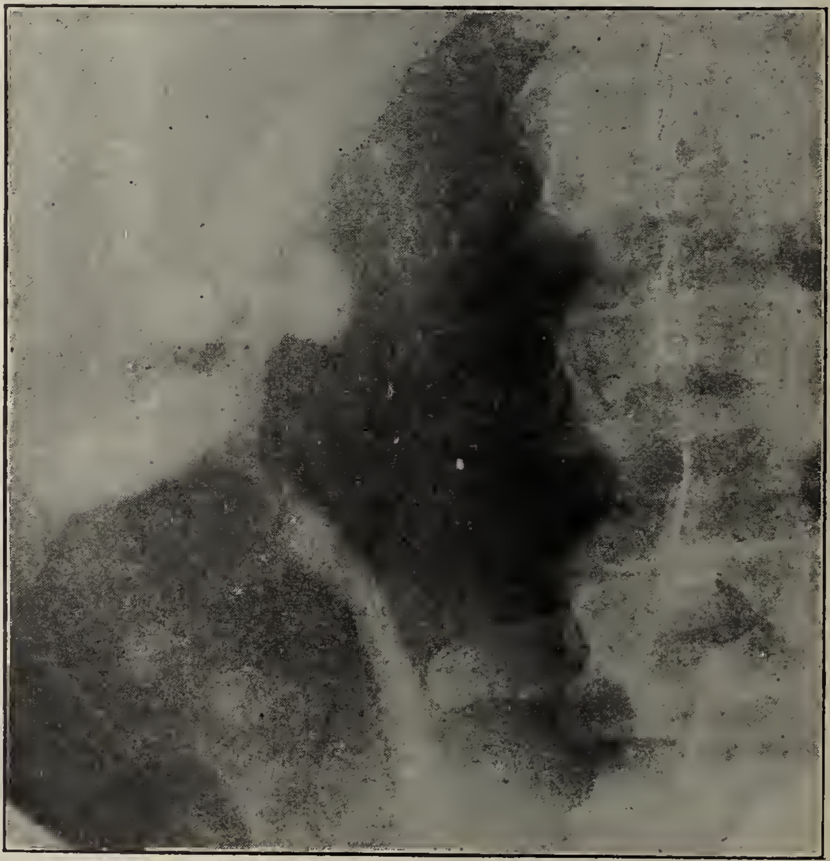

Fig. 6 (260776).—Typical inflammatory dilatation. Note distention of calices. Pelvis small.

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[5] Crabtree, E. G.: Pathology of Tuberculosis of Kidney and Ureter, Modern Urology, Philadelphia, Lea & Febiger, **2**: 509, 1918.

[6] Koll, I. S.: A Study of Twenty-Five Tabetic Bladders, Surg. Gynec. & Obst. **20**: 176-177 (Feb.) 1915.

[7] Quoted by von Karaffa-Korbutt, K.-V.: Zur Frage über die Entstehung und die ätiologische Bedeutung der Ureterenanatomie, Folia urolog. **2**: 167-185 (April) 1908.

[8] Bachrach, R.: Ueber atonische Dilatation des Nierenbeckens und Harnleiters, Beitr. z. klin. Chir. **88**: 279-286 (Dec.) 1914.

[9] Buerger, L.: Congenital Hydro-Ureter and Hydronephrosis, Internat. Clin., Series 24, **4**: 243-249, Philadelphia, J. B. Lippincott Company, 1914.

CLINICAL DATA

When viewed from a clinical standpoint, the subjective data accompanying mechanical and inflammatory dilatation are quite distinct. It is difficult to conceive that there may be, without the presence of pain, an intermittent mechanical obstruction, with consequent overdistention of the pelvis and ureter by the retained urine. In the majority of cases the degree of pain is usually great, although it may be conceivable that with partial obstruction it might be of a moderate character. However, if it is sufficient to cause any marked degree of dilatation, the pain will necessarily be severe. With the dilatation such as is so frequently seen with chronic pyelonephritis, however, there is usually little or no pain referred to the kidney. We have repeatedly demonstrated marked dilatation, particularly of the ureter, which we regard as due to inflammatory causes, when the patient has complained of no pain whatever. In reviewing 240 cases of pyelonephritis, Thomas[10] found that pain was present in less than 20 per cent. If a history of definite pain is present, we have been led to believe that there must be some complicating mechanical obstruction present.

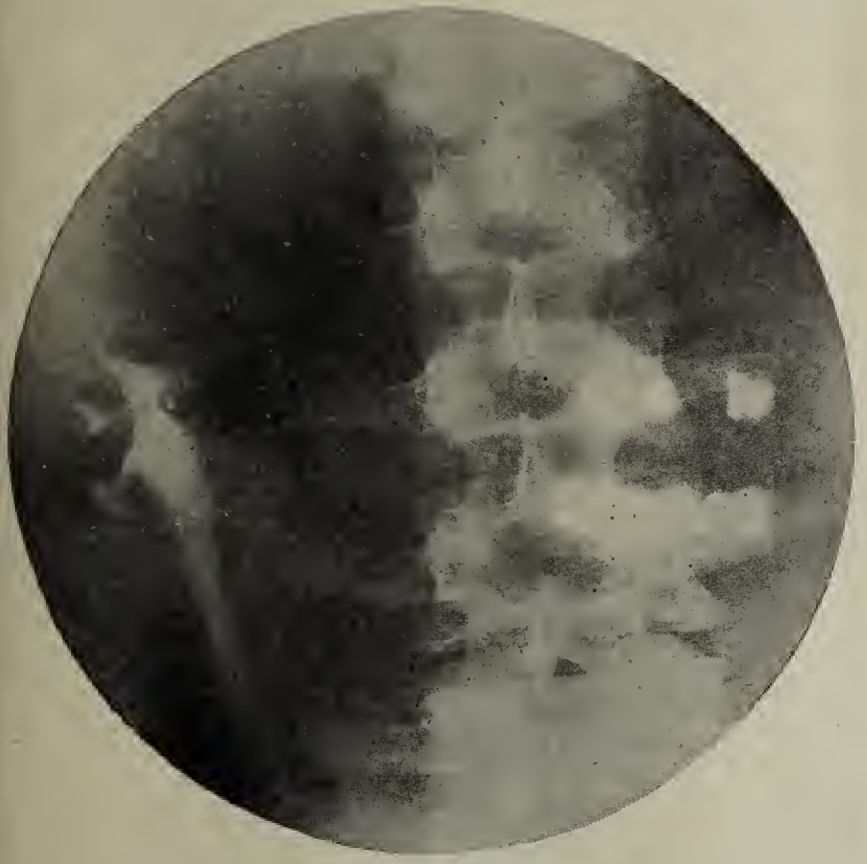

Fig. 7 (230063).—Inflammatory dilatation, with cortical infection characterized by a decrease in the size of the pelvis and calices, and by a dilatation of the ureter.

CONCLUSIONS

1. Dilatation of the ureter and renal pelvis may occur without mechanical obstruction.
2. The differences between mechanical and inflammatory dilatation, in their anatomy and pathology and in clinical data are quite definite.
3. The clinical demonstration of inflammatory dilatation may be of diagnostic value.

ABSTRACT OF DISCUSSION

Dr. Guy L. Hunner, Baltimore: As Dr. Braasch has intimated, we differ somewhat in our views concerning the questions of inflammatory and mechanical dilatation of the ureter and kidney pelvis. I think we all agree, perhaps, as to this class that he has put under the atonic dilatations, and we still have the question open as to what makes the dilatation in the tuberculosis cases that are dilated. It has always seemed to me that in those cases the ureter is blocked at some stage and becomes dilated, and possibly at the time of necropsy or of operation, the tissues which were blocking originally have sloughed away and have left merely the dilated inflammatory shell of the ureter. But the chief point at issue between Dr. Braasch and myself is the question of dilatation due to mechanical obstruction or to inflammation. Dr. Braasch showed slides of cases of mechanical dilatation due to ureteral stricture. I did not see any that showed the actual area of the stricture, but from the condition of the ureter I should judge that many, if not most of those cases, have a stricture in the lower end of the ureter. If you are thoroughly familiar with this work you can tell in the majority of cases by inserting an ordinary catheter or bougie, whether a person has a stricture. Sometimes I treat some of these cases of pyelitis by lavage, and it is only after wondering why the lavage does not clear up the infection, that I test out with a bulb and find that a stricture is present that is keeping up the infection and making the treatment ineffective. On the other hand, the ordinary catheter or bougie does dilate some of these strictures sufficiently so that they do clear up promptly. The men who are working in this field with the Nitze type of cystoscope will have to get some method whereby they can use some sort of a bulb, so that in getting a hang of the bulb on withdrawal they will be able to say whether the patient has stricture.

Dr. Hugh H. Young, Baltimore: This question is one of very great interest. It has been puzzling for many years to explain why dilatations of the ureters are seen in the roentgenogram, and very few symptoms or signs are present to explain them. Dr. Hunner has explained why some of them occur, certainly in women. There are many cases in men in which it is impossible to explain why they occur. I think there is no doubt that congenital conditions have a great deal to do with it in certain cases. We have followed a very interesting group of children with dilated ureters in whom we found congenital obstructions in the posterior urethra. Some of these conditions are definite diverticula, often flaplike, flaps that fill up from above and obstruct in that way, and yet can be emptied by pressure from below. They generally have a small opening by which urine can escape with difficulty, and there is a dilated urethra above, dilated and often thickened, and sometimes complete dilatation of the ureters above that. Congenital

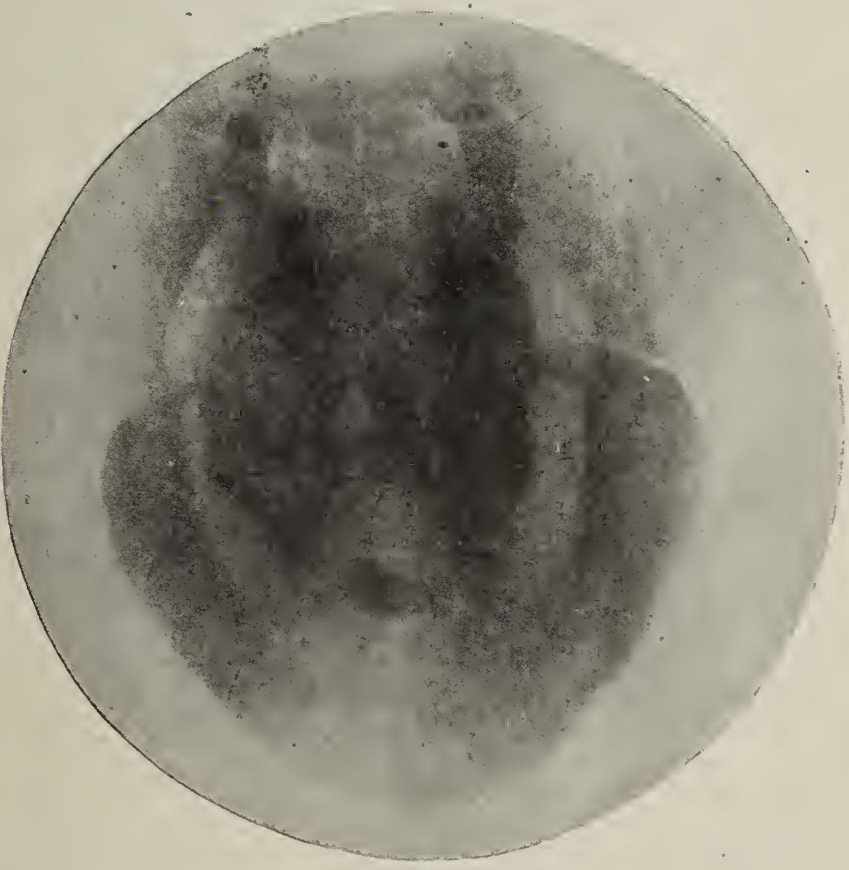

Fig. 8 (117716).—Atonic dilatation of the ureters resulting from lesion of the central nervous system.

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[10] Thomas, G. J.: Clinical Review of Two Hundred and Forty Cases of Nonsurgical Infection of Kidneys and Ureters, Urol. & Cutan. Rev. **20**: 127-130 (March) 1916.

bars at the prostatic orifice undoubtedly may be the cause of dilatations of the urethra and of the kidney pelvis. I feel quite confident that many cases of pyelitis due to obstructions, are due to chronic bars, often congenital or, at any rate, occurring rather early in life and often persisting for many years. In the treatment of the pyelitis in these cases, we have used nitrate of silver, often with startling results, but most often with no results at all. Recently we have been testing out a new product brought out by the chemical laboratories of the Brady Institute. It is called "220" because that happens to be the serial number of the experiments. It is really a combination of the sodium salt of mercury and a rosin base. We have had a few cases in which we have been able to clear up renal and vesical infection with startling rapidity. In one case of chronic cystitis of four years' duration the patient was absolutely cured after three treatments.

Dr. Leo Buerger, New York: We are indebted to Dr. Braasch for having emphasized the rôle that infection plays in ureteral dilatation. However, I would like to add one thing that from the pathologic standpoint ought to receive more attention, and this concerns the pathologic processes about the kidney as well as the ureter; namely, that there are two factors, the exact nature of which we cannot estimate accurately, that are responsible for the pathologic product in ureteral lesions: first, the type of infection, and second, the peculiar reaction of the tissues in each case. In tuberculosis of the urinary tract the tissues manifest a tendency to elaborate sclerotic masses in and about the part involved, particularly when this is the ureter, but also in and about the kidney. What plays the greatest rôle in altering mechanical conditions in the urinary tract are the type of infection and this specific body reaction. Thus we encounter some types of inflammation, a very much dilated ureter with attenuated walls not of mechanical origin solely, but the result of a combination of obstructive lesions plus infection. And in other cases we find a ureter that is enormously thickened, by virtue of a peculiar kind of infection present, together with the result of the body reaction. So we see about the kidney in many cases perinephritic inflammatory processes, which produce an enormous amount of perirenal fibrosclerotic tissue. In such cases, the upper ureter is drawn toward and bound down and agglutinated to the mesial border of the kidney. A knowledge of this circumstance is of no little importance in the identification of calculus in the upper ureter when the situation seems altogether too far out (lateral) and too near the lower end of the mesial border of the kidney. Not only can we be certain of the nature of such a shadow but in the presence of a clear renal outline the existence of the pathologic ureteral displacement can be recognized at once. Conversely where no such fibrosclerosis is present the use of the shadowgraph catheter and cystoscopy will show that a shadow (calculus) in the upper ureter can be displaced mesially and can be pushed far away from the kidney toward the spine. At operation we will encounter an enormously distended ureter above the stone, no sclerotic adhesions between the kidney and the ureter and all of this can be prognosticated in advance. If we bear this fact in mind we will often be able to prognosticate dilated ureters in advance of operation and those that are sclerotic, thickened and obliterated. In certain stages of tuberculosis we find enlarged, thickened and sclerotic ureters and more rarely we find enormously dilated, attenuated ureters. I believe that in the latter cases there is a tubercular stricture below, with a purely mechanical dilatation above. Regarding the diagnosis, I think it best for the occasional cystoscopist to abandon the much exploited method of pyeleography except in rare instances, not only because it is apt to give annoying reactions and cause inflammatory processes but particularly because the routine employment of the shadowgraph catheter together with the data furnished by cystoscopy will give sufficient data to diagnosticate the condition of the ureter. In the presence of the dilated ureters the shadowgraph catheter will be apt to take an abnormal course, when reaching the kidney pass far out into the lumbar region into the hydronephrotic kidney. Often it will lie mesially to a stone because of the ureteral enlargement, and sometimes make a complete turn on itself so as to point downward instead of upward and even make a complete loop in the ureter when the latter is ample in capacity.

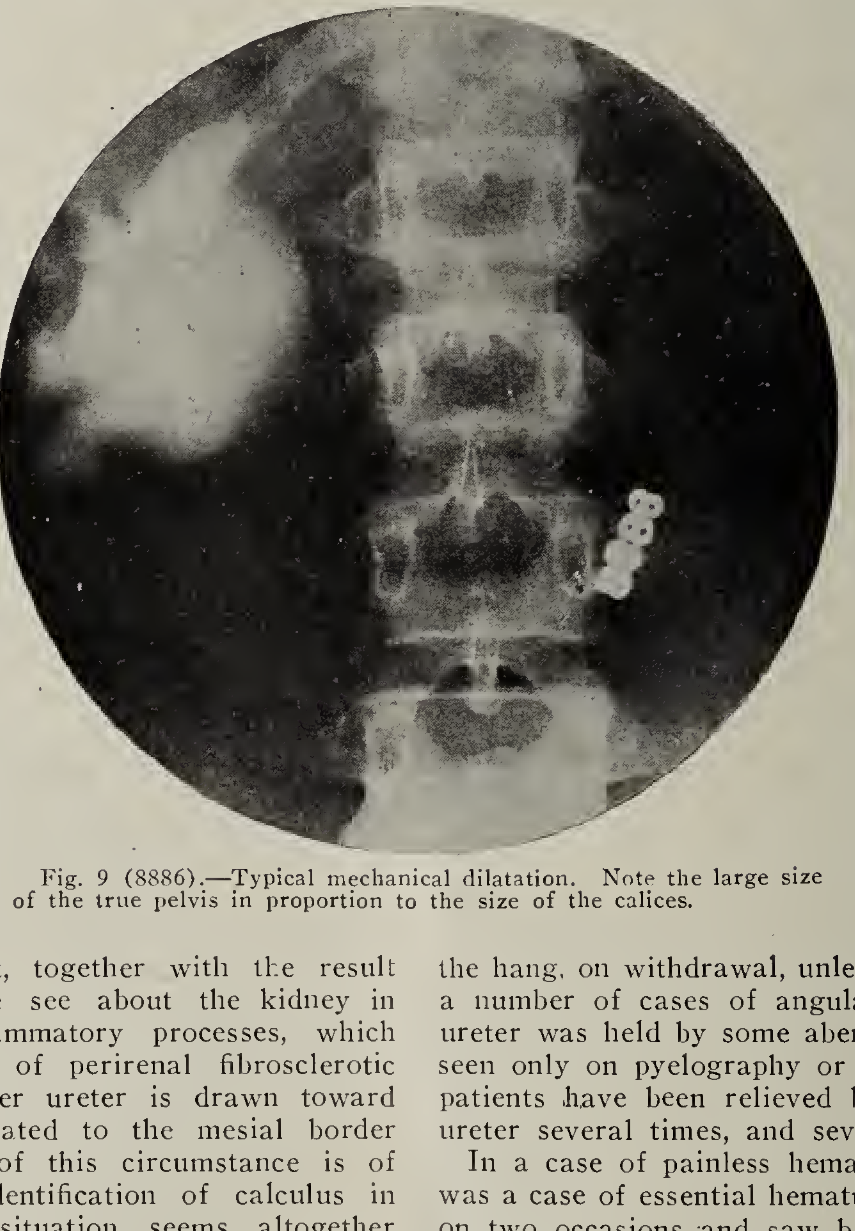

Fig. 9 (8886).—Typical mechanical dilatation. Note the large size of the true pelvis in proportion to the size of the calices.

Dr. Albert E. Goldstein, Baltimore: As to the diagnosis of stricture of the ureter in the male. Frequently, I asked Dr. Hunner why we did not see strictures of the ureter in the male, and his answer was that we did not look for them. I agree with him. Since I have looked for ureteral strictures in the male I have found them. My method of procedure has been somewhat similar to Dr. Hunner's, that is, passing a wax bulb. I pass the wax bulb on a catheter into the urethra and then into the bladder, and then pass the cystoscope over the catheter. In this way the catheter is passed up into the ureter and on withdrawing the catheter (after the cystoscope has been removed), the hang, which Dr. Hunner refers to, is obtained if a definite stricture is present. It is not always possible to diagnose a stricture of the ureter by passing a catheter and meeting an obstruction, for the same reason that one does not always determine a stricture of the urethra by the obstruction he meets with the bougie, but on the hang, on withdrawal, unless it is very dense. I have had a number of cases of angulation of the ureter, where the ureter was held by some aberrant vessel. These cases were seen only on pyelography or ureterography. Several of my patients have been relieved by passing a catheter into the ureter several times, and several were operated on.

In a case of painless hematuria, which I thought at first was a case of essential hematuria, I catheterized both ureters on two occasions and saw blood coming from each ureter, but following the catheterization the hematuria ceased. I did not inject silver nitrate, not being certain about the diagnosis. Whether this has any bearing on stricture of the ureter or not, I do not know. About the shadowgraph catheter, I differ with Dr. Buerger. I do not think that you can make a diagnosis of stricture of the ureter just by passing a radiographic catheter, as most true strictures have dilatations above, and it is necessary for some shadow casting substance to be used to demonstrate the dilatation. Thorium is not dangerous in proper hands. If injected properly and allowed to drain after pyelography, one should use it in every case where it is expected to find some mechanical obstruction.

Dr. John R. Caulk, St. Louis: I believe we are somewhat at variance in our interpretation of just what a ureteral stricture is. In the paper and in the discussion we have not heard a thing about ureteral spasm. It is my impression that we must consider two types of stricture, that is, true organic stricture and the spasmodic contractions of the ureter. I see more and more of this spastic type. I have been looking for strictures, and the more I look, the fewer organic ones I find. We must take into consideration the periureteral tissues, seminal vesicles and the pelvic organs in the female. I do not believe that we can diagnose a ureteral stricture with a ureter catheter, nor do I believe that we can always diagnose a ureteral stricture with a ureterogram. We do a great deal of ureteral catheterizing, we make a great many ureterograms, and we see a lot of contractions which would lead one to believe that there was a definite stricture. You may repeat the examination and get the same finding. If you will give that individual repeated doses of atropin, a large catheter can usually be passed up the ureter without obstruction. On the contrary, the passage of a ureteral catheter through an obstruction with relief of symptoms does not mean that you have cured a patient because you dilated the stricture. In the urethra you can pass a sound during a spasm and relieve symptoms. You may have passed a catheter through the region of spasm and relaxed it. I do not want to be understood that I am doubting the presence of a ureteral, inflammatory stricture, but, aside from the tuberculous strictures of the ureter from the infiltrations from without, and those secondary to stone, I think ureteral strictures are nothing like as common as they are supposed to be. In our experimental work on ureteral ligation in animals, we found that the ureter could be tied and left so, and you have a perfect stricture, absolutely tight, sealed. At the end of a year you cannot tell which ureter had been tied. They are both open and smooth, without evidence of stricture. That is why I believe that spasm is a very important cause of ureteral obstruction.

Dr. Alfred I. Folsom, Dallas, Texas: The question which is most interesting to me is the difference in the explanation of the findings in these cases, whether or not these dilatations in the pelvis and in the ureter are due to an inflammatory dilatation, as Dr. Braasch calls it, or whether they are due to obstruction. I am unable to see why an inflammatory process will retract the ureteral wall. In order to retract the ureteral wall so as to give a dilatation, one must presuppose some point of support outside the ureteral wall for the retracting force, a thing difficult to understand. The only result of an inflammatory process in the ureter when it is acting alone, seems to me to be tending toward a contraction. If I understand the physiology and pathology of hollow tubes in our body, that is what it means. In other words, if we have; acting alone, an inflammatory process either in the pelvis or in the ureter, the tendency is to have that contracted and narrowed. When we find these conditions reversed, that is, when we find an actual dilatation occurring in these inflamed ureters, it means that we must find some explanation outside of the inflammation to account for it, and I believe that in the majority of these cases some type of obstruction is the real cause of the dilatation. It seems to me that we are forced to decide between these two forces. The reason why we find some inflammatory ureters that are not as dilated as others, and the reason we sometimes find ureters that are dilated in one portion and not in another, is the fact that in certain areas the contracting force due to the inflammation in the wall of the ureter is greater than the dilating force due to the obstruction lower down. And the balance of these two forces seems to me to decide and to explain the difference in the pictures we see, both in Dr. Braasch's series and in Dr. Hunner's series. We have two conflicting forces, and the balance of power as between those forces decides whether we are going to have a normal size ureter due to the preponderance of the contracting force of the inflammatory wall, or whether we are going to have a dilatation due to the fact that the hydrostatic pressure due to the back pressure, resulting from the obstruction, is greater than the inflammatory process. To me, this is the crux of the whole situation, and I believe on that is ultimately going to depend the correct solution of this problem.

Dr. W. F. Braasch, Rochester, Minn.: There is a difference of opinion as to the frequency with which we meet strictures in the ureter. I am under the impression that they do not occur as frequently as Dr. Hunner believes. Furthermore, it is questionable whether the "hang" of a bulb on a ureteral catheter is sufficient evidence to diagnose a stricture of the ureter. It hardly seems possible that the great variety of symptoms which have been ascribed to ureteral stricture could be cured by simple passage of a large dilating bulb. Furthermore, it is difficult to understand how a chronic stricture of the ureter can exist without causing dilatation of the renal pelvis, as Dr. Hunner claims. However, it is very probable that the existence of these wide strictures of the ureter have been overlooked in a small percentage of cases.

NEW JERSEY'S WORK IN MOSQUITO CONTROL *

WILLIAM EDGAR DARNALL, A.M., M.D.
President, Atlantic County Mosquito Extermination Commission
ATLANTIC CITY, N. J.

The "Jersey mosquito" seems to be known everywhere and has given our state an unenviable notoriety all around the world. As a matter of fact, the mosquito is no worse in New Jersey than in any other seaboard state having large areas of salt marsh land. In Connecticut, New York, and especially Long Island, Delaware, Maryland, Virginia and all the states bordering on the Atlantic seaboard, the same problem exists, and exists as acutely as it does in New Jersey; but the millions of visitors to the coast resorts of this state have been the means of our opprobrious advertisement in all corners of the globe.

Living in an era of intensive research and practical achievement, we cannot appreciate the passive attitude of accepting pests, such as the mosquito, and other health scourges without an attempt at relief when the methods of relief are practical and efficient. It is not realized that it often costs a community and the citizens of it personally much more to support a mosquito nuisance than to eliminate it.

As long as eighteen years ago, interest was started in New Jersey in the question of mosquito elimination. In 1901 an organization made up of a few public spirited citizens was formed in Orange, N. J. These men at that time had little information as to the life history, habits or varieties of mosquitoes, which is so necessary in effecting their elimination. Their work proved more or less discouraging because, in spite of money spent and work done, there were times when great hordes of mosquitoes infested the community.

About this time the late Dr. John B. Smith, the state entomologist, one of the greatest pioneers in this work, began to investigate the situation. He collected perhaps the most valuable fund of information known as to their life history, habits and varieties, and his published report will always be a superb classic and an unparalleled contribution to the knowledge of the subject. Dr. Smith created so much interest among his friends and was so successful in proving by his experiments that the elimination of this pest could be accomplished, that he finally succeeded in getting the legislature to pass an act appropriating $350,000 for

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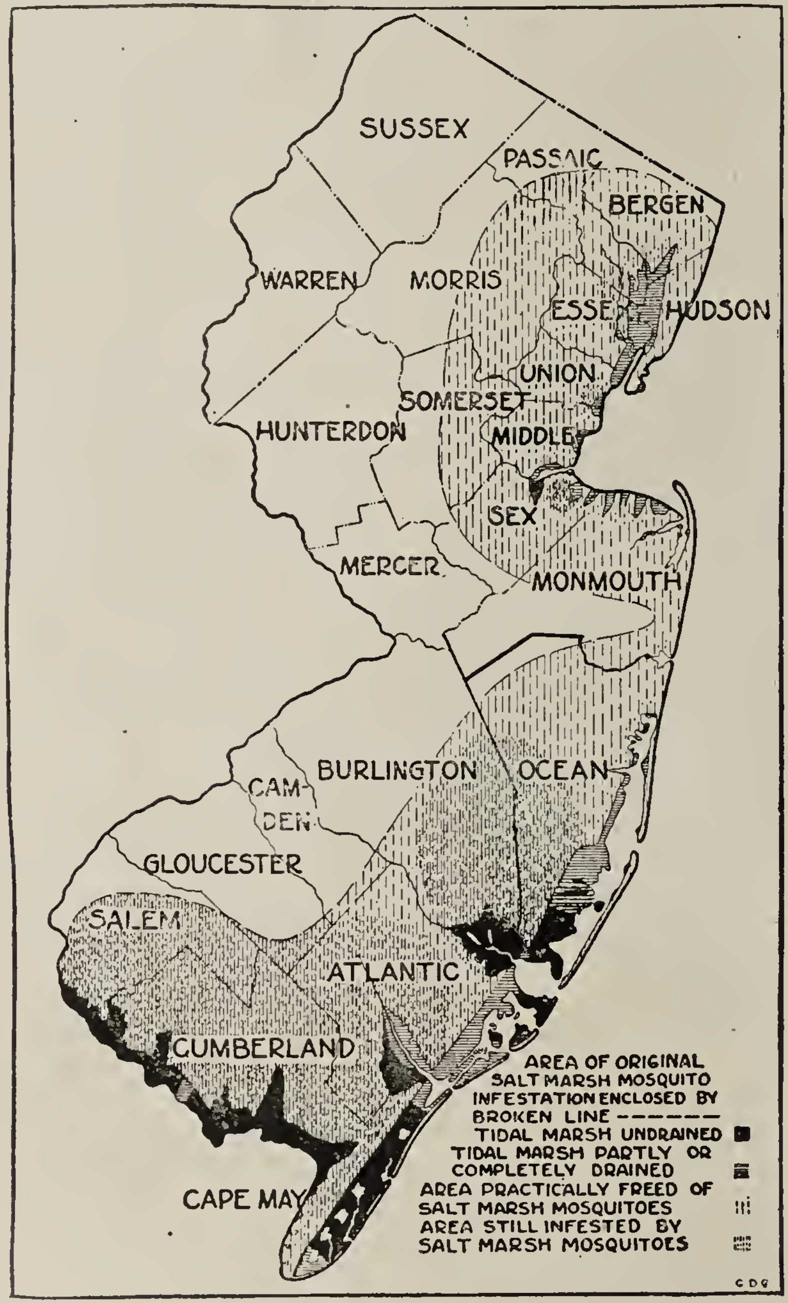
* Read before the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

the work. This was to be set aside as a fund largely for experiment, a certain amount determined by the law makers to be appropriated annually. He soon demonstrated that it was no idle dream, but the work progressed so slowly that the legislature in 1912 passed an act creating commissions in each county, the funds to be raised by the assessment of from 0.25 to 0.5 mill on each dollar of the tax budget of each county.

Commissions were then appointed in the various counties, the seaboard counties being the most active in the matter. These commissions then went actively to work to solve the problem by obtaining all the known data on the subject, employing expert engineers and practical men, and forming a state organization which meets annually to exchange views on the question. These county commissions are coordinated with the state experiment station and are under the direct supervision of the state entomologist, Dr. T. J. Headlee. The result is that the movement is organized all over the state. It is the most perfect organization, perhaps, of any large public movement in the state, and numbers several thousand enthusiasts in its membership.


SUSSEX
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HUDSON
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HUNTERDON
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MERCER
MONMOUTH
BURLINGTON
OCEAN
CAMDEN
GLOUCESTER
SALEM
ATLANTIC
CUMBERLAND
CAPE MAY
AREA OF ORIGINAL SALT MARSH MOSQUITO INFESTATION ENCLOSED BY BROKEN LINE -------
TIDAL MARSH UNDRAINED ■
TIDAL MARSH PARTLY OR COMPLETELY DRAINED ▤
AREA PRACTICALLY FREED OF SALT MARSH MOSQUITOES ⁞
AREA STILL INFESTED BY SALT MARSH MOSQUITOES ▦
C D G

Fig. 1.—Flight of salt marsh mosquitoes inland from coast.

"The work of New Jersey, which was the first state to take up this question," says Dr. L. O. Howard, the entomologist of the Smithsonian Institution, and perhaps the world's greatest authority on mosquitoes, "is so far ahead of every other state and every other country as to stand practically alone." One of the early presidents of the New Jersey Mosquito Extermination Association said a few years ago: "Our work in New Jersey will probably be responsible for a country-wide movement against the mosquito." These words are coming true. The outbreak of the recent war and the necessity for the protection of the health of the soldiers in the camps has brought this matter to a speedier consideration by both the public and the authorities than would have been possible otherwise, although before the war the activities of New Jersey were being felt in many other progressive communities, notably in the malarial districts of certain southern sections. However, when the time came to speed up the protection of the camps from disease, it was to New Jersey and the New Jersey Mosquito Extermination Association that the government called for help. Several of the superintendents of the county commissions of New Jersey were selected to direct and supervise the work in the various cantonments, while the work of the Bergen County commission under the direction of their able chief inspector, Mr. J. B. Leslie, at Camp Merritt, the principal embarkation camp of the army, was a real contribution to the success of the war. The great shipyards at Hog Island and the work at League Island and Bristol were laid out under the direction and advice of New Jersey engineers and mosquito experts.

Camp Merritt, an embarkation camp situated in a malaria district, presented a situation of the utmost importance, since soldiers coming from all parts of the country might acquire infection. Among them also would be numbers of carriers of malaria brought from other states, especially the Southern states. As will be seen, the conditions would have been ripe for a continuous epidemic of malaria, which would have been carried not only to our own troops abroad but to those of all the allies. As soon as the site was chosen for Camp Merritt in 1917, the Bergen County commission made a complete survey of the territory affected and an investigation of malarial conditions then existing. It was found that while the camp stood on high ground it was almost completely surrounded by sluggish streams and overgrown swamps. *Anopheles* breeding was found along the edges of the slowly moving streams and ponds. The situation was pointed out to the commanding officer and the danger explained to him. He immediately saw the importance of it. The Public Health Service and the commission combined forces to push the work rapidly under the direction of the commission, the government supplying the labor. The work was pushed rapidly and watched carefully, and the total area controlled was about 15 square miles. The result was that during the summer of 1918, mosquitoes in and around the camp were reduced so far below the nuisance point as to be negligible; and although there were some recurrent cases of malaria among the troops coming from a distance, *there was not one case of malaria during the entire summer* which originated at Camp Merritt.

Malaria is the only mosquito-borne disease in New Jersey, and we find that in comparatively few places. There is almost none in south Jersey, but it has been troublesome at times in certain sections of the upper parts of the state. One of the most remarkable examples of what can be done, with comparatively little expense, occurred a few years ago at Princeton. The university students as well as the people of the village were seriously stricken with an outbreak of malaria. The low lying basins about Princeton were found on investigation to be prolific breeders of *Anopheles quadrimaculatus,* and there was much illness. The small sum of $10,000 was raised and active and systematic work done under the direction of the state director of mosquito extermination by the local authorities. In a year's time the number of cases of malaria dropped from 257 to eight. The following year there were none. The economic importance of this result and the health importance of the protection given to a community like this with its great university is almost unmeasureable. The time allotted for this paper does not permit the mention of many cases in detail. The fact that the United States government was enabled to send millions of soldiers through Camp Merritt, situated in a naturally malarial district, without one single case of malaria occurring there, and the startling result attained at Princeton furnish brilliant and instructive examples of what can be accomplished with thorough organization, anywhere.

Fig. 2.—Typical marsh pool in meadows near Atlantic City.

Certainly the vision of the pioneers of this work in New Jersey and the tremendous fund of information that has been acquired and is on record deserve our greatest respect and admiration. These men should be proud of their handiwork, which has set the standard for communities in many other states. Those who are interested in mosquito extermination in any way will find scientific and practical discussions of nearly every phase of the subject in the annual reports of the New Jersey Extermination Association for the past six years. These reports have become classics and are much sought after far and near.

All mosquito extermination must be based on the scientific knowledge of the different varieties of mosquitoes and the life history and habits of those to be dealt with in any given community. In nearly all inland places the problem is comparatively easy because it deals with what are known as local types of mosquitoes. Such types as *Anopheles* and *Stegomyia pipiens* never migrate farther than from 1 to 5 miles from the place where they are bred. Cleaning up the immediate district and organizing a good place for follow-up inspection, therefore, will quickly rid any given community of the pest, as in the case of Princeton.

Contrast now, with this, the coastal states with large areas of salt marsh meadow land breeding *Aedes sollicitans,* which has a flight under proper conditions of wind and weather of at least 40 miles. The coast counties also have the same problem of local mosquitoes as inland places, so that the authorities on the one hand must look after all local types of mosquitoes, and on the other must rid the salt marshes within a radius of 40 miles from any given point by a systematic drainage system, in order to have relief.

Of the forty different species of mosquitoes found in New Jersey, practically the only ones of economic importance are the local types known as *Stegomyia pipiens* or the house mosquito, and the malarial *Anopheles* group. The other local types are negligible. The real problem in New Jersey is to rid the state of *Aedes sollicitans,* which at times makes life miserable for nearly half of the population of the state by reason of their long flight from the seacoast, inland. Hotels will fail, summer resorts die and agricultural and industrial interests lag if unfortunate enough to be situated in districts badly infested by hungry hordes of mosquitoes. It is for this reason that New Jersey has waked up to the vital importance of freeing the whole state from this menace to health and progress, and is setting the pace for other states. This community and many others in the state have been freed entirely from local and disease-bearing species of mosquitoes, but much work still remains to be done before the vast areas of marsh land will be clear.

WORK IN MOSQUITO CONTROL IN NEW JERSEY

County	Total Amount Expended on All Kinds of Antimosquito Work to Date	Area Protected in Sq. Miles in 1918	Population Protected in 1918	Salt Marsh	
				Total Acres	Acreage on on Which Breeding Has Been Eliminated
Atlantic	$139,503.90	50.0	60,000	49,998	37,636
Bergen	76,000.00	182.0	178,596	8,378	5,800
Burlington	....	.....	....	9,943	......
Camden	....	.....	....	......	......
Cape May	30,000.00	10.0	6,000	53,638	20,480
Cumberland	....	.....	....	52,661	......
Essex	406,845.90	126.0	665,000	4,500	4,500
Gloucester	....	.....	....	......	......
Hudson	177,060.42	42.5	670,467	11,468	7,000
Hunterdon	....	.....	....	......	......
Mercer	....	.....	....	......	......
Middlesex	31,510.96	311.9	135,000	8,199	4,500
Monmouth	26,619.00	125.0	58,000	3,378	3,278
Morris	2,000.00	Survey work only.		......	......
Ocean	35,000.00	.....	20,000	40,000	27,000
Passaic	75,263.95	36.0	245,000	......	......
Salem	....	.....	....	31,780	......
Somerset	....	.....	....	......	......
Sussex	....	.....	....	......	......
Union	182,000.00	104.0	150,000	4,413	4,000
Warren	....	.....	....	......	......
Totals	$1 181,804.13	987.4	2,188,063	278,365	114,394

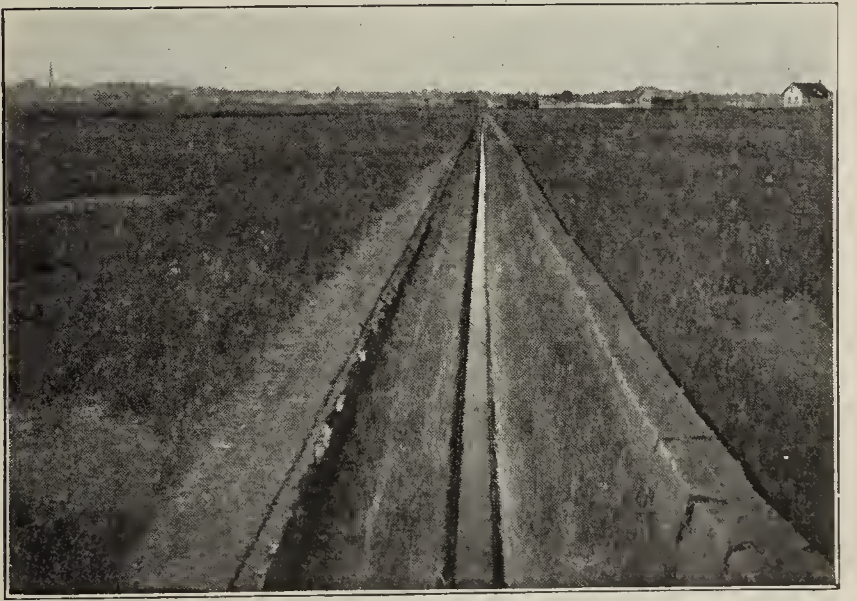

Fig. 3.—Machine-cut ditch 10 inches wide by 30 inches deep, such as is used in all antimosquito work in Atlantic City.

About 16,000,000 feet of standard 10 by 30 inch ditching have already been cut on the salt marshes in the state; about one third of this is in the county of Atlantic, representing about 1,100 miles of ditching or one third of the distance from here to Paris. There are in the state 296,000 acres of salt marsh. There still remains to be treated about 150,000 acres, so that it may be seen that the work is about half completed. During the next five years, according to the plans now laid, this whole area will be drained and New Jersey, the home of the mosquito, can say to the world that it has no mosquitoes. Can any other state say as much by that time, especially the coast states having the same difficulties as New Jersey?

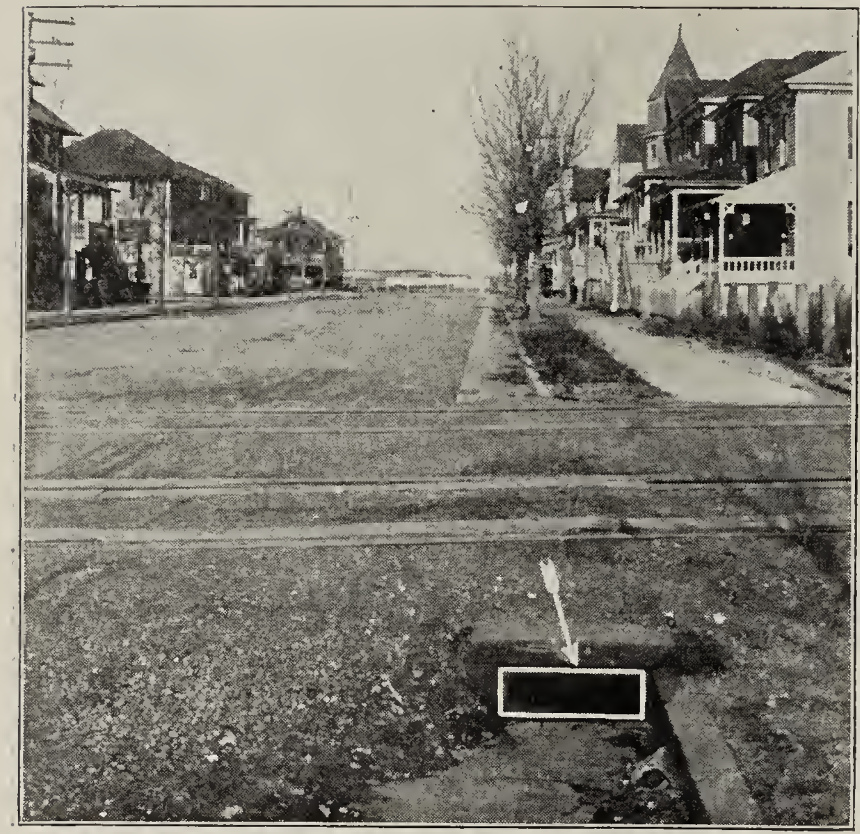
Fig. 4.—Old style wooden drain holding water at all times.

After all the work is done, the maintenance of it is of supreme importance. It is estimated from the experience already gathered that the maintenance cost per year per acre will average 35 cents. The area which has up to date enjoyed protection from the mosquito pest is 937 square miles. The population protected by this work is 2,188,063 people of the state. The per capita cost of such protection is about 15 cents.

ORGANIZATION OF A COUNTY UNIT

It might be of interest to describe the organization of a county unit, such as exists in this county and many others of the state. A commission composed of six men is invested with the responsibility of the work. A superintendent or chief inspector is the active head who, with his assistant, has full charge of the office, the various gangs of salt marsh workers and the local inspectors of the fresh water work. It is necessary for the chief inspector to be a thorough expert mosquito man and a practical executive. The work on the marshes is done by ditching machines which cut ditches 10 by 30 inches very rapidly through the marsh. Five hundred feet can be cut often in fifteen minutes, and as much as from 1,000 to 5,000 feet in a day's time. Each machine gang is under a foreman, and consists of five men. The number of feet that can be cut per day is limited only by the number of machines and machine gangs that can be employed, and that is a question of money. There are in this county, alone, about 50,000 acres of marsh land, and of this 61 per cent., or about 37,000 acres, have been drained, leaving about 13,000 acres yet to be done. These ditches, draining into open thoroughfares and bays, allow the tides to come and go through the ditches, which are placed about 100 feet apart. As the tide recedes, the meadow land between the ditches is dried out by seepage, making mosquito breeding impossible; at the same time it allows millions of the small killifish to run up the ditches and into the pools. These fish are our most efficient allies, because they feed on the mosquito larvae. During severe flights of mosquitoes, when the undrained meadows were producing billions of mosquitoes, our patrol service has found practically no breeding on the drained and ditched meadow. That is the best test of its efficiency.

Constant patrol is given this vast stretch of marsh, and whenever breeding is found it is charted on a map in the central office so that everything the mosquito does is known at headquarters. Whenever a ditch is ineffective or clogged, all points in regard to the development of a brood of mosquitoes are charted daily, so that it can be told several days beforehand just what is going to happen, and according to the direction of the winds just what communities are going to be troubled on a certain date with an infestation, and how severe it will be.

This refers to the coast and the marshes; but the large part of this country is not on the coast, and the inland dweller is not interested in it. His problem is the fresh water or local types of mosquitoes. It is much simpler and much easier to produce almost immediate results with these varieties, because of their short migration.

The organization of this work is under the same executive head as the marsh work. Each city in this county is divided into districts. Each district is given to a local inspector whose duty it is to cover every property in his district every ten days in the mosquito season. The inspection of each property made for the day is recorded on a separate card and checked up at the office at the close of the day and filed. If he has found breeding on any property, this report must be on a pink card. It is his duty to eliminate such breeding as may be found in a rain barrel or a tin can, or other receptacle, and note just what and where it was.

Fig. 5.—Boats open to the weather will soon raise a crop of insects.

If it is stagnant water under a house or in some other locality, it is reported, and the ditching squad or the oiling squad follows it up the next day. If the water can be drained away, it is done. If not, it must be oiled. Each pink card report filed in a separate case must be followed up in not less than ten days and checked up. When oiling is necessary, the oiling squad must be on hand regularly every ten days to oil the surface of the water; but in reality in this community oiling is a small part of the work. As a matter of fact, after the first complete inspection at the beginning of the summer there is not much difficulty with local types of mosquitoes, except in the new conditions that may arise from week to week; and as soon as these are discovered, they are promptly eliminated. A large wall map of the city shows every spot in the city on which mosquito breeding has been eliminated for the year, and is valuable as a clue to any trouble that may arise in the future years.

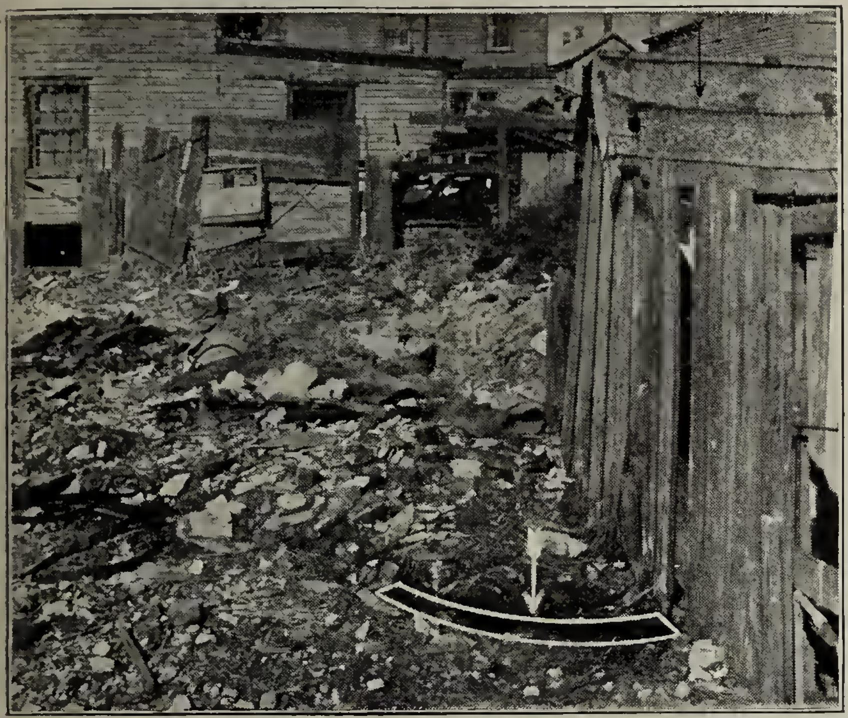

Fig. 6.—One of the beauty spots of Atlantic City. Water under such rubbish is hard to oil for mosquito elimination.

By systematic organization of this sort and careful follow up work, knowing the kind of mosquito to be dealt with and his life habits and proclivities, any community with a comparatively small expenditure may rid itself of this terrible pest and enemy of health. In many communities there are engineering problems of tide gates, dikes and other methods of handling drainage besides ditching. All these may be overcome by intelligent cooperation and intensive study, and there ought to come a time when every community infested with mosquitoes will be as much under the ban as if it had the worst sanitary conditions. As a matter of fact, these two things, mosquitoes and bad sanitation, usually go hand in hand; where the one is, the other will be found.

1704 Pacific Avenue.

ABSTRACT OF DISCUSSION

Dr. Juan Guiteras, Havana, Cuba: I would like to ask here whether any responsibility is attached to the house owners in connection with domestic mosquitoes; whether the house owner is considered responsible for mosquitoes bred in water barrels and other water containers; whether any system of fines is established and imposed on such persons.

Dr. John E. Ferrell, New York: I think all who have been interested in the subject of malaria control, will receive encouragement from the paper which has been read today, indicating the feasibility of mosquito control in the very difficult areas of New Jersey. I have no doubt that those present know of the malarial control measures which have safeguarded the troops at Camp Merritt, and that they have also been carried on in all the camps throughout the country, and it is one of the greatest achievements of governmental agencies, state, federal and local, which have been entrusted with this task. You can start at Camp Merritt and go south throughout the districts where the anopheles mosquito is a menace and find that through the governmental agencies malaria has been controlled. It is important, it seems to me, having this demonstration before us, to suggest that the time has now arrived to maintain what has been obtained throughout these areas, particularly in the South, and to accept the suggestions of Dr. Darnall, and develop whatever agencies may be necessary in extending this work which has made one of the best and most successful health demonstrations we have had in connection with war work.

Dr. J. D. McLean, Philadelphia: Pennsylvania is following on the line of New Jersey and being taught by this state in the control of the mosquito. Pennsylvania's state board of health expended last year $99,000 for the elimination of disease breeding spots. The commissioner of health of the state feels assured that in the future his hands will be much stronger than they have been in the past, and that the mosquito breeding spots in Pennsylvania will be entirely wiped out in a very short time. The work is being continued this year and we are spending from sixty to sixty-five thousand dollars on that work. We have several just as bad breeding spots as they have in New Jersey. They are along the Delaware River, and not only in the Hog Island district. They are still farther north.

Dr. John P. Davin, New York: I am very proud as a member of this section, to hear what has been done at Camp Merritt, because I happen to have a rather intimate association with one of the gentlemen connected with that work, Edward Davin of the U. S. Army, my son.

Dr. Arthur T. McCormack, Bowling Green, Ky.: I want to call the attention of the section to two practical propositions. In the first place, last year one of our sanitary inspectors in Panama designed a form of sectional concrete ditch bottoms of varying diameters, 30 inches long and about 4 inches thick, of reinforced cement, with a male and female end, so that the segments will fit one into the other, and buttering these segments with green cement, it makes a tight ditch bottom. You can lay it as you lay a pavement, very

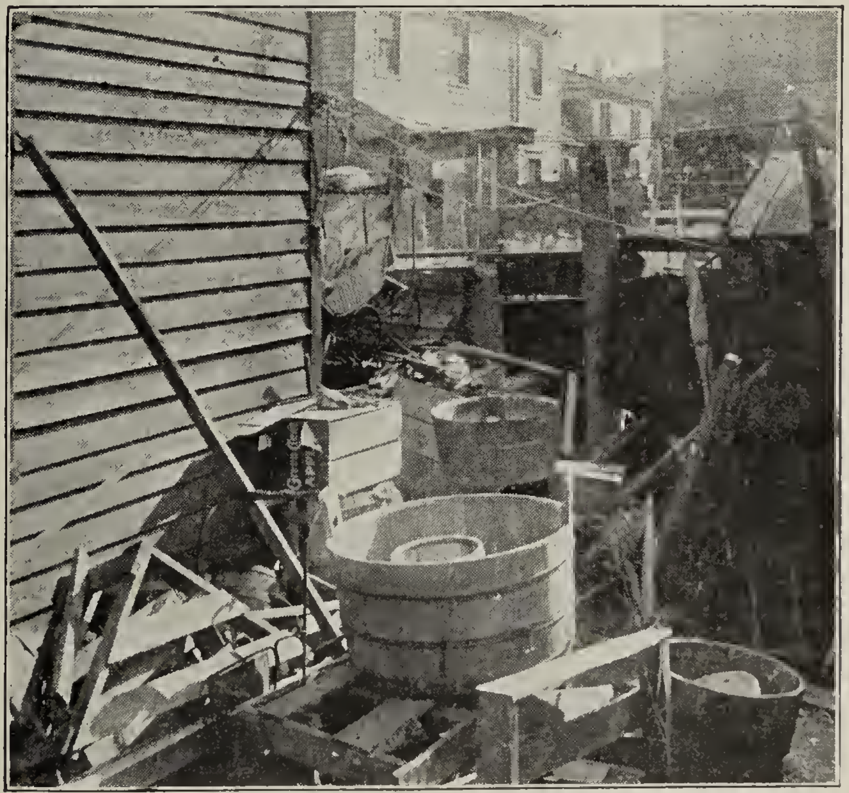

Fig. 7.—A typical back yard on the north side. Some of these tubs were used for washing clothes, others for raising mosquitoes.

readily and very economically, and it gets rid of the problem of ditch maintenance, which is one of the greatest expenses in malarial work, because it involves a greater capital expense. I was in Panama about four and a half months before I saw any mosquitoes in the sanitated area, and then I found two in an unused bathroom in my house. My wife telephoned to the authorities and in about fifteen minutes an automobile truck drew up with a sanitary inspector and five negro laborers from the health department in it. They went through various rooms, and after a short time located the offenders. The sanitary inspector went in with his little test tubes and he caught the mosquitoes. He examined them. It happened to be a variety I knew very little about personally. Apparently there was a hole in the screen, and so he called up the health department. They telephoned down to the proper section, and immediately a truck came with four more men, and they very carefully went over the screening, yard by yard, and found two holes large enough for these mosquitoes to come in. The screening was repaired, and we had no more trouble. In the meantime, the sanitary inspector of the health office came up with a blueprint of the entire area, because this variety of mosquito had a flight of about a mile, and on the blueprint was shown every place where mosquitoes bred. Every place was examined with a view to finding where these mosquitoes had bred. On the second day they found that just about a mile from the house was a wet spot where there had been some clogging of a drain and that little wet water stream, to use a common expression, was responsible. That drain was cleared out, and then the inspectors went to every house within half a mile and they found in two other houses a few mosquitoes. It is interesting to know how thoroughly such work can be done, and to know that that is the standard toward which we are aiming.

Dr. William E. Darnall, Atlantic City, N. J.: In reply to Dr. Guiteras' question as to fines, we have no such system, for the reason that in the minds of the layman, the whole problem is yet considered more or less experimental. Nobody believed that anything could be done to free a community of mosquitoes, and therefore, to put fines on people with such an uninformed state of public mind would result in the work becoming unpopular to such an extent it would be dispensed with. One of the main duties of all local inspectors is to instruct people. If mosquitoes are found on your premises and the inspectors find their source in rain barrels or other receptacles, he demonstrates the egg boats, larvae or pupae; explains how they develop into mosquitoes; empties the receptacles in order to eliminate the source of breeding, and instructs the people that it is their duty to eliminate the mosquito, and to keep stagnant water out of every receptacle. That is the way we have accomplished educational results, along, of course, with a certain amount of newspaper publicity. The result is that the whole community is interested.

Education.—Every mind was made for growth, for knowledge, and in its nature is sinned against, when it is doomed to ignorance.—Channing.

THE TREATMENT OF FRACTURES

SOME LESSONS OF THE WAR *

ERNEST W. HEY GROVES, M.S., F.R.C.S.
(England)
Major R. A. M. C. (T.); Surgeon in Charge of the Special Military Surgical Hospital
BRISTOL, ENGLAND

The killing of the great war is over, but much of the curing is still to be done. Reconstruction is the order of the day and we shall do well to apply this process to the principles and practice of treating fractures, whether these be the result of gunshot wounds or of industrial accidents. There are a few good things to set against the many evil things of war, and one of them is that the number of each kind of casualty serves to magnify the details of injury together with treatment and results, so that broad principles come to be recognized which would have escaped notice if taught by only a few and scattered cases.

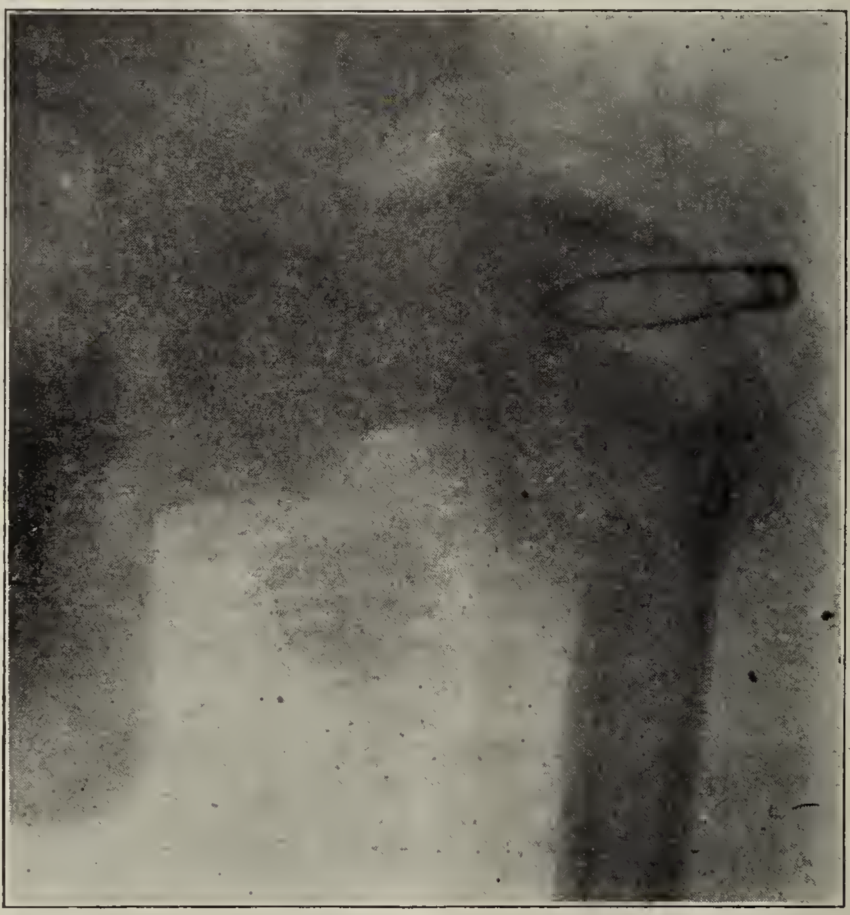

Fig. 1.—Extreme adduction deformity after fracture of femur: left femur, five months after wound; treated by a Thomas splint; note states that the leg was 1½ inches shorter than its fellow. After apparent union had taken place, the deformity here figured occurred, the leg then becoming 4½ inches short.

GENERAL PRINCIPLES IN THE TREATMENT OF FRACTURES

Administrative Principles.—It is within the knowledge of every one who has been closely interested in this question that a very marked improvement has taken place in the treatment of gunshot fractures in the last two years as compared with the first two years of the war. No doubt, experience and better technic have had their share in this, but certain administrative principles have probably had more to do with it than anything else. And it is because these very administrative principles are applicable to civil life that they are especially deserving of consideration today.

No ingenuity of invention nor improvement in operation can compare in importance with the three principles of *segregation, continuity* and *team work,* as regards their good influence in both our knowledge of and good results in the treatment of broken bones.

So long as gunshot fractures were treated for one period at a base hospital in France, for a second period at a general hospital in England and for a third period at a convalescent home, the results were bad in a large majority of the cases in which function depended on skilful treatment.

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* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author or by The Journal on receipt of a stamped addressed envelope.

Reeducation.—One of the greatest advances in miltary surgery has been the common sense treatment of functional disabilities by reeducation or psychotherapy. By the old method, men with broken legs expected o be lame, and accordingly they invariably were lame, just so long as hey were absorbed in their injury and until return to employment provided the necessary reeducation. But he new method has made a great advance over this. The bone having been kept in correct alinement and extended to proper length, the functions of the joints and muscles having been preserved, while the patient s in bed, the patient is from the very outset of his ambulant stage taught to use his leg normally and by the aid of simple instruction he quickly comes to walking well.

The keynote here, too, must be simplicity and common sense, rather than complexity and mysticism—applied early for prevention rather than late for cure of disability.

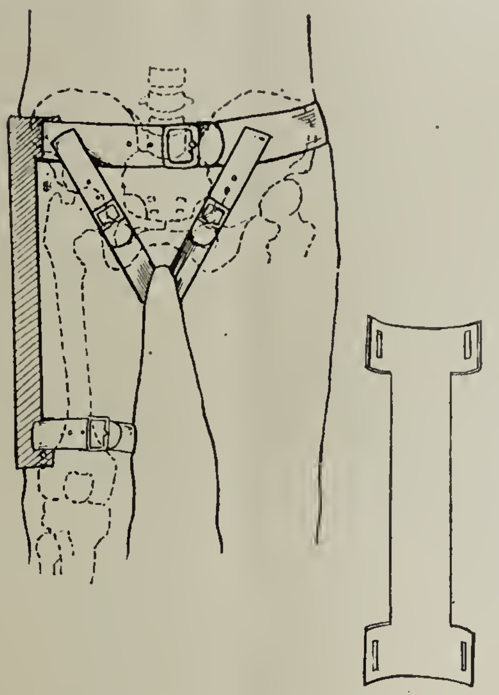

Fig. 2.—Outside thigh splint to prevent adduction deformity. This is applied after extension has secured correct alinement and length and after early union has ocurred. It consists in a steel plate 4 by 15 inches, straight in its length and curved transversely; it is attached above to the pelvis by a wide, padded webbing which is secured from upward displacement by two perineal straps, and below to the thigh just above the condyles. It will be noted that this splint does not fix either the hip or the knee.

THE SPLINT TREATMENT OF FRACTURED FEMURS

The proper correction and maintenance of position of the broken bone is of the first importance. It does not constitute the whole treatment, but it is the foundation on which the whole treatment rests. The painful inadequacy of the correction of displacement in gunshot fractures of the femur in the early stages of the war has forced attention to the subject, and it has now been demonstrated that, even with this most difficult type of case, excellent results can be obtained both as regards structure and function, by a proper system—results which compare most favorably with those of civil practice. A high standard has been reached, and nothing will ever justify a practice which falls short of this ideal in the future. In a large proportion of cases uncomplicated by loss of bone or injury to joints or nerves, we ought to be able to insure three things: full length, correct alinement and good function.

The Thomas System.—The credit for this raising of our standard belongs to one man more than any other, and that is my chief, Sir Robert Jones. He had the experience and the enthusiasm necessary to solve the material problem, and he had the faith which moves mountains of official complacency. He demonstrated that the methods of Hugh Owen Thomas could meet the essential requirements of the case and that it was particularly suitable for gunshot fractures in the field and in transport.

There are certain limitations and drawbacks of the method in which Thomas used his splint.

MODERN METHODS OF TREATMENT BY EXTENSION

These difficulties have been overcome in various ways, and it is the general opinion that better results are secured by:

Active extension by a weight and pulley. Counterextension by the body weight or by a perineal band around the sound leg.

The maintenance of the hip and knee in a position of semiflexion.

The application of the extending force by securing a direct hold on the bone by means of either transfixion or ice-tongs.

One word is necessary as to the question of the site and manner of taking hold of the bones. I have been using transfixion methods for many years and have observed both in my own cases and in those described by others that when the lower end of the thigh is pierced there occurs in a certain proportion of cases a troublesome sepsis. This is due, I believe, to the seton action of the pin and has nothing to do with the transfixion of the bone. So long

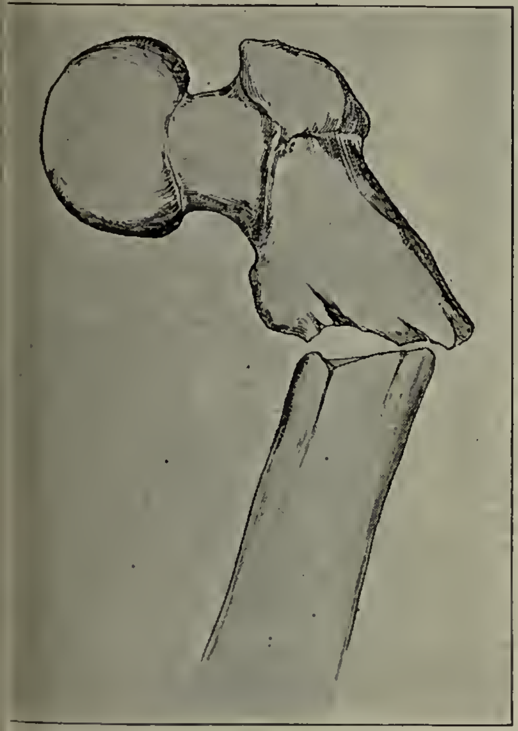

Fig. 4.—Diagram of fracture of upper end of femur with typical displacement.

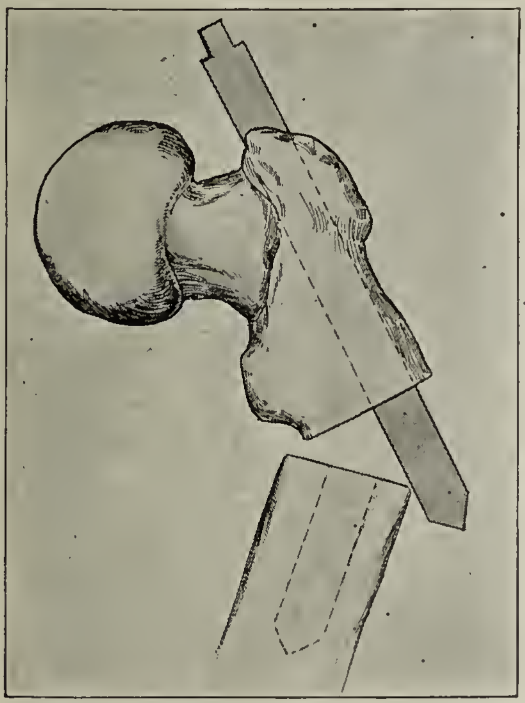

Fig. 5.—Treatment of the fracture of Figure 4 by a long ivory or bone peg (6 by ½ inches). The peg is pushed upward through the great trochanter.

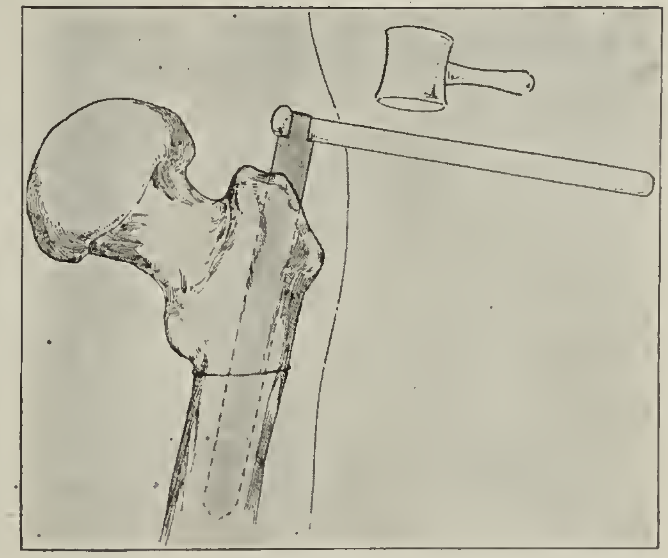

Fig. 6.—The upper end of the peg, exposed through a buttock incision, is grasped by a metal bar, a hole in which fits over a shoulder on the peg. The peg is driven down into the shaft of the femur.

as a rod passes through the skin into the interior of the limb, there must be liability to sepsis. The danger of such sepsis lies in the fact that the track of the pin passes through deep muscle and fascial planes from which either the knee joint or the thigh becomes infected. This seton action of the pin will be shared by the ice-tongs, and in many published papers a considerable incidence of sepsis is admitted with the latter appliance.

Fig. 10.—Pegging upper end of the femur: Private P., thirteen months after wounding; with ununited fracture of upper end of femur. The proximal fragment is tilted in front of the shaft.

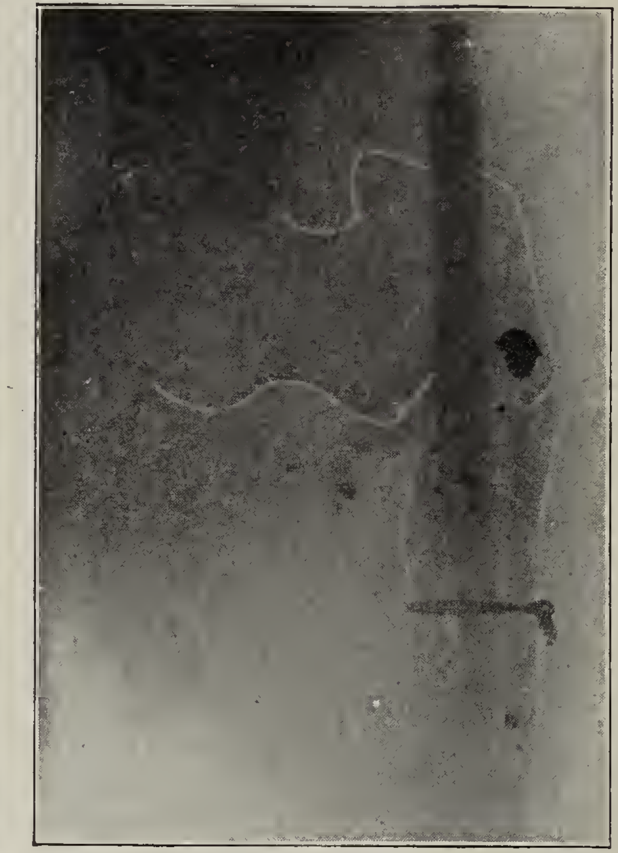

Fig. 11.—Private P., four months after pegging. An ivory peg 6 by ½ inches was used. This peg is still in place, six months after the operation. The wound healed by first intention. Note that at both ends of the peg erosion and absorption are taking place.

Major Pearson's contention that his caliper grasps the bone without piercing it appears to me quite incredible. The bone is often soft and atrophic and the sharp points must go through the shell of bone before they can stand the strain of a 15 pound pull.

The transfixion of the tibial crest seems to me to be the safe alternative to the transfixion of the femur. It goes through nothing but skin, fascia and bone; it needs only a ⅛ inch pin; it concerns very dense bone; it can be left in place for four months; and if sepsis occurs from its seton action, it can, as a last resort, be cured by a V shaped incision of the crest of the tibia in front of the transfixion hole. It exerts traction on the thigh by pulling on the actual bony insertion of the great thigh muscles.

The two criticisms of the tibial transfixion which are fairly urged are, that it may strain the knee-joint and that it interferes with the exercise of the knee.

With regard to the strain on the knee ligaments: if only sufficient weight is used to cause correct length of the leg, then this force is expended in stretching the thigh muscles, and there is no overplus to injure the knee ligaments. If more force is used than the thigh muscles require then this will be indicated by over-extension of the leg and should be met by a suitable reduction of the weight. This argument holds good only in the case of recent fractures in which the extension force has only the muscle traction to overcome. It does not apply in the case of old fractures in which fibrous or callus union has to be overcome. In all old fractures of the femur or dislocation of the hip, I use, therefore, transfixion of the femur by a 3/16 inch pin and a 40 pound weight. The weight is reduced as soon as full length is reached and the pin is removed within three weeks, being then replaced by other methods; for example, plaster or tibial transfixion. But in all recent femur fractures, I use tibial transfixion with 15 pounds extension, reduced to 10 pounds within about one week.

THE VITAL PRINCIPLES OF FRACTURE REPAIR AND THEIR MECHANICAL CONTROL — THE PREVENTION OF DEFORMITY

The repair of fractures is by means of tissue which is soft at first and becomes hard only by slow degrees. Under adverse circumstances; for example, certain types of sepsis and loss of bone, the callus may remain soft for a very long period, and if a static or muscular force is constantly tending to bend the alinement, deformity will certainly result unless means are taken to prevent it. The best example of plastic callus, allowing deformity, is seen in fractures of the upper end of the femur where external angulation will inevitably occur after correct union has taken place in the absence of some external strut.

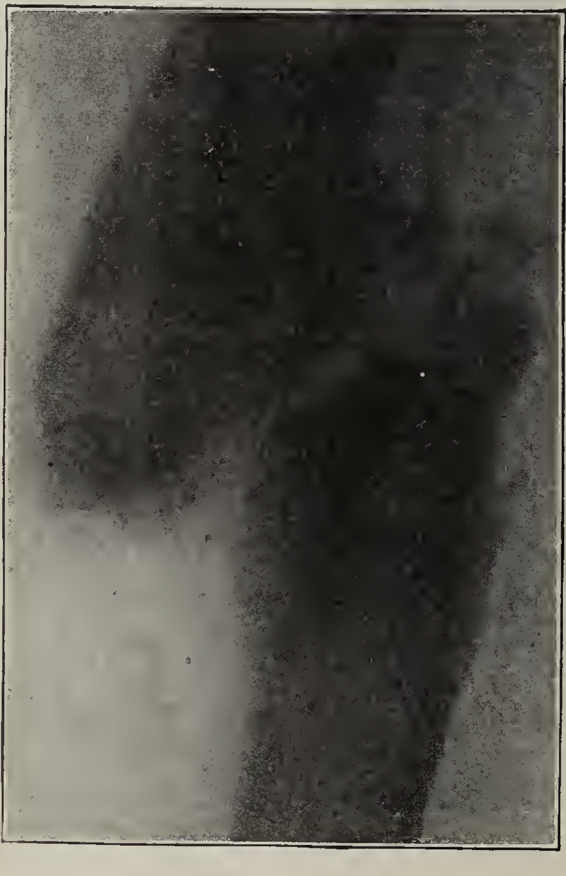

Fig. 14.—Lieutenant T., twelve months after plating operation: there is a well marked false joint with great eburnation of both ends of the bone.

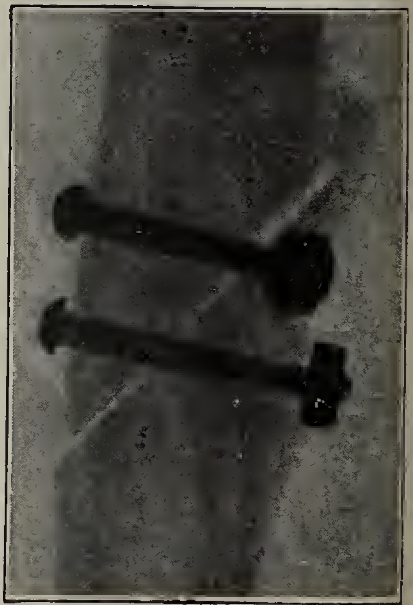

Fig. 15.—Lieutenant T., two weeks after the femur has been bolted by two 3/16-inch bolts.

This is seen in an extreme grade in Figure 1 where a femur is shown angulated to such a degree that more than four inches shortening was produced. Such late or secondary displacement may take place as long as six or nine months after injury and several months fter union of the fracture. It is not easy to prevent his deformity by any of the ordinary appliances, for xample, a Liston's long splint of plaster of Paris, vithout such prolonged immobilization as will make mminent a high degree of atrophy of the muscles and ixation of the joints. A walking caliper splint will not ntirely prevent it.

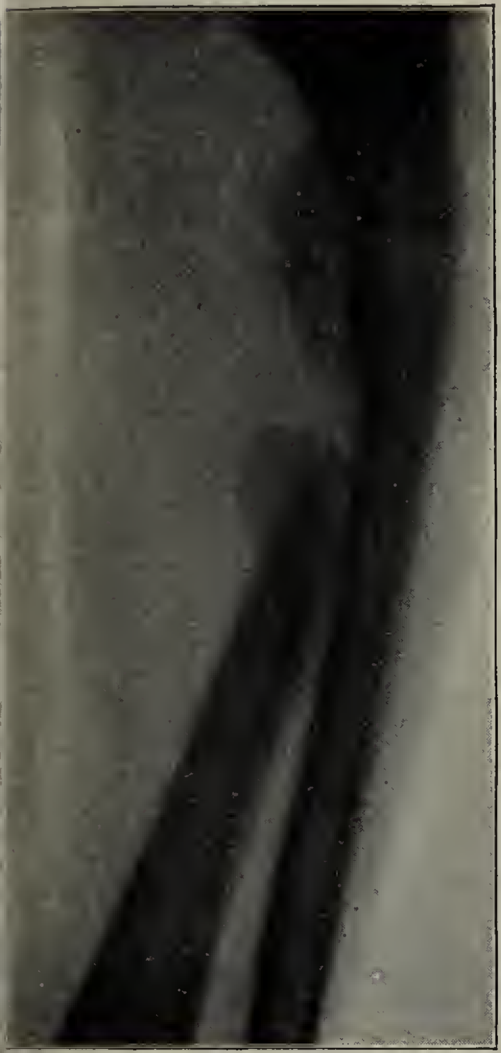
Fig. 21.—Private X.; bone graft for ap fracture of radius; gap at junction f upper and middle thirds of radius; ypical loss of supination.

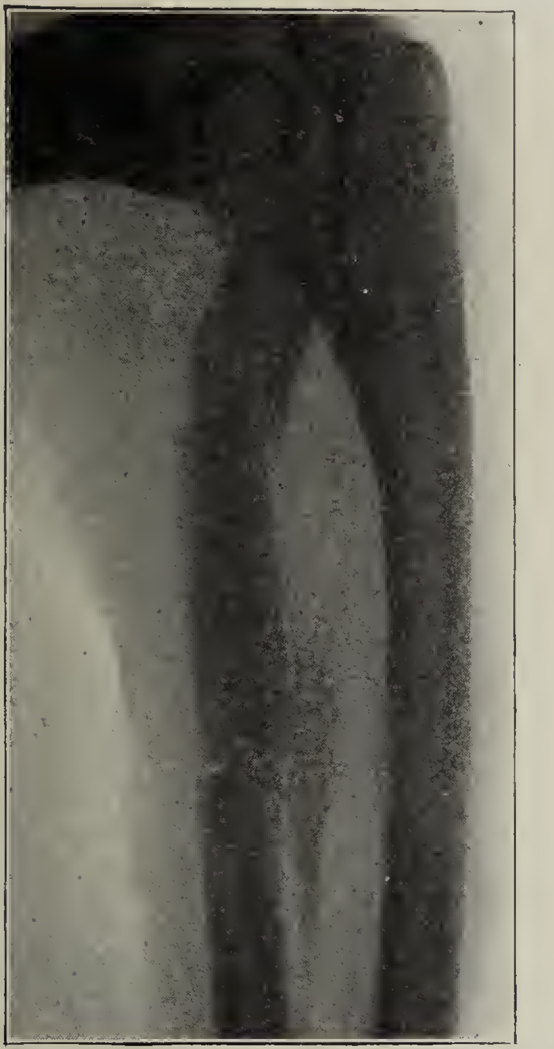
Fig. 22.—Private X., after bone grafting; tibial bone graft with double peg-ends; lower end driven into distal fragment; upper end forced into proximal fragment after distraction. Note how the graft has restored the "bucket handle" shape to the radius.

Provided that correct alinement has once been ttained by proper extension, the adduction deformity an be prevented by the use of the outside metal splint hown in Figure 2. It is essentially a straight steel and reaching from the crest of the ilium to the conlyles and attached by broad bands to the pelvis above nd to the lower end of the thigh below. It can be sed as an ambulatory appliance and it does not mmobilize either the hip or the knee.

HE NECESSITY FOR ACTUAL APPOSITION OF BROKEN FRAGMENTS IN ORDER TO OBTAIN UNION OF A FRACTURE

The commonest cause of nonunion of fractures, part from gross loss of substance, is a want of conact between the fragments, either from incorrect alinenent or the interposition of the soft parts. This is ery common at the upper end of the femur, especially vhen the leg has been put up with a straight hip and nee. The short upper fragment tilts forward whilst he shaft falls back. This want of apposition is freuently overlooked at the time when it could readily be orrected, because only anteroposterior roentgenograms re used. Only a stereoscopic or lateral view shows he upper fragment is far in front of the lower.

When such an ununited fracture is presented for reatment after nine or twelve months, the problem is a difficult one, because, not only are the tissues densely tied by scar tissue, but the bone ends, especially the upper, are much atrophied and will not hold any screws.

Figures 4, 5 and 6 illustrate an operation which I have adopted for such a condition of nonunion. The seat of fracture is exposed by an external incision, and the ragged ends of the bone, together with the intervening scar tissue, are cut away. The medullary cavity is opened up in both fragments by a $\frac{1}{2}$ inch twist drill, and this boring in the case of the upper portion of the femur is produced through the great trochanter until the tip of the drill can be felt in the gluteal region, when it is exposed through a second incision. An ivory peg is then introduced into the upper fragment until its pointed end has almost disappeared and its upper end can be felt in the tissues of the buttock. The broken bone is brought into line, and by means of a metal lever fitted over the upper end of the peg, the latter is driven down into the shaft of the bone. Figures 10 and 11 illustrate a case in which this operation was successfully employed. In the first a metal cylinder was used and was removed after eight weeks. In the second an ivory peg was employed as above described and is still (after six months) in situ where the roentgen ray shows that it is beginning to undergo absorption.

Actual apposition of recently cut bone surfaces, together with mechanically efficient fixation, is necessary for the successful operative treatment of fractures, and this applies in particular to fractures of old standing in which reparative tissue is very indolent.

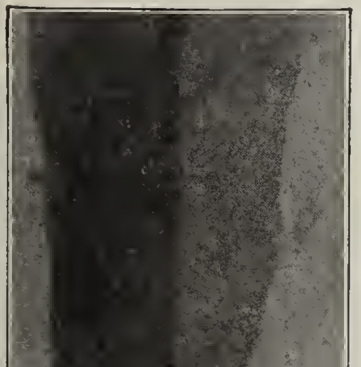
Fig. 23.—Private C.; ununited fracture of midshaft of radius; there had been fracture of the radius with loss of about 1 inch twelve months before; the ulna had been shortened so as to bring the ends of the radius into contact.

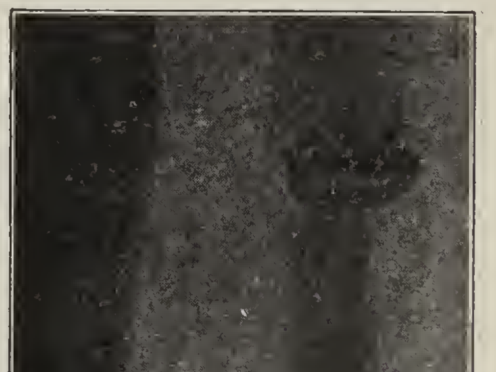
Fig. 24.—Private C.; bone graft for ununited fracture of radius. The sclerosed atrophic ends of the bone were cut away and replaced by a tibial graft with double peg-ends.

It is the want of apprehension of these two ideas of accurate apposition and efficient fixation which accounts for many failures of plating operations and I give two examples of these in Figures 12 and 13. In the former a short plate is attached by four screws only to a fractured humerus and one of the screws does not grip any dense bone at all. There is a gap between the bone ends and the plate serves rather to hold the bones apart than to unite them. This plate had to be removed after a sharp recrudescence of sepsis and the patient is awaiting further operation. Figure 13 shows a fracture of the shaft of the femur on to which a large gold plate has been attached by encircling strands of kangaroo tendon. Again failure resulted and nine months after removal of the plate the condition of the bone is seen. In Figure 14 is shown a case in which a well marked false joint had formed between the densely eburnated bone ends. The sequel to this last case (Fig. 15) illustrates what I mean by an operation which produces close apposition of newly cut bone surfaces and secure fixation. The ends of the bone were obliquely sawn and their dense substance drilled by an ⅛ inch drill in many places until both cut surfaces were freely oozing blood. They were

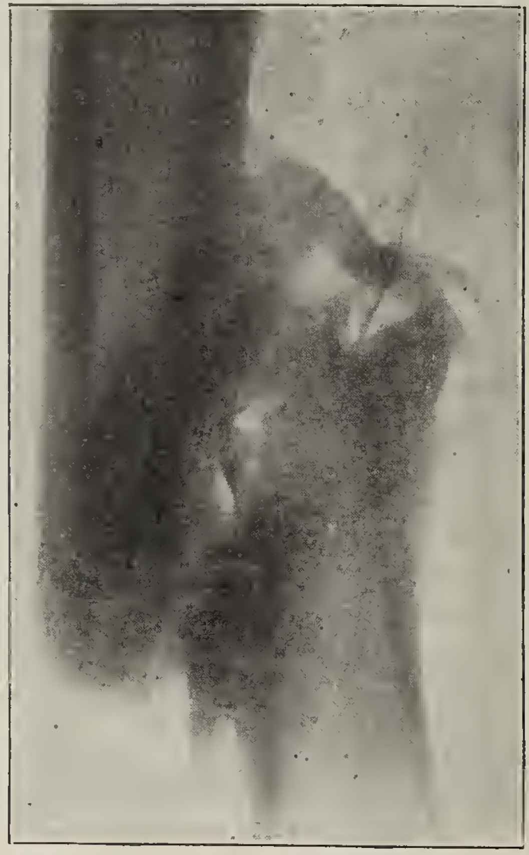

Fig. 26.—Private T., periosteum in fracture repair, four months after fracture of femur. The limb had been kept on a Thomas splint, three months after wounding. The sequestrums were removed, but adequate extension was not maintained. Note the festoons of periosteal callus formed by the comminuted fragments before removal.

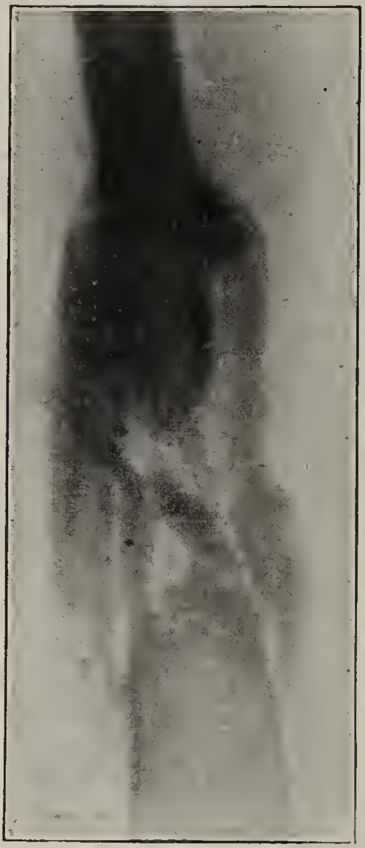

Fig. 27.—Private Th., periosteum in fracture repair; fractured femur; Thomas splint three months after wound; sequestrums have been removed, but extension has been maintained; sheath of external periosteal callus holding fragments in position; only ½ inch shortening.

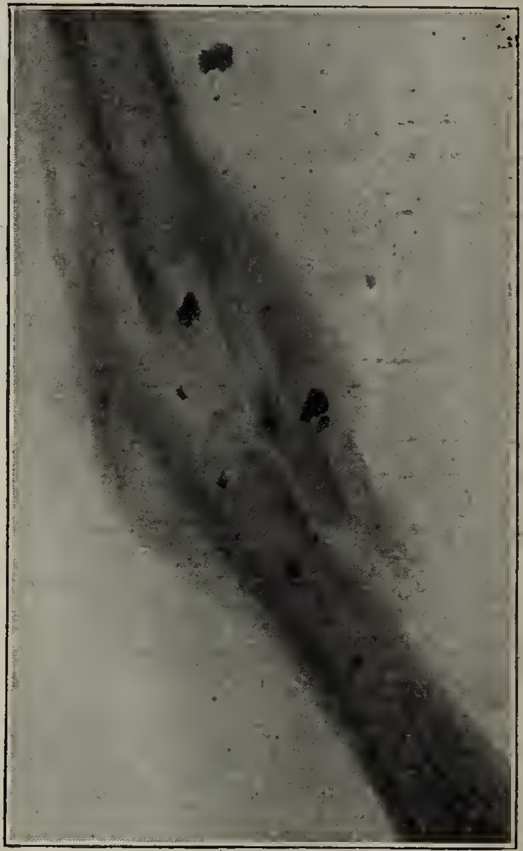

Fig. 28.—Lieutenant H.; periosteum in fracture repair; fractured humerus, showing the same joints as Figure 27; namely, formation of periosteal callus, when comminuted fragments were retained for a sufficient period.

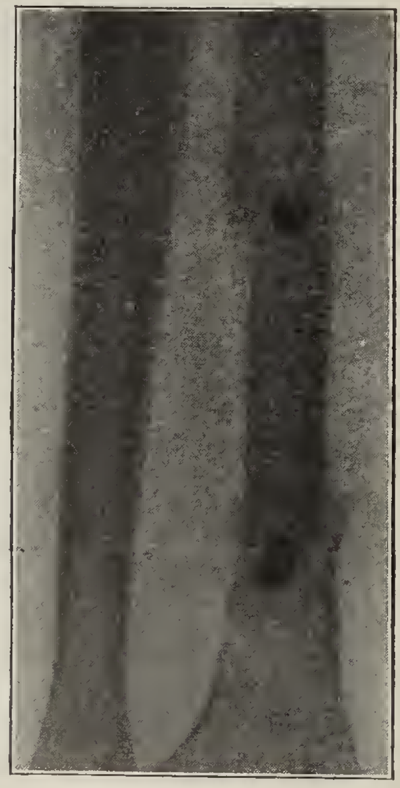

Fig. 30.—Private R.; periosteum in bone repair; gap fracture of radius repaired by two flat pieces of tibia covered by their own periosteum and bolted together; seen "en face."

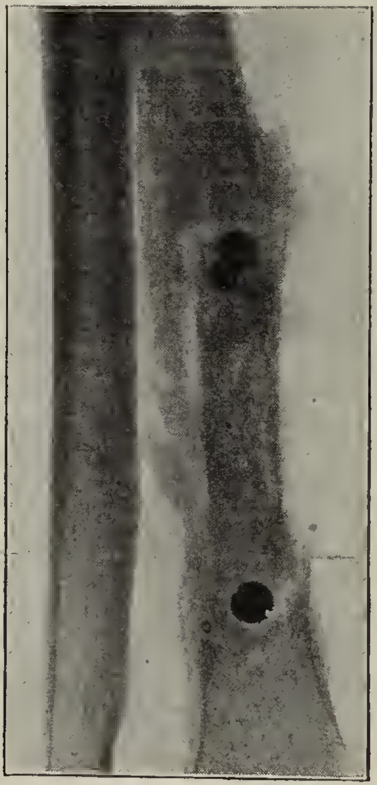

Fig. 32.—Private R.; after three months. Note central necrosis in one graft and abundant episteal new bone.

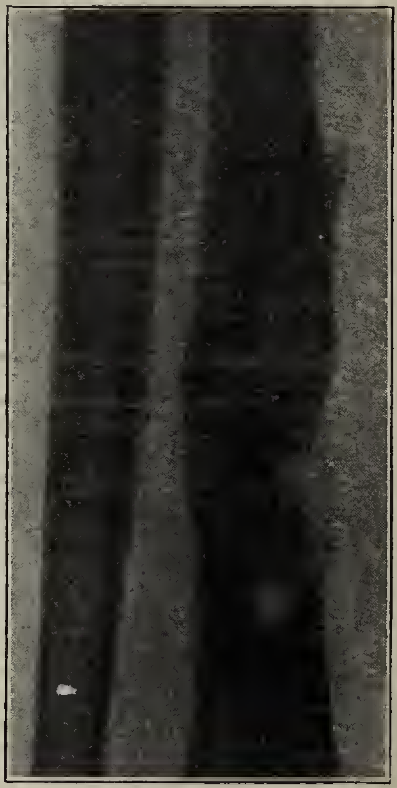

Fig. 34.—Private R.; after nine months; almost complete reformation of the shaft of the bone after grafting.

then united by two iron bolts $\frac{3}{16}$ inch thick (as shown in Figure 15).

SOME MECHANICAL PRINCIPLES IN BONE GRAFTING

A vast quantity has been written about the vital principles of bone grafting and osteogenesis, but there is a mechanical aspect of this question which has been comparatively neglected.

These three mechanical principles; namely, extensive accurate contact of the graft to the bed; efficient fixation, and correction of the deformity, can be carried out only by very careful study and preparation for each individual patient. I have chosen a series of cases of gap fractures of the radius because they illustrate the points so well. Figures 21 to 24 show various types of this fracture, affecting the lower, middle and upper ends of the bone. For the moment, I will dwell only on the mechanical factors in the operation, reserving important matters relating to vitality for a separate section.

In the first place, then, it is essential to make a clean cut of the fragmented or withered ends of the broken bone and this should be done not according to rule and measure but until the cut surface bleeds well. The average amounts removed can be judged by comparison of Figures 21 and 22 with 23 and 24.

A graft is cut from the anterior surface including he crest of the tibia and this graft should be approximately of the same thickness as the bone which it is to replace. We are quite familiar with the fact that repair of wounds is greatly facilitated by an even conact of level surfaces. An ulcer of the leg will not epithelize until its base is level with its edges. So with bones: if the surface of the graft lies even with that of ts bed, easily and quickly do the two become one. The graft is then cut at each end, by means of a special doweling tool and file, into pegs which fit the cavities of the fragments which they are to unite. This leaves a central thick part of the graft with two peg ends. The central part must be accurately made to measure, as it determines the ultimate length of the mended bone.

The fitting of the graft into its bed may be made in various ways, the simplest being to drive one peg end nto one fragment and then to slip the other fragment over the other peg-end of the graft by forcible distracion (Fig. 22). Or, one end may be driven into place nd the other fitted by first splitting the corresponding bed fragment and then wiring it together (Fig. 24).

It will be noted that when this operation is complete three things have been accomplished:

1. The deformity is corrected as far as this is possible.
2. The graft is fixed in such a way that it is actually ripped by the living tissues, which in no way depends n sutures, screws or plates.
3. The continuity and the full strength of the bone is restored and then the only call for osteogenesis is to make good the line of contact.

THE PERIOSTEUM IN FRACTURE REPAIR

Faith in the periosteum as a bone maker dies very ard and many men have lost their limbs or been left with nonunion or deformity as a sacrifice to this deluon. And yet, although the evidence of the merely assive and vascular functions of the periosteum ppears to us so convincing, to those who are prejuiced by the older teaching it is easily misunderstood.

In the case of a comminuted fracture of the shaft of a long bone in an adult, if all the fragments are taken out from one complete section soon after the injury, then the gap so left will be permanent, no new bone being laid down from the periosteum or thrown out by the fragments. But it will at once be protested that in many cases a gap left by the removal of fragments is often filled up well and quickly and that this is positive evidence of osteogenesis from periosteum. All such cases when examined fall under two categories: either the removal of fragments has been delayed for several weeks or months, or else the removal has only been partial, a more or less ample bridge being left across the gap. The latter kind of case is so obvious that it is hardly necessary to give special illustration of it. But the former is not so generally understood and I will give three cases in which it is well shown.

Figure 26 shows the shaft of a femur from which all the loose fragments were removed three months after the injury. Festoons of periosteum are seen outlined by the new bone bridging the gap. Unfortunately the periosteal, or as I should prefer to call it, the episteal new bone, was scanty and weak in this case and deformity occurred because adequate extension was not maintained long enough.

Figures 27 and 28 are from a femur and a humerus in which the removal of the fragments was delayed for several months after injury and in each case there is enough episteal new bone or external callus to maintain the full length and the correct alinement of the shaft.

Contrasting now the absence of new bone in cases where a complete section has been removed soon after injury with its more or less abundant formation in Figures 26, 27 and 28, what is the explanation? Firstly, that the periosteum had nothing to do with it is shown by the fact that this membrane was equally preserved in all. But in the one case the bone fragments were removed at once and in the others they were left long enough to pour out their osteoblasts into the surrounding matrix of vascular tissues.

Whether this explanation is accepted or not, the facts are of paramount importance and lead to the conclusion that in comminuted fractures, even though septic, attached fragments must be preserved, for a time, at least, until an external callus has been laid down.

Another practical point arises in the case of a gap in a bone made by primary removal of fragments. Should extension be kept up so as to maintain full length in the hope that the gap is to be filled? Even if the above theoretical suggestions are accepted, there must always arise a doubt whether the fragments may have been sufficiently preserved to form a bridge, or left long enough to form a callus involucrum.

I think the answer to this question is a simple one. Full extension should be kept up for from four to six weeks from the date of the removal of the fragments, and then, if regeneration is taking place, it will be demonstrated, both by the roentgenogram and by the firm feeling imparted to the limb. If after six weeks there is no such evidence, then it is vain to hope for osteogenesis and the choice will have to be made between allowing the ends of the bone to come together by relaxing the extension, and waiting for an ultimate bone graft.

THE IMPORTANCE OF THE PERIOSTEUM IN BONE GRAFTING

It must by no means be assumed from the foregoing remarks that the periosteum is regarded as a negligible structure. In bone-grafting it is important and success may depend on its proper use.

All bone grafts, except those which are used as pegs or nails, should be cut with an ample provision of periosteum. In the series of cases illustrated by Figures 19 to 24, for example, each graft had a strip of connective tissue 2½ inches wide, cut from the leg with the bone; of this, about half is natural tibial periosteum, and the rest, the contiguous fascia covering the tibialis anticus muscle.

This tissue is scraped off the ends which are cut into pegs. That which remains attached to the body of the graft is sewn around it so as to give it a complete envelope of its own, and the free ends are drawn like petticoats over the lines of junction between the graft and its bed.

The idea of this technic is, that the periosteum is in vascular continuity with the graft, that its wide surface rapidly establishes vascular continuity with the tissues by which it is surrounded and that it then serves quickly to act as a vascular intermediary between the graft and its bed.

Figures 30 to 34 give good evidence of the laying down of episteal new bone by the graft and the manifestation by it of essential vitality. A complete gap of nearly 2 inches existed in the radius. A double flat graft, each part being covered by periosteum, was bolted into this gap.

Figure 32 shows the condition after three months. A copious episteal new bone has been laid down and one of the pieces of which the graft consists shows a well marked central necrosis. Even if the new bone be regarded as an ingrowth from the bed rather than an outgrowth from the graft, the fact of the central necrosis affords incontrovertible evidence that the graft itself is alive with independent vitality. Figure 34 shows the final regeneration of this bone which gave the patient quite perfect use of his forearm and hand.

In conclusion may I summarize and link together these apparently disconnected remarks, by urging these two principles: First, that advance in the treatment of fractures is to be looked for on the lines of specialized team work, and second, that fracture repair involves mechanical as well as physiologic principles, and whether it is the education of the surgeon, the design or application of a splint, or the cutting and fitting of a bone graft, mechanics and surgery must go together, so that correct and efficient mechanism is always a part of surgical technic.

Caries of the Teeth in Denmark.—A committee was appointed by the state last year in Denmark to propose ways and means to combat caries of the teeth. The committee included a leading dentist, two physicians and the health insurance inspector. The report has just been published, and it states that scarcely 2 per cent. of the children have sound teeth, and in adults fully 40 per cent. of all the teeth are affected with caries. The report advocates propaganda to promote the care of the teeth and to teach the evils of caries, also the foundation of school and community dental clinics, and inclusion of dentistry in the provisions of health insurance. The expense was calculated at 1,500,000 kronen to start with, and 2,500,000 for annual upkeep, half of which should be assumed by the state. The report added that there might not be enough dentists to supply the demand that these provisions would create.

TREATMENT OF GUNSHOT FRACTURES *

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NEW YORK

The limits imposed on this paper demand the briefest statement of facts and the omission of theory.

A projectile, when producing a fracture, passes through the soft parts and strikes the bone:

1. It may then be arrested but deliver enough force to break the bone. Such fractures resemble the ordinary fracture produced by direct force. In such a case no foreign material is carried into the bone or marrow cavity, and such fractures are termed fractures by contact.

2. It may enter the bone and lodge, and produce either a hole (partial fracture) or a complete fracture with more or less shattering. Such fractures always contain foreign material. They are termed penetrating fractures.

3. It may pass through the bone and produce simply a hole or extensive shattering and comminution. In many instances, the velocity of the projectile is imparted to the fragments, which then lacerate or tear completely through the soft tissue on the opposite side of the limb. These fractures are termed perforating, and may be incomplete or complete, and may be accompanied by an extensive loss of substance. They may or may not contain foreign materials. Usually portions of the projectile remain in the wound, and frequently fragments of clothing.

On account of the differences in structure, the effects of the projectiles on the epiphyses and diaphyses differ greatly.

Because of the dense structure of the diaphyses and the violent vibration set up by the impact of the projectile, extensive fissuring and traumatism remote from the point of contact may occur, as evidenced by hemarthrosis of the contiguous articulations. On the other hand, the spongy, elastic structure of the epiphyses absorbs rather than diffuses the energy of the projectile, and consequently the lesions are generally restricted to the epiphysis itself. However, even in the case of small penetrating wounds, multiple or diffuse hemorrhagic areas may occur, leading to disseminated infection and necrosis.

It was found during the war that operation to prevent or eliminate infection was not indicated in fractures caused by rifle balls, when the wounds of entrance and exit were punctate. Operation was indicated, on the other hand, in all fractures caused by shell or grenade fragments. In fractures caused by shrapnel balls, operation was indicated only if good technic was possible, as these wounds frequently escaped infection.

NATURE OF OPERATION AND TREATMENT

In regard to the extent and nature of the operation that should be performed, the consensus of opinion at the end of the war was that it should be limited in extent to that necessary to eliminate contamination and remove actually detached fragments.

Primary and delayed primary suture of the accompanying wounds of the soft parts were successfully carried out by experienced and skilful surgeons when operating under favorable conditions, and when the wounded could be retained under their observation.

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* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

As would be expected, the results in fractures by contact were much more favorable than in those by penetration or perforation.

When infection was present or anticipated, free dependent drainage was found to be imperative.

In regard to the transport of fractures, I shall say nothing other than that traction is absolutely necessary, and that the Thomas leg and arm splints are not only sufficient, but are also the most efficient splints for transport that we have. Every civil ambulance should be equipped with them.

In regard to definitive treatment, by which I mean the treatment until consolidation and the return of function are accomplished, that of suspension and traction by counterweights and weights acting by means of pulleys, as commenced in 1914 in my service at Neuilly, and developed later on, not only in my hospitals, but also in others in the French, English and American armies, has, I believe, been the most satisfactory and given the quickest and best results.

The application of this treatment to the arm and lower extremity will appear in greater detail in the discussion by Drs. M. K. Smith and R. T. Knight, and therefore I shall confine myself to a statement of the principles.

These principles are based on the following facts:

1. In every fracture of a long bone, the proximal fragment tends to occupy a certain position, which is determined by the muscles attached to the fragment. The forces produced by these muscles may be termed intrinsic.

2. This position, which may be designated as the position of election or rest, is readily modified up to certain limits by any slight extrinsic force, that is, one operating from without.

3. Conversely, if a slight restraint is supplied, considerable motion at the proximal articulation may occur without there being any change in the absolute position occupied by the fragment.

4. Traction on the distal fragment not only prevents overriding and shortening, but when applied in the direction of the axis of the proximal fragment, when in the position of election or rest, also tends to prevent harmful angulation at the site of the fracture as a consequence of the restraining action of the sheath of the stretched muscles about the proximal fragment.

5. Proper counterbalanced suspension, by allowing the limb to follow the body, permits a considerable latitude of movement of the latter in bed without deranging the relative position of the fragments.

6. Traction, in order to accommodate itself to the position of the patient (unless the traction is contained within the splint), must be made by a weight and cord running on a pulley; and the pulley should be as far as possible from the point at which traction is made, so as not to limit the swinging of the limb.

7. The lack of fixation in permitting a certain amount of motion between the fragments does not delay union; on the contrary, consolidation appears to be more rapid, probably because of better nutrition.

8. In fractures of the humerus and femur, in both of which fixation of the proximal fragment is impossible, the limb being free to follow the movements of the trunk, no violent angulating strains occur at the site of fracture, and commencing union rapidly affords the slight restraint necessary to maintain the fragments in position.

9. With traction and suspension properly applied, it is possible to move all of the joints of the fractured limb throughout the treatment, no matter which bone is fractured.

Some of the foregoing assertions are evident, and the others have been proved by observation in the treatment of hundreds of fractures of each of the long bones.

The principles of the treatment are: to avoid actual fixation; to employ traction to its fullest possibilities in overcoming deformity, and to use suspension so as to afford the greatest freedom of movement, both of the trunk and of the joints. The chief and underlying principle is conservation of function.

The fullest application of the principles is in the treatment of fracture of the humerus, in which no splint is used and in which, consequently, there is no lateral support. The best results, moreover, have been obtained in these cases.

In fractures of the forearm and more particularly of the leg, the bars of the suspended splint afford lateral restraint; but in no case are circular bandages employed, the splint and underlying slings acting simply as a cradle.

In certain fractures of the femur, modification of the supports and of the axis of traction is necessary. For instance, in many fractures of the lower one third, the axis of traction must be lower than the axis of the proximal fragment, and a support must be applied below (that is, behind) the distal fragment.

When possible, in all fractures of the femur, skeletal traction, preferably with Ransohoff's tongs, is made directly on the lower fragment, and in some cases of fracture of the lower one third, the tongs may be used to lift the distal fragment into position by elevating the axis of traction.

The Thomas is the most useful and practical of all splints for fractures of the thigh and leg, but it must be used intelligently. For some cases the half ring modification or the Hodgen splint are preferable.

I do not believe that the best results are obtained by using the full Thomas principle of traction to the foot of the splint. Yet there is a distinct advantage, when using glued traction bands, to buckle them to the foot of the splint, and then attach the traction to the splint, or, better still, to use fractional traction on the splint. This is accomplished by attaching the traction cord to the foot of the splint and then reeving it through a pulley or pulleys on a spreader to which the traction bands are fastened. By varying the arrangement and number of pulleys, the proximal thrust of the splint may be made one half or one quarter of the entire traction on the limb.

In fractures of the upper part of the femur, unless the ring of the Thomas splint is an accurate fit and bears on the ischium, the proximal thrust of the splint will produce abduction of the proximal fragment. This cannot be overcome by a band alone, passing about the upper thigh and fastened to the inner bar of the splint, for it will simply constrict the thigh; but, as I believe Dr. Knight will demonstrate, a weight attached by a cord to the inner bar and pulling toward the opposite thigh will overcome the difficulty.

ADVANCE IN TREATMENT

It is impossible to make a statistical comparison of end-results because it has been impossible to keep more than a few patients under treatment until convalescence; but as far as gunshot fractures are concerned, there is no comparison possible between the results obtained at the end of the war and those obtained in the early part of the war by the old methods.

A sufficient number of ordinary civil fractures have been treated to warrant the statement that this treatment possesses similar advantages in the treatment of these fractures.

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STATISTICAL SUMMARY OF WAR FRACTURES *

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Early in 1917, in the *British Journal of Surgery,* an experienced surgeon in the British Army stated that after two and one-half years of war, surgical opinion as to the most satisfactory form of treatment for gunshot fractures was by no means unanimous. After two years' further experience, during which an enormous number of fractures have been treated by various methods, there are many surgeons who still hold divergent views. The majority of surgeons who have had a large experience with fractures have already had sufficient evidence as to the indisputable value of standard methods. As there is such a large number of surgeons who still rely on discredited methods, however, I hoped to be able to present at this meeting additional evidence (from our own records) sufficient to convince these surgeons that the standard methods—which have already given so much better results than their methods—must be used in the future. That there is need for improvement is shown by the fact that among the men examined for the last draft there were found to be 21,338 suffering from fractures with malunion; in this group were 1,110 from Ohio, 1,358 from Illinois, 1,618 from Pennsylvania, and 1,752 from New York.

HOSPITAL RECORDS

The educational value of these fracture statistics to our profession and to the public is just being taught, and when fully understood and appreciated it must improve the efficacy of our treatment. When cases of fracture are followed up, it is found that ideal functional results are not usually secured. It is only by studying the end-results that positive conclusions can be formed as to which method of treatment is the best. As nearly 60 per cent. of the fractures occurred before November 11, eight months ago, it was thought that a considerable number would have been cured and the patients discharged or restored to duty by this date, but this has not occurred. On the statistical slips for fractures which were sent to all hospitals, the answers given in reply to the question, "When can he be discharged?" were thirty days, forty, fifty, etc. Of those of whom it was stated that they would be discharged before June, less than 15 per cent. were actually discharged.

These few cases would not furnish sufficient evidence for our purpose, and, furthermore, they are not now available for study on account of the inadequate clerical force in the office of the sick and wounded; at just the time that this force should be available, it has been reduced nearly 50 per cent. In England, the National Research Society has taken charge of all the hospital records and will classify them for the purpose of an exhaustive study. It is hoped that the War Department will take such measures as will render our valuable records available to our profession, for they will constitute a wonderful mine for research and information. As it was desired to obtain accurate data regarding all classes of fracture of long bones, a circular letter, No. 117, was sent, March 4, 1919, to all hospitals, with an inclosed blank form similar to the one used in England, France and by the American Surgical Association. This letter directed that as soon as a patient with a fracture of a long bone entered the hospital, the blank must be filled out at once by a competent officer and sent to the Division of Surgery. March 1, 1919, there were reported 5,131 fractures scattered throughout sixty-five different hospitals; 3,832 were reported as "cases in which healing has occurred or will occur without further operation and with satisfactory function." Six hundred and twenty-six were reported requiring an operation for osteomyelitis, and 673 for nonunion or malunion.

DISADVANTAGES FROM LACK OF EQUIPMENT

Many of these hospitals were not suited for the treatment of serious fractures, being neither properly equipped nor supplied with a competent, qualified personnel. In order, therefore, to afford the serious fractures of the long bones the benefit of special professional skill, the following fifteen specially equipped and qualified hospitals were designated for the treatment of fractures of the long bones—especially those of the lower extremity: Letterman; Walter Reed; Sam Houston, and General Hospitals 2, 3, 6, 10, 24, 26, 28, 29, 31, 36, 38 and 41. It was urgently recommended that all such cases, when practicable, be transferred from various nonequipped to special equipped hospitals. This request was denied and the transfer restricted to such new cases as should arrive from overseas. In the case of peripheral nerves, the request that all cases be transferred to eleven special hospitals was approved, but refused for fractures, as it was believed the average surgeon could treat them satisfactorily. Experience has demonstrated that such is not the case.

COMPLICATIONS OF OSTEOMYELITIS

Osteomyelitis has been the most serious complication of fractures, and has occurred in at least about 50 per cent. of the cases. In March, the hospital reports, signed by the chiefs of surgical service, indicated that there were 652 cases under treatment. A study of the operating reports, 55K, for March revealed the unreliability of these last figures, disclosing that there had been performed 1,606 operations for osteomyelitis. Again, in April, 740 cases were reported, although the operating rooms reported 1,535 operations. In May, there were 650 cases of osteomyelitis with 1,500 operations.

Since Jan. 1, 1919, there have been 6,921 operations for osteomyelitis. Considering the number of cases reported, these figures seemed unduly large, for it seemed as if most patients were having a series of operations. It has required much time to secure more detailed information revealing that there have been at least 2,124 patients suffering from osteomyelitis. These facts are given that surgeons may see the great difficulty that confronts one in the study of statistics unless the primary records are accurate. Several months' experience in the Surgeon-General's Office has shown that a very large number of otherwise competent surgeons have failed to appreciate the great value of accuracy in their records. Our records must be reliable if we are to secure real knowledge and learn from the experiences of others.

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* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

There have been reported 5,918 fractures (Table 1).

TABLE 1.—FRACTURES REPORTED *

	Femur	Tibia	Fibula	Tibia and Fibula	Humerus	Radius	Ulna	Radius and Ulna	Total
Fractures	1,214	1,121	466	652	1,278	528	375	284	5,918
Osteomyelitis	476	479	82	140	546	132	106	73	2,124

* The following statistics have been secured from the records of 1,575 femurs: right, 707; left, 737; upper third, 342; middle third, 525, and lower third, 385. Osteomyelitis, 694; not stated, 479; nonunion, 15. No shortening, 230; 1 cm., 115; 2 cm., 176; 3 cm., 128; 4 cm., 70; 5 cm., 85, and 6 cm., 78. Not stated in 693 cases.

There have been about eighty fractures in which Lane plates were applied and about 190 in which bone grafts were used. It is believed these numbers will be increased when more records are received.

MORTALITY, HEMORRHAGE AND AMPUTATION

The records for mortality, secondary hemorrhage and amputation are very incomplete. In this connection it may be well to quote the British records for 1914, 1915 and 1916. Four per cent. of the patients died in the field and 16 per cent. in casualty clearing stations, making 20 per cent. at the front; the mortality at the base hospitals in France and England was approximately 20 per cent., giving a total of 40 per cent. During 1917 and 1918, as a result of many improvements, this rate was reduced to less than 20 per cent. The statistics of Great Britain and the United States given in Table 2 are interesting.

TABLE 2.—EYESIGHT, HEAD, AND AMPUTATION CASES RELATING TO FRACTURES: STATISTICAL DATA OF GREAT BRITAIN AND THE UNITED STATES

	Great Britain		United States	
	No.	Per Cent.	No.	Per Cent.
Eyesight cases	11,547	2.6	2,090	4.0
Wounds and injuries to legs necessitating amputation	13,585	2.7	746	1.4
Wounds and injuries to arms necessitating amputation	6,600	1.4	1,868	3.6
Wounds and injuries to legs not necessitating amputation	59,691	12.0	8,497	16.0
Wounds and injuries to arms not necessitating amputation	43,055	8.8	3,637	6.9
Wounds and injuries to hands not necessitating amputation	20 610	4.3	1,961	3.7
Wounds and injuries to head	16,270	3.9	576	1.1

It is too early to give the end-results of fracture treatment. However, it may be useful to record some general impressions gained by observation at hospitals in France, England and United States.

TYPES OF SPLINTS

For transport of the patient from the field to the evacuation hospital or base hospital, the Thomas or Blake-Keller modification is unquestionably the best type of splint.

During the period of infection, for the lower extremity, the Thomas or Hodgen splint used with the Balkan frame, with extension by suspension and traction, has given the best results. For many fractures of the lower third of the femur, with backward displacement of the upper end of the lower fragment, no type of splint has proved so generally efficient as the caliper. In Germany, during 1914, 1915 and 1916 the Steinman pin was used extensively, more so than by the French or English. During 1917 and 1918 there has been a great increase everywhere in the use of the caliper.

For the humerus and the elbow, the Thomas arm splint suspended from a Balkan frame with efficient extension has been most satisfactory. In some cases the aeroplane splint is much more comfortable.

In very many cases in which the Thomas splint was employed, it was not properly applied, the so-called extension straps were very rarely found to be tight enough. These straps should be examined daily and kept constantly taut.

CAUSES OF POOR END-RESULTS

In a large majority of the hospitals measurements have been neglected. Seldom has a tape measure been accessible, and in 35 per cent. of the cases there has been no statement of any measurements. Tape measures are as essential as are thermometers. In those hospitals in which measurements have been omitted, the largest number of cases of marked shortening have occurred.

Roentgenograms have not been taken regularly, although the roentgenographic departments have been well equipped with apparatus and personnel, ready to cooperate with the surgeon. Many of the poor end-results have been due not to a lack of knowledge but to neglect to carry out in detail well recognized methods of treatment.

The average general surgeon has failed to devote the attention and consideration to the treatment of fractures which this important subject demands. The results obtained previously by inefficient methods are unsatisfactory, the young, able, alert surgeons who have had a good hospital experience will be given much of this important work in the future. There will be splendid opportunities in the great manufacturing industries, public service institutions, power plants and railroads.

BONE FISTULAS AFTER WAR WOUNDS *

PEDRO CHUTRO

BUENOS AIRES

The word "osteomyelitis," employed to designate the suppuration of bone after war wounds, seems to me incorrect; we should reserve this name for the very definite disease which we see in civil practice, and designate simply as "bone fistulas," the chronic suppurations of the bones resulting from a war wound.

The term osteomyelitis implies in itself an early treatment consisting in the incision of the periosteum, followed by the trephining of the bone, and the opening of a seat of infection to prevent its propagation; in the wounds of war, all this operation has been done by the projectile, and what one is to treat is a localized lesion with characteristics entirely different from those of true osteomyelitis. The term "bone fistula" is more proper to designate this obstinate lesion, which more resembles an infirmity than a disease.

Granted that the lesions of bone following war wounds are not the same as those of the osteomyelitis of civil practice, neither can their treatment be the same.

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* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

CAUSES OF BONE FISTULA

Before explaining the general lines of treatment of bone fistulas, I will permit myself certain considerations as to the origin and the pathologic anatomy.

The bone fistula is established always as a consequence of an insufficient treatment of wounds, whether it be because one has performed an incomplete operation leaving metallic foreign bodies, fragments of clothing, or bone fragments which are transformed later into sequestrums, or whether one has not been able thoroughly to clean the wound, or has not been able to take the necessary steps to avoid secondary infection. The anatomic lesion is simply a limited osteitis, which easily becomes chronic.

It seems useless to me to speak today of the treatment of the wounds and of the means of avoiding fistulas; the important thing is to know how to treat them.

Certain rare cases heal after the extraction of the foreign bodies and the sequestrums overlooked at the primary operation; but the time elapsed since the armistice leaves little hope for these cures. Most of the cases of bone fistula have already, at this date, undergone several operations, and it is rare, today, to find foreign bodies or, perhaps, even sequestrums.

Among several hundred cases of bone fistulas which I have had occasion to treat, I have seen only certain rare instances in which the suppuration proceeded from a focus of infection in the external surface of the bone; the great majority presented a focus in the interior of the bone or of the callus, except in cases of the cranium and the scapula.

Two factors dominate all the process of the bone fistula: first, the presence of a cavity with rigid walls; second, the infection of this cavity.

Some examples of these cases will avoid a long description. A shell fragment entering the tibia causes a loss of substance which, after esquillectomy, extraction of the projectile and cleaning, will take the form of a real cavity in the interior of the bone. If the projectile has gone through the bone, one will have instead of a cavity a veritable tunnel, whose bony walls will never approximate. The mildest infection will suffice to create a focus of osteitis in this cavity or in this tunnel, realizing the conditions necessary for the establishment of a fistula.

Another type, very frequent in the wounds of the leg, is: fracture of the bones by a shell fragment; tearing of the interosseous membrane; esquillectomy; infection; suppuration; consolidation with a great callus which unites the four fragments, invading the interosseous space and having in its middle a bony cavity containing sequestrums, fungosities, etc.

In the femur the condition is observed still more frequently and may be given in outline here as: fracture by a shell fragment; esquillectomy; immobilization in an apparatus which generally does not cause coaptation of the fragments, and does not prevent the displacement backward of the inferior fragment; formation of a voluminous peripheral callus, with separation of the two bony extremities within its interior by a quantity of interposed tissue; some sequestrums, and a cavity, suppurating, full of fungosities.

To summarize, it is the cavity and the infection of the cavity which dominate the process, the one being essential to the other, and the removal of only one of these factors is not sufficient to obtain healing.

CAVITIES AND FUNGOSITIES

Again, in the body, every real cavity must have a communication with the exterior, and the fistula is in reality only the exit of these bone cavities.

This said, it remains for us to observe certain peculiarities of these cavities. Bone is a specialized tissue whose evolution is terminated, and which by itself is incapable of furnishing bone to fill the cavity. It is equally incapable of giving healthy granulations; unhealthy bone only produces fungosities. These fungosities are the product of the infection of the wall of the suppurating cavity, which provokes the necrosis of little bony lamellae, around each of which grows a granulation. Sometimes these fungosities are flat and only line the wall of the bony cavity; in other cases they are exuberant and apparently fill all the cavity; but it is always easy to pass a probe between the fungosities and to feel denuded bone in the depth.

Some cases come to eliminate all the little sequestrums, and after months or years the fungosities sclerose, giving a cure of variable duration; more frequently this spontaneous cure does not take place. Bone is a tissue which defends itself poorly against infection, and once infected it reacts in a peculiar manner, seeking to limit the process by the formation of new bone around the focus, that is to say, by establishing a veritable blockade around the infected zone, but without succeeding in cicatrizing the lesion.

For a long time we have sought to establish the degree of depth of the infection of bone, and we have arrived at the conclusion that the infection is very superficial. This fact is as valuable for cases in which the patients have undergone one or two operations as for those who have undergone twenty.

The bacterial flora is of the richest, and one finds all the aerobic and anaerobic organisms which inhabit these cavities communicating with the exterior.

BONE FISTULA DISTINGUISHED FROM OSTEOMYELITIS

This lesion is entirely different from the ordinary osteomylitis which commences by an infection in the metaphysis; and it follows its evolution, whether toward the periosteum through the haversian canals, or toward the marrow cavity through the spongy tissue.

Cases of bony fistula present little of the phenomena of infection because the cavity, communicating with the exterior, has little retention. Again, all the lymphatics around the focus are blocked, and in consequence there is no absorption of the septic products; but a slight intervention, a dressing made a little awkwardly, suffices to abolish this lymphatic blockade, and one sees immediately the appearance of fever and of the phenomena of intoxication by absorption of septic products.

TREATMENT

The treatment of bone fistulas is variable, from a technical point of view, according to the bone involved, and in each bone, according to whether the lesion is located in the diaphysis or in the epiphysis. But in spite of the variety of the treatment, it always obeys the general principles which I shall endeavor to set forth in an exact manner.

In the first place, it is necessary to place the incisions in appropriate regions, even disregarding the site of the fistula, in order to avoid certain difficulties later. Thus, a straight incision on the anterolateral aspect of the tibia causes a retraction of the skin which will retard cicatrization enormously. An incision placed on the anterior aspect of the thigh will give rise to serious functional trouble on the part of the quadriceps; and, if the wound heals, there will remain a deeply depressed scar, adherent to the bone, which easily ulcerates. The incision placed behind the trochanter causes difficulty in the function of the gluteus, and sometimes phenomena of compression of the sciatic. The same is true for the upper extremity.

The intervention with the bone will consist in the suppression of the bony cavity, the principal cause of the fistula. To effect the intervention, it is necessary completely to resect one of the walls of the cavity and, by preference, that which is located far from important structures such as the nerves, but near muscular masses. There will remain only half of the bony cavity in the form of a simple depression; that part which is infected will be relieved of its fungosities and its sequestrums by a curettage, gentle but careful.

The operation is finished by details proper to each segment of the limb, which will be described in chapters of surgical technic.

The cicatrization of bone is brought about by granulations, but the granulations will not come from the bone; they will come from the depth toward the periphery, and will grow from the neighboring muscles. These granulations will little by little cover the vivified surface of the bone, until they cover it entirely, and from that moment the healing of the lesion is assured.

To arrive at this result, it is necessary that the vivified surface of the bone be maintained sterile during several weeks, that is to say, during the time necessary for the granulation. It is here that the treatment of Carrel-Dakin finds its application. The abundant and prolonged irrigation of the wound during several weeks permits it to be maintained clean.

We do, therefore, the contrary of that which others have done, that is, instead of seeking to sterilize the wound before interfering, we do the first operation and then we irrigate to maintain the result of the operation and to favor healing. If the operation has not been satisfactory, the irrigation does not augment the chances of cure.

We never employ the Esmarch bandage. We secure most careful hemostasis of the soft parts, and we commence the irrigation immediately after the operation.

We do not tampon, because a compress left for twenty-four hours is the best medium for the reinfection of the bone which has just been cleaned. Infection of bone takes place in a few hours.

The tibia, so accessible to the sight, has permitted us to study the different phases of the cicatrization. Certain cases in which the wounds were not irrigated until several hours after the operation presented later little bony surfaces refusing to receive the granulations coming from the muscles, and we arrived at the following interpretation: A clot having adhered to the bone, the Dakin solution maintained sterile the surface of the clot, but not the part of the bone to which the clot adhered. We have found that the fluid commences to act when the clot has been detached, that is to say, at the end of five or six days, when the bony surface has been partly infected. That is the reason for which we commence the irrigation immediately.

When the bony surface is completely covered by granulations, one can close the wound secondarily; but this procedure does not present great advantages, and it has, rather, some disadvantages. In fact, the scar adheres too closely to the bone, and this has no pad of protection. We prefer to continue the irrigation until complete healing is accomplished, with the aim of obtaining a cicatrix that is more supple, and especially to have a greater quantity of connective tissue separating the skin from the bone.

When the wound is healed, we perform, under local anesthesia, the complete removal of the cutaneous scar and the most complete reconstruction possible of all the anatomic planes.

After many attempts, we have come to establish different types of operations which have permitted us to obtain very satisfactory results. We have operated on several hundreds of these fistulas. The first cases were failures; but in the last series of 329 cases, all the wounds of the humerus have healed, as have also wounds of the ilium; five femurs and three tibias have not healed.

All the patients, before entering Buffon, had already been operated on between four and twenty-three times, and treated with the whole series of antiseptics and pastes that have been invented during the war.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GROVES, BLAKE, WALKER AND CHUTRO

Dr. Joseph R. Eastman, Indianapolis: One can, as a rule, by the external use of metal splints accomplish all that is attained by the employment of the somewhat complex devices presented. A Thomas metal splint with a knee joint in it and with a catch which will prevent hyperextension of the knee can be so applied as to allow of passive movement of the knee joint and at the same time provide extension and counterextension. With such a modified Thomas splint the entire lower extremity can be supported precisely and securely with straps of rubber or flannel so that lateral, longitudinal or angular displacement is corrected and alignment of the fragments is attained in nearly every instance. Such a knee joint Thomas splint allows of movement of the patient in bed, from one bed to another and admits of ambulant treatment of the fracture with so little inconvenience that one surgeon can take care of many patients. A long screw at the foot regulates the degree of extension. The ring at the upper end of the splint is attached to short bars which slide on the long internal and external bars of the splint so that the ring may be turned half way around and applied either to the left or the right lower extremity. The arm sling of Robert Jones, of Liverpool, is an almost ideal device for the treatment of gunshot fractures of the humerus or forearm. With it one can secure any degree of extension of the arm and forearm. I have modified this splint somewhat by adding a rachet device which allows of any degree of abduction of the humerus; a point of some importance, since if ankylosis occurs at the shoulder joint the greatest arc of mobility is secured, if the ankylosis occurs with the humerus in abduction. The arm and forearm rest on a right angle wire splint supported by a wire brace which moves at the free end on the rachet of a rectangular wire frame resting on the side of the chest with a ring surrounding the shoulder at the upper end. If there is great difficulty in keeping bone fragments in alignment in a case of compound fracture with great laceration, I can see no harm in laying on a Lane plate with the understanding that the plate is to be taken off. In war fractures there is often such laceration of the soft parts that no incision is necessary and the plate is applied with the greatest ease. After a few weeks when the soft tissues have become "set" the plate is easily removed and though there be no union, alignment has been established and is thereafter easily maintained, which it would have been difficult to accomplish otherwise. Extension and counterextension are then sufficient to hold the fragments in place while bony union is being established. Of course, in an infected fracture the intramedullary bone graft cannot be used and external splints may fail to maintain alignment. It should be remembered that the Lane plate can be removed with the greatest ease if infection should require the removal of the internal splint, whereas, it is difficult to remove an intramedullary bone peg. Too great caution cannot be observed in the use of bone pegs following war fractures, since even months may elapse after complete external healing has occurred and yet the trauma incident to an open operation will reawaken a dormant infection. Hence the prudence of relying on osteotomy with extension and counterextension more often than is common practice in the correction of old badly healed war fractures. I have used the Groves wire cradle splint for fractures of the femur many times. I do not believe there is a better femur fracture splint for use in war or civil practice. It might be described as a Hodgen splint supported below by posts instead of being suspended from above. The surgeon can work over or under it. It admits of easy access to every part of the leg or thigh while extension is being carried on. When the Steinmann pin or any sort of ice tongs device is used this wire cradle splint is especially satisfactory. The weight and pulley are attached to the splint itself, maintaining pull in any direction with mathematical accuracy. I believe the Groves cradle splint to be one of the most valuable developments of war surgery.

Dr. Morris K. Smith, New York: The treatment of gunshot fractures of the humerus, as carried out on the service of Colonel Blake at the American Red Cross Military Hospital No. 2 in Paris, permits the maintenance of joint and muscle function. Points which I wish to emphasize particularly are: (1) the method permits of control by the surgeon of the position of the fragments; (2) union takes place rapidly; (3) disability is reduced to a minimum by mobilization of joints and exercise of muscles. Records are particuarly difficult to keep under the condition of active war surgery. However, in the case of fifteen American patients the time of beginning union was noted averaging twenty-four days, and in twenty-six the time of consolidation averaged forty days. As our patients were, in general, evacuated early, we are unable to give much data as to the time of functional cure. We have treated a small number of simple fractures by this method and they have done excellently.

Dr. Ralph T. Knight, Minneapolis: The interesting part about the treatment of war fractures is that the principles have been and will be used extensively in fractures of civil practice. The point I wish to call especial attention to is the possibility and importance of mobilization of the knee joint during the treatment of all fractures of the femur and the bones of the lower leg. It has been shown conclusively and consistently by Colonel Blake that it is not necessary to immobilize the fragments completely in order to obtain the nicest union and return of function; and it is possible to obtain sufficient immobilization of fragments still leaving the knee free to be moved by the patient with proper apparatus.

Practice with Sickness Insurance in Germany.—The *Nederlandsch Tijdschrift* states that a regulation has been adopted by the sickness insurance companies at Hamburg—mainly through the efforts of Professor Pfeiffer—which he thinks should be imitated by the companies throughout the whole country. The insured pay as their premiums 4 per cent. of their wages. Of the amounts thus paid in, the companies pay out 23 per cent. for medical care, the house physicians receiving three fourths of the whole and specialists one fourth. For any extra attendance at night or in emergencies physicians not under contract with the company are to be called on. The payments are to be according to the work done and this is estimated by a commission composed of physicians and representatives of the business office of the companies. The insured have free choice among the physicians under contract with the company. The agreement is to be in force for two years. The details were given in the *Münchener medizinische Wochenschrift,* No. 29.

AMERICAN-MADE SYNTHETIC DRUGS—II

EXAMINATION OF PROCAIN (NOVOCAIN), BARBITAL (VERONAL), PHENETIDYL-ACETPHENETIDIN (HOLOCAIN), CINCHOPHEN OR PHENYLCINCHONINIC ACID (ATOPHAN), MANUFACTURED UNDER FEDERAL TRADE COMMISSION LICENSES *

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Before European hostilities, the United States was so dependent on Germany for synthetic drugs that the dependence was considered a necessity; this was strikingly manifested by the precipitous rise in prices immediately after the embargo was declared against Germany. Since then the shortage of German-made synthetics has caused two important results: 1. The physician can do without most of the German drugs, because the pre-war demand had been stimulated artificially. 2. Those few synthetics, which were in great need, are being rapidly replaced by the American-made drugs.[1] In connection with the second result, the Chemical Laboratory of the American Medical Association has endeavored to contribute its services.

In September, 1917, it was announced[2] that the A. M. A. Chemical Laboratory would make studies of American-made synthetics. Just prior to this announcement, the National Research Council established a committee on synthetic drugs[3] "to facilitate the manufacture of synthetic drugs in this country and thus to relieve shortage and reduce the exorbitant prices which have resulted from the war."[4] Also during this time Congress was considering the "trading with enemy" act, first known as the Adamson bill—the purpose of which was to confer authority on the President to license American firms to use U. S. patents owned by German subjects. The act became law, September 28; the Federal Trade Commission was designated by the President to carry out the provisions of the law as it referred to enemy-owned patents. As a result of a conference, Oct. 30, 1917,[5] with various agencies, the Federal Trade Commission decided to consider licenses for manufacturers of synthetic drugs, *after* recommendations had been made by the Committee on Synthetic Drugs of the National Research Council; this committee in turn invoked the aid of the A. M. A. Chemical Laboratory in testing the manufacturer's products. The essence of the laboratory's work up to July 1, 1919, is reported in this paper.

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* From the Chemical Laboratory of the American Medical Association.

* The first article of this series dealt with the purity of acetylsalicylic acid. Leech, P. N.: Examination of American-Made Acetylsalicylic Acid, J. Indust. & Engin. Chem., April, 1918, p. 288. "What's in a Name?" ibid., p. 255. Acetylsalicylic Acid, or "What's in a Name?" Editorial, J. A. M. A. **70:** 1097 (April 13) 1918.

[1] Stieglitz, Julius: Synthetic Drugs II, J. A. M. A. **70:** 688 (March 9) 1918. Leech, P. N.: The Vindication of the American Chemist; Synthetic Drugs, Chicago Chem. Bull., January, 1918, p. 230.

[2] The Quality of American-Made Synthetics, J. A. M. A. **69:** 1018 (Sept. 22) 1917.

[3] This committee is composed of Julius Stieglitz, chairman, professor of chemistry, University of Chicago; W. A. Puckner, secretary of the Council on Pharmacy and Chemistry, American Medical Association, and Moses Gomberg, professor of chemistry, University of Michigan.

[4] Stieglitz, Julius: Shortage of Synthetic Remedies, J. A. M. A. **69:** 400 (Aug. 4) 1917.

[5] Foreign Patents to Be Open to American Manufacturers, J. A. M. A. **69:** 1550 (Nov. 3) 1917.

THE NAMING OF LICENSED DRUGS

"Partly in order to help insure to licensees a market for their products after the war, in larger part inspired by the idea of encouraging the establishment of a permanent American industry in these important articles, the [Federal Trade] Commission wisely decided that American houses should be put on the same footing as competing foreign houses for after-the-war competition, by imposing on all licensees the obligation to use *new official names* for the articles, names which after the war will be open to all competitors, domestic and foreign."[6]

The new American names are:

Arsphenamin,[7] (contracted from the scientific name arsenphenolamin) for salvarsan, arsenobenzol, diarsanol, arsaminol.

Barbital (contracted from the scientific name diethyl-barbituric acid) for veronal.

Barbital-sodium (the sodium salt of barbital) for "veronal-sodium" and "medinal."

Cinchophen for atophan or phenylcinchoninic acid (the U. S. P. IX name).

Procain for novocain hydrochlorid (from "pro" and "(co)caine").

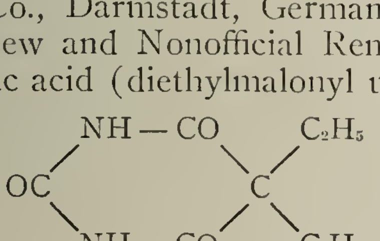
Procain nitrate for novocain nitrate.

EXAMINATION OF SYNTHETIC DRUGS

In testing chemically the products which had been submitted to the Federal Trade Commission, the aims were that the product should conform to a high degree of purity; at the same time the candidate for license should not be inflicted with undue hardships in making the product, such as an unnecessarily high degree of purity. It was insisted that the purity of the drugs should be equal to, if not greater than, that of the respective former German-made products, in order to uphold the name and reputation of the American manufacturers in the after-the-war competition. Consequently, in the chemical work the American product was always examined parallel with the German-made product, authentic samples of the latter of which the laboratory had in its possession. Whenever possible, the tests described in books of standards were carried out.

BARBITAL (VERONAL)

Barbital was introduced into medicine under the proprietary name "veronal," and was manufactured in Germany by Friedr. Bayer & Co., Leverkusen, and E. Merck & Co., Darmstadt, Germany. Barbital is described in New and Nonofficial Remedies 1919[8] as diethylbarbituric acid (diethylmalonyl urea).



It is official in the British Pharmacopeia under the name "barbitone," and in the German Pharmacopeia as "acidum diethylbarbituricum." Barbital "may be prepared by the interaction of esters of diethylmalonic acid with urea in the presence of metallic alcoholates. . . . It is also obtained by condensation of diethylcyanacetic ester with urea by means of sodium alcoholate." Barbital is used in medicine chiefly as a hypnotic.

The different brands of barbital which were submitted to the laboratory were subjected to the tests given in the books referred to above.[9] The products were:

1. Barbital (Abbott) Sample A, to Federal Trade Commission.
2. Barbital (Abbott) Sample B, to Federal Trade Commission.
3. Barbital (Abbott) Sample C, to Red Cross.
4. Barbital (Antoine Chiris), to Federal Trade Commission.
5. Barbital (V. Halter), to Federal Trade Commission.
6. Barbital (Rector Chemical Company) to Federal Trade Commission.
7. Diethylbarbituric acid (Merck), to Council.
8. "Veronal," manufactured by Farb. vorm Fried. Bayer & Co., Germany.

All responded satisfactorily to the tests. In Table 1 are given the respective melting points and percentages of ash found. (The melting point of a mixture of the sample with the original "veronal" was always taken.)

TABLE 1.—MELTING POINT

		Ash			Ash
1	188.5-189 0	0.01	5	188 0-188.5	0 01
2	188.5 189.0	0.01	6	188 0 188.5	0 01
3	188.0- 188.5	0.01	7	188 0-188.5	0 01
4	188.0-188.5	0.04	8	188.0-188.5	0.02

Barbital does not seem to form an insoluble salt with chlorplatinic acid; nor an ether-insoluble hydrochlorid or oxalate; nor an insoluble barium salt. It does not respond to many urea tests, and is not affected by urease as would be expected in light of the extensive investigations made on this enzyme by Van Slyke and Cullen.

As barbital is also sold in the form of tablets or mixtures, a reliable method for its quantitative determination in the presence of other substances is needed. Some experiments in this direction were made, but the press of other work did not permit their continuation. When time permits, this work will be resumed.

At the time of writing this article, licenses for manufacture had been granted by the Federal Trade Commission to the Abbott Laboratories, to Antoine Chiris Company, and to the Rector Chemical Company.

BARBITAL SODIUM (MEDINAL OR VERONAL-SODIUM)

Barbital sodium, formerly sold under the proprietary names "veronal-sodium" and "medinal," is, as the former name suggests, the sodium salt of diethylbarbituric acid. Its therapeutic advantages are stated to be that more rapid results are obtained because of its increased solubility over barbital alone.[10] Barbital sodium should yield, according to theory, 11.19 per cent. of sodium and 89.31 per cent. of diethylbarbituric acid. A number of years ago, when "veronal-sodium" and "medinal" were being introduced, Puckner and

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[6] For an interesting discussion, see Stieglitz, Julius: Synthetic Drugs, J. A. M. A. **70**: 536 (Feb. 23); 688 (March 9); 923 (March 30) 1918. Bracken, L. L.: Federal Trade Commission Requests Use of Official Names, ibid. **70**: 558 (Feb. 23) 1918.

[7] The testing and standardizing of arsphenamin is being done by the Hygienic Laboratory, U. S. Public Health Service. For chemical tests see reprint 472, Public Health Reports. For a review of the patent literature see article by H. F. Lewis, J. Indst. Engin. Chem., Feb. 1, 1919, p. 141.

[8] New and Nonofficial Remedies, 1919, published by The Council on Pharmacy and Chemistry of the American Medical Association, p. 82.

[9] The pharmaceutic monograph on barbital has been omitted. It was published in the 1918 edition of the Annual Reports of the Chemical Laboratory of the American Medical Association.

[10] New and Nonofficial Remedies, 1918, p. 96.

Hilpert[11] found that these products yielded results corresponding closely to the theoretical amounts of sodium and diethylbarbituric acid. A recent examination of veronal-sodium, Merck, made for the Council on Pharmacy and Chemistry, showed it to be of the same composition as that previously reported.

Only one firm's product has been submitted to the laboratory through the Committee on Synthetic Drugs, but because of the unsatisfactory results, it was not recommended for license, nor, as far as we are aware, has the firm investigated its anomalies.[12] The amount of moisture in this specimen was 0.04 per cent. It yielded 10.94 and 10.97 per cent. of sodium. Puckner and Hilpert found 11.02 per cent. of sodium in "medinal," and 11.01 per cent. of sodium in "veronal-sodium." The theoretical amount, according to the formula given for medinal by the proprietors $(C_2H_5)_2\underbrace{CCONNaCONHCO}$ is 11.19 per cent. When an aqueous solution of barbital sodium was acidified, and the diethylbarbituric acid extracted with ether, it was found that the amount of freed acid extracted varied directly with the length of time after acidification.

TABLE 2.—EXTRACTION OF A SAMPLE OF BARBITAL SODIUM

	Length of Time	Diethylbarbituric Acid per Cent.
a.	Immediately	75.5
a¹.	¾ hour	82.0
b.	Immediately	82.0
c.	1½ hours	80.5
d.	4 hours	82.82
e.	4 hours	83.56
f.	4 hours	83.41
g	45½ hours	84.89
h.	45½ hours	84.73
Theory	....	89.31
Veronal-Sodium	(Puckner and Hilpert)	89.01 (average)
Medinal	(Puckner and Hilpert)	88.95 (average)

TABLE 3.—DATA ON PHENETIDYL-ACETPHENETIDIN HYDROCHLORID

Manufacturer	Appearance	Moisture	Melting Point	Phosphorus Compounds	Phenetidin*	Indol Reaction	Ash	Per Cent. Base by Weight	Per Cent. Base by Titration	Melting Point of Base	Per Cent. Platinum in Platinum Salt +
John T. Milliken Co.	White crystalline powder	5.13	191.5 to 192	Absent	Negative	Positive	0.00	89.16	89.16	116 to 117	19.02
Synthetic Products Co.	White crystalline powder	2.90	192 to 192.5	Absent	Negative	Positive	0.13	87.49	87.26	116 to 117	19.3
H. A. Metz Laboratories, Inc.	White crystalline powder	4.99	192 to 192.5	Absent	Negative	Positive	0.00	89.14	88.55	117	19.34
Farbwerke-Hoechst Co. ..... (German specimen)	Slightly pink crystal	5.09	190 to 191	Absent	Negative	Positive	0.16	89.65	89.64	116 to 117	19.00

* The phenetidin test is not very sensitive.

It is possible that in preparing the sodium salt of diethylbarbituric acid, the ring opens up, forming a compound not so easily affected by dilute mineral acids.

PHENETIDYL-ACETPHENETIDIN HYDROCHLORID[13]

(HOLOCAIN HYDROCHLORID)

Phenetidyl-acetphenetidin hydrochlorid was introduced in the United States under the name "holocain hydrochloride" by Farbwerke, vorm Meister Lucius and Bruening, Hoechst a. M. Germany; the product apparently had not been patented in this country, although it was protected in Germany under patents No. 78,868 and 80,568. New and Nonofficial Remedies, 1918, describes "holocain hydrochlorid" as ethenyl-paradiethoxy-diphenyl-amidin hydrochlorid $CH_3:(NC_6H_4OC_2H_5)(NHC_6H_4OC_2H_5)HCl$. It is used as a local anesthetic for the eye.

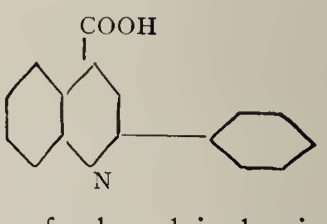
The standards, such as had been described, were meager and unsatisfactory. Hence when the first specimen of American-made phenetidyl-acetphenetidin was sent to the A. M. A. Chemical Laboratory through the agency of the Federal Trade Commission and the Committee on Synthetic Drugs, it was necessary for the laboratory to work out adequate standards.[14] As a result of the chemical work, a rather comprehensive monograph was drawn up, which was published in the 1918 Laboratory Reports. A summary of the products examined, with some of the chemical data, is given in Table 3. It will be seen that one specimen had a deficiency of about 2 per cent. of free base.

The melting point of the free base is given by a number of writers at 121 C. Although Kennert[15] stated it to be 117 C. and not 121 C., his findings seemingly went unheeded. It will be noted that our work shows the melting point to be in accord with that announced by Kennert.

The Federal Trade Commission has not issued any licenses for the manufacture of "holocain hydrochlorid." The John T. Milliken Company has withdrawn its application. The H. A. Metz Laboratories (Successor to Farbwerke Hoechst Company, New York) are making the product in this country.

CINCHOPHEN (PHENYLCINCHONINIC ACID, U. S. P.; ATOPHAN)

Cinchophen (phenylcinchoninic acid) was introduced in the United States as a medicine under the proprietary name "atophan," by Shering and Glatz, New York City, who before the war were the American agents for the German manufacturers "Chemische Fabric auf Actien von E. Schering, Berlin." Phenylcinchoninic acid (2 phenyl-quinolin-4 carboxylic acid) was first described by Doebner and Gieseke[16] in 1887, who prepared it by warming together pyro-racemic acid, benzaldehyd and anilin in alcoholic solution; it has the structural formula:



The chief use of phenylcinchoninic acid is as an antiuric acid agent, especially indicated in gout.

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[11] Puckner, W. A., and Hilpert, W. S.: Veronal-Sodium and Medinal, J. A. M. A. **52**: 311 (Jan. 23) 1909; Rep. A. M. A. Chemical Lab., **2**: 13.

[12] Since this was written, the Council on Pharmacy and Chemistry has also accepted "Barbital-Sodium Abbott."

[13] No short, scientific name has been given for this substance although several are under consideration.

[14] Certain chemical tests are described by E. H. Rankin, Indian J. M. Res. **4**: 237, 1916; also Chem. Abst. **10**: 524. Other references are Schmidt: Pharmateutische Chemie **2**: 990. Beilstein II, (403). Arends, G.: Neue Arzneimittel und pharmazeutische Spezialitäten, Ed. 4, 1913, p. 271.

[15] Kennert: Chem. Zentralbl. **2**: 556, 1897.

[16] Doebner and Gieseke: Ann. d. Chem. (Liebigs) **240**: 391, 1887.

In 1913, the German house of Schering was made the assignee of patent 1,045,759 granted by the United States government[17] for the manufacture of phenylcinchoninic acid; at about the same time the product was admitted to the U. S. Pharmacopeia IX, under very loosely constructed standards.

Some time after the beginning of the European war the proprietary "atophan" became scarce in America. In 1917, however, Schering and Glatz, New York, placed American-made atophan on the market and submitted it to the Council on Pharmacy and Chemistry. Later, other firms began to manufacture the product and also submitted specimens. During the time it was investigating these products, the Federal Trade Commission decided that a license was needed to manufacture phenylcinchoninic acid under the patent just referred to, so that altogether the laboratory had a number of specimens to examine.

In making the examinations for the Council, the laboratory was practically confined, by virtue of the Food and Drugs Law, to limit its requirements of purity to those of the Pharmacopeia. Practically, the only tests were melting point, ash and solubility. According to the U. S. Pharmacopeia the melting point is "about 210." In New and Nonofficial Remedies, 1918, it was explained that atophan "complies with the standards for phenylcinchoninic acid, U. S. P., but melts between 208 and 212 C." The U. S. Pharmacopeia requires that no weighable ash remains on incinerating about 0.5 gm. of phenylcinchoninic acid. Considerable variations, especially in melting points, were found, as can be seen from Table 4.

By referring to this table on melting points and ash content it will be noted that the production of a better grade of products resulted after the respective firms had submitted samples to the A. M. A. Chemical Laboratory for criticism, and from a chemical standpoint, the last products examined were found to be as satisfactory as the German-made "atophan."

Solubility of Cinchophen (*Phenylcinchoninic Acid.*)—As methods of determining impurities, or estimating the degree of purity of phenylcinchoninic acid were not described in the U. S. Pharmacopeia, it was decided to try extraction methods.[18] This in turn led to the question of solubilities. The U. S. Pharmacopeia gives the solubility of phenylcinchoninic acid only in general terms; hence it was deemed advisable to determine its solubilities and describe them in more definite terms. The sample of phenylcinchoninic acid employed to determine the solubility was obtained by repeated recrystallization from alcohol of a commercial specimen. Solubilities were determined in water, 95.0 per cent.; alcohol, 48.5 per cent.; alcohol,[19] chloroform and ethhyl acetate.[20] Complete saturation of the solvent was attained according to the U. S. P. IX method (p. 599). The bath was maintained at a temperature of 25 C., with a range of ± 0.2 degrees. The solution was analyzed by the method of Seidell.[21] The data obtained for the solubility of phenylcinchoninic acid are given in Table 5.

TABLE 4.—MELTING POINTS AND ASH

Product No.	Manufacturer	Melting Point, C.	Ash, %
1	Abbott Laboratories, Chicago	208.5-210.5	0 05
2	Abbott Laboratories, Chicago	212 -213	0.05
1	Calco Chem. Co., Bound Brook	209 -210.5	0.07
1	Morgenstern, New York	204.5-207.5	2.8
2	Morgenstern, New York	209.5-211.5	None
1	Schering and Glatz, New York	206 -208	None
2	Schering and Glatz, New York	209 -211	None
3	Schering and Glatz, New York	208.5-210	0.17
4a	Schering and Glatz, New York (1)	208.5-210	0.2
4b	Schering and Glatz, New York (2)	208.5-209.5	0.3
4c	Schering and Glatz, New York (3)	208.5-210	0.025
1	Wm. H. Sweet and Co., Columbus	204 -208	None
2	Wm. H. Sweet and Co., Columbus	209.5-211.5	0.04
1	German specimen from Schering and Glatz	210 -212	None

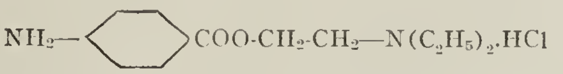
The Abbott Laboratories, Chicago, have been licensed by the Federal Trade Commission to manufacture cinchophen. Other firms, however, have decided to manufacture it without the formality of obtaining a license, evidently considering the German-obtained patent not to be valid.[22]

TABLE 5.—SOLUBILITY OF CINCHOPHEN

Solvent	Gm. per Hundred Gm. of Sat. Solution	Solubility, Parts by Weight
Distilled water	0.0160	1 in 6,216.0
95 per cent. ethyl alcohol	0.8313	1 in 119.0
Dilute ethyl alcohol	0 0875	1 in 1,142.6
Chloroform	0.1075	1 in 929.7
Ethyl acetate	1.4151	1 in 70.6

PROCAIN (NOVOCAIN)

Procain was introduced in medicine under the proprietary name "novocain," and before the war was obtainable in this country only through the Farbwerke Hoechst Company, the American representative of the German establishment, Farbwerke vorm Meister Lucius Bruening, Hoechhst a. M. Chemically it is the mono-hydrochlorid of para-amino-benzoyl-diethyl-amino-ethanol, having the structural formula:



It is prepared, according to U. S. patent No. 812,554 (issued to Alfred Einhorn, Munich, Germany) by treating para-nitro-benzoylchlorid with ethylene chlorhydrin and diethylamin with subsequent reduction of the nitro groups, the resulting product being purified by recrystallization.

Procain is employed largely in infiltration anesthesia. It is less toxic than cocain, but its anesthetic action is not sustained. This drawback is overcome by the simultaneous injection of epinephrin, and for this reason procain is often compounded with epinephrin in tablets, thus obviating the necessity of separate solutions.

When the first specimens of the American-made product were submitted through the channels of the Federal Trade Commission, it was necessary to compile a monograph.[23] This was prepared from descriptions in the available literature, mostly from tests described in New and Nonofficial Remedies, 1918, and the German Pharmacopeia V.

The submitted products were found satisfactory chemically. The toxicity determinations made by Dr. R. A. Hatcher, with the assistance of Dr. Carey

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[17] The validity of this patent is to be doubted.

[18] Attempts were made to make salts of phenylcinchoninic acid with metals such as copper, mercury, barium and calcium, and also the chloroplatinic acid or periodid addition products. Reliable quantitative results could not be obtained.

[19] This corresponds to "diluted alcohol, U. S. P."

[20] The ethyl acetate was Merck's product (redistilled), stated to contain 81.6 per cent. of ethyl acetate, 10 per cent. alcohol and alcohol derivatives.

[21] Seidell, A.: Bull. 67, Hyg. Lab.. U. S. P. H. S., p. 11.

[22] Very recently the Chemical Foundation, Inc., has undertaken to grant licenses for cinchophen. The Calco Chemical Company has obtained one.

[23] The monograph appears in New and Nonofficial Remedies, 1919.

Eggleston[24] indicated that none of the specimens are to be considered dangerous when used in ordinary dosage for normal individuals. Therefore the Federal Trade Commission, on recommendation of the Committee on Synthetic Drugs of the National Research Council (aided by the A. M. A. Chemical Laboratory), issued licenses for the manufacture of procain to the Farbwerke-Hoechst Company (which license was later transferred to the H. A. Metz Laboratories), to the Abbott Laboratories, to the Calco Chemical Company and to the Rector Chemical Company.

Subsequently the products of the licensed firms were submitted to the Council on Pharmacy and Chemistry, which in turn invoked the aid of the A. M. A. Chemical Laboratory and the Cornell University Pharmacologic Laboratory. Later the Council asked the laboratory to examine the *market* supply. Altogether, therefore, a number of products were examined which were found to respond satisfactorily to the tests outlined (Table 6).

TABLE 6

Brand	Date Received	Color	Melting Point, C.*	Ash, %
Procain (Abbott), from Committee on Synthetic Drugs	12/21/17	White	154 –155	None
Procain (Abbott), submitted to Council P. and C.	1/29/18	White	153.5–154.5	None
Procain (Abbott), Gen. Pur. Off. U. S. Army	8/31/18	White	152.5–153.5	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89999	9/30/18	Slight brownish tint	153 –154.5	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89998	9/30/18	Slight brownish tint	153 –154.5	0.005
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89997	10/ 8/18	Slight brownish tint	153 –154	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89996	11/ 4/18	Slight brownish tint	153.5–154.5	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 810995	11/ 4/18	Slight brownish tint	153.5–154.5	None
Procain (Calco), from Committee on Synthetic Drugs	2/ 7/18	White	153.5–154.5	None
Procain (Farbwerke - Hoechst Co.), submitted to Council	10/24/18	White	153 –154	None
Procain (Farbwerke - Hoechst Co.), submitted to Council	12/10/17	White	153 –154.5	None
Procain (Farbwerke - Hoechst Co.), submitted to Council, market spec. "A 56"	8/ 9/18	White	153.5–154.5	None
Procain (Farbwerke - Hoechst Co.), submitted to Council, market spec. "A 57"	9/ 9/18	White	153.5–154.5	None
Procain (H. A. Metz Lab.), market spec. "A 63"	8/23/18	White	153 –154	None
Procain (H. A. Metz Lab.), market spec. "A 57"	9/23/18	White	153 –154	None
Procain (Rector), from Committee on Synthetic Drugs	12/18/17	White	153 –154.5	None
Procain (Rector), from Committee on Synthetic Drugs	5/ 2/18	White	152.5-153	None
Procain (Rector), market spec.	8/20/18	Slight brownish tint	153 –155	None
Procain (Rector), market spec.	8/23/18	Slight brownish tint	153 –155	None
Procain (Rector), market spec.	8/23/18	Slight brownish tint	153 –154.5	None

* U. S. Patent 812,554 — the novocain patent — declares that the salt melts at 156 C. Evidently based on this, both the German Pharmacopeia and past editions of New and Nonofficial Remedies give this melting point. Two specimens of German-made novocain obtained from our files, stated to be manufactured by Farbwerke-Hoechst vorm. Meister, Lucius and Bruening, Hoechst a. M., were found to melt, respectively, between 154 and 155 C. and between 153.5 and 154.5 C. when the melting point was determined according to the direction of the U. S. Pharmacopeia, ninth revision. The various specimens examined at that time melted between 153 and 155 C., and it was decided to permit this range.

An examination of some American-made procain-suprarenin tablets was also made. The procain was determined by liberation of the alkaloid with ammonia water, extraction with chloroform evaporation of the chloroform, dissolving the alkaloid in one hundredth normal sulphuric acid solution and titrating excess acid with one hundredth normal sodium hydroxid solution. The epinephrin was determined according to the method employed by Seidell,[25] with slight modifications. The tablets contained the claimed amounts of ingredients.

THE SYNTHETIC DRUG SITUATION

Before the war, the American physician was literally bombarded with new and wonderful (?) coal-tar synthetics, most of which were originated in Germany. In fact, it seemed that if a by-product in the manufacture of dyes could not be used for a dye per se, then a place might be found for it in the ever increasing lists of medicaments. By clever advertising and propaganda among physicians, an artificial stimulation for coal-tar drugs was created which evidently yielded lucrative financial returns. As a result of the war, it is interesting to observe that of all the synthetic drugs imported into this country from Germany and on which the American patents were controlled by the Germans (up to the time of our entrance into the war), the demand was really sufficient enough to warrant the commercial manufacture of only four of them by American firms. Of course, a larger number of *nonpatented drugs,* also imported from Germany, are now being made in sufficient quantities in this country; many of the drugs in this class were never patented or are the ones which have survived after the patent had expired, such as acetanilid, acetphenetidin, and acetylsalicylic acid.

In view of the agitation to found an institute for cooperative research as an aid to the American drug industry under the auspices of the American Chemical Society, it will be well for the medical profession to be on its guard against too enthusiastic propaganda on the part of those engaged in the laudable enterprise of promoting American chemical industry. Unless it is, it may be inflicted in the future, as in the past, with a large number of drugs that are either useless, harmful or unessential modifications of well-known pharmaceuticals. It will be well also for the chemists—those engaged in this enterprise—to be sure that the product is of therapeutic value before asking its use as a medicine. The American medical profession has learned that relatively few of the many German synthetics were really valuable or decided improvements over established drugs. If American chemists desire to retain their prestige with the medical profession, they should earnestly endeavor to see that the advantages derived from the war and from such an institute as proposed are not abused in the worthy desire to popularize chemistry both educationally and commercially. They should realize that physicians are in no receptive mood for a flood of synthetics, even though "American-made."

On the other hand, the constructive possibilities of chemistry in the service of medicine should serve as a stimulus for American research. Notwithstanding all the pharmaceutical shrubbery which Germany sent to us, still it did contain some synthetics that were worth while. As therapeutics has been benefited by these organic chemicals, it is logical to reason by analogy that there remain other synthetics to be discovered which will occupy places of equal distinction in the modern materia medica. For example, vaccines are of undoubted merit in the field of immunology, but their action is, in the end, chemical; as soon as chemical technic is refined by medicochemical research, it is quite possible that a definite chemical agent (synthetic) will supersede the indefinite bacterial vaccines. Obviously the American chemist has the opportunity of showing his resourcefulness in aiding the public health of America and the world. In this connection, a cooperative institute devoted to purely scientific drug research, and governed in such a manner as to inspire confidence in its humanitarism and unbiased judgment, should serve a most commendable purpose. The hopes of American men of science are for a monumental research institution—cooperative with all the allied professions—and, as the *Chicago Chemical Bulletin* stated, "Stripped of all professional or commercial pettishness and not dominated by any one group of scientists."[26]

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[24] The report of these and subsequent toxicity experiments on procain appeared in the report of the Council on Pharmacy and Chemistry, J. A. M. A. **72**: 136 (Jan. 11) 1919.

[25] Seidell: J. Biol. Chem. **14**: 19, 1913.

CONCLUSIONS

As for the results of the work so far, they can be summed up in two sentences.

1. American chemists are producing synthetic drugs formerly controlled by Germany, and thus have declared their independence of German chemicals.
2. Judging from the evidence at hand, we can feel assured that the quality of American synthetics will be second to none.

ALLERGY IN DRUG IDIOSYNCRASY [*]

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It is my purpose in this paper to call attention to some of the peculiar drug reactions occurring in man and, at the same time, to offer an explanation of them.

In a perusal of the recent textbooks on pharmacology, it was found that the word "idiosyncrasy" appears in all; but the definitions are almost as numerous as the books themselves, and in none is there any explanation for the peculiar effects of many drugs on certain people.

Given a normal person, any drug exhibited in therapeutic doses manifests a certain normal action, a side action and, in larger amounts, a toxic action, both the normal and the toxic action being more or less definitely fixed, symptomatically, for all individuals of the same species.

On the other hand, there are individuals within any species that manifest exaggerated normal and side actions from many such reasons as alterations in rate of absorption, excretion or destruction within the organism, or instability of the mechanism through which some drugs act. For example, the stimulating action of morphin, occasionally seen, is due to an exaggeration of the normal stimulating effect, which is usually marked by depression. The lessened normal action (or tolerance) is usually dependent on long-continued use of the drug. This may not be the case. The explanation of tolerance undoubtedly varies with different drugs, and a discussion of it will not be attempted here. These exaggerated normal and side actions and lessened action (or tolerance) should be included under the general heading "idiosyncrasy," and separated entirely from the abnormal actions now to be considered, and for which explanation is offered.

ALLERGIC ACTION OF DRUGS

In a former paper, with Vander Veer, I was able to estimate that approximately 10 per cent. of all human beings manifest some form of hypersensitiveness. By this is meant that such persons react in a peculiar and specific way to substances that are innocuous in anything like such doses to the average individual of the race.

Coca's classification of hypersensitiveness into "anaphylaxis" and "allergy" will serve to clarify this whole field, which has been confused by the attempt to explain natural and artificial hypersensitiveness on the same basis.

Anaphylaxis is an antigen antibody reaction, artificially induced by immunologic processes. Allergy is used to express the natural hypersensitiveness of the individual not produced by immunologic processes, as the exciting agents or allergens are in many cases not capable of producing antibodies. For example, the natural hypersensitiveness of the human being to pollens, the clinical reaction to which is known as hay-fever, is admittedly allergic. In experiments carried on with Coca and Flood, we could not demonstrate antibody in the individual during an attack or after injection of pollen extract by passive transfer, nor could antibody be produced in the guinea-pig itself. In other words, the extract is nonantigenic. Other substances, such as glue and certain drugs like acetylsalicylic acid, to which individuals react peculiarly, are also nonantigenic. To be sure, many of the substances to which the human being does show clinical hypersensitiveness are capable of forming antibodies. Hence the confusion between the natural hypersensitiveness or allergy and the artificial or anaphylaxis.

PROOFS OF ALLEGRIC NATURE OF DRUG REACTIONS

Inheritance.—One of the proofs of the allergic nature of abnormal drug reactions is the fact that it is established by inheritance. Natural human hypersensitiveness has been shown by Vander Veer, in collaboration with me, to be an inherited trait, and one inherited, according to the mendelian law, as a dominant characteristic. Of the fifteen cases of drug reactions which form the basis of this paper, a positive antecedent history of hypersensitiveness existed in twelve, and in the other three there were evidences of other forms of allergy, such as asthma, urticaria and hay-fever, in the individual himself.

Symptomatology.—The symptoms of drug reaction or allergy are absolutely separate and apart from any normal or toxic action, and are the same as those occurring with foods, pollens and animal emanations. The symptoms are coryza, cough, bronchial spasm with urticaria in some cases, or angioneuritic edema, and frequently gastro-intestinal manifestations, with pain, vomiting and diarrhea. Occasionally, with the antipyretics, hyperpyrexia occurs or cardiac collapse and, in practically all, a marked eosinophilia, from 10 to 15 per cent. I shall speak particularly of the acetylsalicylic acid reactions, as these have been most frequently encountered thus far. Symptoms begin, as a rule, from fifteen to twenty minutes after the ingestion of 10 grains of the commercial drug. In nine of the fifteen cases, violent bronchial asthma was induced and one case was almost fatal from asphyxia. The attack lasts from eight to thirty-six hours, and in one instance was prolonged for three weeks. In only three of the cases was urticaria present. Constitutional reactions lasting three days have been produced after an intradermal test containing not more than 0.1 grain of acetylsalicylic acid. The onset of symptoms in these cases is almost immediate. Positive cutaneous reactions by testing are not obtained except in those cases in which there is a clinical history of urticaria. In other words, skin hypersensitiveness as a rule does not exist.

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[26] Proposed Institute for Drug Research, editorial Chicago Chem. Bull., April, 1919, p. 67.

[*] Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

In some cases, the allergic reactions are delayed. In the literature are reported instances of allergic drug reactions appearing from five to twenty days after the primary injection.

Specificity.—The reactions seem to depend in most cases on the chemical molecule as a whole; in a few cases, on some fraction of the molecule. Three of the cases that showed a bronchial reaction to acetylsalicylic acid gave no reaction to salicylic acid, benzoic acid, antipyrin, sodium acetate or methyl salicylate. On the other hand, many of the instances of drug reactions reported in the literature are shown to be due to fractions of the molecule. For example, iodoform hypersensitiveness has been shown to be due to the CH_3 group, and not to iodin or iodid.

No attempt is made here to give a complete summary of the subject of drug allergy. I merely wish to emphasize the conception that such a condition exists, and that it should not be confused with what are ordinarily and properly classified as idiosyncrasies. In order to clarify the ideas on drug action, it seems possible to make tentatively some such classification as the following:

1. Normal action—side action and toxic action.
2. Idiosyncratic action—(*a*) exaggerated normal action; (*b*) exaggerated side action; (*c*) lessened normal action (tolerance).
3. Allergic action—abnormal action.

No attempt is made in this classification to include racial variations, which are not idiosyncratic except when comparing one species with another which has an entirely different organic or functional mechanism.

ABSTRACT OF DISCUSSION

Dr. Lambert Ott, Baltimore: I was interested in hearing Dr. Cooke's report in regard to the sensations following the injections of acetylsalicylic acid. It must be interesting to know this condition. Some years ago I reported such a case which I called an idiosyncrasy; for after all, these conditions are produced by some chemical. I saw a patient, 37 years of age, who took acetylsalicylic acid and developed bronchial spasms. Sometimes he was advised what he was taking and sometimes not. The drug was administered in capsules and in powders, and in every instance the man developed bronchial spasms.

The Record of Vaccination.—In the Municipal Hospital of Philadelphia, during thirty-four years, in which time over 9,000 cases of smallpox have been treated, no physician, nurse or attendant who has been successfully vaccinated or revaccinated prior to going on duty has contracted the disease. On the other hand, in the Fever Hospitals of London, according to Ernest Hart, in 1893, of 2,484 persons employed, 130 became infected and two died; seventy-three had scarlet fever and twenty-three contracted diphtheria. The deaths from smallpox, in England, are thirteen per million for medical men (who are well vaccinated) as against seventy-three per million of the general population; whereas fifty-nine medical men per million die of scarlet fever as against sixteen per million of the general population.—Welch and Schamberg, Acute Contagious Diseases.

FILARIAL PERIODICITY *

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CHARLESTON, S. C.

A most interesting phenomenon in blood parasitology and one of practical importance in the question of transmission of the parasite, is the periodicity of filariae. This term has come to mean a periodic increase in numbers in peripheral capillary blood of the embryos of filariae. This, in the case of *Filaria bancrofti*, occurs during the hours of sleep, and of *Filaria loa*, during the hours of activity. Until Smith and Rivas[1] developed the acetic acid concentration method of counting the number of microfilariae in a given amount of blood, "filarial periodicity" signified the periodic appearance and disappearance of microfilariae in the peripheral blood. This acetic acid concentration method of examining for microfilariae has brought about important changes in our conception of the phenomenon, and has opened a new avenue of approach to the problem.

Smith and Rivas have thus been enabled to show that filaria embryos are to be found in the peripheral blood at all times of the day and night, and that the periodicity is a matter of a relative number of embryos circulating in the blood. They[2] have given a method of making an exact count, and they have been led to formulate a new theory as explaining the phenomenon.

They have shown that the period of cutaneous prevalence of *Microfilaria bancrofti* is from midnight to 8 a. m., the maximum being about 2 a. m.; that the period of cutaneous prevalence of *Microfilaria loa* is from 8 a. m. to 4 p. m., the maximum being about noon, and that from 4 p. m. to midnight is a period of cutaneous paucity of both.

Regarding these periods as those respectively of (*a*) greatest peripheral relaxation from fatigue and sound sleep; (*b*) of recovery from fatigue and the resumption of capillary tone in the periphery, and (*c*) of capillary constriction from the combined influences of tone and of compression from muscular activity, and believing that both microfilariae are restricted (but not prevented) in their motility by their ensheathment, *Microfilaria loa* evincing greater motile effort than *Microfilaria bancrofti*, Smith and Rivas advance a theory in which the mechanics of the capillary circulation plays the main rôle, with the restricted motility of the parasite playing a minor part. In brief, the theory considers that the parasites are both in smallest numbers when they have the easiest progress through relaxed capillaries (the period of relaxation, 4 p. m. to midnight), that *Microfilaria bancrofti* is caught by the first resumption of capillary tone (from midnight to 8 a. m.), that the parasites get through, finally, by the end of this time, and are then held up again in the pulmonary capillaries, and that *Microfilaria loa*, because of greater motile effectiveness is enabled to pass this moderate opposition; but when the capillaries are markedly diminished from tonic contraction and muscular compression (8 a. m. to 4 p. m.), the parasites are no longer able to progress easily, and therefore accumulate.

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* Read before the Section on Pathology and Physiology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Smith, A. J., and Rivas, Damaso: The Early Diagnosis of Filariasis, South. M. J. 5: 631, 1912.

[2] Smith, A. J., and Rivas, Damaso: Notes Upon Human Filariasis, Am. J. Trop. Dis. & Prev. M. 2: 361, 1914-1915.

Supporting the mechanical part played in this theory, Smith and Rivas have performed some experiments aiming at altering circulatory conditions and capillary caliber. They succeeded, at one time, in increasing the number of *Microfilaria loa* by giving a half ounce of brandy; at another, by a half hour's general exercise, and by compressing the hand in a glove, and placing the hand in warm water. They also determined that the venous drainage of an extremity showed fewer parasites than did the capillary circulation.

Manson[3] considers broadly that the periodic peripheral swarming of microfilariae is an adaptation on the part of the parasite to the biting habits of the intermediate host. Undoubtedly, the large numbers of *Microfilaria bancrofti* in the peripheral blood at night favor its entrance into the night biting *Culex fatigans,* but this does not explain the problem. Manson would believe that there is some physiologic product, the outcome of the activities of waking life, which either drives *Filaria nocturna* from the surface of the body during the day, or attracts it to certain internal organs, particularly to the lungs and large arteries.

Feeling that this chemotropic theory is rather unreasonable and that the demonstration of these embryos constantly in the peripheral blood has rendered it untenable, I have instituted a series of experiments in the human infection by *Filaria bancrofti,* and the dog infection by *Filaria immitis,* attempting to influence the number of embryos in capillary blood by circulatory alteration.

In all of these counts I have used the acetic acid method of concentration, taking 1 c.c. of blood in 10 c.c. of 2 per cent. acetic acid solution, centrifuging, washing and recentrifuging several times, spreading the sediment on a slide, and counting the whole number in the sediment.

NITROGLYCERIN EXPERIMENTS

Experiment 1.—*Human case of Filaria bancrofti.*—In J. S., an aged colored man with extreme arteriosclerosis, poor mentality, motor nervous disturbance, markedly enlarged right inguinal glands, hydrocele and general lymph gland enlargement, microfilariae were found in a drop of blood from the finger tip at 11 p. m.; none in the day time. Dec. 11, 1916, at 11 a. m. 245 microfilariae in 1 c.c. of blood from the finger tip were counted. I gave 1/100 grain of nitroglycerin hypodermically. At 11:30 a. m. 171 microfilariae were found in 1 c.c. of blood from the finger tip, a decrease of seventy-four, or 30 per cent. Dec. 13, 1916, at 11 a. m., I repeated the experiment and counted 201 per cubic centimeter before the administration of the nitroglycerin, and seventy-four per cubic centimeter twenty minutes after the administration, a decrease of 127, or 63 per cent. Dec. 19, 1916, at 11 p. m., I repeated the experiment, and counted 615 microfilariae per cubic centimeter before, and 615 per cubic centimeter twenty minutes after the administration of nitroglycerin.

Experiment 2.—*Human case of Filaria bancrofti.*—In T. R., a middle aged mulatto, showing chyluria, there were counted, Dec. 13, 1916, at 11 a. m., three microfilariae per cubic centimeter in the blood of the finger. I gave 1/100 grain of nitroglycerin hypodermically and, at 11:20 a. m., counted one microfilaria per cubic centimeter of blood from the finger. Dec. 19, 1916, at 11 p. m., I repeated the experiment and counted 382 microfilariae per cubic centimeter before, and 300 per cubic centimeter twenty minutes after the administration of the nitroglycerin, a decrease of eighty-two, or 21 per cent. Jan. 5, 1917, at 11 p. m., I repeated the experiment and counted 353 microfilariae per cubic centimeter before, and 259 per cubic centimeter after the administration, a decrease of ninety-four, or 26 per cent.

Experiment 3.—*Dog, infected with Filaria immitis.*—Dec. 17, 1917, at 11 a. m., there were counted 2,706 microfilariae per cubic centimeter in the blood from the ear. One one-hundredth grain of nitroglycerin was given hypodermically. At 11:15 a. m. there were 972 microfilariae per cubic centimeter in the blood from the ear, a decrease of 1,734, or 64 per cent. Dec. 19, 1917, at 11 a. m. the experiment was repeated, and 3,264 microfilariae were found per cubic centimeter before, and 3,264 per cubic centimeter five minutes after administration of nitroglycerin.

Jan. 5, 1917, at 11 a. m., the experiment was repeated. There were counted 3,172 before, and 1,620 after administration of the nitroglycerin, a decrease of 1,552, or 50 per cent.

Thus, after the administration of nitroglycerin, there resulted decreases in the number of both *Microfilaria bancrofti* and *Microfilaria immitis* in the peripheral capillary blood, varying from 21 per cent. to 64 per cent. In two experiments, one with *Microfilaria bancrofti* and one with *Microfilaria immitis,* the number remained the same in twenty and five minutes, respectively. I have recorded in my notes that the product used in these was old and its potency doubtful. It was not tested, but a fresh product was substituted. I interpret these results to indicate that relaxation of the vascular system, whether during the period of cutaneous prevalence or paucity, allows these parasites to pass more freely, and consequently their number in a given volume of blood decreases.

PITUITARY EXTRACT AND EPINEPHRIN EXPERIMENTS

Experiment 4.—*Human case.*—In J. S., Dec. 17, 1916, at 11 p. m., there were counted 531 microfilariae per cubic centimeter in blood from the finger. He was given pituitary extract hypodermically, and there were counted 665 microfilariae per cubic centimeter in the finger's blood at 11:10 p. m., an increase of 134, or 25 per cent.

Experiment 5.—*Human case.*—In T. R., Dec. 15, 1916, at 11 p. m., there were counted 227 microfilariae per cubic centimeter in the finger's blood before, and 334 ten minutes after the administration of pituitary extract, an increase of 107, or 47 per cent. Dec. 17, 1916, the experiment was repeated, and there were counted 138 per cubic centimeter before, and 364 per cubic centimeter twenty minutes after the administration of pituitary extract, an increase of 226, or 164 per cent.

Experiment 6.—*Dog, Filaria immitis.*—Oct. 29, 1917, at 11:55 a. m., 1,360 microfilariae were found per cubic centimeter in blood from the ear before, and 1,620 microfilariae per cubic centimeter in blood from the ear ten minutes after the administration of 1 c.c. of pituitary extract hypodermically, an increase of 260, or 20 per cent. At the same time, 1,056 per cubic centimeter were found in blood taken directly from a large ear vein. This confirms the observation of Smith and Rivas in *Filaria bancrofti* infection. The experiment was repeated, Oct. 31, 1917, at 12:30 p. m., and 1,294 microfilariae per cubic centimeter were found before, and 2,678 per cubic centimeter of ear's blood ten minutes after the administration of pituitary extract, an increase of 1,384, or 107 per cent.

Nov. 1, 1917, at 12:30 p. m., the experiment was repeated and there were counted 1,478 microfilariae per cubic centimeter in capillary blood from the ear, 1,272 per cubic centimeter in venous blood, and, ten minutes after the administration of pituitary extract, 2,196 in capillary and 724 in venous blood, an increase in the capillary blood of 718, or 48 per cent., and, at the same time, a decrease in the venous blood of 448, or 35 per cent., thus showing that the increase in the capillary blood was a process of accumulation or holding up, and not an additional influx.

The experiment was repeated, Nov. 2, 1917, at 11:20 a. m. One thousand nine hundred and twenty-two microfilariae per cubic centimeter were counted in the capillary blood before, and 2,160 per cubic centimeter ten minutes after the administration of epinephrin, an increase of 238, or 13 per cent. Twenty-minutes after the administration, 2,460 microfilariae per cubic centimeter were found in venous blood. It seems that probably by this time the parasites were being released into the veins. Unfortunately, capillary blood was not taken.

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[3] Manson, P.: On Filarial Periodicity, Brit. M. J. 2: 644, 1899.

The experiment was repeated, Nov. 5, 1917, at 11:30 a. m., and 2,216 microfilariae per cubic centimeter of capillary blood were counted before, and 2,820 per cubic centimeter ten minutes after the administration of epinephrin, an increase of 603, or 27 per cent., and 3,228 per cubic centimeter twenty minutes after the administration, an increase of 1,012, or 45 per cent.

The experiment was repeated, Nov. 9, 1917, at 11 a. m. Two thousand three hundred and seventy-two per cubic centimeter of capillary blood were found before, and 3,512 thirty minutes after administration of epinephrin, an increase of 1,140, or 48 per cent., and 4,420 per cubic centimeter in capillary blood forty minutes after the administration, an increase of 2,048, or 86 per cent.

A dog was anesthetized with morphin and chlorbutanol, Jan. 12, 1918, at 11 a. m. There were counted 3,268 microfilariae per cubic centimeter in capillary blood before, and 4,738 per cubic centimeter in capillary blood ten minutes after the administration of epinephrin, an increase of 1,470, or 45 per cent.

Therefore, after the administration of epinephrin and pituitary extract, there resulted increases in the number of both *Microfilaria bancrofti* and *Microfilaria immitis* in the peripheral capillary blood, varying from 13 to 164 per cent. There occurred also a decrease of 35 per cent. in the venous drainage of an area at the same time as an increase in the capillary blood of 48 per cent. and a subsequent venous increase. I interpret these observations to indicate that an increase in the tone of the vascular system, whether during the period of peripheral prevalence or paucity, prevents the free passage of these parasites through the capillaries; that, therefore, their number in a given volume of capillary blood increases, and that during this time the number getting into the venous drainage is cut down, but increases after a time, and especially when the tone begins to wear off.

EFFECT OF SLEEP

The effect of sleep on the peripheral prevalence of *Microfilaria immitis* was shown in the following experiment:

Experiment 7.—Dog 1, was kept awake from 11:20 a. m. to 1 a. m. following, and the capillary blood showed, at 11:20 a. m., 2,851 microfilariae per cubic centimeter; at 1 p. m., 2,900; at 3:20 p. m., 3,217; at 8 p. m., 2,736; at 11 p. m., 2,352, and at 1 a. m., 2,264.

In Dog 1, awake at 1 p. m., there was a count of 2,512 in the capillary blood, and, in Dog 1, asleep at 3 p. m., a count of 4,300 in the capillary blood, an increase of 71 per cent., which is comparable to but not as large, even, as the increase brought about by pituitary extract and epinephrin administration.

It is interesting to note that when the dog was kept awake there was an increase comparable to that of *Microfilaria loa* in the afternoon, and then a decrease similar to that in *Microfilaria loa* infection in the night hours. *Microfilaria immitis* is smaller in transverse diameter than *Microfilaria bancrofti* and *Microfilaria loa* embryos. As a consequence, it gets past the capillary barrier with more ease and shows constantly more in peripheral blood. There is, however, a period of relative peripheral prevalence directly connected with sleep, whether at night or in the day, which can be altered by keeping the dog awake, and the number of microfilariae in the peripheral capillary and venous blood is subject to the same natural and artificial alterations as is that of the human parasites.

In this connection, it would be interesting to know whether the acetic acid concentration method would not show a periodicity of the smaller human filaria embryos, *Filaria perstans* and *Filaria demarquayi*, which are to be found by old methods of examination constantly in the peripheral blood.

EFFECT OF COLLAPSE OF THE LUNG

Experiment 8.—Dog 1, anesthetized with chlorbutanol and morphin gave a count of 3,268 microfilariae in the peripheral capillary blood.

One lung was artificially collapsed by the introduction of air into the pleural sac. Five minutes later the dog died, and the thorax was opened. The uncollapsed lung showed 8,962 microfilariae in the capillary blood; the collapsed lung, 350,000 per cubic centimeter, this being a rough count as there were so many it could not be made exact; the left ventricle, 7,365, and the right ventricle, 10,778. Unfortunately, the bloods taken from various other parts were allowed to clot, and were consequently useless for counting.

This is one of the most striking of the experiments. The capillary circulation in the lungs is more of a barrier to the passage of these parasites in both *Microfilaria bancrofti* and *Microfilaria immitis* infections than is the peripheral capillary system, as is evidenced by the larger numbers in the uncollapsed lung of this dog and in Manson's case of *Microfilaria bancrofti* infection, which came to necropsy, and also in a case in which I made a postmortem examination. As shown by my necropsy, this appears to be not simply a retirement from the periphery to the lungs during the period of peripheral paucity. Apparently the lung filter is more or less constantly difficult of their passage. The collapse of the lung seems to have created a pressure on the capillaries and to have rendered them relatively impassable, even by this small worm, and to have led to an enormous accumulation, showing an increase over the number in the other lung of 3,805 per cent. in five minutes.

It is to be noted also that the number getting through the lungs and showing in the left heart was even less per cubic centimeter than in the uncollapsed lung.

I would interpret this experiment as showing what an influence on the number of these worms a purely mechanical capillary barrier may have.

HUMAN NECROPSY

Manson has reported a necropsy of a subject of *Filaria bancrofti* infection who died suddenly at 8 a. m., in whom he found prodigious numbers in the lungs, very many in the pulmonary artery and vein, large numbers in the carotid artery, a large number in clots from the left ventricle and aorta, many in the heart muscle, and a few in other places. From this he concludes that *Filaria nocturna,* during its temporary absence from the cutaneous circulation, retires to the localities in which he found large numbers.

Sept. 16, 1916, I performed a necropsy on a subject of *Filaria bancrofti* infection who died of pellagra at about 2 a. m. I was not at the time using the acetic acid method of counting, but I recorded large numbers of microfilariae in the lungs, and a few in the blood of the kidney, spleen, liver, heart, retroperitoneal lymph glands and large vessels. This confirms Manson's observation in regard to the lungs, but not in regard to the heart and large vessels. Neither of these cases furnishes positive reliable evidence of the distribution except in a rough way. I expect interesting exact data to be obtained from a repetition of postmortem examinations by the use of the acetic acid method of counting. I can see no means by which the microfilaria could maintain itself against the current in the large vessels, particularly such as the aorta and carotid artery.

INTRAVITAM OBSERVATIONS ON MICROFILARIA IMMITIS

Experiment 9.—Dog 1 was anesthetized, the abdomen opened, and the omentum drawn over the stage of a microscope. Considerable injury was done and it was difficult to keep the membrane warm and moist. Consequently, the capillary circulation was largely sluggish or stopped. Three microfilariae were seen wriggling with the stream, faster than the blood was moving, in a large capillary. One was seen to progress against the stream of a small capillary. Two went slowly forward through a capillary carrying a single line of cells. These were wriggling, and the blood cells passed by them in their convolutions. This explains why even large numbers do not prevent the passage of blood in the small capillaries. The one progressing against the stream and those going forward faster than the sluggish stream appeared to push themselves against the wall. Apparently, therefore, they have some propulsive power even in the capillaries. It was planned to observe the action of drugs on the vessels, and the effect on the passage of the parasite, but the technic will have to be perfected before this can be done. I expect this measure, however, to furnish interesting information concerning the passage of microfilariae through the capillaries.

This experiment appears to show that the parasite does not perform simply as a foreign body but that its own activity is to some extent concerned in its passage of the finer capillaries, as was conjectured by Smith and Rivas.

FURTHER DRUG ADMINISTRATION

Incidentally, it may be mentioned that in the human experiments ergot and caffein were administered without altering numbers, that emetin was given hypodermically with no effect on the parasite, and that while oil of chenopodium given intravenously in considerable doses in the dog killed the embryo, doses compatible with the life of the animal had no apparent effect, and neither did alimentary administration.

SUMMARY

Fully realizing the limitations to be placed on interpretations of the effect on the capillary system of the drugs used, and that these experiments need confirmation and elaboration, I believe that these observations strongly support the mechanical theory of Smith and Rivas in regard to filarial periodicity, and that the reasonable explanation of filarial periodicity is furnished by some such mechanical proposition, in which the caliber of the capillaries plays the main rôle, with the motility of the microfilariae playing a lesser part, so that the peripheral prevalence of microfilariae is largely dependent on the difficulty of passage of the peripheral capillaries during periodic tonicity and is directly related to sleep and wakefulness, but is affected to an extent varying with the size and the motility of the parasite, the pulmonary capillary system relative to these two conditions playing the part of a more or less constant barrier, but one probably more effective during the hours of the tone of activity.

CONCLUSIONS

1. The acetic acid concentration method of Smith and Rivas furnishes an exact method of counting microfilariae, and only by exact counts can the number in a given part of the body be accurately determined.

2. The administration of nitroglycerin is followed by a decrease in the number of *Microfilaria bancrofti* and of *Microfilaria immitis* in the peripheral capillary blood, during both periods of peripheral prevalence and paucity.

3. The administration of epinephrin or pituitary extract is followed by an increase in the number of *Microfilaria bancrofti* and of *Microfilaria immitis* in the peripheral capillary blood, during the periods both of cutaneous prevalence and of cutaneous paucity.

4. The period of cutaneous prevalence of *Microfilaria immitis* is directly connected with sleep.

5. In the collapsed lung, *Microfilaria immitis* accumulates in enormous numbers.

6. During the period of cutaneous paucity of both *Microfilaria bancrofti* and *Microfilaria immitis,* there are large numbers in the lungs.

7. The venous drainage of a part contains fewer microfilariae than the capillaries, there are still fewer when accumulation in the capillaries is produced by vascular stimulation, and following this capillary accumulation the venous drainage contains larger numbers.

TYPHOID, PARATYPHOID AND DYSENTERY CARRIERS AMONG RETURNING OVERSEAS TROOPS

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Circular 69, issued in February, 1919, by the chief surgeon of the American Expeditionary Forces stated that during the autumn and early winter of 1918 the incidence of typhoid and paratyphoid fevers among the American troops overseas had shown a noteworthy increase. More than 874 cases of typhoid and paratyphoid were reported between October 1 and February 1. This number, while not large in itself, represented an unexpected degree of infection among vaccinated individuals. The questions that presented themselves were: What percentage of the convalescents would become chronic carriers, and to what extent would these returning troops prove a menace to the home population?

It was therefore planned to examine the stools of a sufficient number of returning troops to include members of practically all divisions and at the same time to reduce the percentage of error. This laboratory seemed to be particularly well adapted for this purpose, not only on account of its facilities, but especially because of the fact that an intensive survey for intestinal parasites was being conducted among all homecoming men by Major C. A. Kofoid, S. C., U. S. Army.

The routine for the collection and examination of specimens was as follows:

The specimen of stool was placed in a cardboard drug can with tin bottom and top and immediately brought from the ward to the laboratory. A small portion (about the size of a pea) was thoroughly emulsified in 10 c.c. of nutrient broth and the tube placed in the incubator for two hours, during which time the larger particles settled to the bottom. A loopful of the suspension was then streaked on Endo agar and the plates were incubated over night. All colorless colonies were then fished to Russell's double sugar agar, the slants incubated over night, and all cultures showing the characteristic reactions of typhoid, paratyphoid or dysentery bacilli were subcultivated on plain agar. Tests were then made for motility, and the various carbohydrate reactions were observed. Macroscopic agglutination tests were carried out with potent immune serums in a 1:100 dilution. The cultures were carried on plain agar slants for at least ten generations for the purpose of increasing their agglutinability, if possible. Before the final diagnosis was made, all cultures were plated, and single colonies were fished to plain agar slants. The carbohydrate fermentations were again tested in freshly prepared and incubated Hiss serum waters, their motility or absence of it verified in broth and Hiss semisolid medium, and their agglutinability carefully determined with the different serums in varying dilutions.

Of all the strains isolated from the stools of 1,000 men, only two gave sufficiently definite reactions to warrant their identification as true pathogens. One culture proved to be *Bacillus dysenteriae* of the Hiss-Russel-Y type while the other was *Bacillus dysenteriae* of the Flexner type. Neither of the men from whom these organisms were isolated had been or was suffering from bacillary dysentery. In addition to the above mentioned two, twenty-eight strains of nonlactose fermenters were isolated which gave carbohydrate fermentations characteristic of the types sought, but which agglutinated with their respective serums in dilutions of 1 : 100 and at most at 1 : 500. Since the serums used were of high titer (*B. typhosus* serum 1 : 32,000, *B. paratyphosus* A and B serums 1 : 16,000, and *B. dysenteriae* serum 1 : 4,000), and because repeated subcultivating on agar failed to increase the agglutinability of these strains, these organisms were finally classed as intermediates. Eleven other strains, which on preliminary tests fermented only glucose and mannite with gas and agglutinated with the paratyphoid serums in dilutions of 1 : 100 and 1 : 500, later fermented lactose after prolonged incubation. These were undoubtedly "slow colons." Their detection emphasizes the necessity of long incubation (two weeks) of the lactose serum water and litmus milk cultures, and also of carrying out agglutination tests in higher dilutions, before making any final bacteriologic diagnosis.

COMMENT

In only two individuals out of 1,000 returning overseas troops were any of the usual pathogenic intestinal gram-negative bacilli found. These men were found to be carrying dysentery bacilli of the Hiss-Russel-Y and Flexner types, respectively. No typhoid or paratyphoid bacilli were isolated. Therefore, only 0.2 per cent. of all men examined were found to be carriers. By way of comparison, it is interesting to mention the number of clinical cases of similar infections among returning troops. Of the 50,747 men passing through the hospitals of the Port of Embarkation during March, April and May, 1919 (the period covered by this bacteriologic study), six had typhoid fever, and one had dysentery of the Hiss-Russel-Y type, with no cases of paratyphoid fever. These give a percentage of 0.014 per cent.

No doubt, had time permitted the cultivating of all stools on brilliant green agar as well as on the Endo plates used, the isolations might have been greater in number. The method employed, however, was deemed to be sufficient to detect the great majority of infected individuals. The results as they stand, taken in conjunction with the record of clinical cases, would seem to show that such infections as had occurred in the American Expeditionary Forces during the autumn and early winter of 1918 had remained limited and had given rise to no aftermath of carriers.

DIAGNOSTIC INCISION OF TUMORS

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It is now generally recognized that to obtain satisfactory results in the treatment of cancer, an early diagnosis is necessary; if an operation for cancer is to be successful, the diagnosis must be made almost always before the classic symptoms appear, often a matter of great difficulty. It is imperative, also, that no time be lost in making a decision and in planning the operation, for the scope of the latter, when the tumor is benign, is entirely different from that when the growth is malignant, and it is often most difficult to change during the course of the operation from one type of procedure to another. For instance, the extensive exposure and preliminary vascular ligation which may be necessary in a resection for cancer of the tongue, jaw, uterus or rectum are quite unnecessary in the case of a benign tumor, and to change the whole scheme after the operation has been begun may require more time than the patient's strength permits. An abdominal hysterectomy for fibromyoma may reveal carcinoma or sarcoma of the uterus, and the additional dissection required, if the proper operation is to be performed, may impose great risk from shock or hemorrhage on the patient, while a two-stage procedure is out of the question if a cure is to be obtained. The examples cited show that it is of the utmost importance that a correct diagnosis be had before operation; but often this is impossible without microscopic examination of the tumor.

EXCISION FOR MICROSCOPIC EXAMINATION

The procedure of excising a small fragment of a tumor for examination has long been employed by the dermatologists as a means for obtaining a definite diagnosis; but among the surgeons, opinions are not generally in accord, and of late years the practice of diagnostic excision has been subjected to much criticism, some of it entirely from a theoretical point of view, and some based on a moderate number of cases in which such incision was supposed to have incited the tumor to more rapid growth, or to have led to more widespread metastasis. The discussion culminated two years ago in a very bitter series of editorials in the *Medical Record*,[1] criticizing the action of the Department of Health of New York City and of the Cancer Commission of Harvard University in offering facilities for the diagnosis of excised fragments of tumors. The anonymous writer of these editorials went so far as to state that the incision of a tumor twenty-four or forty-eight hours before its removal was "little short of a crime," and that a physician making such an incision would have "no defense whatever if the heirs of his patient should bring a malpractice suit."

The whole question has been well discussed by Ewing,[2] who thinks biopsy justified if a diagnosis cannot be made otherwise; while Greenough[3] has published the results of a questionary, the general opinion which he obtained from surgeons being in condemnation of incision of the tumor under any circumstances. Bainbridge[4] has reviewed this aspect of the literature of the subject and has brought forward some cases which he believes illustrate the dangers of diagnostic incision.

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[1] M. Rec. **91**: 156 (Jan. 27); 286 (Feb. 17); 371 (March 3); 731 (April 28) 1917; ibid **92**: 728 (Oct. 27); 1083 (Dec. 22) 1917.

[2] Ewing, James: The Incision of Tumors for Diagnosis, New York M. J. **102**: 10 (July 3) 1915.

It cannot be denied that in the vast majority of instances of cancer presenting for operative treatment, the growth has reached such a point, unfortunately for the patient, that a surgeon well trained in pathology can make a diagnosis without the help of the microscope; but the knowledge possessed by a surgeon so trained is not universal, and I have seen many mutilating operations performed on patients with a variety of lesions which had been diagnosed clinically as cancer, but which were not malignant. These include three cases of complete excision of the tongue and a number of amputations of extremities. Again, there is still a tendency to treat ulcerated lesions of the mouth with medicine over too long a period, especially if the patient gives a positive Wassermann reaction. Unquestionably, arsphenamin, by destroying the spirochetal organisms so frequent in the buccal cavity, does produce a certain amount of disinfection of the surface and, in consequence, some deceptive improvement, during which time deep extension of the tumor may take place.

On the other hand, the statement that exploratory incision into a tumor is invariably followed by local spreading or metastasis to regional lymph-nodes is not true. I have seen a number of cases of epithelioma of the tongue and the lip in which diagnostic fragments were removed without injurious result, the patient being alive and well from five to eight years after; and I have also seen one case of epithelioma of the tongue in which only partial extirpation was performed, and three weeks were allowed to elapse before a second operation took place; but, nevertheless, the patient is now, at the end of five years, alive and well.

The theoretical danger of opening up blood vessels has never seemed to me to have the extraordinary weight given it by clinicians, as the blood flow tends to wash particles out of the vessels cut, rather than into them, and the body is unquestionably able to take care of a certain number of free cancer cells, as Schmidt[5] and others have shown. Furthermore, the effect of opening the lymph channels has not been studied scientifically. For example, it is usually assumed that the recurrences of the tumor along the scar, so frequent after amputation of the breast, are due to opening lymph channels; but experimental evidence makes it seem much more probable that both the handling of the tumor before operation, when it may be palpated by a dozen physicians for diagnostic purposes, and the manipulation of the organ during excision are much more likely to be the cause of the distribution of the tumor particles. The frequency with which hemorrhagic areas are found in tumors removed by operation and that with which freshly dislodged cancer particles can be demonstrated in the blood and lymph vessels suggests this explanation. The extraordinary dissemination produced by the massage treatment of tumors of the breast, and the ease with which cancer cells can be distributed through the vascular system of a mouse whose cancer has been gently massaged for a minute or less, show that manipulation of a tumor is a very dangerous procedure.

EXPERIMENTS

The subject seemed an ideal one for attack from the experimental side. The occurrence of metastasis in human cancer depends on the size of the cells, the extent and situation of the tumor, the relationship between it and the lymphatic drainage system, and the amount of massage, both from the patient's handling of the growth and from muscular action compressing it; all these add to the problem in man variables whose values cannot be weighed. On the other hand, the use of one of the well known transplantable tumors, such as the Flexner-Jobling rat carcinoma, eliminates any question as to the size of the cells, the situation of the tumor, and the possibility of massage, the growth being implanted always in the same portion of the animal and at a site where it is not liable to be rubbed during the animal's movements. It is possible, also, to obtain accurate necropsy controls on animals whose tumors have been excised, a thing which is not possible in human cancer.

So far as I am aware, the question has not been approached experimentally except by Tyzzer,[6] who, in 1913, published a very important paper, chiefly concerned, however, with other phases of the metastasis problem. Apparently he did not excise small fragments of the tumors, but attempted a fairly extensive removal, such as would represent an incomplete operation, and he reached the conclusion that incomplete operations did not increase the incidence of metastasis. The number of animals used was small, and the work was done with a carcinoma in the Japanese waltzing mouse, the growth having a number of peculiarities, one of which was that the lymph-nodes were never involved.

For our experiments, a rat tumor which does metastasize generally was selected. The Flexner-Jobling rat carcinoma employed is an adenocarcinoma, which frequently metastasizes to the lungs, blood vessels and regional lymph-nodes. The inoculated tumors tend to remain discrete when a small graft is placed in the loose subcutaneous tissue of the side, and clean incision does not cause local spreading in the tissue planes. In suitable animals, the tumors take in a large percentage and grow progressively. The following experiments were carried out with the valuable assistance of my colleagues, Dr. Frederick D. Bullock and Dr. George L. Rhodenburg.

White rats, totaling 673, were inoculated with the Flexner-Jobling rat carcinoma, and divided into three groups. From those in Group 1 a portion of each tumor was excised aseptically, and the skin was then sutured over the wound. After ten to twelve days, this being the maximum time required to obtain a microscopic diagnosis, the entire tumor was carefully excised in order that the formation of metastasis might be checked. The animals were killed and examined from three to four weeks later. From the second group of animals, inoculated at the same time, the tumors were removed on the same day that the tumors were removed from Group 1, and the animals were killed and examined from three to four weeks later. This group thus formed a check on the first, for if the number of metastases was the same in both series, it would be evident that the incision of the tumors had not increased the amount of metastasis, since in both series the tumors had been in the animal body for exactly the same length of time and had been removed by exactly the same method. Great care was taken with the surgical technic, so as to avoid massaging the tumors, which, as Tyzzer[6] has shown, and as more extensive experiments in my own laboratory have also demonstrated, is a most efficient means for distributing tumor particles throughout the body. The third group of inoculated animals was killed at the same time that the others were killed, and formed a check on the metastasizing power of the tumor.

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[3] Greenough, R. B.: Handling of Early and Doubtful Cases of Cancer, Ann. Surg. **66**: 385 (Oct. 17) 1917.

[4] Bainbridge, W. S.: Biopsy and Cancer—a Review, M. Rec. **91**: 705 (April 28) 1917.

[5] Schmidt, M. B.: Der Verbreitungswege der Karzinome und die Beziehung generalisierter Sarkome zu den leukämischen Neubildungen, Jena, Gustav Fischer, 1903.

[6] Tyzzer, E. E.: Factors in the Production and Growth of Tumor Metastases, J. M. Res. **23**: 309 (July) 1913.

RESULTS

The results may be thus summarized:

The average percentage of metastases in all the animals of Group 1, in which probatory excision was made, was 22.2.

The average percentage of metastases in the animals of Group 2, in which the tumors were removed without previous incision, was 21.8.

In the animals in Group 3, which were allowed to go without any operative procedure, the percentage of metastases was 32.2. These figures include metastases in the lungs and in the axillary, superior mediastinal, mediastinal, and peritoneal lymph-nodes.

Control Series 3 shows that the frequency of metastasis is a function of the time that the tumor remains in the body, and again emphasizes the well known fact that a malignant tumor should be removed as soon as possible after the diagnosis is made.

A similar experiment with the Crocker Fund rat sarcoma No. 10 on 384 animals also showed no increase in metastasis as a result of the incision of the tumor.

CONCLUSIONS

It is evident that this experiment demonstrates that in white rats bearing the Flexner-Jobling rat carcinoma, or the Crocker Fund rat sarcoma No. 10, metastasis is not increased when the tumor is incised, a fragment removed aseptically, and the growth allowed to remain in the animal for from ten to twelve days thereafter.

It permits the deduction, also, that human tumors are probably not widely distributed by incision, as has been thought, and that, therefore, when these tumors are situated in such portions of the body that a mutilating or highly dangerous operation is necessary for their removal, they should be examined microscopically *if a diagnosis can be made in no other way.*

It is preferable that such diagnosis be made immediately by frozen section, if facilities are available, so that if necessary the operation can be continued under the same anesthesia; but the patient's future is not necessarily compromised if a small fragment is removed, the wound closed, and the operation proceeded with the moment a microscopic diagnosis is obtained. With modern rapid methods of preparation of sections, the lapse of time need not be more than three or four days.[7]

1145 Amsterdam Avenue.

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[7] The extensive tables covering these and other similar experiments and a detailed analysis of the results will appear in a future number of the Journal of Cancer Research.

Clinical Notes, Suggestions, and New Instruments

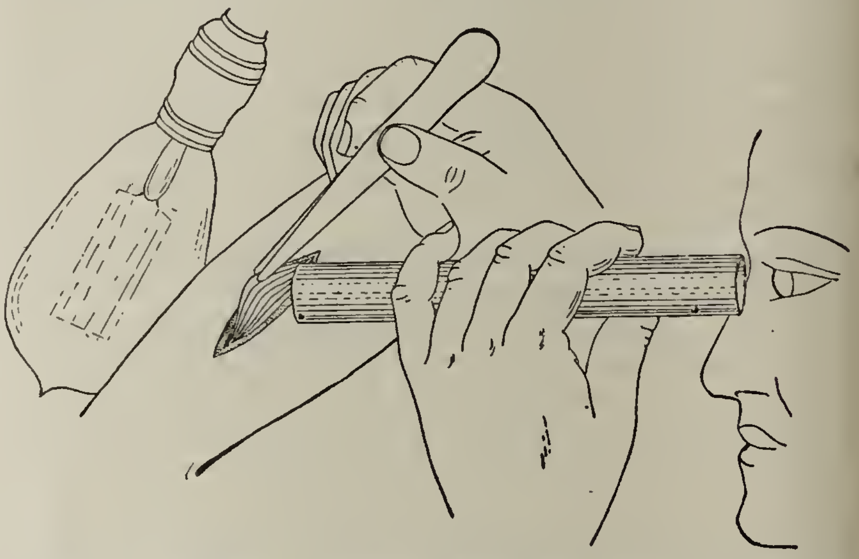
THE REMOVAL OF FOREIGN BODIES FROM THE TISSUES BY THE USE OF TRANSILLUMINATION

A. G. Bettman, M.D., Portland, Ore.

The difficulty often encountered in attempting to remove foreign bodies from the tissues is well known. Even when roentgenograms are at hand or when fluoroscopy has been done, there is frequently great difficulty in removing the foreign body.

By the use of transillumination, any foreign body that will cast a shadow may be located in a surprisingly short time.

Having cut down to the supposed location of the foreign body and having arranged the light, the operator looks through a tube at the tissues, which may be held up or otherwise suitably manipulated. A dark room is unnecessary. When once the foreign body is located, it is a simple matter to remove it. Reference to the illustration will make the method clear.



Method of locating and removing foreign bodies from the tissues by the use of transillumination.

The tube may be of any suitable material, brass or other metal or a darkened test tube; a roll of paper may be used in an emergency.

The angle at which the tube is used may be varied to meet conditions. Even deeply embedded material may be located frequently without the necessity of putting the end of the tube into the wound.

407 Medical Building.

HOW TO MAKE EVEN POOR ADHESIVE PLASTER ADHERE

A. L. Soresi, M.D., New York

During the war we were confronted with numerous compound exposed fractures that needed continuous traction, and traction was made exceedingly difficult in many cases for two reasons: The skin was badly inflamed, being traumatized in most cases so that the areas of healthy skin to which to stick the plaster were very scanty, and this was aggravated by the fact that some of the wounds, being badly infected, had an abundant secretion that would soak the plaster and diminish its sticking qualities. Also, the adhesive plaster was at times of very poor quality.

We resorted to a simple plan, which can be employed easily and conveniently in all cases requiring medication with adhesive plaster. We took the common rubber cement that is used in patching tires, diluted it in about ten parts of ether, and painted the area of skin on which we intended to apply the plaster with it and then applied the plaster in the usual manner, after having cleaned and dried the skin. Even the poorest plaster adhered immediately and remained adherent for a long time. If the secretion was very abundant, we painted with the same rubber solution the outside of the plaster after the plaster had been applied, so as to make the cloth waterproof by the application of a thin coat of rubber. Incidentally, it may be stated that the same rubber solution with ether has been applied to the skin in order to prepare it for operation, instead of tincture of iodin, with very satisfactory results.

The reason adhesive plaster adheres better if the skin is painted with a solution of rubber is that the solution of rubber and ether adheres strongly to the skin, and naturally the adhesive plaster will in its turn adhere firmly to the rubber that covers the skin.

47 East Fifty-Seventh Street.

A METHOD OF MOUNTING ANATOMIC AND PATHOLOGIC SPECIMENS IN GELATIN

Kelley Hale, M.D., Wilmington, Ohio

The method here described is one by means of which specimens may be mounted between glass plates of any desired thickness or any size, depending on the character of the specimens.

1. The plates of glass are separated by strips of glass of any desired thickness. The strips should be one-half inch wide for ordinary work. For small or larger specimens, narrower or wider strips should be used.

2. Strips with square ends are cut the desired length by employing a piece of glass, the width of which is exactly equal to the length of the strips desired. An ordinary glass cutter and a draftsman's right angle rule or triangle are all that are required.

3. The strips are broken by holding the piece of glass in the left hand with the cut line down; then with a few swift, sharp strokes of the reverse end of the glass cutter, the glass opposite the cut line is fractured, and the strip is easily removed. As many strips as are needed may be cut.

4. The strips are then attached to the margins of the glass plate by means of Canada balsam from which the volatile principles have been driven off by heat. Optical houses can provide this material in stick form. A burning set employed by storage battery men is very effective in attaching the glass strips. A strip should be left out at one end.

5. The specimen or specimens are then attached to the plate by means of warm gelatin, in any position desired. They are kept in a horizontal position until the gelatin sets; then the plate with the specimens is immersed in liquor formaldehydi in order to render the gelatin insoluble and thus prevent the slipping of the specimen when mounted in warm gelatin.

6. Next the exposed side of the specimens is covered by attaching a glass plate to the glass frame with the volatilized Canada balsam.

7. After this the mounting process is finished by setting the glass case, with its contained specimens, in warm water. Liquid gelatin of any desired consistency is poured by means of a funnel into the glass case through the end that has been left open. The warm water prevents the gelatin's setting until all of the spaces have been filled and the air bubbles forced to the top of the gelatin. If the colors of the specimens have been preserved by Kaiserling's method, a jelly is prepared by adding gelatin, ten parts by weight to the third solution in which the specimens ordinarily are kept: water, 900 c.c.; glycerin, 540 c.c.; sodium acetate, 270 gm. A 1 per cent. solution of phenol (carbolic acid) is used for a preservative.

The gelatin should stop at a line corresponding to the inner edge of the glass strip that will be sealed in the end after the gelatin has solidified, and the exposed portion rendered insoluble by immersion in liquor formaldehydi. With care the glass case can be rendered air tight by closing the end with a strip of glass and the Canada balsam (stick).

8. Specimens can be labeled in a very simple manner. After the specimen is attached to the glass as described, the glass cover is placed in accurate position. With pen and drawing ink, ruled lines are drawn to parts that are indicated in printed letters. The cover glass is then removed and the inside thoroughly cleansed and the ruled lines and names traced through the glass with water-proof ink. Fine lines can be made by using black silkworm gut attached to the inside by means of thick gelatin. The lines and names are much plainer after they have been transferred to the inside of the cover glass. This is true, too, of the specimens when viewed through glass. They are mounted as described before.

ADVANTAGES

1. This method does away with large containers, such as bottles and jars, for small specimens.

2. It is very difficult to see a specimen in a bottle, and it is impossible to study it without taking it out, which will often lead to destruction. With this method the specimen is immobilized between two glass plates, is plainly visible and can be carefully studied without danger of destruction.

3. This rendering delicate specimens, such as embryos and biologic material, indestructible makes this method a great time saver to the instructor who wishes to use such material for teaching purposes, as he can use this material year after year without fear of having it destroyed.

4. Preservation of cross-sections of embryos, developmental stages of fishes, tadpoles, sections of brain, injected, etc., can be had with the utmost satisfaction.

5. Specimens can be filed away classified like lantern slides.

6. By using plate glass, even sections of the adult human being can be preserved.

7. Specimens preserved in Kaiserling's solution can be mounted in this way and kept without losing their color.

8. This method can be used for displaying commercial products as well.

9. The specimens can be projected on the screen like any opaque objects, thus making it possible to use material at scientific meetings that could not be used otherwise.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

CULTURE-LAC.—A culture of *Bacillus bulgaricus* in whey marketed in bottles containing about 4 fluidounces.

Actions and Uses.—Culture-Lac is adapted both for internal and external use. See general article, Lactic Acid-Producing Organisms and Preparations (New and Nonofficial Remedies, 1919, p. 155).

Dosage.—From 4 to 8 Cc. (from 1 to 2 fluidrachms) in sweetened water one-half hour before meals. For infants 4 Cc. (1 fluidrachm) every two or three hours as directed by the physician. The date of issue is stated on each bottle.

Manufactured by the Geck Laboratory, New York. No U. S. patent. U. S. trademark applied for.

Maggots in the Ear.—A full blooded Indian, aged 21, came to my office one evening, stating that on the previous afternoon a fly lit on his cheek, that he brushed it away but knocked it into his ear, and it crawled into the auditory canal. He tried to dislodge it but was unable to do so, although he thinks it flew out again in a few minutes. At 3 o'clock the next morning he was awakened by a severe earache, and later his wife got fourteen maggots out of his ear. On examination I saw moving about—and easily extracted—some maggots with small forceps. I then washed out the ear with boric acid solution and obtained at least seventy-five more maggots. They were about 2 mm. in length, and quite thin. The patient had no further trouble.—Otto H. G. Rosenkranz, M.D., Hoopa, Calif.

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SATURDAY, SEPTEMBER 6, 1919

ANOXEMIA, OR OXYGEN DEFICIENCY, AND ABNORMAL RESPIRATION IN CERTAIN DISEASES

It commonly happens that when an important discovery is made in some field of science, as for example when a cause for a familiar phenomenon is ascertained, attention is at once diverted toward this to the exclusion of all other explanations or possible contributory causes. This has been the experience in the study of the regulation of respiration. Fifteen years ago the nervous mechanism of regulation, particularly the so-called Hering-Breuer reflex, was the predominant feature of all discussions of respiratory function. No sooner, however, had Haldane and Priestley[1] given their classic demonstration, in 1905, of the fundamental dominance of chemical factors in the control of breathing than they became the center of interest. Although in the earlier days the stimulus to augmented respiration was sought in a lack of oxygen, it has been recognized for some time, as the result of Haldane and Priestley's work, that ordinarily the respiration is regulated with the utmost delicacy in correspondence with the carbon dioxid tension of the blood passing through the respiratory center; and it is now the generally accepted opinion that what the center actually responds to is increased hydrogen ion concentration.

Largely owing to further investigations of Haldane and his English collaborators,[2] the effects of a shortage of oxygen are known as well as the response to accumulating carbon dioxid. Whereas the latter increases the depth of respiration and the pulmonary ventilation without essentially altering its rate, the effect of want of oxygen is to increase the rate rather than the depth. When the anoxemia, or deficiency of oxygen in the circulating medium, becomes pronounced, the respiratory center may give rise to a peculiar periodicity of the breathing. Finally, when the proportion of oxygen is still further reduced, this effect may be replaced by a very rapid, shallow type of respiration. Haldane, Meakins and Priestley point out that in such conditions a very dangerous vicious circle tends to be set up. Want of oxygen in the inspired air causes shallow breathing, which in turn intensifies the anoxemia. There are variations in the mode of response of different persons. In some, a lowered threshold for stimulation by carbonic acid results in a hyperpnea that tends to postpone the dangerous effects of oxygen want by the increased efficiency of the lung ventilation. The English investigators maintain that those who react to want of oxygen preeminently by shallow breathing will be more seriously affected under conditions of lowered barometric pressure than those whose reaction involves a great alteration of carbonic acid threshold. This, they add, would seem to afford an explanation of the much greater liability of some persons over others to mountain sickness and aviator's disease.

In war-time studies of patients suffering from what is frequently designated as "irritable heart," "soldiers' heart" or "effort syndrome," at the Duchess of Connaught's Red Cross Hospital, Haldane, Meakins and Priestley[3] have found that in addition to breathlessness on exertion, rapid pulse, exhaustion, fainting attacks and irritability, these sick invariably show a remarkable type of breathing. The respiration is rapid (from 20 to 60 or more per minute) and shallow (250 to 350 c.c. or thereabouts), and, on exertion, the rate increases very abnormally while the increase in depth is abnormally small. These effects are strictly comparable to the symptoms already described for intense anoxemia. The correspondence is confirmed by the observation at the army hospital that, when they are breathing oxygen, the patients are able to do an amount of muscular work that is quite beyond their powers when they breathe air only, and they state emphatically that the oxygen relieves their subjective symptoms.

Special experiments conducted by Haldane and his army collaborators have, indeed, shown that abnormal shallowness in breathing (such as is so often observed in cases of irritable heart) causes uneven ventilation of the lungs. This in turn brings about anoxemia and consequently periodic respiration and other symptoms, as has been explained. Abnormality of breathing of the shallow, quick type points to a deficiency of oxygen, just as deepening of respiration suggests accumulation of carbon dioxid in the organism. Whether the anoxemia is attributable to impairment of the circulation or to factors which prevent adequate lung ventilation, the indication for immediate relief is the same. Imperfect oxygenation may arise, as Haldane and others[3] have pointed out, in any condition such as bronchitis, asthma or emphysema, in which the even distribution of air in the lungs is hindered by local narrowing of bronchi or local impairment of the lung elasticity. They add that when shallow breathing, resulting as a secondary nervous effect of the anoxemia, is superposed on the mechanical hindrance to even distribution of air, the anoxemia must become much more serious. An entirely new light is thus thrown on the symptoms. In any event, oxygen therapy thus comes into a new prominence.

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[1] Haldane, J. S., and Priestley, J. G.: J. Physiol. **32**: 225, 1905.

[2] Haldane, J. S.; Meakins, J. C., and Priestley, J. G.: The Respiratory Response to Anoxemia, J. Physiol. **52**: 420 (May 20) 1919.

[3] Haldane J. S.; Meakins J. C., and Priestley, J. G.: The Effects of Shallow Breathing, J. Physiol. **52**: 433 (May 20) 1919.

ARTIFICIAL PNEUMOTHORAX

During the twenty-five centuries that have elapsed since Greek, and possibly Hindu, physicians cured tuberculosis by rest and a proper diet, at least two things of real value have been added to the treatment: more rest and more attention to the diet. The phthisiotherapeutist must be an optimist. Given suitable economic conditions that enable him to enforce his regimen of rest and diet, he can frequently make a favorable prognosis. Certainly few infectious diseases offer the body a greater opportunity for successful resistance than does tuberculosis. The wisdom of the policy of noninterference has become so generally recognized that we are today perhaps overcautious and too conservative in our judgment of procedures that savor of active intervention. Among these is the use of artificial pneumothorax. Developed as an adjunct of rest therapy, it offers, in its ideal utilization, the utmost that we can expect from absolute rest.

Aside from the reluctance to depart from the policy of letting well enough alone, there is an impression among many physicians that the procedure is dangerous. Untoward results, however, have been limited virtually to the cases in which too large amounts of gas have been injected at the early fillings. These larger amounts of gas have been given on the false assumption that if a little gas is good, more will be better. Forlanini himself, in his first publications, warned against the use of large amounts of gas. He limited the amount injected at any one sitting to from 100 to 300 c.c., but the early advocates of his method in this country (Murphy) and in Germany (Brauer) used larger amounts with admittedly spectacular but occasionally unfortunate results.

Murphy, however, laid great emphasis on the use of artificial pneumothorax earlier in the course of the disease. Then its effect might be assumed to be curative rather than merely palliative, as is so frequently the case when used in tuberculous patients in the utterly hopeless terminal stages of the disease. There is much to justify this position. Since pleural adhesions are the chief factor in the nonsuccess of the method, we should seek to apply the pneumothorax at a time when such adhesions are likely to be less frequent. They are found commonly enough in the routine postmortem examination of bodies that present otherwise normal lung findings. In cases of tuberculosis, in which the rich lymphatic network of the visceral pleura is so often the site of early extension, fibrinous and fibrous adhesions can be taken for granted in practically every case. The earlier the pneumothorax is attempted, the less likely it will be that adhesions will prove too extensive for favorable collapse therapy.

The end-results of treatment described by Beggs,[1] Minor,[2] Morris,[3] and Kendall and Alexander[4] seem to warrant definite confidence in the usefulness of the method in cases that are advancing despite the ordinary regimen of rest and diet, and perhaps also in early cases in which, because of unfavorable economic conditions, we cannot be assured that the patient will have the advantages (or at least the maximum benefit) that are possible under the usual hygienic and upbuilding methods.

It has been found in actual practice that the theoretical advantages of collapse therapy are fulfilled to a large degree, even when we cannot be certain that we have attained a complete result. The relative bloodlessness and the stasis of the lymph currents of the collapsed lung are followed by a lessening of the toxemia because of the decrease in the absorption of toxic material; the chances for dissemination of the infection are diminished; the rest accelerates cicatrization. To be weighed against these advantages is the possibility of activating a dormant focus of the opposite lung on which the entire task of ventilation is imposed. In hemorrhage, occasionally in lung abscess, and in some cases of bronchiectasis, ordinary contraindications must frequently be disregarded in view of the mechanical benefits of immediate compression and the relief thereby gained.

Artificial pneumothorax is today a relatively safe procedure. With gas injected under aseptic precautions, controlled by the roentgen ray and the manometer, and given in the small amounts insisted on by every conscientious worker, few complications need be feared. At present the method is seldom used except by the specialist in the tuberculosis field. The vast majority of tuberculous patients, however, are treated not by specialists but by the general practitioner, and there is no valid reason why a safe remedial measure should be withheld from the patient, who not infrequently is seen at a time when the pleural conditions are still favorable for the successful use of the pneumothorax.

If soldiers can be kept on active duty with a pneumothorax that is refilled at definite intervals, as they have been in the French army, there is no reason why, in times of peace, we cannot keep many patients in active, normal life and gaining a livelihood at their usual occupation. Under such conditions we are more likely, also, to keep the lung compressed for a longer period of time than if the patient is treated for a relatively short term at some institution and returns then to his former environment without further supervision. Keeping in mind the fact that collapse therapy is really rest therapy, Morris has well emphasized that it is much safer to keep a lung compressed too long than not long enough.

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[1] Beggs, W. N.: Induced Pneumothorax in Pulmonary Tuberculosis, Am. Rev. Tuberc. **1**: 509 (Nov.) 1917.

[2] Minor, C. L.: Deductions from Four and One-Half Years' Use of Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis, Am. Rev. Tuberc. **1**: 522 (Nov.) 1917.

[3] Morris, Everett: Induced Pneumothorax: Its Use in the Treatment of Pulmonary Tuberculosis, with Report of Two Hundred and Two Cases, Am. Rev. Tuberc. **2**: 485 (Oct.) 1918.

[4] Kendall, W. B., and Alexander, C. C.: Clinical Report on One Hundred and Thirty-One Cases Treated by Artificial Pneumothorax, Am. Rev. Tuberc. **2**: 79 (April) 1918.

NEW LIGHT ON PULMONARY EDEMA FROM STUDY OF THE LETHAL WAR GASES

The lethal gases about which so much has been heard since they were first introduced into modern warfare in an extensive way are respiratory irritants. They produce a pulmonary edema, along with congestion and a series of symptoms that are either caused by the pulmonary condition or are concomitant with it. Obviously, the rational treatment of gas poisoning depends on a clear understanding of the factors that are concerned in these varied symptoms; and consequently much attention was devoted by the scientists of the allied governments during the war to unraveling the mysteries of the pathology of gas poisoning. In his Harvey Lecture, Underhill[1] has disclosed new facts of prominent interest elicited through the extensive investigations of the Chemical Warfare Service of the United States Army. According to these, in addition to pulmonary edema, "gassing has a definite influence on the respiration, heart beat, temperature, the concentration of the blood, the water content of the lungs and other tissues, the chlorid content of the blood and tissues with resulting changes in chlorid excretion by way of the kidneys, the number of the red and white cells of the blood, and the respiratory function of the blood, leading to dyspnea and partial asphyxia. Acidosis is present at times, and there is a distinct influence on protein metabolism."

Since little or none of the harmful gas is absorbed, as a rule, the detrimental influence, Underhill insists, must be explained by an interpretation of the effects induced in the respiratory tract. Novel and distinct are the changes in the concentration of the blood. Sooner or later the latter is increased along with the development of the edema which induces the withdrawal of fluid from the circulating medium and its transfer to the lungs. The decrease in the blood volume helps to explain some features of the impaired circulation occasionally noted.

Heretofore it has been tacitly assumed that death from gas poisoning is due directly to the pulmonary edema. The experts of the Chemical Warfare Service have, however, taken exception to this view in some measure. Underhill[1] has performed a distinct service in calling attention to the blood concentration as more likely to produce death than is the presence of fluid in the lungs. Obviously, the edema is the cause of the blood concentration and therefore is ultimately responsible for the untoward consequences. However, the asphyxiating effects of the fluid in the lungs can be overcome by the administration of oxygen until the blood is arterialized, yet death intervenes as usual. On the other hand, it has been shown that when the blood is restored to a more normal concentration by infusion of physiologic sodium chlorid solution, the gassed individual may survive even though an extensive edema exists.

The fact that the control of the concentration of the blood, so that it becomes restored to something approaching its normal condition, plays a determining part in the chances for recovery, in cases in which pulmonary edema exists, deserves a wider recognition. It is one of the lessons of war-time scientific medical research. Administration of oxygen may supplement the value of the infusion of physiologic sodium chlorid solution by preventing anoxemia. Underhill has pointed out that oxygen treatment alone does not strike at the fundamental difficulty as it was once supposed to do. Oxygen starvation is induced by an inadequate circulation for which concentrated blood may be responsible quite as well as poor ventilation through an edematous lung. Hence, in such conditions, measures must be taken to restore the blood to a concentration at which life is possible.

Sometimes blood dilution occurs in the first stage of poisoning with gases, as happens with phosgen. In these cases, venesection is indicated. The composition of the blood must never be lost sight of, since it seems to furnish the key to successful remedial therapy in which infusion and oxygen administration may have a significant part.

BENZYL BENZOATE: THE STORY OF A PROMISING RESEARCH IN THERAPY

So many of the procedures still employed in present-day therapy are veiled in the mysteries of traditional effects or empiric judgments that there is fascination in the story of any drug or remedial measure that has a logical demonstration of pharmacologic potency in its history. Although the benzyl esters have been known only a short time in medicine, the possibilities of their usefulness in a rational way in certain fields of practice is becoming apparent. Benzyl benzoate has already been accepted for publication in New and Nonofficial Remedies, of the Council on Pharmacy and Chemistry. The suggestion of the applicability of the benzyl esters in therapy arose from Macht's studies of the opium alkaloids. These investigations disclosed the fact that whereas opium and its alkaloids exert their most marked effects on the central nervous system, they also have unmistakable influence on peripheral structures, notably the smooth muscle organs.

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[1] Underhill, F. P.: The Physiology and Experimental Treatment of Poisoning with the Lethal War Gases, Arch. Int. Med. **23**: 753 (June) 1915.

A systematic examination of the individual opium alkaloids—the logical sequence of the observations just mentioned—demonstrated that these chemical substances can be divided into two classes: the pyridinphenanthrene group, of which morphin is the prominent representative, and the benzyl-isoquinolin group, to which papaverin belongs. The former was found to stimulate contractions of unstriped muscle, whereas the papaverin-like alkaloids inhibit the contractions and lower the muscle forms.

Macht and his co-workers did not stop with the proof of these differentiating effects. The difference in chemical structure between the two antagonistic types of opium alkaloids suggested the search for simpler, non-narcotic compounds which might still act in an inhibitory manner on smooth musculature. As a result, the discovery that benzyl benzoate and benzyl acetate behave like papaverin toward the unstriped muscles was made.

The low toxicity of these drugs, combined with their peculiar pharmacologic action, suggested the possibility of usefulness in conditions under which spasm of smooth muscle must be counteracted. Ureteral colic and excessive intestinal peristalsis have already been shown to yield to the tonus-lowering, antispasmodic effects of both compounds. Something of the history of the studies in this field has been recorded in a recent number of The Journal.[1] In this research, the laboratory and the clinic have combined to institute a step in therapeutic progress that promises beneficent results.

Current Comment

SOME ASPECTS OF THE HYPOPHYSIS AND SUGAR METABOLISM

An abundance of experimental and clinical evidence tends to indicate that the pituitary structures may in some way be concerned with carbohydrate metabolism in the body. One may recall the asserted increased tolerance for carbohydrates in well marked cases of acromegaly and in persons suffering from pituitary tumors. On the other hand, stimulation of the hypophysis in animals causes an unmistakable hyperglycemia. What happens in these varied circumstances remains to be elucidated. Some investigators have postulated the liberation of a hormone from the hypophysis when it is stimulated; and this hypothetic chemical product has been held responsible for the metabolic effects in respect to sugar utilization, just as pituitary extracts are known to have effects on muscular structures. Others have regarded the changes in the level of blood sugar after pituitary involvement as the expression of nervous impulses. As one investigator has expressed it: "It appears that excitation of the hypophysis has originated a stimulus which is directed peripheralward by nervous connections and falls on the splanchnic-adrenal-hepatic mechanism controlling the ultimate partition of glycogen." Keeton and Becht[1] of Chicago have noted that hyperglycemia commonly associated with pituitary stimulation is absent after transsection of the spinal cord and after section of the splanchnics. Hence the view is favored that, in this case at least, the pathway of relation between hypophysis and carbohydrate mechanism is a nervous one through the splanchnic nerves to their terminations in the suprarenals and the liver. If a hormone is liberated by stimulation of the gland, they add, it must have a central action; otherwise nerve section would not prevent it from reaching the sugar-transforming organs. The Chicago investigators also believe that the physiologic rôle played by the hypophysis in carbohydrate metabolism is concerned, not with the transformation of glycogen to sugar, that is, glycogenolysis, but more probably with the utilization of sugar by the organism.

THE RELATION OF INSECTS TO DISEASE

Demonstration of the share of certain insects in the causation of disease constitutes one of the most brilliant chapters in the unparalleled record of medical progress made since 1870. Conjecture has given way to assurance, supposition to verified fact. Most investigators probably believe that the greatest triumphs in this field have already been accomplished, and that the future hardly holds in store for us very many, if any, more such momentous discoveries as the connection between the mosquito and malaria and yellow fever, the flea and the plague, the louse and typhus. It is perhaps well to bear in mind, however, as W. D. Pierce has recently reminded us,[2] that there are still numerous minor problems to be worked out and that cooperation and organization are especially desirable in this field. Although somewhat formidable in manner and matter, the sequence of "necessary steps" in Pierce's program contains an interesting statement of the point of view of certain entomologists. The emphasis laid on proper methods of handling experimental insects is certainly desirable. His remarks on the importance of cooperation by specialists in different fields will doubtless receive hearty approval. Some of his other suggestions seem rather cumbrous and inapplicable in the present state of our knowledge: such, for instance, as the proposal that "one might in time of an epidemic start with insects visiting excreta and attempt to ascertain whether the organism of the disease at that time epidemic occurs in any of the insects." Few investigators will maintain that the most important advances in our knowledge of insect-borne diseases have been due to procedures of this character. It is hard to believe that the author has given serious consideration to his statement that "the majority of the investigations which have been seriously undertaken to determine invertebrate carriers have been conducted on other continents than ours." We need only remind ourselves of the pioneer work of Theobald Smith on Texas fever, the memorable discovery of the rôle of the mosquito in yellow fever, the work of Ricketts and others on typhus and Rocky Mountain spotted fever, and the recent work of the U. S. Public Health Service on malaria carriers, to see that such an assertion is hardly an adequate recognition of the part played by American men of science in this field.

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[1] Macht, D. I.: A Therapeutic Study, Pharmacologic and Clinical, of Benzyl Benzoate, J. A. M. A. 73: 599 (Aug. 23) 1919. Litzenberg, J. C.: The Use of Benzyl Benzoate in Dysmenorrhea, ibid., p. 601.

[1] Keeton, R. W., and Becht, F. C.: The Relation of Hypophysis to Glycogenolysis, Am. J. Physiol. 49: 248 (July 1) 1919.

[2] Pierce, W. D.: Necessary Steps in Any Attempt to Prove Insect Transmission as Causation of Disease, Science, Aug. 8, 1919, p. 125.

DID YOU ORDER A HUNDRED-DOLLAR REBUILT FORD?

Physicians in the Middle West have received a circular letter from the "Anchor Manufacturing Company" of New York City, signed "per E. Maloney." The letter declares that the concern is going to sell, to a limited number of "professional men," a "fine lot of Ford automobiles" that it has purchased from the U. S. government. They are used machines, "all 1917 or 1918 models," but have been thoroughly overhauled "by expert mechanics who have had their training in one of the Ford plants." The price asked is $100, freight prepaid! Fifty dollars must be sent with order ("Liberty Bonds accepted at full face value") and the balance is to be paid after the car is delivered. All worn and defective parts of these cars have been replaced, the upholstering has been renewed, the car repainted, and refinished from top to bottom, fully equipped with new antiskid tires, new inner tubes, side curtains, tools and—an artistic touch—the purchaser would also get, without extra charge, a "manual on care of car with full instructions on driving." To lend an air of verisimilitude to what might otherwise seem to be a bald and unconvincing tale, Mr. Maloney stated that his company was, as an advertising proposition, "going to place twenty cars in that number of communities to which we can refer prospective customers." Their reason for picking out—or should we say "picking on"—doctors was that a "professional man knows and is known by more persons in his locality than any other citizen." The Anchor Manufacturing Company's stationery was somewhat imposing, being, in fact, a rather skilful imitation lithographed letter-head. The company gave as a reference the Chatham and Phenix National Bank of the City of New York, but insisted that all remittances be made payable to the Anchor Manufacturing Company. An Iowa physician, however, was wise; he decided to test out the proposition and sent his check for $50 to the Chatham and Phenix National Bank, telling that institution to forward his letter, money and order to the concern if the company was responsible. In a short time the doctor got his check back with a statement by the Chatham and Phenix National Bank to this effect:

> "The Anchor Manufacturing Company referred to us without permission and we have nothing on file to justify an opinion."

After receiving letters from several physicians, indicating that the scheme was being extensively worked, The Journal telegraphed its New York representative to look into the matter. He reports that, according to the renting office of the building in which the "Anchor Manufacturing Company" had desk room, Mr. Maloney had left somewhat hurriedly four days previously, just about an hour ahead of a call from the New York Police Department. Further, it seems that numerous telegrams and long distance messages have been coming in recently to the renting office of 51 East Forty-Second Street, inquiring about the standing of the Anchor Manufacturing Company, all of which may indicate that a number of doctors are "out" a fifty dollar Liberty Bond or a check for that amount. To the shrewd business man the proposition made by the "Anchor Manufacturing Company" is preposterous on its face—but we members of the medical profession are not shrewd business men. Never has there been a time in which the get-rich-quick promoters have been more active than today. It behooves physicians to examine with more than ordinary care the proposals whereby they are offered returns out of all proportion to the investment required.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending August 29, there were 7,535 officers in the Medical Corps, a decrease of 631 from the previous week. The Medical Reserve Corps contained 3,310. The total number of physicians discharged since the beginning of the war is 24,580.

Bulletin for Air Medical Service

Authority to publish a *Bulletin of the Air Medical Service* is asked of Congress by the Secretary of War in a recent executive communication. In requesting this authority the Secretary said: "The Director of the Air Service states that as a result of the studies and experiments made by the medical officers on duty with the Air Service, especially those at the Medical Research Laboratory, much valuable information is now ready for publication. It is necessary that medical officers attached to the air service be kept in constant touch with developments in this new and important phase of aviation. Developments are so rapid and so much information is coming in that it is not considered in the best interest of the service to embody such information in a book, as such a book would require frequent revision." The publication would be published quarterly.

Investigation of Walter Reed Hospital Asked

A resolution directing the immediate investigation of Walter Reed Hospital and St. Elizabeth's Hospital, both at Washington, D. C., operated under the Medical Department of the Army, has been introduced by Congressman Charles J. Thompson of Ohio, in the House of Representatives. The resolution recites that complaints as to the conduct of these hospitals and of great cruelty therein have been made by those confined therein. The resolution has been referred to Select Committee on Expenditures of the House for consideration.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and C., colonel.

ALABAMA

Bessemer—Ragsdale, V. H. (C.)
Birmingham — Thornton, W. L. (C.)
Childersburg—Sherer, M. E. (C.)
East Tallassee—Coker, R. H. (C.)
Lineville—Barfield, J. M. (C.)
Mobile—Padgett, W. A. (M.)
Opelika—Jenkins, J. F. (C.)
Pratt City—Heath, M. J. (L.)
Springville—Bradford, D. C. (C.)
Tuscaloosa — Somerville, J. H. (M.)

ARIZONA

Bisbee—Herendeen, R. E. (C.)

ARKANSAS

Gould—Clark, J. M. (C.)
Huttig—Jarrell, F. (L.)
Little Rock—Sheets, R. P. (C.)
Widener—Winter, W. A. (C.)

CALIFORNIA

Berkeley—Foster, H. E. (M.)
Culver City—Jones, R. M. (C.)
Los Angeles — Freedman, C. E. (M.)
  Hull, F. M. (C.)
  Irwin, J. C. (C.)
  Lowman, C. L. (C.)
  McLaughlin, J. H. (C.)

San Francisco — Cadwallader, R. (M.)
Nolan, T. J. (L.)
Tracy—Pinniger, S. E. D. (M.)

COLORADO

Cripple Creek — Brinton, W. T. (C.)
Denver—Lewis, W. B. (C.)
Orsborn, G. E. (M.)
Englewood—Grieger, H. (C.)

CONNECTICUT

Hartford—Wiedman, O. G. (M.)
Yergason, R. M. (C.)
New Haven—Logie, A. J. (C.)
O'Brien, T. A. (L.)
Noroton Heights — Hoyt, H. E. (C.)
South Manchester—Allen, E. B. (C.)
Winsted—Kelsey, E. R. (C.)

DELAWARE

Wilmington—Jenkin, B. A. (C.)

FLORIDA

Clermont—Chiles, J. H. (C.)
Daytona—Howe, R. (M.)
Gainesville—Buck, W. J. (L. C.)
Jacksonville — Richardson, S. A. (M.)
Milton—Johnston, Z. V. (C.)
Trilby—Byrd, H. O. (C.)

GEORGIA

Adel—Hutchinson, L. (C.)
Augusta—Parkerson, I. J. (L.)
Box Springs—White, A. W. (L.)
Bullochville — McDonald, R. H. (C.)
Calhoun—Starr, T. (L.)
Rome—Mull, J. H. (L.)

ILLINOIS

Chicago—Axelson, J. M. (C.)
Brodsky, L. L. (C.)
Davis, N. S., 3d (C.)
Hogan, T. A. (C.)
Jordan, G. T. (C.)
Latimer, M. J. (L.)
Schlageter, E. A. (C.)
Solomon, M. (L.)
Turgasen, F. E. (C.)
Walker, G. R. (L.)
Evanston—Diamond, P. T. (L.)
Jacksonville—Smith, B. (L.)
Speer—Wilmot, C. M. (C.)
Tower Hill—Martin, F. A. (M.)
Wenona—Gillespie, E. S. (C.)

INDIANA

Argos—Kelly, F. H. (C.)
Indianapolis—Orders, C. E. (C.)
Smith, R. L. (L.)
Stern, N. (L.)
Mount Vernon—Wilson, G. W. (C.)
Rockville—Swope, R. E. (L.)
Whiting—Dewey, E. L. (C.)

IOWA

Clinton—Hallinan, E. L. (C.)
East Peru—Craven, L. L. (C.)
Fort Madison—Sallander, F. W. (C.)
Grinnell—Evans, E. S. (C.)
Iowa City—Davis, A. C. (L.)
Van Epps, C. (M.)
Newton—Wood, R. W. (C.)
Perry—Ross, A. J., Jr. (L.)
West Union—King, T. A. (C.)

KANSAS

Clay Center—Martin, E. N. (M.)
La Crosse—Baker, J. H. (L.)
Liberal—Knisely, A. L. (C.)
Wichita—Whitaker, W. O. (L.)

LOUISIANA

Marthasville—Law, C. B. (L.)
New Orleans—Lopez, L. V. J. (C.)
Wolf, M. (L.)
Shreveport—Ramsey, G. A. (C.)
Scofield, H. W. (L.)

MAINE

Bangor—Young, W. J. (C.)
Biddeford—Dolloff, D. E. (C.)
Lincoln—Goodwin, H. M. (C.)
Norway—Allen, H. M. (C.)

MARYLAND

Baltimore—Branch, J. R. B. (C.)
Huck, J. G. (L.)
Novak, E. (L.)
Raskin, M. (L.)
Easton—Travers, P. L. (C.)
Federalsburg—Brooks, F. T. (L.)
Mardcla Springs—Mann, H. R. (L.)
Owing Mills—Reitzel, E. C. (L.)
Towsen—Bridges, W. A. (L.)

MASSACHUSETTS

Boston—Bishop, F. L. (C.)
Dole, K. L. (C.)
Drury, D. W. (M.)
Ely, T. W. (L.)
Keenan, G. F. (Col.)
Lord, R. M. (L.)
Stevens, F. A. (L.)
Brookline—Surls, J. K. (C.)
Cambridge—Jouett, F. R. (M.)
East Longmeadow—Curtis, H. F. (L.)
Fall River—LaLiberte, E. J. (L.)
Lawrence—Hilton, J. J. (L.)
Lowell—Doucet, C. S. (C.)
Lovesey, B. E. (L.)
Ryan, W. F. (C.)
Newburyport—Snow, F. W. (L. C.)
North Attleboro — Ward, E. S. (M.)
Quincy—Harkins, W. J. (C.)
Somerville—Bell, R. D. (C.)
Springfield—Weiser, W. R. (L. C.)
Tewksbury—Coburn, H. R. (C.)
Waltham—Fraim, I. W. (C.)
West Quincy—Ash, R. M. (C.)
Worcester—Watt, G. (C.)

MICHIGAN

Calumet—Barton, J. F. (L.)
Coloma—Barnum, S. V. (C.)
Detroit—Gurney, S. C. (L. C.)
Grand Rapids—Toms, R. E. (C.)

MINNESOTA

Deer Creek—Roskilly, G. C. (L.)
Minneapolis—Noice, R. R. (C.)
Ward, P. A. (L.)
South Minneapolis — Shewbrooks, D. M. (M.)

MISSISSIPPI

Natchez—Chamberlain, C. T. (M.)

MISSOURI

Hawk Point — DeVereaux, J. J. (C.)
Jacksonville—January, C. C. (L.)
Kansas City—Hess, H. L. (C.)
Kirkwood—Wyer, H. G. (M.)
LaClede—Caldwell, J. C. (L.)
Sheldon—James, F. (L.)
Springfield—Box, E. M. (C.)
St. Louis—Burst, E. A. (L.)
Gregg, C. P. (L.)
Haas, F. F. (L.)
Lawrence, W. S. (M.)
Pim, L. T. (L. C.)
Wennerman, S. F. (L.)
Young, N. A. (C.)

MONTANA

Bynum—Dixon, E. F. (C.)

NEBRASKA

Hastings—Blackman, J. R. (C.)

NEW HAMPSHIRE

Concord—Hill, L. R. (C.)
Howard, A. B. (L.)
Lebanon—Hazen, H. B. (L.)

NEW JERSEY

Jersey City—Barishaw, S. (L.)
Millville—Sheppard, F. R. (M.)
Newark—Quinby, W. O. (M.)
Rich, C. (L.)
Plainfield—Corbusier, H. D. (M.)

NEW YORK

Alfred—Main, D. C. (C.)
Brooklyn—Embree, H. (L.)
Goodrich, C. H. (C.)
Greenwood, A. E. (L.)
Kemp, H. W. (L.)
L'Episcopo. J. B. (L.)
Phillips, W. G., Jr. (C.)
Buffalo—Barone, P. J. (L.)
Stein, U. B. (C.)
Clifton Springs—Earhart, S. D. (L.)
Flushing—Teas, J. C. (C.)
Long Island City—Jones, B. L. (L.)
New York—Altschul, A. (L.)
Benson, B. B. (C.)
Brooks, L. (L.)
Durham, H. A. (M.)
Effler, L. J. R. (C.)
Fisk, J. C. (C.)
Kahn, S. (L.)
Karmiohl, L. (C.)
Katz, H. (C.)
New York—Lynch, J. A. (L.)
Richards, J. S. (C.)
Rosenfeld, M. (L.)
Saunders, H. C. (C.)
Stern, M. E. (L.)
Walsh, E. F. (C.)
Wolff, S. C. (L.)
Saranac Lake — Packard, E. N., Jr. (M.)
Schenectady—Krida, A. (C.)
Syracuse—Wetherell, F. S. (L.)
Watertown — Pinsoneault, W. D. (C.)
West Coxsakie — Schoonmaker, J. I. (L.)

NORTH CAROLINA

Candler—Rich, J. C. (L.)
Canton—Davis, F. M. (C.)
Oxford—Hays, B. K. (C.)

NORTH DAKOTA

Oberon—Tompkins, C. R. (L.)
University—Cox, J. W. (C.)

OHIO

Akron—Ulrich, J. M. (C.)
Cincinnati—Matuska, A. (C.)
Cleveland—Hitchings, F. W. (C.)
Rosenberg, D. V. (L.)
Columbus—Huffer, E. (L.)
Lima—Pfeiffer, A. (M.)
McComb—Todd, C. D. (C.)
Swanton—Cosgrove, L. C. (C.)
Toledo—Figley, K. D. (C.)
Titus, F. C. (L.)
Wooster—Foster, T. (C.)

OKLAHOMA

Alderson—Foster, M. H. (L.)
Altus—Fox, R. H. (C.)
Bartlesville—Athey, J. V. (C.)
Minco—Hume, R. R. (C.)
Sand Springs—Calhoun, C. E. (L.)
Tulsa—Brodie, W. W. (C.)
Woodward—Davis, C. E. (C.)

OREGON

Portland—James, R. F. (L.)

PENNSYLVANIA

Allentown—Deibert, G. S. (C.)
Clarendon—Clancy, W. P. (C.)
East Brady—Kelsea, W. H. (L.)
Lancaster—Appel, T. B. (L. C.)
Olyphant—Bendick, J. J. (C.)
Philadelphia—Bailey, W. H. (M.)
Chambers, F. S. (L.)
Crampton, G. S. (L. C.)
Ludy, J. B. (M.)
Murphy, D. P. (L.)
Randall, E., Jr. (L.)
Stees, H. A. (L.)
Philadelphia—White, C. A. (C.)
Yount, C. C. (M.)
Pittsburgh—Kipp, H. A. (L.)
Stifel, J. L. (L.)
Weimer, E. S. (L.)
Warren—Pond, M. J. (C.)

RHODE ISLAND

Newport—Conway, F. P. (C.)
Pawtucket—Durkin, P. A. (L.)
Wickford—Manning, P. J. (C.)

SOUTH CAROLINA

Bishopville—Corbctt, L. W. (L.)
Charleston—Price, W. H. (L.)
Wilson, L. A. (C.)
Florence—McMillan, L. M. (C.)
Greenville—Neves, C. A. (M.)
Honea Path—Abercrombie, E. (C.)
York—Hunter, P. W. (C.)

SOUTH DAKOTA

Webster—Fiksdal, M. J. (C.)

TENNESSEE

Block—Johnson, S. D. (C.)
Henning—Barfield, J. J. (L.)
Lenoir City—Hall, G. M. (L.)
Lucy—Bolton, L. T. (C.)
Memphis—Keller, L. L. (L.)
Williamsport — Anderson, H. O. (L.)

TEXAS

Beaumont—Pate, S. J. (L.)
Dallas—Carr, M. M. (C.)
Estelline—Clark, V. V. (M.)
Fort Worth—Bozeman, J. D. (C.)
Galveston—Spiller, W. F. (C.)
Gonzales—Harrell, T. H. (L. C.)
Houston—Shaw, W. N. (L.)
Iago—Wyche, G. G. (L.)
Sanderson—Stansell, I. (C.)

UTAH

Salt Lake City—McHugh, F. M. (C.)

VIRGINIA

Forest Depot—Rice, B. A. (L.)
Norfolk—Driver, W. E. (M.)

WASHINGTON

Everett—Purdy, J. S. (C.)

WEST VIRGINIA

Huntington—Prichard, K. C. (C.)
Weston—Lawson, A. F. (C.)

WISCONSIN

Holcombe—Rodecker, R. C. (C.)
Montfort—Sylvester, H. (C.)

WYOMING

Sheridan—Hamilton, O. P. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

Los Angeles—Murrictta, A. J.
San Diego—Clark, V. G.

COLORADO

Hugo—Lieber. C.

DISTRICT OF COLUMBIA

Washington—Tibbets, A. P.

GEORGIA

Milledgeville—Roberts, M. H.

ILLINOIS

Clinton—Bradbury, W. E.
Winfield—Elsen, M.

IOWA

Blairstown—Rieke, A. G.

KANSAS

Topeka—Bresette, L. L.

LOUISIANA

New Orleans—Hebert, A. F.

MASSACHUSETTS

Boston—Cline, S.
Saphirstein, H.
Cambridge—Hanlon, M. P.
Worcester—Bridgwood, D.

MICHIGAN

Detroit—Tainter, R.

MINNESOTA

Litchfield—Robertson, C. J.

NEW JERSEY

Newark—Crecca, W. D.
Man, A. E.
Perth Amboy—Hanson, E. K.

NEW YORK

Indian Lake—Fish, G.
New York—Cauley, J. H.
Munkittrick, M. T.
Otisville—Rathbun, W. L.
Yonkers—McGillian, E. F. M.

NORTH CAROLINA

Mount Olive—Knowles, D. L.

OHIO

Albany—Webb. C. C.
Toledo—Berger, C. A.
Muenzer, J. A.

OREGON

Portland—Strong, H. L.

PENNSYLVANIA

Lititz—Yoder, M. H.
Philadelphia—Parish, B. D.
Stull, C. D.

RHODE ISLAND

Edgewood—Babington, V. E.

SOUTH CAROLINA

Charleston—Sparkman, E. H.

TEXAS

Poolville—Moose, R. M.

VIRGINIA

Richmond—Graham, C. F.
Roanoke—Justis, L. H.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Hospital News.—The Eliza Coffee Memorial Hospital, built by the citizens of Florence, was opened to receive patients, August 8. The institution will accommodate thirty-two patients, and will be in charge of Dr. Luther T. Young.——The New Tennessee Coal, Iron and Railway Company Hospital, Fairfield, is practically ready for occupancy. This hospital has been built for the employees of the company and their families, and has a capacity of 350. Dr. Lloyd Noland, Birmingham, chief surgeon of the company, is in charge of the institution.

Personal.—Lieut.-Col. Seale Harris, Birmingham, is at present ill in the Walter Reed Hospital, Washington, D. C., with phlebitis of one of the veins of the foot. He will probably return to Birmingham about October 1.——Dr. Cecil D. Gaston, municipal physician of Birmingham, has been appointed assistant surgeon in charge of the Norwood Infirmary.——Dr. William M. Faulk, Tuscaloosa, has been appointed assistant superintendent of the Alabama Insane Hospital.——Dr. George H. Searcy has been appointed local surgeon of the Alabama Great Southern Railway; Dr. Thomas H. Patton, assistant surgeon of the Louisville and Nashville Railway, and Dr. Maxwell Moody, local surgeon of the Mobile and Ohio Railway, all at Tuscaloosa.——Dr. T. Brannon Hubbard has resigned as physician in charge of the Social Disease Clinic of Montgomery, and has taken charge of the Highland Park Sanitarium; Dr. James R. Haigler, Montgomery, has been appointed his successor.

CALIFORNIA

Personal.—Dr. George W. Corner, III, Berkeley, has resigned as professor of medicine in the University of California, to accept an assistant professorship in his alma mater, Johns Hopkins University, Baltimore.——Dr. Harold W. Wright, San Francisco, has recently been demobilized from service after two years in the neuropsychiatric division.

New Appointments and Promotions at University.—The following appointments and promotions have recently been made at Stanford University Medical School for the year of 1918-1919.

Medicine: M. J. Desire, lecturer on physical therapy; G. E. Farrington, lecturer on speech defects; H. C. McClenahan, lecturer on medicine (neurology); Peter H. Luttrell, clinical instructor in medicine; Nathalie A. Selling, clinical instructor in medicine (electrotherapy).

Obstetrics and Gynecology: Frank B. Carpenter, lecturer on gynecology; William E. Stevens, lecturer on urology.

Surgery: Henry A. Brown, clinical instructor in surgery (ophthalmology); Roderic P. O'Connor, clinical instructor in surgery; Sterling Bunnell, lecturer on surgery; George W. Hartman, lecturer in genito-urinary surgery; Henry A. L. Hyfkogel, lecturer on surgery; Cullen F. Welty, lecturer on surgery (otology, rhinology, laryngology); Burt S. Stevens, lecturer on surgery; Alfred J. Zobel, lecturer on proctology.

Assistants—Medicine: Clement H. Arnold, assistant in medicine; John A. Duncan, assistant in medicine (dermatology); Norbert J. Gottbrath, assistant in medicine (neurology); Harry Spiro, assistant in medicine; Wiliam E. Smith, assistant in medicine.

Obstetrics and gynecology: Frank B. Galbraith, assistant in obstetrics and gynecology.

Surgery: H. W. Dudley, assistant in surgery (ophthalmology); Samuel N. Jacobs, assistant lecturer in surgery; Francis Raynes, assistant in surgery; Joseph D. Reeng, assistant in surgery (genito-urinary); John L. Campbell, clinic dentist.

Promotions: Walter W. Boardman, from assistant professor to associate professor of medicine (actinography); George D. Barnett, from instructor to assistant clinical professor of medicine; William R. P. Clark, from clinical instructor to assistant clinical professor of medicine (tuberculosis); Milicent M. A. Cosgrave, from clinical instructor to assistant clinical professor of medicine (pediatrics); M. Monica Donovan, from assistant to instructor in medicine (actinography); Ross W. Harbaugh, from assistant to clinical instructor in surgery; Maude N. Haven, from asistant to clinical instructor in medicine; Leo Eloesser from assistant clinical professor to associate clinical professor of surgery; Thomas G. Inman, from clinical instructor to assistant clinical professor of medicine (neurology); William Kenney, from assistant to clinical instructor in medicine (neurology); Lester O. Kimberlin, from assistant to clinical instructor in surgery; Harry L. Langnecker, from clinical instructor to assistant clinical professor of surgery (orthopedics); Mary C. Layman, from assistant to clinical instructor in medicine (pediatrics); Henry G. Mehrtens, from clinical instructor to assistant clinical professor of medicine (neurology); Philip H. Pierson, from assistant to clinical instructor in medicine (tuberculosis); Jay Marion Read, from assistant to clinical instructor in medicine; Alfred C. Reed, from clinical instructor to assistant clinical professor of medicine; Karl L. Schaupp, from assistant to clinical instructor in obstetrics and gynecology; Otis A. Sharpe, from assistant to clinical instructor in surgery (ophthalmology); Roland B. Tupper, from clinical instructor to assistant clinical professor of medicine; Jean R. Oliver, associate professor of pathology.

DISTRICT OF COLUMBIA

Commissioners of District to Have Increased Public Health Powers.—A bill to enlarge the powers of the commissioners of the District of Columbia relative to public health affairs has been introduced in the House by Congressman Carl E. Mapes, chairman of the House District Committee. The measure empowers the district commissioners to make and enforce such regulations as they may deem proper from time to time to prevent the spread of contagious, communicable and infectious diseases, which regulations may authorize compulsory reports and testimony in court by physicians and surgeons and by superintendents of public hospitals and managers of private hospitals and the examination of persons suffering from such diseases. Provision is made for proper publicity of new regulations. The measure is H. R. 8656 and has been referred to the Committee on the District of Columbia for action. It is indorsed by the commissioners of the district.

FLORIDA

Personal.—Lester J. Efird, Lieut.-Col., M. C., U. S. Army, Tampa, has returned after ten months of overseas service, during which he was in command of a base hospital at Nantes.

Board Adopts Retrenchment Policy.—The state board of health, at its meeting in Jacksonville, August 7, adopted a policy of retrenchment which it believes will enable it to accomplish the widest and most effective service. The staff of district health officers was cut in half, from eight to four, and the state was redistricted in accordance with the congressional districts. The board intends to concentrate much of its energies on venereal disease problems, and open free clinics at labor centers throughout the state. The child welfare and venereal disease headquarters will be moved from Tampa to Jacksonville, and the laboratory formerly conducted by the board in Tallahassee will be reopened.

ILLINOIS

The Misuse of Opium and Its Derivatives.—The health commissioner of Chicago states that physicians of the city in one month gave more than 103,000 prescriptions containing opium or its deritatives to be employed in the treatment of influenza.

Pharmaceutical Medal Awarded.—The Remington Medal, given annually to a member of the American Pharmaceutical Association who makes the most notable contribution toward the advancement of pharmacy, was awarded to Prof. James P. Beal, dean of the College of Pharmacy of the University of Illinois, Chicago, at the sixty-seventh annual meeting of the American Pharmaceutical Association held in New York City.

INDIANA

Diphtheria in Richmond.—Investigation of the local outbreak of diphtheria at Richmond was, it is reported, due to the eating of ice cream from a plant in which two employees had been suffering from some disease of the throat which is believed to have been diphtheria.

Personal.—Dr. Alexander Johnson, formerly head of the Feebleminded Institute of Indiana, at Fort Wayne, and for the last four years field worker for the National Society for the Prevention and Cure of Feeble-Minded, has been appointed superintendent of the Milne Home School for Girls, the industrial home for feebleminded women, New Orleans. The home was opened to receive inmates, August 18.——Dr. David P. Caldwell, Indianapolis, left, August 28, for Vancouver on his way to Batang, Thibet, where he will serve for seven years in the Thibetan Christian Mission.

MARYLAND

Personal.—Dr. Ralph Meyers has been appointed professor of pharmacology; Dr. Carl L. Davis, Washington, D. C., has been appointed professor of anatomy, in place of the late Dr. J. Holmes Smith, and Dr. William Carson von Glahn, Baltimore, has been appointed instructor of pathology at the Maryland University.——The following physicians, who have been in the service during the past two years, will resume their classes in October: Archibald C. Harrison, Cary B.

Gamble, Arthur M. Shipley, Page Edmunds, Hugh W. Brent, E. A. Cooper, Frank Martin, G. Milton Linthicum, Henry J. Walton and Andrew C. Gillis. Dr. Harry Friedenwald, Baltimore, has recently returned from the Holy Land and will also resume his classes.

Large Enrolment of Students at Medical Schools.—Responding to the nation-wide appeal for young men to take up the study of medicine, many have enrolled at both the Johns Hopkins University and the University of Maryland. Classes in medicine will be larger this year than usual, according to announcements from the two institutions. The study of medicine at these two schools was handicapped to a great extent the last two years owing to several instructors being in the service and to enlistments of students. The professors have returned and the majority of the students who entered the service before graduating will resume their studies. The University of Maryland School of Medicine will have an enrolment of 275, it has been announced by Dr. James M. H. Rowland, Baltimore, the dean.

MASSACHUSETTS

Hospital Notes.—The Julia M. Moseley ward of the Anna Jaques Hospital, Newburyport, which is to be devoted to the care of tuberculous patients, was opened to receive patients, August 22. The hospital was erected by Charles W. Moseley at a cost of about $40,000, and will accommodate sixteen patients.——The temporary structure to be operated by Brooks Cubicle Hospital, on the summit of Corey Hill, Brookline, will be ready for occupancy early this month.

MICHIGAN

Personal.—Dr. Harvey E. Hoffman, for several years city physician of Ludington, has resigned.

Society Reorganized.—The Dickinson-Iron County Medical Society was reorganized at the meeting held in Crystal Falls, August 13, and Dr. William J. Anderson, Iron Mountain, was elected president, and Dr. Leslie E. Bovik, Crystal Falls, secretary. The next meeting will be held in Iron Mountain.

Location of Detention Hospitals.—It has been decided by the supreme court of Michigan, that a board of health cannot locate and maintain a detention hospital for the treatment of communicable diseases in a thickly settled residential district. In this case in which the decision was sought, a suit was brought to restrain the maintenance of a detention hospital in a residential district, by the board of health of Lansing.

MINNESOTA

Public Health Nursing.—September 1, the university course in public health nursing was opened at the University of Minnesota, Minneapolis. The course is to be the usual four months of inspection and field work, followed up by another four months' course either in repetition or in continuation of the study.

Personal.—D. Frank W. Mackoy, Mudbaden, has resigned as medical director of the Mudbaden Sanitarium, Jordan, to return to his former position as a member of the staff of the Sacred Heart Sanitarium, Milwaukee.——Dr. Herbert O. Collins, Minneapolis, has been appointed superintendent of the State University of Iowa Hospital, Iowa City.——Dr. Carl J. Holman, Mankato, underwent an operation, August 4, in Rochester, for gallbladder disease.——Dr. Christopher Graham has severed his connection with the Mayo Clinic, Rochester, after twenty years of service, and has been succeeded by Dr. George B. Eusterman.

NEBRASKA

Medical Arts Building.—The plans for the new Medical Arts Building, Omaha, are practically completed and contracts are already being signed for floor space in the new building.

Personal.—Dr. James D. Case, superintendent of the State Hospital for the Insane, Lincoln, has, it is said, declined to turn over the superintendency of the institution to any one excepting the former incumbent, Dr. Lawrence B. Pilsbury, on his return from military service. Dr. Pilsbury, on his return, expects to enter private practice. The board of trustees has made the appointment of Dr. Case permanent.——Dr. Benjamin F. Williams, Lincoln, has resigned as head of the state board of control.——Dr. Emma Robbins, Hastings, who has been a medical missionary in China for five years, sailed on her return to her post of duty from San Francisco, August 23.

NEW YORK

Personal.—Dr. Wallace J. Herriman, Rochester, who has been in the Naval Militia since April, 1917, has been promoted to medical inspector, M. C., with the rank of commander.——Dr. Anna M. Otto, Syracuse, started for Vancouver, August 21, and from there will sail for Ludhiana, India, as a medical missionary, September 4.——Dr. Morris Bellin, Albany, has been appointed coroner's physician of Albany County, succeeded Dr. Fred C. Myers, deceased.

New York City

Personal.—Henry P. Davidson, chairman of the War Council of the American Red Cross, has received from Secretary of War Baker, in behalf of President Wilson, the Distinguished Service Medal for meritorious and distinguished services in behalf of the government and the American Red Cross during the war.——Drs. Louis Aldrich Blake, Louisa Martindale and Marion Wright of England have arrived in this country to attend the world conference of women physicians to be held in this city beginning September 15.

New Plans for Care of Drug Addicts.—The project of using Sea View Hospital on Staten Island for the care and treatment of drug addicts has been abandoned because of the threatened injunction proceedings by civic organizations of Staten Island. The health department has now gone on with preparations for the use of Riverside Hospital on North Brother Island, which is under the control of the health department. In this institution 700 beds are now available for the use of drug users. Riverside has been vacated of all other patients and will be used exclusively for drug patients. Dr. Copeland states that $75,000 will be required for the operation and maintenance of this hospital to the end of the present year.

NORTH DAKOTA

New Examining Board.—The governor, August 4, named Dr. John G. Arneberg, Grand Forks; Samuel A. Zimmerman, Valley City, and William G. Brown, Fargo, members of the state board of medical examiners for terms of three years, succeeding Dr. George M. Williamson, Grand Forks; Gustavus J. McIntosh, Devils Lake, and Joseph G. Dillon, Fargo, whose terms have expired.

Personal.—The School of Medicine of the University of North Dakota announces the appointment of Dr. Benjamin J. Clawson, Chicago, as professor of pathology, and of Dr. Arthur D. Bush, as professor of physiology.——Dr. Arthur A. Whittimore, Bowman, has made a proposition that the cities of Bismarck, Jamestown, Valley City and Dickinson, unite in employing a whole-time health officer.

Venereal Disease in the State.—In the nine principal cities in North Dakota during the three months ending Aug. 30, 1919, 202 cases of venereal disease were reported, forty of which were in Minot and twenty-eight in Fargo. Full reports have not been received from the state clinics or from the physicians who are administering neo-arsphenamin on behalf of the bureau, but the records show that twenty-four doses of this drug have been administered. Of the 202 cases reported forty-six were of syphilis, 154 of gonorrhea and two of chancroid.

PENNSYLVANIA

Aims to Stop State's Gifts to Sixty-Six Hospitals.—Action in equity to restrain payment of state appropriations to sixty-six hospitals and homes of Pennsylvania on the ground that they are sectarian institutions has been brought into the Dauphin County court. The petition filed in the case contends that payment of appropriations is against the constitution, it being charged that "no appropriations, except for pensions or gratuities for military service, shall be made for charitable, educational or benevolent purposes to any person or community, or to any denominational or sectarian institution, corporation or association."

Philadelphia

Parents Asked to Aid in Health Campaign.—To protect children against the disease infection to which they will be exposed through close contact with one another in the public schools, the state health department has launched a "better health" campaign. A number of helpful suggestions have been explained to the parents, and if these instructions are obeyed, parents will not only be doing the best thing for the interest of their own children, but they also will render a valuable service to the community in general.

Recreation Centers Aid Many to Health.—The city, in its thirty-five or more recreation centers and playgrounds, is spending thousands of dollars to keep not only young men, but also the public, generally fit to defy disease and the ailments that are likely to attack an undeveloped body. The recreation centers are fitted with gymnastic apparatus and have staffs of trained teachers. The grounds are equipped with tennis, handball, basketball and volleyball courts, baseball diamonds, football gridirons and for other games. There are individual lockers and hot and cold showers, and clean, sterilized towels are also supplied. For the children there are gamerooms, with many sorts of games, a reading room, and club meeting rooms.

TENNESSEE

Hospital Items.—Arrangements have been made with hospitals of Memphis to care for discharged soldiers who, owing to the crowded condition of the Marine Hospital, cannot be placed in that institution. The Baptist, General and St. Joseph's hospitals have volunteered their services in caring for white men, and negroes will be cared for at the Wilcox Hospital.——The new Fort Sanders Hospital will be completed by November 1. The hospital will accommodate sixty-five patients, and, when completed, will have cost about $125,000.

Personal.—In recognition of his efficient work in the treatment of influenza patients of Bemis, during the epidemic last year, Dr. Andrew E. Brown has been awarded a bonus of $1,000 by the Bemis Brothers.——Dr. Charles B. Crittenden, Nashville, head of the state bureau of rural sanitation has commenced work in Madison County, with headquarters at Jackson. The state and county have appropriated $10,500 for this work in Madison County, which has been made the administration center for west Tennessee.——Dr. William G. Saunders has been reappointed city physician of Jackson.

WISCONSIN

Personal.—Dr. Asahel W. James, Muscoda, has returned after more than a year of duty with the American Expeditionary Forces in France.——Dr. Louis M. Field has commenced his official duties as city health officer of Beloit, succeeding Dr. William L. Holt, resigned.

CANADA

Hospital News.—To perpetuate the memory of relatives lost in the great war and to meet the shortage of hospital accommodation in Montreal, a group of citizens have decided to associate themselves to build St. Mary's Memorial Hospital. Many Montreal families have expressed themselves as favoring the proposition and have promised to endow beds in memory of lost sons, husbands or fathers. The hospital is to be open to all classes in the community. An appeal for funds is to be made in October by the provisional committee.

Personal.—Dr. H. O. Collins of the Winnipeg General Hospital, Winnipeg, Manit., has been elected superintendent of the Iowa University Hospital, Iowa City, succeeding Dr. Willard T. Graham.——Dr. George W. Badgerow, C. M. G., London, England, is visiting in Toronto for a month.——Dr. William B. Hendry, Toronto, who returned with the University of Toronto Base Hospital a short time ago as O. C., has been appointed associate professor of gynecology in the medical department of the university.——Dr. P. Walter H. McKeown of the Kitchener Hospital at Brighton, England, has returned to Toronto.——Dr. Benjamin P. Watson has returned to Toronto after a visit to Belgium.

Public Health News.—Hon. Newton W. Rowell is in charge of the organization of the new federal ministry of public health at Ottawa. The first step in organization consists in the taking over of the various departments dealing with health matters, which have heretofore been scattered over different ministeries. Already the department of quarantine has been taken over from the agriculture minister and also immigration and the administration of foods act and the proprietary and patent medicine acts. Dr. Norbert J. Amyot, the deputy minister, is taking up with the provincial departments of health plans for the cooperation between the federal and the various provincial bodies, especially as to the combating of the venereal diseases. A definite announcement will shortly be issued of the policy of the federal department of health.——The province of Quebec, within recent years, has made good progress in public health matters. In pure water alone, Quebec probably leads all the provinces. But 3.8 per cent., 52,879 people, of a population living in cities, towns and villages of over 500 in population (1,383,729) rely on wells or lake water for their water supply, while 86 per cent. of the users are supplied with water which has undergone treatment in either filtration plants or chlorination. This has eventuated in much decreased typhoid. The adoption of the system of public nurses in baby welfare work is being rapidly extended. The idea is to better establish between health authorities and people the personal contact which is incomparably more effective than any other means of promoting health education.

GENERAL

Hospital Association to Meet.—The American Hospital Association will hold its annual convention at Cincinnati, September 8 to 12.

Bequests and Donations.—The following bequests and donations have recently been announced:

Pennsylvania Hospital, Philadelphia; Church Home for Children, Philadelphia; Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, and Philadelphia Children's Hospital, each $5,000, and Hospital of the Episcopal Church, Philadelphia, $2,000, by the will of Emily Pratt.

The Dowst Homestead, Waukegan, valued at $150,000, to be converted to the Jane Dowst Emergency Hospital, in memory of his mother, by the will of Mr. Dowst, Waukegan.

Tuberculosis Conference.—The Mississippi Valley Conference on Tuberculosis will meet in Des Moines, Iowa, September 22 to 24. This conference includes delegates from Ohio, Indiana, Illinois, Iowa, Nebraska, North Dakota, South Dakota, Minnesota, Wisconsin, Michigan and Missouri. Delegates are also expected from Kentucky, Kansas and other states. The Iowa Trudeau Society has already sent an urgent request to each county medical society to name three delegates to the conference. Chief in the themes to be discussed are occupational therapy for the tuberculous, the county survey clinic, the modern health crusade, follow-up care for discharged tuberculous soldiers, and the health officer's part in the tuberculosis movement.

Women Physicians' Conference.—Health, the psychologic aspects of the sex question, and legislative measures as they reflect the present status of sex morality, will be the three divisions of the program intensively to be studied by women physicians at the International Conference of Women Physicians, to open in New York, September 15, and to continue for six weeks. The hostesses for the conference are the social morality committee, the war work council, the national board of the Young Women's Christian Association. Among the women physicians from abroad who have accepted the invitations of the conference are: Betty Agerholm, Copenhagen; Joahanne Feilberg, Copenhagen; Phoebe M. Powell-Bigland, Liverpool; Mary Gordon, London; Alice Hartmann, Paris; Anna Moutet, Lyon; Yvonne Pouzin, Nantes; Ada Potter, Utrecht; Anna Borrine, Torino; Clelia Lollini, Rome; Dagny Bang, Christiania; Regina Stang, Christiania; Mrs. James C. Johnston, Edinburgh; Gerda Kjellberg-Romanus, Stockholm; Alma Sunquist, Stockholm; Marie Feyler, Lausanne; Frieda Ottiker, Berne; Minna Tobler-Christinger, Zurich; Nathalie Wintsch-Maleeff, Lausanne; Harriet Jane Parrell, Basel; Marguerite Giboulent, Paris, and Marie Louise Lawaese-Delhaye, Antwerp. Doctors from India, South America and Canada are also expected and three from China have accepted. During the war a staff of 145 women physicians was called together under the section on womens' work with the social hygiene division of the committee on training camp activities of the War Department and these physicians gave in eleven months and a half, 6,188 lectures to 963,043 women and girls. The demand for the work was so strong, that the social morality committee has continued its efforts so that in March, 121 lectures were given, in April, 597, and in May, 1,111. The chief topic first to be presented for discussion, will be "The Woman Physician and the Health of Women," second, "The Present Social Conditions and Their Effect on Health and Personality," and third, "The Presentation of the Practical Program for Meeting the Needs of Girls in the Light of a Better Understanding of Their Emotional Life."

FOREIGN

Death of Dr. Dominici.—The death of Professor Dominici is reported from Paris. Dr. Dominici was very well known for his work on lymphatics and hematosis. His methods of teaching attracted to his classes a large number of students.

Spanish Physicians in the Senate.—At the senatorial elections held recently in Spain the following physicians were elected to that body: Drs. Nicolás Rodriguez, Luis Ortega Morejón, Ricardo Royo Villanova, Rodolfo del Castillo Ruiz and Luis Fatás.

Venereal Diseases in the State Examination.—The Netherlands Society for Repression of Venereal Diseases recently petitioned the government to add the words "skin and venereal diseases" to the list of subjects in which students have to be examined for their degree. The society added that a specialist in venereal diseases should be on the examining board.

Deaths in the Profession Abroad.—Dr. **Magnus Gustav Retzius,** formerly professor of anatomy at the University of Stockholm, and author of numerous works on anatomy and biology, aged 77.——The *Nederlandsch Tijdschrift* reports the death of Dr. **F. Merkel,** professor of anatomy at the University of Göttingen, aged 74, and of Dr. **E. Gasser,** professor of anatomy at the University of Marburg, aged 72. It is an odd coincidence that these three eminent professors of anatomy, all in the seventies, are the only deaths mentioned in the current foreign exchange mail.

The Rotgans Prizes for Cancer Research.—These prizes are open only to research workers in the Netherlands or Netherlands colonies. They are to be awarded from the income of the sum presented to Professor Rotgans of Amsterdam by his friends and pupils on the twenty-fifth anniversary of his professorship. He turned the sum over to the Netherlands Cancer Institute, specifying that the income of this "Rotgans-Fonds" is to be applied in prizes for current research on cancer and allied diseases. The entire sum can be awarded as a prize for any one, irrespective of nationality, who is deemed by the committee in charge to have discovered a sovereign remedy for cancer.

Netherlands Institute for Research on Nutrition.—It is announced that plans for the Nederlandsch Institut voor Volksvoeding are well under way and funds have been secured by donations and state subsidies nearly sufficient for the purpose. It is proposed to found a laboratory along the same lines as the Nutrition Laboratory of the Carnegie Institution in Washington, D. C. Both scientific and practical work will be done, and bulletins published, with popular lectures, all striving to promote and improve food conditions and the dietaries of the Netherlands people. Prof. E. C. van Leersum is mainly responsible for the success of the institution, but it will be managed by a board of experts. Professor van Leersum, it is said, is soon to visit this country on a tour of investigation.

LATIN AMERICA

Portuguese Surgeon Visits Brazil.—Dr. Augusto Monjardino, one of the professors of the School of Medicine of Lisbon and one of the prominent gynecologists of Portugal, is now in Brazil making a tour of the hospitals there. He is accompanied by his brother, Dr. Jorge Monpardino, the well known surgeon.

Medical Congress in Chile.—During the month of September there will be held at Santiago de Chile the Second National Medical Congress. Among the subjects to be discussed appear the following: the law on accidents of labor; popularization of child welfare work; medical work in hospitals; vital statistics; alcoholism, and tuberculosis.

Typhus Fever in Mexico City.—The last report published by the Superior Board of Health of Mexico shows that during the month of April there were reported sixteen cases of typhus fever in Mexico City.——The total number of deaths reported during that month was 1,028, which is considerably below the average mortality of the last twenty-three years.

Typhoid Fever in Uruguay.—A recent report submitted to the National Board of Health by Drs. Justo F. González and Antonio S. Viana shows that typhoid fever has caused an average of 57.4 deaths during the last ten years in Montevideo. The authors recommend the general enforcement of antityphoid vaccination and the compulsory reporting of the disease. The plan submitted by them was approved by the board.

Deaths in the Profession.—Dr. **A. Rodriguez Ecay,** one of the older members of the profession at Havana, aged 70. He took a prominent part in the organization of the municipal public health service and in the various medical scientific meetings that have been held in Cuba, and was one of the founders of the Sociedad de Estudios Clinicos.——Dr. **Manuel S. Guerrero y Ramírez,** a leading physician of Manila, member of the Council of Hygiene of the Philippine government, vice president of the Colegio Médico-Farmacéutico and editor in chief of the *Revista Filipina de Medicina y Farmacia,* secretary of the National League for Child Welfare Work and an authority on beriberi in infants. He was born at Manila in 1877, and succumbed to cancer, aged 42. Besides numerous publications on beriberi and other medical topics, he published under the pseudonym of M. Tralla articles of general literary interest.——**R. García Gastañeta,** a recent graduate at Lima, who succumbed to bubonic plague contracted at the beside of a patient.——Dr. **Francisco Liongson** of Bacolor, Philippines, president of the board of health of the province and at one time governor; now senator from four provinces, aged 50. He obtained his degree from the University of Madrid in 1893.——Dr. **J. Antonio Villagrán** of Guatemala, a victim to his zeal in combating the epidemic of yellow fever in Guatemala during the last six months, aged 30. He was one of the founders of the society La Juventud Médica and editor of its monthly journal. The last issue contains his reports on the epidemic, with editorial comment to the effect that the data prove that Guatemala is not an endemic focus of yellow fever.

MEXICO LETTER

MEXICO CITY, Aug. 24, 1919.

Yellow Fever

To judge from the news, which is not very satisfying, that reaches us from Yucatan, it has not been possible thus far to control completely the epidemic that made its appearance, several weeks ago, in that peninsula.

Opium Investigation

The courts of justice are investigating the discovery of a large quantity of opium which has been found in the house in which a well-known chemist has his office. According to newspaper accounts, this opium was intended for nonmedicinal purposes.

Dehydration of Mexican Bananas

Dr. Tomás Pellicer, the Mexican consul in Philadelphia, suggests in an official communication recently published in the newspapers that the farmers of the so-called *tierra caliente* (the hot belt) of Mexico, especially those in the state of Tabasco, should investigate immediately the methods of drying bananas in order to meet the present scarcity of shipping facilities and be able to continue sending to the United States the large quantities of bananas which are marketed there.

Scientific Contest

Dr. Philippe Gracieux, editor of the *Crónica Médica Mexicana,* has opened a scientific competitive contest under the patronage of the School of Medicine. There will be two prizes, one of 1,000 pesos ($500), donated by a French industrial corporation, to the physician or medical student, irrespective of nationality, but residing in this country, who shall submit the best article furthering in some way the knowledge of typhus fever. The second prize of 200 pesos ($100) is donated by the journal itself and will be granted to the medical student who submits the best thesis giving the result of his personal observations or investigations on some therapeutic subject. The judges of the contest will be selected by the dean of the School of Medicine.

Adjournment of the National Academy of Medicine

The National Academy of Medicine has adjourned until October, 1919. Its sessions, which were supposed to end in July, had to be extended in order to decide certain questions it had under consideration. Among these were establishment of the rules that shall govern the contest of the *Universal,* mentioned in a previous letter, in regard to the discovery of the typhus fever germ. The academy decided that the contest should be limited to those physicians licensed to practice in Mexico and that it should close Dec. 31, 1919. The first requirement seems rather rigid since similar contests on the same subject have been open to all investigators, irrespective of nationality, and have not even required the contestants to be physicians, the decision being based only on the merit of the work.

The academy has begun again the publication of its journal, *La Gaceta Médica,* and the first number does credit to this society. The *Gaceta* is managed by Dr. Everardo Landa whose address is Apartado postal No. 517.

Dr. Brioso Vasconcelos has been made a member of the academy to fill a vacancy in the section of dermatology and syphilography, his thesis on the modern treatment of neurosyphilis having been accepted.

Personals

Among the well known men whose deaths are reported are Dr. Ignacio Capetillo, a former professor of clinical obstetrics in the School of Medicine, aged 74 years, and Prof. Adolfo Castañares, director of the School of Chemistry and Pharmacology, aged 39 years.——Dr. A. Cornillon, a prominent member of the French colony who had been in Europe since the beginning of the war, giving his services to France, has returned to this country.——Charges of having violated the constitution have been preferred in congress against Alfonso Cabrera, governor of the state of Puebla. One of the charges concerns the closing of the state college of Puebla apparently because it had become a center of political opposition to the local government.

PARIS LETTER

Paris, Aug. 7, 1919.

Industrial Service That Mutilated Man Can Render

At a recent meeting of the Academy of Medicine, Drs. Gourdon and Dijonneau endeavored to determine the exact industrial value of mutilated men employed as workmen in a workshop or factory. They reported their conclusions with regard to the exercise of the trade of *ajusteur* (assembler, finisher or fitter), which is one of the most popular on account of the high salaries paid. In order to establish a definite basis for their investigations, Gourdon and Dijonneau set about to ascertain what the conditions were under which a fitter worked in a shop or factory. They studied his standing position, the movements of the upper limbs, what efforts were required in the management of the different tools, and what degree of endurance was required by an ordinary day's work.

Men who have lost only one lower limb, who have suffered the shortening of a limb or paralysis of one of the terminal branches of the sciatic nerve, if they are provided with prosthetic appliances, are adapted for the various kinds of work of a fitter. Those who have lost a forearm or a hand, and those who have suffered, unilaterally, pseudarthrosis of one of the bones of the forearm or ankylosis of the elbow at an obtuse angle, can perform only part of the work of a fitter, since they are able to use only a file, a hammer, carving tools and a scraper.

All other mutilations of an upper limb constitute a contraindication as regards the work of a fitter of any kind, even though requiring the use of very few tools.

The International Council for Scientific Research

At the last two meetings held in London and in Paris by the international conference of the scientific academies of the Entente (The Journal, Dec. 28, 1918, p. 2167, and Jan. 11, 1919, p. 133), the matter was discussed and it was decided to form a permanent international council to be known as the Conseil international de recherches scientifiques.

The council's committee on organization has recently adopted the article of the constitution and by-laws which establishes Brussels as the seat of the council. Here all the scientific communications that are received will be deposited, and here all gifts and bequests will be kept, after such manner as conforms with the laws of Belgium.

The bibliographic section has proposed that the Conseil de recherches shall absorb the Institut international de bibliographie, and suggests that an Office international de brevets et de documentation technique shall be formed, with its seat at Brussels, to take the place of the German organization which existed before the war and which sought to keep the industries of the world under its control. Four sections of the conseil have already been organized: astronomy, geodesy, chemistry and bibliography. The sections of medicine and physics are in process of organization.

The Belgian Red Cross

The Red Cross of Belgium will soon have completed its reorganization. At the present time a provisional committee is at work, directed by Dr. Depage, the surgeon who, during the war, was the founder and the chief of the Océan hospital. New by-laws are to be drawn up and submitted for royal sanction. In accordance with the usual custom, they will be presented for approval to the international committee of the Red Cross in order that the latter, being fully acquainted with the matter, may accredit the new Belgian Red Cross to the other branches of the society, in case such a reaccrediting shall seem necessary.

Personal

At the meeting, July 29, the Academy of Medicine elected Dr. Desgrez, professor of biochemistry at the Paris School of Medicine, as an active member in the section of physics and chemistry as applied to medicine.

Death of Dr. Reynier

Dr. Paul-Antoine Reynier, who occupied a professorial chair in the Paris School of Medicine and was an honorary hospital surgeon, died recently from pneumonia at his home in Villegondin (department of Loir-et-Cher). He was an active member of the Academy of Medicine and had served in the section of anatomy and physiology since 1904.

MADRID LETTER

Madrid, July 28, 1919.

Present Condition of the Medical Profession in Spain

In Spain the social condition of physicians today is practically that which the medical professions of other countries enjoyed before the organization of associations which improved their status. Every one feels the need of union, every one understands that the present isolation is suicidal, but the mutual lack of confidence and petty jealousies prevent progress.

There are in Spain, a country of 20,000,000 inhabitants, ten schools of medicine and the number of students of medicine exceeds those enrolled in the other subjects (law, pharmacy, science and letters). The eagerness shown by young men to obtain the degree of M.D. is fostered by a curious idea which some medical schools and many professors have of their duties. The former, in order to increase the importance of the towns where they are located and the latter to become popular, pass almost all the pupils they examine. In this way the number of physicians has increased to such a degree that there has been formed what we may call a medical proletariat. All cities and villages are overcrowded with physicians and there are physicians in excess for every occasion when only one is needed. As the supply exceeds the demand by far, the medical service is degraded. As exposed by Dr. Angel Pulido, when he was president of the Medical Society of Madrid, some physicians in the capital of Spain charge 10 *céntimos de peseta* (about 2 cents) a visit or agree to treat patients at the monthly rate of 1 *peseta* (19 cents). I may add that there are over 2,000 physicians at Madrid, a city with 600,000 inhabitants.

The difficulties with which the physicians struggle have been aggravated by the appearance of the wrong kind of leaders who advise violent measures to conquer an evil which requires careful and wise attention. A few years ago the association of municipal physicians was created, but its management was so unfortunate that the government compelled the directors to give an account of the funds in their charge and return to the members over a million of *pesetas* (about $200,000) then available. The real trouble is that physicians—instead of helping themselves—want somebody else to help them out and place all their hopes in the government.

Payment of Municipal Physicians by the Government

Municipal physicians have always been unanimously in favor of payment by the government. Dr. Cortezo succeeded in having the government issue a decree that thereafter preference would be given by the municipalities to the payment of the salaries of municipal physicians and that the budgets of the city councils would not be approved unless the physicians' salaries were included. This implied a positive improvement since many councils owed to their physicians salaries amounting to several millions of *pesetas*. A number of the agitators were, however, not pleased and have continued their protests, although it is evident that the government cannot undertake the payment of the physicians' salaries at present.

A typical sign of the jealousies and rivalries that prevail in Spain came to light in the memorial presented at the recent medical congress by the School of Medicine of Cáceres which charged in substance that the physicians residing at Madrid did not know the meaning of the phrase "professional fellowship" in their relations with physicians of other towns and that the only standard applied in Spain to judge of a physician's ability was the size of the town in which he practiced.

Autonomy of the Universities

Closely related to the present unrest among the medical profession, the real source of which is the excessive number of physicians graduated from the universities, is the autonomy or self-government granted recently to the universities. These used to be self-governing, and they had in those days a long and often brilliant history, since Salamanca, Alcalá de Henares and others which obtained worldwide reputation in past centuries, were all independent, self-governing universities. The abuse which they made of this power resulted in the taking away of their autonomy. After a time a number of professors asked that autonomy should be granted again to the universities as the only way to give new life to academic teaching and infuse new love for science. A secretary of public instruction, the second one of the three we have had this year, suddenly granted the autonomy desired by the universities and entrusted to them the preparation of their own by-laws and rules. We had then the curious spectacle of a number of professors publishing articles in which they expressed doubts as to the wisdom of the measure and the fear that it might be premature.

Medical Teaching in Spain

There is no question that the number of universities which have medical departments is by far too large, the majority not possessing adequate resources or facilities for demonstrations or experiments. The teaching is so theoretical that if a foreigner who did not know the language attended the courses, he would get as much benefit as if they were classes in theology. The course embraces nominally eight months (from October to May) and lasts seven years. An examination is required for each subject. This examination is held in June and if the student fails he can take it again in September. At the end of the medical course, there is a general examination which, if successful, will secure for the student the degree of Master of Medicine and permit him to practice his profession. The degree of doctor requires another year of study in Madrid, and the secretary of public instruction may or not at his discretion require the student to prepare a thesis to be judged by the medical staff.

The examinations used to be held before three professors, but recently this was changed and only one professor is now in charge of the examination. This was really the beginning of the increase in the number of students, since after the change the number of those failing to pass the examinations decreased considerably, and some professors boast that they have never had one of their pupils fail.

In Spanish universities there are two kinds of teaching: the official, in which the student attends the classes of the university professors and the optional or "free," in which the student studies wherever he pleases and presents himself in June or September for examination.

Apropos of the autonomy recently granted to the universities, Cajal has given out an interview regretting the constant changes in the department of public instruction, which with each new secretary result in corresponding educational changes. We have had in the last three years three general elections and not less than ten different cabinets. He suggests, therefore, that all secretaries should be kept in power at least six years, so that they may devote the first two years to comply with the demands of their relatives and friends; the next two they will study the work of their departments and finally in the last two years they will be able to achieve something.

Death of Dr. Tolosa Latour

Very suddenly, when he seemed in the prime of health and on the very day before the Royal Academy of Medicine was going to elect him a senator, there occurred the death of Dr. M. Tolosa Latour, one of the most prominent figures of Spanish medicine. Dr. Tolosa Latour was a distinguished writer who did much to popularize science, a worshipper of art and had a heart of gold. He had devoted his whole life to children, had become a famous specialist in pediatrics, and was instrumental in securing the passage of the law for child welfare. He founded and supported until his death the seashore sanatorium at Chipiona, the first one of its kind in Spain.

Death of Dr. Gómez Ocaña

In my previous letter, I referred to the address delivered by the chairman of the First National Congress of Medicine in Spain. In my present letter, I have to communicate the news of his death. Dr. J. Gómez Ocaña became professor of physiology at the School of Medicine of Madrid after holding the same place at Cádiz. His experimental studies on the thyroid gland made a name for him. He was an excellent teacher and his studies on Cervantes and his times attracted much attention. He was a member of the academy, a life senator and when he referred to himself at the closing of the medical congress said "I am not sure whether I have taught physiology to my students. I know, however, that I have taught them to be good men and to love Spain."

LIMA LETTER

LIMA, July 24, 1919.

Yellow Fever at Piura

Owing to the frequent intercourse between the department of Piura and the region surrounding Guayaquil, Ecuador, a mild epidemic of yellow fever has occurred in this northern province of Peru. A commission consisting of Major Henry Hanson of the U. S. Army Medical Corps, who is now on duty in this country, an engineer, and two assisting physicians, has been sent from Lima and has already begun its work. According to the available information there have been about thirty cases of yellow fever with a total of ten deaths. The port of Payta, the first one on the Peruvian coast, has also been affected by the epidemic and the necessary measures have been taken to prevent the spread of the disease and to make all ships comply with the provisions of the International Sanitary Convention of Washington.

Malaria in Lima

Malaria, which is endemic all along the Peruvian coast, has shown a very marked increase in the capital of the republic and in the adjoining valley. The mortality from this disease reached last year a total of 266 as compared with 112 reported the year before. Dr. Hanson had been engaged to eradicate this disease, but he had to be sent to control the yellow fever outbreak.

Commission on Rural Sanitation

The ravages of malaria have induced the society of civil engineers to create a commission on sanitation which, in cooperation with other agencies, will devote its efforts to the improvement of rural sanitation in this country. The commission has published for distribution an interesting pamphlet on this subject. Dr. C. E. Paz Soldán has been chosen president. One of its members is S. Gutiérrez, an engineer who now occupies a seat in the cabinet, being the head of the department of the interior and sanitation. It is to be hoped that this commission will meet with success.

Symposium on Influenza

The National Academy of Medicine of Lima has devoted two sessions to a discussion of various reports bearing on the pandemic of influenza in this city. According to the papers presented, the influenza here did not show any difference in its clinical, anatomic, pathologic and bacteriologic characteristics from those it presented in other parts of the world. It is worth noting, however, that in Lima the influenza did not cause such an excessive mortality as at other points. Dr. A. Corvetto, a member of the academy, presented an interesting paper showing with abundant evidence that tuberculosis was seldom influenced by influenza.

Progress in the Study of Odontology

As the result of the efforts of Dr. W. S. Salazar, the director of the dental school, a new dental clinic was opened at Lima last month which will be used for the teaching of odontology. The physicians in this city view with approval this new undertaking.

New Trustees for the National Academy of Medicine

The Academia Nacional de Medicina has appointed its new board of officers for the year 1919-1920 as follows: president, E. Pardo Figueroa; vice president, Dr. E. Odriozola; secretaries, Drs. C. E. Paz Soldán and A. Corvetto; treasurer, Dr. E. Bello; members, Drs. J. Denegri and W. S. Salazar.

Marriages

ALLEN CALLENDER SUTTON, Capt., M. C., U. S. Army, Baltimore, to Miss Clara A. Wagner, at Roland Park, Baltimore, August 16.

JOHN SEDGWICK DORSEY, Mount Rainier, Md., to Miss Margaret R. Neave of Dresden, Ohio, at Annapolis, Md., August 14.

SAMUEL HENRY KAGAN, Capt., R. A. M. C., Augusta, Me., and Boston, to Mrs. Violet Barnes of London, England, June 21.

BERNARD PIERRE WIDMANN to Miss Mary Eileen Maher, both of Philadelphia, August 27.

GEORGE JOSEPH HANCE, Troy, Ohio, to Miss Mary Johnson of Cincinnati, September 1.

LYNDON DENNY HARRIS to Miss Elsie Marie Gonnerman, both of Chicago, recently.

Deaths

Joseph Zeisler ⊕ Chicago; died suddenly in the Grand Hotel, Mackinac Island, Mich., August 31, from angina pectoris; aged 60. Dr. Zeisler was born in Bielitz, Austrian Silesia; was graduated in medicine from the University of Vienna in 1882; and after serving as an intern in the Vienna General Hospital for two years, came to America and settled in Chicago in 1884. In 1888 he began his teaching career as professor of skin and venereal disease in the Post-Graduate Medical School; a year later he became professor of dermatology in the Northwestern University, Woman's Medical School, Chicago, and in the same year was made professor of skin and venereal diseases in the Northwestern University Medical School, holding the latter position as professor emeritus at the time of his death. He was chairman of the Section of Dermatology of the American Medical Association in 1912-1913, president of the Chicago Dermatological Association in 1904 and 1914, and president of the American Dermatological Association in 1903-1904; he was also chief dermatologist to Mercy, Wesley and Michael Reese hospitals, and to the South Side Free Dispensary. Dr. Zeisler in addition to his professional attainments was a man of charming personality, a musician of high ability, and took a great interest in arts and letters.

Lucien Guy Heneberger ⊕ **Med. Dir. (Capt.), M. C., U. S. Navy (retired),** Washington, D. C., and Newport, R. I.; University of Virginia, Charlottesville, 1872; aged 67; who entered the Navy in 1874; was made surgeon in 1890 and medical director in 1908; was one of the officers of the *U. S. S. Maine* when she was sunk in the harbor of Havana in 1898; physician at the White House during President Arthur's administration; and who was retired, Oct. 20, 1913, on attaining the age of 62 years; died in the U. S. Naval Hospital, Washington, August 3.

Edward Larnedo McGhee ⊕ Hammond and New Orleans, La.; Tulane University, New Orleans, 1874; aged 67; once president of the Mississippi State Medical Association; professor of physiology, hygiene and pathology in the New Orleans College of Dentistry; president of the Louisiana Anti-Tuberculosis League; organizer and superintendent of the Hammond Sanatorium for the Treatment of Tuberculosis; died at his home in Hammond, August 13.

Jesse Williamson, Philadelphia; Jefferson Medical College, 1873; aged 66; a member of the Delaware State Medical Society; at one time a resident of Colorado Springs, Colo.; visiting physician to St. Francis' Hospital, Colorado Springs, and consulting surgeon to the Union Pacific and Denver and Rio Grande systems; died in Bay Head, N. Y., August 17, from angina pectoris.

John Alfred B. Adcock, Warrensburg, Mo.; Eclectic Medical Institute, Cincinnati, 1877; University Medical College, Kansas City, Mo., 1901; aged 68; a member of the Missouri State Medical Association; for many years a member of the state board of health; secretary of the board in 1905 under the administration of Governor Major; died at his home, August 20, from cerebral hemorrhage.

George S. Williams ⊕ Muskegon, Mich.; Rush Medical College, 1883; aged 63; in 1912 president of the Muskegon-Oceana County Medical Society; a member of the staff of Hackley Hospital, Muskegon; division surgeon of the Grand Rapids and Indiana Railroad; died at his home, August 15, from uremia.

William J. Langfitt, Pittsburgh; Rush Medical College, 1867; aged 81; said to have been the oldest practitioner of Allegheny County; one of the organizers, secretary and director of St. John's General Hospital; for more than seventeen years a member of the Allegheny City school board; died at his home, August 27.

John Vilas Wright ⊕ Dallas, Texas; University of Texas, Galveston, 1911; aged 33; a specialist in tuberculosis; and for seventeen months medical director of Woodlawn Tuberculosis Sanatorium, Dallas; died in that institution, April 28, following an operation for appendicitis.

William H. Hawkins, Greenville, Tenn.; Louisville (Ky.) Medical College, 1890; aged 58; a member of the Tennessee State Medical Association and a specialist in pediatrics; local surgeon for the Southern Railway system; died at his home, August 18, from cerebral hemorrhage.

John Maynard Emery, Des Moines, Iowa; University of Michigan, Ann Arbor, 1876; aged 62; vice president of the Reinsurance Life Company of America, and a well known consulting actuary; died in Helena, Mont., about August 20, from cerebral hemorrhage.

Charles von Schroeder, Maquoketa, Iowa; Rush Medical College, 1882; aged 60; who soon after his graduation entered the First National Bank of Maquoketa, of which he eventually became president; died at his home, August 18.

Nelson K. McCormick, Normal, Ill.; Northwestern University Medical School, Chicago, 1886; aged 57; president of the board of directors of Brokaw Hospital, Bloomington, Ill.; died in Petoskey, Mich., July 26, from nephritis.

David Mott Robertson, Spout Spring, Va.; New York University, New York City; formerly representative in the state legislature, and treasurer of Appomattox County; died at his home, August 17, from heart disease.

Harry Isaac Newcomet ⊕ Reading, Pa.; University of Pennsylvania, Phildelphia, 1912; aged 32; who was honorably discharged as lieutenant, M. C., U. S. Army, Dec. 9, 1918; died at his home, about August 10.

Hiram Heaton Swallow, Topeka, Kan.; Starling Medical College, Columbus, Ohio, 1884; aged 63; for twenty years in charge of Merrill Springs Sanitarium, Carbondale, Kan.; died at his home, August 16.

Salathiel A. Hitchcock, Elida, Ohio; Cincinnati College of Medicine and Surgery, 1870; aged 76; a veteran of the Civil War; died at the Lima (Ohio) City Hospital, August 18, from intestinal obstruction.

Charles Toomer Parrish, Portsmouth, Va.; College of Physicians and Surgeons in the City of New York, 1890; aged 52; a member of the Medical Society of Virginia; died at his home, August 6.

George W. Morehouse, Delaware, Ohio; Columbus (Ohio) Medical College, 1886; aged 61; a member of the Ohio State Medical Association; died at his home, August 13, from cerebral hemorrhage.

William Bissell, Lakeville, Conn.; Yale University, New Haven, Conn., 1856; aged 89; a member of the Connecticut State Medical Society; died at his home, July 2, from cerebral hemorrhage.

Paul Hamilton Markley, Camden, N. J.; University of Pennsylvania, Philadelphia, 1882; aged 59; a member of the Medical Society of New Jersey; died at his home, August 28.

William Lee Dalby, Bridgetown, Va.; Medical College of Virginia, 1891; aged 49; a member of the Medical Society of Virginia; died at his home, August 14, from nephritis.

Theodore H. Patterson, Seattle; University of Wooster, Cleveland, 1865; surgeon of the 187th Ohio Volunteer Infantry during the Civil War; died in Seattle, about August 24.

George Walter Nevils ⊕ Rowesville, S. C.; Medical College of the State of South Carolina, Charleston, 1890; aged 49; died in the Maryland University Hospital, August 5.

William Chatfield Burke, Wykoff, Minn.; St. Louis University, 1915; aged 30; was instantly killed, near Canton, Minn., August 17, by the overturning of his automobile.

Frederick J. Schouten, Holland, Mich. (license, years of practice, Michigan, 1900); aged 76; a practitioner and druggist for forty years; died at his home, August 20.

Frederick J. Lindenschmidt, Milwaukee; Northwestern University Medical School, Chicago, 1883; aged 59; died in his office, August 18, from cerebral hemorrhage.

Lemuel Edwin Willis ⊕ Newport, Ark.; Missouri Medical College, St. Louis, 1886; aged 57; died in a sanatorium in St. Louis, August 16, from cerebral hemorrhage.

Fletcher Alberto Smith ⊕ Corinth, N. Y.; Dartmouth Medical School, Hanover, N. H., 1888; aged 62; died at his home, June 27, from cirrhosis of the liver.

William Case Williams, Denver; Eclectic Medical Institute, Cincinnati, 1873; aged 71; died at his home, June 22, from cerebral hemorrhage.

Joseph Van Meter Champion ⊕ Mansfield, Ill.; Rush Medical College, 1885; aged 62; died at his home, August 7, from valvular heart disease.

Lewis Clark Crowell, Syracuse, N. Y.; Cleveland University of Medicine and Surgery, 1872; aged 72; died at his home, August 2.

James E. Ryan, Redwood, N. Y.; Chicago Homeopathic Medical College, 1886; aged 59; died at his home, July 7.

Samuel L. Rea, Oxford, Pa.; University of Pennsylvania, Philadelphia, 1871; aged 76; died at his home, August 17.

⊕ Indicates "Fellow" of the American Medical Association.

Correspondence

"PROTEOGENS"

To the Editor:—Allow us to direct your attention to several misstatements which appear in the letter signed "Allen W. Freeman, M.D., Commissioner of Health, State of Ohio," published in The Journal of the American Medical Association for July 26.

1. Salesmen of this company have *not* been exhibiting a "letter purporting to show that this department has endorsed their products in the treatment of venereal diseases," as stated by Dr. Freeman.

2. The author of the letter has *not* "made numerous efforts to recall the letter, but the Merrell people profess an inability to control its use," as stated by Dr. Freeman.

A physician employed in one of the clinics used our Proteogens Nos. 10 and 11 extensively and is still using them to a large extent in his private practice. He is a man of standing in the community in which he practices and is also a professor in one of the leading medical colleges in the state.

The letter in question cites the case of a man who had been under treatment for three years with 606, 914 and most of the other treatments in general use, and on August 31, a year ago, still gave a Wassermann test plus 4. He was given Proteogen No. 10, and by the middle of December the Wassermann was negative and the man was discharged as cured.

While this letter was written on the stationery of the Bureau of Venereal Diseases of the Department of Health, State of Ohio, it was written in the first person, and made no pretension in any way to being official nor was any such pretense made or authorized by the Merrell Company.

The author of the letter has *not* made "numerous efforts to recall the letter," nor has the Merrell Company "professed an inability to control its use."

The physician did ask that the letter be returned to him, and his request was complied with promptly.

[Then follows the full text of the letter in question. As its contents have no bearing on the question under discussion, it is omitted.—Ed.]

In over ninety-one years of honorable service as manufacturers of medicinal preparations, the Wm. S. Merrell Company has never endeavored to advance its interests through misrepresentation.

The Wm. S. Merrell Company,
Chas. G. Merrell, Pres.

[The letter above was submitted to Dr. Allen W. Freeman, Commissioner of Health of the State of Ohio. Dr. Freeman's comments appear below.—Ed.]

To the Editor:—The plain issue of veracity raised in the communication of the Merrell Company must be settled on the evidence, which is unfortunately too voluminous to be published in full in The Journal. Copies of the correspondence in the case have been furnished the editor, and the originals are on file in the office of the state department of health in Columbus.

1. Whether or not the photographic reproduction of a letter written on the letter head of this department, and the distribution of copies to salesmen for display to physicians, was a conscious effort on the part of the firm in question to create the impression that the letter was an official one is perhaps a matter of inference. That it did create such an impression is evidenced by the letters of inquiry received from physicians who saw it.

2. The statement that the Merrell Company refused to return the *letter* is perhaps erroneous. They did apparently return the original letter but not the *photographic copies* which had been distributed to their salesmen. On May 22 the firm wrote as follows:

> "A number of physicians who are in cooperation with both state and national bureaus of venereal diseases have been using our Proteogens with marked success and there are doubtless many letters carried by our salesmen—reports from some of these physicians."

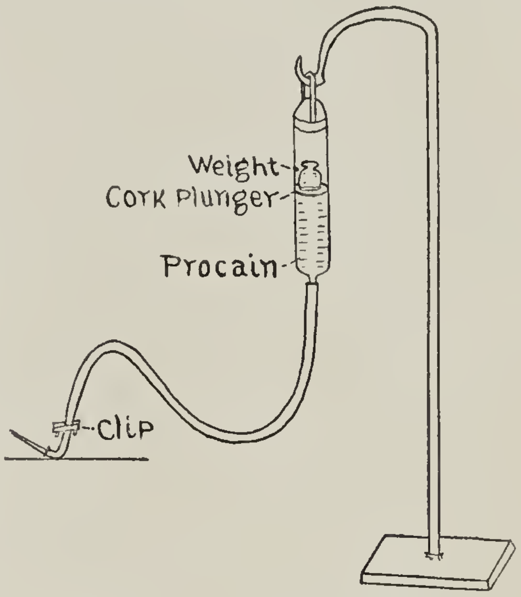
This was interpreted to mean that the firm had no method of knowing what letters were carried by their salesmen and was not responsible for them. Whether or not this interpretation is correct is again, perhaps, a matter of opinion.

The purpose of the original communication was to make plain to those of the profession who have already seen or might subsequently see the letter referred to that the communication was the expression of an individual and not of the Department.

A. W. Freeman, Commissioner.

"ABDOMINAL SURGERY UNDER LOCAL ANESTHESIA"

To the Editor:—I was very much interested in the article of Dr. Robert Emmett Farr on "Abdominal Surgery under Local Anesthesia" (The Journal, Aug. 9, 1919, p. 391). I have no criticisms to make of the surgical aspects of the article, but beg leave to criticize the mechanical end. Why is it necessary to have the complicated mechanical devices portrayed in the photographs when the same results can be obtained by the simple hydraulic pump here portrayed? The only really necessary equipment is an arsphenamin apparatus, a cork plunger, and some sort of weight above this, either a one or two pound metal weight, or a small bottle, say an ounce bottle filled with mercury or with lead shot. What could be simpler, or what could be more beautifully efficient?



Injector for use in local anesthesia.

Lucius F. Herz, M.D., New York.

GERMANY AND IMMUNOLOGY

To the Editor:—A current article by Colonel Vedder on the Wassermann reaction in the *Journal of Immunology* (4:141 [May] 1919) fires a train of thought already laid. Colonel Vedder suggests that the term "Wassermann reaction" be abandoned in favor of "Bordet-Gengou reaction." Partisan as I am of the Belgian school, I regret that I cannot see the force of the argument assigned by Colonel Vedder. He states correctly that, whereas Wassermann's original idea was that his reaction in syphilis was to be regarded as a reaction between a specific antigen (extract of fetal syphilitic liver) and its corresponding antibody, it has since been realized to be nonspecific in respect to the antigen employed. As the reaction of Bordet and Gengou is strictly specific in both respects, Wassermann would seem entitled to credit for developing a novel type of nonspecific fixation reaction of great practical utility.

There are, however, substantial evidences of German usurpation in immunology which it would now be well to destroy not simply for emotional reasons, or reasons of honesty, but in the interest of scientific truth. The entire Ehrlich hypothesis, with its misleading nomenclature, has long been an inhibition to independent scientific thought. With the exception of the earlier work in toxin and antitoxin, the only heuristic value of Ehrlich's theory has been in stimulating Bordet to further fundamental discoveries. Since there are few workers who now believe in more than fragments of the Ehrlich hypothesis, it would seem an advisable moment to abandon most of the Ehrlich terminology. There are, for example, few writers in this field who have had any convictions about the use of the words "alexin" and "sensitizer" in preference to the German terms "complement" and "amboceptor," which seem inextricably fastened on our scientific literature. Although the word "complement" is not in itself particularly committing, it is less completely explanatory of what we believe to be the ferment-like activity of the substance normally present in fresh serum on which the ultimate destruction of bacteria depends. On the ground of priority and accuracy, the term "alexin," originated by Buchner and functionally defined by Bordet, should take precedence over Ehrlich's "complement." The word "amboceptor" cannot be defended except by the blind adherents of Ehrlich's fantastic theory. Its adoption into common parlance is due undoubtedly to the fact that most workers who apply this term have been engaged in a purely practical application of the facts of immunology rather than possessed of first-hand information on the mechanism of the reactions themselves. A careful inspection of the literature should convince one that the immune substance in serum has never been demonstrated to be capable of combining with the alexin without previous union with the antigen as implied in the term "amboceptor" (compare Bordet and Gay: Studies in Immunity, p. 363).

Another evidence of the extent to which German science has imposed on us is the frequent incorrect use of the reaction designated as deviation of complement (Neisser-Wechsberg phenomenon) when the fixation reaction of Bordet and Gengou is in reality intended. As an example, one may instance a recent editorial in The Journal ("The Complement Deviation Reaction in Tuberculosis," Aug. 9, 1919, p. 424). It seems scarcely necessary to reiterate that the two reactions are quite different in detail, significance and applicability, and the choice of the German and incorrect reaction for the Franco-Belgian phenomenon is more than the result of chance.

It will probably be years before these incorrect hypotheses and terms riveted on our literature by successful German propaganda are eliminated. Now, however, would seem the suitable moment to begin the process of freeing ourselves from some of these fetters.

Frederick P. Gay, M.D., Berkeley, Calif.

THE CAUSE OF EDEMA

To the Editor:—The editorial comment on "The Cause of War Edema" (The Journal, July 26, 1919, p. 274) refers to an article (Kohman: War Dropsy, *Proc. Soc. Exper. Biol. & Med.* **16**:121 [April 16] 1919) in which the views concerning the rôle of protein in the causation and relief of "war edema" are similar to those expressed by me on various occasions, concerning the development of edema in certain types of renal disease. It may be of interest to refer to the two papers published by me on the subject:

1. The Nature and Treatment of Chronic Parenchymatous Nephritis, The Journal, Aug. 11, 1917, pp. 444-447.
2. Concerning the Causation of Edema in Chronic Parenchymatous Nephritis, *Am. J. M. Sc.* **154**: 638 (Nov.) 1917.

My object in writing is not merely to call attention to these publications but to add corroborative evidence on the probable cause of the condition, which has been little understood in the past.

Albert A. Epstein, M.D., New York.

Comment.—Miss Kohman, whose work was commented on in our editorial, observed the appearance of an unusual edema in animals that were kept on a ration in which carrots supplied the protein. Obviously the nitrogenous intake was at a rather low plane. When protein was added from other sources the edema was averted.

Edema is known to occur in man in cases of chronic parenchymatous nephritis. Epstein's hypothesis for its production (*Am. J. M. Sc.* **154**:638 [Nov.] 1917) is briefly as follows: In this disease a hydremia undeniably occurs; and in the parenchymatous type the amount of protein in the blood is markedly diminished, presumably because of the loss of protein in the urine. The decrease seems to be proportional to the duration and intensity of the disease. We may assume on the basis of Starling's views that the loss of protein incurred by the blood serum through the continuous albuminuria causes a decrease in the osmotic pressure of the blood, thereby favoring the absorption or imbibition and retention of fluid by the tissues.

According to Epstein, therefore, the problem in the treatment of edema in chronic parenchymatous nephritis is to relieve the condition and prevent its occurrence. Mere removal of the effusion fluid is not sufficient. A normal condition of the blood must be restored and nutrition must be improved. Massive transfusion has a partial usefulness, but adequate dietary measures are most potent. Epstein's plan consists in the administration of large quantities of properly selected protein with a minimum of carbohydrates and the exclusion of fats. He restricts the carbohydrates "to promote a maximum assimilation of protein and to exclude the greater production and retention of water which is incidental to the metabolism of carbohydrates."

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BENZYL BENZOATE AND AROMATIC ELIXIR OF ERIODICTYON

To the Editor:—Will you be kind enough to have some one look up the place or places where I can obtain benzyl benzoate? I have been reading the articles on the use of that drug but cannot find any drug firm that makes it.

Jesse L. Russell, M.D., Adairville, Ky.

To the Editor:—Kindly advise me where (1) benzyl benzoate and (2) elixir of eriodictyon may be obtained.

T. G. H. Drake, M.D., Caron, Sask.

Answer.—1. The Journal has received numerous inquiries relative to benzyl benzoate, a substance which is discussed in two articles in The Journal, Aug. 23, 1919, by Dr. David I. Macht, "A Therapeutic Study, Pharmacologic and Clinical, of Benzyl Benzoate," and by Dr. Jennings C. Litzenberg, "The Use of Benzyl Benzoate in Dysmenorrhea." The only preparation thus far accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies is that manufactured by Hynson, Westcott & Dunning, Baltimore (see New and Nonofficial Remedies, 1919, p. 53). The drug may be obtained directly through this company or indirectly through wholesale pharmaceutical companies.

2. Eriodictyon—yerba santa leaves—is official in the United States Pharmacopeia. The elixir is included in the National Formulary; it contains fluidextract of eriodictyon, 6 per cent.; compound elixir of taraxacum, about 44 per cent., and syrup (see Epitome of the Pharmacopeia of the United States and the National Formulary, p. 83).

NICKEL DERMATITIS

To the Editor:—Can you recommend prophylactic or active treatment for the dermatitis caused by working in nickel plating?

A. L. C.

Answer.—An eczematous inflammation of the skin has been described as occurring among workers in nickel plating establishments. The disease affects the hands first and may spread over the arms, occasionally even involving the skin of the entire body. The skin becomes inflamed, and vesicles appear on the affected part. The nickel sulphate used in electrolytic baths is believed to be responsible for the eruption. The application to the skin of cream or petrolatum is recommended, both as a prophylactic and as a remedial agent. Careful cleanliness and attention given the skin is considered to be by far the most reliable protection against the disease.

PROTEOGENS

To the Editor:—I have just returned to my practice after two years and more of absence in the service. I find myself unacquainted with many new theories and drugs. Just at present I am being flooded with many reprints on new drugs, among which numbers are samples and literature that sounds good referring to Proteogen and more particularly to that of the William S. Merrell Company. What is the standing of this product with the Council?

S. E. R., Rutland, Vt.

Answer.—There have probably been no epoch-making advances in medicine during the last two years. As to proteogen: this was discussed in the Council report published in The Journal, July 12, p. 128.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
California: Sacramento, Oct. 20-23, Sec., Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.
Colorado: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
District of Columbia: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
Georgia: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.
Hawaii: Honolulu, Sept. 8-10. Sec., Dr. J. R. Judd, Honolulu, Hawaii.
Idaho: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.
Illinois: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.
Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.
Kansas: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.
Massachusetts: Boston, Sept. 9-11. Sec., Dr. Walter P. Bowers, State House, Boston, Mass.
Michigan: Lansing, Oct. 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.
Missouri: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.
Montana: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
New Hampshire: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.
New Jersey: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.
New Mexico: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.
New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.
Oklahoma: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.
Rhode Island: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
Utah: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.
West Virginia: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.
Wyoming: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

Georgia June Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports the written examination held at Atlanta and Augusta, June 5-6, 1919. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 25 candidates examined, 21 passed and 4 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Atlanta College of Physicians and Surgeons	(1903)	82.9
Atlanta Medical College	(1915)	88.7
University of Georgia	(1919)	87.5, 89.4, 90.3, 90.5, 91.1, 91.1, 91.8.
Loyola University, Chicago	(1918)	90.3, 90.9
Rush Medical College	(1916)	91.9
University of Maryland	(1912)	90.6
Columbia University	(1916) 88.6, 91.6, (1918)	89.1
Meharry Medical College	(1919)	83, 84.4, 88, 89.8.
University of Virginia	(1919)	90.9
FAILED		
Birmingham Medical College	(1915)	77.3
Southern College of Medicine and Surgery	(1913)	73.3
Maryland Medical College	(1904)	62.1
Meharry Medical College	(1917)	76.6

Dr. Nolan also reports that 16 candidates were licensed through reciprocity from March 26 to June 5, 1919. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Indiana University	(1908)	Indiana
Hospital College of Medicine, Louisville	(1907)	Kentucky
University of Louisville	(1916)	Kentucky
Tulane University	(1915)	Louisiana
University of Maryland	(1904)	Maryland
Johns Hopkins University	(1900)	N. Carolina
	(1915), (1917), (1918)	Maryland
University of Michigan Medical School	(1917)	Michigan
Jefferson Medical College	(1917)	New Jersey
Woman's Medical College of Pennsylvania	(1914)	Penna.
Medical College of South Carolina	(1895)	Alabama
Chattanooga Medical College	(1898)	Alabama
Memphis Hospital Medical College	(1911)	Oklahoma
University of Virginia	(1915)	Virginia

Book Notices

The After Treatment of Wounds and Injuries. By R. C. Elmslie, M.S., F.R.C.S., Brevet-Major R.A.M.C., Special Military Surgical Hospital, Shepherd's Bush. Cloth. Price, $4 net. Pp. 323, with 144 illustrations. Philadelphia: P. Blakiston's Son & Co., 1919.

There has always been a strong tendency to lay stress on the problems of diagnosis and immediate treatment of the sick and injured, while few authors have ever taken the trouble to follow the treatment of patients with disability through to the point at which the maximum degree of usefulness of the body has been restored. There has been a marked change in our attitude regarding these matters in the past few years, inaugurated by the increasing demands of the rapidly multiplying industrial compensation laws, and brought to a sharp focus by the tremendous problems in physical reconstruction or restitution precipitated by the war. Never before have governments evinced such a definite sense of responsibility to their disabled soldiers as to undertake to restore them to a condition as sound physically as may be before turning them back to civil life on their own responsibility. One result of this has been the concentration of groups of medical officers on the problems of after-treatment under conditions that permit a thorough study of an almost endless variety of pathologic conditions due to trauma. "The After Treatment of Wounds and Injuries" is one of the products of this enlightened policy, and in excellence of plan, scope of material and clearness of exposition it sets a standard for books in this field. The book is a fine sample of exposition by example; the author states the general principles underlying the treatment of certain conditions and follows this by the description of cases in which the treatment described was carried out, in this way making his point plain without becoming verbose.

The keynote of the book is found in the opening sentence: "The ultimate aim of military surgery is to restore the functional utility of the damaged part of the body." With this as the ideal, the author strives to impart that knowledge of pathology and clear appreciation of mechanics which are necessary for the realization of the ideal. The first chapter is devoted to a statement of the principles of reparative surgery. In the second chapter we find a discussion of the treatment of chronic osteomyelitis. The third and fourth chapters deal with the question of malunion of fractures, delayed union and nonunion; the following two chapters are devoted to the reparative surgery of joints; following this, in the order named, are chapters devoted to injuries of the nerves; pathology and diagnosis; surgical treatment of nerve injuries; injuries of the muscles, tendons and skin; functional disabilities; amputations; repair in the upper limb, taking up here the various conditions which may be encountered, such as flail elbow, malunion of the radius or stiffness of the joints of the hand, and showing the application of the principles previously outlined to the management of each condition; injuries of nerves of the upper limb; repair in the lower limb; injuries of nerves of the lower limb; injuries of the spine; splints and surgical appliances; plaster-of-Paris technic, and physiotherapy.

This book is a distinct addition to the literature of reparative surgery and will doubtless be of great value to all who are interested in that work.

Colloids in Biology and Medicine. By Prof. H. Bechhold. Authorized Translation from the Second German Edition, with Notes and Emendations, by Jesse G. M. Bullowa, A.B., M.D., Assistant Clinical Professor of Medicine, Fordham University. Cloth. Price, $5 net. Pp. 464, with 54 illustrations. New York: D. Van Nostrand Company, 1919.

This is a lucid account of colloidal chemistry and its application in medical biology. The author reviews the fundamentals of colloids, the physical phenomena peculiar to this field, and the methods of colloidal research. The biocolloid carbohydrates, proteins, other food products and condiments, enzymes, and immunity reactions are considered especially with regard to the colloidal properties manifested, and the bearing of these on vital and on in vitro activities. That portion of the text dealing with the organism as a colloid system presents the colloid reactions concerned with the distribution of water in normal and diseased tissues. Fischer's theory of edema is discussed fully. There follows a similar discussion of salt distribution, assimilation and dissimilation —processes involving the conversion of crystalloid foodstuff into colloids which may be retained for use. Growth, the formation of layered structures, ossification, and certain pathologic changes are given a colloidal chemical basis. The colloidal chemistry of cells, the movement of organisms and muscle contraction, blood, respiration, circulation, absorption, secretion and excretion are fully discussed, with certain reference also to diseased conditions. The final chapters deal chiefly with the action of foreign chemical substances and organisms, and microscopic technic, both rather broadly. This discussion of colloids in numerous phases of medical biology is especially valuable as a reference to investigators in this or related fields, but is also a pleasing stimulus to the broadly trained, aggressive physician.

An Outline of Genito-Urinary Surgery. By George Gilbert Smith, M.D., F.A.C.S., Genito-Urinary Surgeon to Outpatients, Massachusetts General Hospital. Authority to publish Granted by the Surgeon-General, U. S. Army. Illustrations by H. F. Aitken. Cloth. Price, $2.75 net. Pp. 301, with 71 illustrations. Philadelphia: W. B. Saunders Company, 1919.

It is rather disappointing to note that neither in content nor in form of expression has the author succeeded in reaching his ambition as expressed in the preface: "The following pages are an attempt to simplify the rather complex subject of genito-urinary disease."

Accuracy of definition and clarity of description are lacking throughout. A few quotations: "In bladders distorted . . . the ureters may be impossible to find" (page 30). "Gonorrhea is at first a disease of the wall of the urethra" (page 77). Mucosa is evidently meant. "A band of scar tissue in the urethral mucosa and submucosa extending around the urethra is a stricture" (page 95). Stricture is not a band but a condition of narrowing of the potential urethral lumen by persistent pathologic changes. Scar tissue in the urethral wall running in a longitudinal direction may also diminish the caliber of the canal. "The resilient or gristly stricture may resist all attempts at dilatation" (page 98). A stricture may be resilient because of the presence of a great number of elastic fibers in the scar tissue. Such a stricture is easily dilated, but very promptly contracts after the removal of the instrument used in dilatation. "A collection of watery fluid is a hydrocele; of spermatic fluid a spermatocele; of blood a hematocele" (page 163). "Practically never do we find infection of the bladder without underlying cause" (page 190). "The escaped urine infiltrates the alveolar tissue of the pelvis and later forms an abscess" (page 214).

In his diagnostic and therapeutic suggestions, the author will undoubtedly encounter opposition. The recommendation of putting a female patient in the knee-chest position for urethroscopy will not be favorably received by most of the interested specialists. This posture is repulsive to most women and disadvantageous to the examiner. The instillation into the urethra of a 4 per cent. cocain solution before cystoscopy, as advised by the author, is a risky procedure. The urethra, especially if eroded, may absorb the cocain so rapidly that severe and even fatal intoxication may result. In the discussion of bubo due to chancroid, the extirpation of the diseased glandular mass is not mentioned at all. The plugging of the prepuce with gauze during acute gonorrhea will certainly not receive the approval of most urologists. The description of the diagnostic value of bougie à boule is contrary to the essentials of its use. The optimism of the author in designating a perineal urethrotomy for stricture as a simple enough operation, if a guide can be passed through the urethra previous to operation, will not be shared by experienced operators. In the discussion of hypertrophy of the prostate in men of advanced years, the now generally accepted Zuckerkandl-Tandler theory is not even mentioned. It is hard to understand how the author succeeds in making the diagnosis of residual urine by rectal palpation and suprapubic percussion. The so-called Army operation is the only one described in the chapter on varicocele, a method which many have long since discarded because of the frequency of recurrences and the failure to care properly for the open inguinal canal.

Medicolegal

Husband Held Liable for Services Rendered to Wife

(*Reahard v. Miller (Colo.), 179 Pac. R. 157*)

The Supreme Court of Colorado, in affirming a judgment for $200 in favor of plaintiff Miller, a physician, says that this was an action brought by him against defendant Reahard to recover for medical and surgical services rendered to the latter's wife. The plaintiff, for his right to recover, relied on the common law liability of the defendant, as a husband, for necessaries furnished to the wife. The defendant sought to defeat recovery on the ground that, as he claimed, his wife had left him without cause about six months prior to the time the services in question were rendered, and continued to live separate and apart from him up to the time of her death, which occurred shortly after the services, including a surgical operation, were rendered. There was no evidence that the defendant had a home prepared and ready for his wife at any other place than that where she was staying at and before the time the plaintiff's services were sought and engaged. She was then staying at a rooming house. The defendant frequently visited her, and stayed at the rooming house many nights, and during a part of the time remained there every night. It was testified that immediately after his wife died the defendant requested that her earrings be taken off. The evidence also showed that he visited the hospital where his wife was receiving medical and surgical treatment. He held himself out to the plaintiff, and to others, as the husband of the patient. The plaintiff testified that, after her death, in a conversation relating to his compensation, the defendant said "he would pay the bill." These and other circumstances justified the trial court in findnig the issues for the plaintiff, and supported the conclusion that there had been no separation between the defendant and his wife. On the whole evidence the supreme court cannot say that the trial court was not warranted in resolving all material issues in favor of the plaintiff. It is of the opinion that there was sufficient evidence to support the findings and judgment.

Diagnosing and Treating Pregnancy as Kidney Trouble

(*Stevenson v. Yates (Ky.), 208 S. W. R. 820*)

The Court of Appeals of Kentucky reverses a judgment that dismissed the plaintiff's petition after a verdict for the defendant had been directed, and orders a new trial, in this action against a woman physician for alleged malpractice in diagnosing and treating a case of pregnancy as one of kidney trouble. The court says that the plaintiff, a married woman 42 years old, in February went to the defendant for proper treatment. This, of course, required as a prerequisite a proper diagnosis of the plaintiff's affliction. The symptoms which she related to the defendant were that she was suffering with shortness of breath, with pains in her back and stomach, and perhaps some others. The defendant made no physical examination, but stood behind the plaintiff while she was seated in a chair and held the plaintiff's hands for about ten minutes, when she told the plaintiff that she was suffering with kidney trouble. She prescribed for the plaintiff, and continued to treat her, without her improving, until in October. In June, the plaintiff having experienced a crawling sensation in the lower part of her abdomen, reported it to the defendant and asked her if it could be possible that she was pregnant, and was told that she was not. Throughout the whole time the plaintiff had no periods of menstruation, but on October 19 had a slight hemorrhage, of which the defendant was notified by telephone, as well as of other conditions and symptoms; and the defendant expressed satisfaction over what she said was a return of the plaintiff's menses, and asked her to visit her office on the following Saturday, October 23. But on Saturday morning another physician was called in, who discovered that the plaintiff was then in labor. She was removed to a hospital, where about 7 o'clock that night a fully developed dead child was taken from her with the aid of instruments.

The law is well settled in this and the court believes in all jurisdictions that a physician or surgeon is answerable for an injury to his patient resulting from want of the requisite knowledge and skill, or from the omission to use reasonable care and diligence in the treatment of the patient or to exercise such case and dilgence to discover the patient's malady. Concerning the standard of knowledge and skill and the required case which the physician should possess and exercise under this rule, it is quite generally agreed that he is bound to bestow such reasonable and ordinary care, skill and diligence as physicians and surgeons in similar neighborhoods and surroundings engaged in the same general line of practice ordinarily have and exercise in like cases.

The court cannot escape the conviction that it was error to direct a verdict in favor of the defendant. By the motion therefor it was admitted that the defendant was either greatly unskilful or grossly negligent in failing to diagnose properly the plaintiff's case, and because of that, or for other reasons equally negligent or unskilful, wrongly advised her as to exercise she should take and the labor she should perform, and in addition gave her medicines of sufficient strength to produce at once pain, rigors, nausea, nervousness and other weakening and debilitating effects. It was true it did not appear what was the quality or character of the medicines prescribed; but the court thinks that in a case like this, in which the plaintiff is wholly ignorant as to such facts, when she shows the effects and consequences which the taking of the medicine produced, the burden shifts to the defendant to show that such consequences and effects were not the results of the medicine, and furthermore that the defendant, under facts similar to those here, should be called on to show that the advice given as to exercise and labor (as to continue all housework) could not and did not produce injurious results.

The court is not now called on to determine the question of whether the death of the plaintiff's child would be a proper element of damage in a suit by the mother, should the proof show it to have been brought about by the unskilful and careless treatment of the defendant.

On Regulating Practice of Optometry and Medicine

(Price v. State (Wis.), 171 N. W. R. 77)

The Supreme Court of Wisconsin, in holding constitutional Section 1435 f 35 of the statutes of that state, regulating the practice of optometry, says that, although the regulation of the practice of optometry is a comparatively recent idea, upward of forty states of the Union have legislated on the subject. So far as the case of *People* v. *Griffith,* 280 Ill. 18, 117 N. E. 195, denies the power of the state to enact such legislation, the Supreme Court of Wisconsin is not impressed with the logic thereof. It was suggested that the Wisconsin statute was invalid because it permitted persons to select their own glasses when, as the evidence showed, harm might result therefrom. This was akin to the argument that the law regulating the practice of medicine is void because it does not prohibit the individual from buying a standard or "patent" remedy for a common ailment. At the risk of dignifying the suggestion the court will say, in the first place, that the legislature has not assumed to protect the individual from his own folly. The legislation merely aims to secure a minimum of knowledge on the part of those who hold themselves out as competent to practice optometry. In the second place, an attempt of the legislature to suppress or minimize an evil is not to be held innocuous because it does not entirely eradicate it. The law is not void because physicians and surgeons, and persons who sell spectacles without attempting to test the eyes, are exempted from its provisions. The propriety of the exemption is so manifest that discussion of the reasons therefor would be but to attempt to demonstrate the obvious.

Society Proceedings

COMING MEETINGS

American Academy of Medicine, Harrisburg, Pa., Sept. 23.
American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 16-19.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Public Health Assn., New Orleans, Oct. 27-30.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
New Mexico Medical Society, Albuquerque, Oct. 3-4.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Vermont State Medical Society, Burlington, Oct. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting, held in Atlantic City, N. J., June 14, 1919

(Continued from page 715)

Desensitization in Cases of Food Idiosyncrasy

Dr. Oscar M. Schloss, New York: Investigations were made on eight infants affected with idiosyncrasy to egg to determine the occurrence and duration of desensitization after the development of toxic symptoms. These observations extended over a period of from two to six and one-half years. The patients developed urticaria from one to three hours after egg was ingested. No other symptoms occurred, as a rule. Desensitization always occurred after the development of toxic symptoms. It lasted from thirty-three to forty-five days. The period varied in different infants, but was usually the same in each individual. During this time egg white could be ingested without harmful effect, and the cutaneous test to egg protein was negative. The cutaneous test to egg protein and the development of toxic symptoms after the ingestion of egg white were in close accord. The return of sensitiveness was usually abrupt. For example, on one day the cutaneous test might be negative, and the patient could eat egg white without harm; forty-eight hours later the cutaneous test might be positive and the ingestion of egg white cause severe urticaria. Two of the patients became immune at the end of one and one-half and two years, respectively. Three of the remaining six patients were desensitized by feeding with large amounts of egg protein.

Protective Power of Normal Human Serum Against Pneumococcus Infection

Dr. Paul W. Clough, Baltimore: The protective power of the serum of twenty-five normal individuals was tested against infection with highly virulent strains of pneumococci belonging to Types I, II and III. Of eighteen serums tested with a Type I pneumococcus, four showed protective power. Of eighteen tested with a Type II strain, eight protected; and of nineteen tested with Type III, eight protected. If the protection tests with all three fixed types be grouped together, nineteen, or 35 per cent., showed protective power from 10 minimum lethal doses or more of culture; eleven, or 20 per cent., from 100 minimum lethal doses or more; and six, or 10 per cent., from 1,000 to 100,000 minimum lethel doses. The protective power of the most active normal serums was therefore as great as that reported in the serum of patients recovering from pneumonia, or of vaccinated individuals. In none of these serums was it possible to demonstrate the presence of agglutinins, bacteriotropins, precipitins or bacteriolysins. The protective power was manifested when the serum was injected subcutaneously and the culture later injected intraperitoneally, as well as when mixtures of culture and serum were injected intraperitoneally. No summation of protective power could be demonstrated by combining a highly protective normal serum with an artificial immune serum. It seems probable that protective power of the serum in those normal individuals who possess it, as well as in vaccinated individuals, indicates an unusual degree of natural resistance to pneumococcus infection.

DISCUSSION

Dr. Russell L. Cecil, Washington, D. C.: In the study of immunity in experimental lobar pneumonia, no definite relationship could be established between active immunity and the presence of agglutinins and protective bodies in the serum. Following vaccination or an actual attack of pneumonia, monkeys may or may not develop agglutinins and protective bodies in their serum. Active immunity, however, is apparently independent of this phenomenon. Some monkeys showed definite active immunity though they possessed no protective bodies in their blood; on the contrary, certain monkeys that showed high protection in their serum failed to resist infection with the pneumococcus when it was injected intratracheally.

Relation of Pneumococcus to H-Ion Concentration, Acid Death Point and Dissolution of Organism

Drs. Frederick T. Lord and Robert N. Nye, Boston. In the growth and death of the pneumococcus in fluid medium containing 1 per cent. of glucose the production of acid is the most important bactericidal factor. One per cent. glucose bouillon cultures of the pneumococcus allowed to grow and die out usually reach a final acidity of a p_H of about 5.1. At a H-ion concentration of about 5.1 or higher, the pneumococcus does not survive longer than a few hours; in H-ion concentrations of from 6.8 to 7.4 per cent. The pneumococcus may live for at least many days. In the intervening H-ion concentrations, between 6.8 and 5.1, the pneumococcus is usually killed with a rapidity which bears a direct relation to the H-ion concentration; that is, the greater the acidity the more rapid the death. Cloudy suspensions of washed pneumococci in H-ion concentrations varying from 8.0 to 4.0 show, after incubation, dissolution of organisms in lower H-ion concentrations than about 5.0. This dissolution is most marked at from 5.0 to 6.0. Some dissolution also takes place toward the more alkaline end of the scale. No dissolution occurs at the most acid end of the scale.

Comparison of Medical Casualties Among British and American Troops in General Hospital in France

Drs. Reginald Fitz and Alice Cunningham, Boston: A statistical comparison was made of the common diseases occurring in British and American troops who were admitted to U. S. Army Base Hospital No. 5 from Flanders and northern France during 1918. Each body of men tended to have the same common illnesses, but in differen proportions. The British had many cases of trench fever and trench nephritis. These diseases were comparatively uncommon among the Americans. The Americans had many casualties from diarrhea and indigestion, while the British suffered from casualties due to physical strain and fatigue. The Americans more than the British seemed to develop an acute exacerbation of any chronic or latent disease to which they had any tendency from inheritance or previous history. These differences were in part due to the facts that a certain number of men constitutionally unfitted to military life had not been weeded out from the Americans at the outset and that there were too few officers and noncommissioned officers who were trained to enforce the disciplinary and hygienic measures designed to keep medical casualties as small as possible.

Management of Postpneumonic Empyema

Dr. Willard J. Stone, Toledo; Ohio: Among eighty-five patients with empyema on whom operation was performed as soon as the empyema was diagnosed, the mortality was 61.2 per cent. Among 190 patients on whom late operation was performed for empyema, that is, following a series of preliminary aspirations and after subsidence of the acute pneumonic process, the mortality was 12.6 per cent. In the last ninety-four operations the mortality following this plan of procedure was 9.5 per cent. Although types of infection with varying virulence may have accounted for the decreased mortality, it is believed that operation prior to the subsidence of the acute pneumonia, and before adhesions have immobilized the mediastinum, is accompanied with greatly increased risk. In both those operated on early and those operated on late the infectious agent was found to be a hemolytic streptococcus in more than 70 per cent. of the cases. The late operation showed a much greater percentage of recoveries for streptococcus infection than the early operation. After adhesions have limited the mobility of the mediastinum, the pressure changes incident to an open pneumothorax do not affect, to so great a degree, the opposite lung, and operation may be performed with greater safety. Preliminary aspirations were performed every day or alternate day to remove the pus. The late operation was performed from the twelfth to the fifteenth day and was usually done under local anesthesia. A Brewer tube, to which was attached an Ewald bulb for suction, was used. Surgical solution of chlorinated soda (Dakin's solution) was used as an irrigating fluid through a Carrel tube which was passed through the flanges of the Brewer tube. The five most common complications after operation, as a cause of death, were, in order of frequency, nephritis, pericarditis (usually purulent), peritonitis, substernal pus pockets, and lung abscesses. In the patients on whom early operation was performed, an active pneumonia was usually found to be present in both lungs.

Harmful Effects of Shallow Breathing

Dr. John. C. Meakins, Montreal: It has been shown by Haldane, Meakins and Priestley that rapid, shallow breathing leads to anoxemia, and also that one of the effects of anoxemia may be the production of this type of breathing. Therefore, under certain circumstances a vicious circle may be established. There is a clear relationship between the respiratory rate and the cyanosis which is undoubtedly due to anoxemia in acute pneumonia. As the respiratory rate increases the volume per respiration decreases, and the total ventilation per minute rises above normal. If the respiratory rate increases beyond 50 per minute, cyanosis is likely to appear. If this extreme rate persists, cyanosis gradually increases until the cardiovascular system eventually begins to fail. The respiratory rate and the cyanosis are not necessarily dependent on the extent of pulmonary involvement: it may be extreme, when there is evidence of comparatively slight consolidation, and may not appear even when the greater part of one lung is evidently consolidated. Another point which must be taken into consideration is that of the quantity of blood which may be circulating through the consolidated area. It has been shown by Gross that this may be considerable. Such blood is not oxygenated, and joins the mixed arterial blood to produce a general diminution of the total oxygen content of the circulating blood. This may play a comparatively small rôle in the production of cyanosis. The fact remains, however, that when crisis occurs, and the respiratory rate diminishes, the cyanosis disappears in spite of the fact that the consolidation remains some time. Therefore it may be concluded that rapid, shallow breathing occurring in pneumonia is a very dangerous condition in consequence of the anoxemia which results from it.

Clinical Significance of the Suprarenal or Other Endocrine Glands in Influenza and Influenzal Pneumonia

Drs. D. M. Cowie and P. D. Beaven, Ann Arbor, Mich.: Being unable to convince ourselves that there was any serious cardiovascular disturbance in the large majority of cases of influenza and influenzal pneumonia to explain the marked asthenia and low blood pressure, we became interested in the possibility of suprarenal dysfunction or some other endocrine disturbance being responsible for this group of symptoms. Necropsy reports reveal hypoplasia of the suprarenals and evidence of suprarenal dysfunction. The appearance of suprarenal dysfunction in influenza and influenzal pneumonia is suggested clinically by the cardinal symptoms: a characteristic rise in blood pressure following the prolonged administration of epinephrin, the prolonged blood pressure curve following the administration of 1 mg. of epinephrin. That an endocrine disturbance is present in influenzal pneumonia is further suggested by a prolonged blood sugar curve after injection of epinephrin, and a prolonged blood sugar curve after ingestion of glucose. Hypoglycemia is not present in influenza and influenzal pneumonia as has been found to be the case in some diseases of endocrine origin. If epinephrin is of any use in the treatment of the symptoms of suprarenal dysfunction, the proper method of administering the epinephrin seems not yet to have been found.

DISCUSSION

Dr. Francis G. Blake, Washington, D. C.: In a series of about 250 necropsies of cases of influenzal pneumonia at Camp Pike, two cases with markedly hemorrhagic suprarenal glands were noted.

Dr. E. C. Rosenow, Rochester, Minn.: In connection with Dr. Cowie's clinical observations, it is of interest to note that guinea-pigs injected with the strains from typical cases of influenza commonly showed swelling, edema and hemorrhage of the suprarenals. This was particularly marked in the case of some strains.

Dr. C. P. Howard, Iowa City: We, too, were struck with the profound prostration and weak pulse in these cases, and were much interested in being told by our pathologists that in one or two cases there was some abnormality in the suprarenals. Might this not also explain the absence of a leukocytosis in this disease, as we have shown elsewhere that in polyglandular insufficiency there is an absence of the normal leukocytic response to the subcutaneous injection of epinephrin?

(To be continued)

AMERICAN ORTHOPEDIC ASSOCIATION

Thirty-Third Annual Meeting, Atlantic City, N. J., June 14-17, 1919

(Concluded from page 718)

Personal Experience with Lane's Plate in Fractures

Dr. Paul P. Sweet, Hartford, Conn.: Among 1,560 fractures of the long bones observed during a three year period, there were 172 open operations; forty-one for compound fractures, and 129 for reduction of simple fracture, and delayed, nonunion or vicious union. Lane plates were applied in twenty-eight instances. Primary healing of the operative wound was obtained in every case except two compound fractures with severe displacement. Excellent final results were obtained, however, in spite of this risk. In four cases, sinuses developed after some weeks. On removal of the plates, the sinuses closed, except in one instance in which a low grade osteomyelitis was caused by the plate. The plates and screws in this instance had been handled by the operator. The patients were all urged to have the plates removed after firm union had taken place, and this was done in four instances. No abnormal bony reaction or tissue reaction had been found. In one case a plate was placed on the femur eighteen months after the fracture, and the result was excellent. Probably removal of considerable bone, and apposition of healthy nonsclerotic fragments, explained this success. The cases of sinus all occurred in the radius and ulna, or tibia and fibula; there was no trouble in any of the femur cases. It seems, then, that Lane plates offer a satisfactory means of fixation in selected cases. They are more efficient than other agents in highly comminuted fractures, when other fixation materials may increase the trauma.

Points to Be Observed in the First Ten Days of the Treatment of Compound Fractures

Dr. H. Winnett Orr, Lincoln, Neb.: I wish to insist on immediate or very early restoration of parts in a compound fracture to as nearly a normal position as possible. Following these methods of fixation which actually do maintain position with length and in which the immobilization is as perfect as possible, experience of the war hospitals has shown that in femurs the practical use of the Thomas splint and plaster of Paris, either or both in some cases, may be made to meet practically every indication. In leg fracture the same thing is true (with a wider field of use for plaster of Paris). In fractures of the upper arm there has been a tendency for too long continued use of the long Thomas splint. The importance of elbow flexion and supination of the hand, to be done not later than two weeks from the time of injury, must be emphasized, especially in fractures of the humerus. Plaster of Paris may also be of the greatest use in these cases. Supination in a Balkan frame in all of these fractures is frequently important and necessary, but the use of weights and pulleys in this connection should not be confused with the occasional use of weights and pulleys for traction, which should certainly be used much less than heretofore.

Disability Following Injuries to the Back in Industrial Accidents

Dr. James Warren Sever, Boston: Persons suffering injury to the back in industrial occupations suffer long periods of disability. Two facts are noted in these cases: first, that the disability is unusually long, and secondly that medical supervision is not of the best, nor calculated to get the best results. Among 134 cases the average period of disability was about six months. These figures cover the time elapsed from the accident, until seen by me as an impartial examiner for the Industrial Accident Board. In some cases we believed that the man should try and go back to work, but there is no doubt a psychologic factor in many cases. While one cannot say that any are real malingerers, the fact that they receive compensation without working has a good deal to do with disability in many cases. There is no doubt that if proper and skilful medical attention had been given, the disability periods would have been cut in half.

DISCUSSION

Dr. Compton Reily, Baltimore: This problem is very difficult from the insurance point of view, and as to how long these people should be compensated. I feel, as Dr. Sever does, that many of these men would go back to work much more quickly if there were no question of compensation.

Dr. C. S. Baldwin, Salt Lake City: Early diagnosis of these cases is important. One important point is putting them up on an inclined plane with a Sayre extension apparatus. These injuries result in fracture and displacement of the articulatory surfaces of the bodies of the vertebrae.

Application of Curative Therapy in the Ward

Dr. Henry Chase Marble, Boston: All forms of therapy are united to one end, under a competent surgeon, who can pool his resources to achieve a successful whole. Nurses, orderlies and aides are at his disposal. The latter, working under the direction of the ward surgeon, strive, through simple and graded occupation, first for mental rehabilitation, and secondly for restored function. Direction of a medical officer is necessary so that the correct amount and type of work may be given. Often men most in need of occupation are the hardest to start. Rarely does a man do more than necessary and have to be slowed down. When the patient is up in a wheel chair or about on crutches, some attempt can be made, under careful supervision, toward functional restoration. The required time should be given to occupational therapy, or it fails in its purpose. Physiotherapy ward work is of another type. The aide, under supervision of the medical officer, endeavors to prevent deformity and to stimulate motion. Careful records are kept of improvement. The barometer of motion is always pain. The type of occupational work most suitable is rug making, toy making, weaving, stenciling, printing and bead weaving.

DISCUSSION

Dr. Albert H. Freiberg, Cincinnati: It is possible for a human being to reestablish himself without any outside agency. A man should expect help from industry as his heritage; the cripple is going to be better looked after than formerly because of the scientific way in which this question will be treated as the outcome of the war. It depends a great deal on the individual whether he can accomplish big things in spite of his handicap. There is not as yet a completely developed system which can be used as a future textbook, because no one has as yet taken charge of this side of the work. Certain things should be recorded as fundamental, and a systematic arrangement of the therapeutic ideas on the subject should be made under proper supervision of medical men. Any other way is quackery.

Dr. Joel Goldthwaite, Boston: In France, the physical and occupational aides were expected to know both branches. In Boston, a regular curriculum on occupation therapy has been started, so that it will be possible to go there and get a person trained in the particular work wanted.

Dr. John L. Porter, Chicago: From the attitude of the workers and the instructors, the curative side of occupational therapy is likely to be lost to sight. Vocational therapy has a distinct value in keeping the men occupied mentally, but the vocational end does not amount to much. We have had everything taught from handwriting to animal industry, chicken raising and typewriting, but most of the men want to go back to the occupations they had before. A valuable side of curative therapy is the physical end of it.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

August, 1919, **80**, No. 2

*Clinical Study in Preoperative and Postoperative Blood Pressures and Their Relation to Renal Function and in Shock and Hemorrhage. J. O. Polak, Brooklyn.—p. 113.
Obstetric Surgery. E. P. Davis, Philadelphia.—p. 122.
Distribution of Adenomyomata Containing Uterine Mucosa. T. S. Cullen. Baltimore.—p. 130.
Physiology and Pathology of Endometrium. L. W. Strong. New York.—p. 139.
Contributions of William Smellie to Obstetrics. H. Thoms, New Haven.—p. 150.
*Inversion Uterus; Case of Sixteen Months' Standing. G. M. Boyd, Philadelphia.—p. 161.
Indications for Cesarean Section. Ninety-Five Cases. J. C. Applegate, Philadelphia.—p. 167.
*Operation for Restoration of Rectovaginal Septum. H. Koster, Brooklyn.—p. 173.
Is It Possible Through Cooperation of Surgery and Roentgenization in Treatment of Fibromyoma Uteri to Further Improve Results Obtained by Surgery? H. J. Kreutzmann, San Francisco.—p. 179.
*Corpus Luteum Extract in Vomiting of Pregnancy; Report of Cases. J. K. Quigley, Rochester.—p. 183.
Administration of Obstetric Nursery. H. J. W. Morgenthaler, Brooklyn.—p. 186.
*Nutrition of Fetus. J. M. Slemons, New Haven.—p. 194.

Preoperative and Postoperative Blood Pressures.—Polak urges that complete records be made of kidney function and blood pressure in every case before deciding on operation. He has such records of more than 350 consecutive abdominal cases and feels justified in drawing the following conclusions: The pulse pressure is the test of the muscular strength of the individual woman's heart, when endocardial lesions can be excluded. The index of the muscle competency is shown by the relation of the pulse pressure to the systolic pressure which should be as 1 to 3 or more, if the compensation is adequate. The efficiency of the kidney function is directly dependent on the cardiac force of the individual, provided the kidney structures are normal or approximate the normal. Ether anesthesia of one hour's duration does not disturb the relation of the pulse pressure to kidney function, unless the operation is accompanied by considerable loss of blood. When the preoperative kidney function is low, the pulse pressure must be relatively high to compensate for the deficiency, for it does no good to add saline by skin or bowel or by infusion, unless there is sufficient cardiac strength to take it up and carry the column along. When both the pulse pressure and the "phthalein" output are low, or the relation of the pulse pressure to the systolic pressure is as 1 to 2, the operative prognosis should be guarded. Morphin, in large doses, used during operation, seems to help in diminishing the shock, but has a definite effect in diminishing the kidney output. In the majority of cases there is a moderate fall in both the systolic and diastolic blood pressure following ether anesthesia; the inhalation of oxygen after the withdrawal of the ether diminishes this fall, but its effect is only transient. In cases of shock, especially where there has been much blood lost during the operation, the fall in systolic pressure is greater than after a long operation without blood loss. The pulse pressure is a better index of hemorrhage or cardiac failure than the systolic pressure, and finally, there is a constant rise in the leukocyte count in the presence of actual hemorrhage, while the leukocytes fall in shock.

Inversion of Uterus.—In Boyd's opinion hysterectomy is indicated when there exists gangrene or marked infection or a tumor of the uterus, but in clean cases it is unjustifiable. In the acute case, before involution is completed, the uterine musculature is still hypertrophied. It is pliable and will often yield to taxis. Manual reposition should, therefore, be tried in all such cases, but after a month or six weeks the uterus will have returned to its normal size and the tissues become firm and unyielding. In these chronic cases, manual reposition should only be carried out for a short time, if at all. By early operative measures, mortality and the comfort of the patient will be materially improved. Colpohysterotomy is, therefore, the operation of choice in the treatment of difficult cases. It is conservative, simple of execution and can practically be applied to all. Should the anterior operation fail, the posterior wall of the uterus could also be incised. This would undoubtedly make it possible to reposit the uterus. Anterior colpohysterotomy, the Spinelli operation, has certain advantages over the posterior. The field for operation is more accessible and suturing is facilitated.

Restoration of Rectovaginal Septum.—The operation advocated by Koster was devised by the late Dr. Frederick Weisbrod at the Wyckoff Heights hospital, Brooklyn, about fifteen years ago.

Corpus Luteum Extract in Vomiting of Pregnancy.—Quigley treated seventeen patients; twelve were benefited permanently; four had a relapse, and in one case the treatment was a complete failure. The average number of doses was seven; the dose, 0.2 gm., desiccated substance of the gland.

Nutrition of Fetus.—Slemons says that there is no diet specifically adapted to the state of pregnancy; the prospective mother may exercise the same freedom in the selection of food as any one else. She should, however, choose what will agree with her and avoid that which she cannot digest and assimilate. In a practical sense the quantity of the mother's food is more influential than its quality. Popular opinion holds that during pregnancy the mother "should eat for two." This doctrine is erroneous. A diet which has previously been ample will likewise be sufficient throughout pregnancy. And, it is not unimportant to emphasize this view, which has the unqualified support of painstaking, scientific investigations, because overeating during pregnancy is much more likely to provoke discomfort than insufficient nourishment. On the other hand, there can be no justification for measures intended to restrict the growth of the fetus, for when rigidly carried out they tend to weaken the mother. She may be careful, in other words, to avoid overgrowth of the fetus but should not adopt a diet so limited as to interfere with normal development. So long as her health is properly maintained, no thought may be given as to what the size of the fetus is likely to be. At present, provided the physician determines by a thorough, preliminary examination the existence of any disproportion between the size of the fetus and the capacity of the mother's pelvis, he is qualified to decide what the appropriate treatment should be in order to bring pregnancy to a successful termination.

American Journal of Roentgenology, New York City

August, 1919, **6**, No. 8

Injection of Air for Roentgen Diagnosis of Tumors of Bladder. G. E. Pfahler, Philadelphia.—p. 371.
Roentgen Diagnosis of Transdiaphragmatic Hernia of Stomach Resulting from War Wounds. P. Aimé and J. Solomon, France.—p. 376.
Rice Bodies in Ankle Joint. H. K. Pancoast, Philadelphia.—p. 384.
Mastoid Stereoroentgenograms Presenting Variations. B. Allen, Iowa City, Iowa.—p. 385.
An Adaptation of Cross Sectional Anatomy to Localization and Case in Illustration. W. G. Herrman, Asbury Park, N. J.—p. 390.

American Review of Tuberculosis, Baltimore

August, 1919, **3**, No. 6

Present Status of Soldiers and Draft Rejects with Tuberculosis. W. H. Baldwin, Washington, D. C.—p. 321.
Tuberculosis Among European Nations at War. J. A. Miller, New York.—p. 337.
*Epidemic Influenza Among Tuberculous Patients at Loomis Sanatorium. J. B. Amberson, Jr., and A. Peters, Jr., Loomis, N. Y.—p. 359.
*Influenza as a Factor in Reactivation of Quiescent and Healed Pulmonary Tuberculosis. R. S. Berghoff, U. S. Army.—p. 370.
*Pulmonary Sequels Following Influenza. W. D. Tewksbury, Washington, D. C.—p. 375.

Influenza at Tuberculosis Sanatorium.—This study of fourteen cases made by Amberson and Peters shows that not only is influenza likely to attack tuberculous sanatorium patients as severely as other individuals, given the necessary conditions of contact and exposure, but its results are likely to be particularly grave in those with massive pulmonary lesions and little pulmonary reserve. It seems likely that a not inconsiderable proportion of individuals with pulmonary tuberculosis suffer exacerbations or relapses as a result of this intercurrent infection. In further support of this view, in taking the histories of patients recently entering the sanatorium, the authors met with a fair number of cases in which the development or exacerbation of manifest tuberculosis followed so soon after an attack of influenza that the causal relationship was very evident.

Reactivation of Tuberculosis by Influenza.—Of thirteen cases of healed and quiescent pulmonary tuberculosis under observation for weeks, presenting at no time evidence of moisture, six cases, or approximately 50 per cent., showed a reactivation and a positive sputum after an attack of influenza. All thirteen influenza convalescents presented evidence of moisture on an average of six weeks after dismissal from the hospital. The râles were of two distinct varieties and because they complicated an already existing healed tuberculous focus they were confusing. The coarse moist râle, abundantly present in all cases, was not unusual and was easily explained. It was the rather typical râle found in many postpneumonic and bronchitic infiltrations, distributed over the entire surface of the lung, most pronounced, perhaps, peribronchially and basally. The interesting and complex finding, also present in all thirteen cases, was a fine moist râle. This râle, except in one or two cases, was confined to an apex or to both apices, and was entirely absent over the bronchi and at the bases. It occurred singly and in showers. Beginning with inspiration, these râles, forming a crescendic shower, covered the entire respiratory cycle. They were in large part unaffected by cough and in some cases augmented by cough and never dispersed, so that fine moist râles were restricted to an apex, occurring in showers, very constant and unaffected by cough. To make the picture simulate still more an active pulmonary tuberculosis, the physical signs of the preexisting healed lesion were present in the same area. And finally, the patient almost invariably had a fever and presented the usual corresponding signs of toxicity. Repeated observations at one week intervals, added one more disturbing element, that of constancy and persistency of symptoms and findings. In wo cases which proved nontuberculous, the findings were present for eight weeks.

Pulmonary Sequels of Influenza.—Tewksbury is of the opinion that there will probably be an increase in active uberculosis due directly to the influenza epidemic. He finds hat the type of tuberculosis following influenza seems to espond especially well to pneumothorax treatment.

Annals of Surgery, Philadelphia

August, 1919, **70**, No. 2

Experimental Hydrocephalus. W. E. Dandy, Baltimore.—p. 129.
Concussion of Brain; Study in Diagnosis. J. F. W. Meagher, Brooklyn.—p. 143.
Traumatic Facial Diplegia. Cases. J. Ransohoff, Cincinnati.—p. 150.
Clinical Study of Nerve Anastomosis. A. W. Adson, Rochester, Minn.—p. 157.
Rhinophyma; Three Cases. J. H. Gibbon, Philadelphia.—p. 169.
Transthoracic Laparotomy. Case. W. Meyer, New York.—p. 172.
Association of Malignant Myoma with Meckel's Diverticulum. Case. D. Symmers, New York.—p. 183.
Postinfluenzal Abscess of Sheath of Rectus Muscle. Case. H. Gage, Worcester, Mass.—p. 188.
Indications for Operation in Urethral Calculi. D. N. Eisendrath, Chicago.—p. 192.
*Difficulties in Diagnosis and Treatment of Unilateral Renal Tuberculosis. L. Herman, Philadelphia.—p. 203.
Case of Fibroma of Testicle. E. E. H. Boyer, Columbus, Ohio.—p. 210.
New Operating Composite Cystourethroscope. G. Greenberg, New York.—p. 212.
*Dupuytren's Contracture: Description of Operation. A. B. Gill, Philadelphia.—p. 221.
Gunshot Injury of Musculospiral Nerve. F. Reder, St. Louis.—p. 226.
Application of Extension to Overlapping Fractures, Especially of Tibia, by Means of Bone Screws and a Turnbuckle, Without Open Operation. L. Freeman, Denver.—p. 231.
Cancer of Stomach and Its Surgical Treatment. C. H. Mayo, Rochester.—p. 236.
Method of Recording Surgical Operations at Front. A. P. C. Ashhurst, Philadelphia.—p. 241.

Experimental Hydrocephalus.—Experiments were made by Dandy on dogs for the purpose of studying the development of internal hydrocephalus. They showed that hydrocephalus has been produced by placing an obstruction in the aqueduct of Sylvius. Dilatation of the third and both lateral ventricles results. In one case the foramen of Monro was occluded; this was followed by a unilateral hydrocephalus. If the choroid plexus of one lateral ventricle is completely removed at the time the foramen of Monro is occluded, not only does no dilatation occur, but the entire lateral ventricle collapses. This is the only absolute proof that the cerebrospinal fluid is formed from the choroid plexus. At the same time, it proves that the ependyma does not secrete cerebrospinal fluid. If the choroid plexus of both lateral ventricles is removed, and an obstruction is placed in the aqueduct of Sylvius, hydrocephalus still results in the third and both lateral ventricles, but at a reduced rate. The fluid forms from the choroid plexus of the third ventricle but cannot escape into the subarachnoid space. Cerebrospinal fluid forms in all the cerebral ventricles. It is absorbed almost entirely in the subarachnoid space. The sole communication between the ventricular system and the subarachnoid space is through the foramina of Luschka and the median foramen of Magendie. The phenolsulphonephthalein test will prove conclusively whether the formina of Luschka and Magendie are open or closed. Closure of these foramina invariably causes hydrocephalus. Hydrocephalus follows ligation of the vena magna Galeni if the ligature is placed at the origin of this vein. Ligatures beyond or in the sinus rectus have no effect because there is sufficient venous collateral circulation. The communicating type of hydrocephalus has been produced in dogs by a perimesencephalic band of gauze, saturdated in an irritant which induces adhesions. This obstruction prevents cerebrospinal fluid from reaching the cerebral subarachnoid space where most of the cerebrospinal fluid is absorbed. The resultant diminished absorption of fluid results from hydrocephalus. Hydrocephalus follows ligation of the great vein of Galen because of an overproduction of the cerebrospinal fluid. In other types of hydrocephalus, both obstructive and communicating, the accumulation of fluid is due to a diminished absorption of cerebrospinal fluid.

Traumatic Facial Diplegia.—Ransohoff reviews the literature and records one personal case in which the lesion on each side was in the fallopian canal, below the geniculate ganglion, and at a point above where the chorda tympani is given off. It was also below the point where the nerve to the stapedius is given off, since there is no record of hyperacousis. Although there was a fracture across the base of the skull, through the mastoid and petrous portion of the temporal bones, as shown by the ecchymosis behind the ear, neither nerve was severed. Of the right nerve one can be sure of this, since the paralysis did not manifest itself until two days after the injury. Hemorrhage only could have accounted for this late occurrence. On the left side the paralysis was instantaneous, but since it completely and speedily recovered, it is likely that here also there was only a contusion with hemorrhage. Traumatic facial diplegia is an exceedingly rare condition. Ransohoff has been able to get only four other cases from the literature. All of the patients recovered. In none of the cases was a decompressive operation indicated in the judgment of the surgeons in charge.

Clinical Study of Nerve Anastomosis.—This paper represents the results of forty-one cases of nerve anastomoses performed in the Mayo Clinic up to Jan. 1, 1917. Cases in which postoperative records are shorter than sixteen months are not included in the report. Nine facial anastomoses were made of 89 per cent. Of the patients heard from, all of whom had improved, the average amount of improvement was 71 per cent., and in this group there were no failures nor indeterminate results, no infections and no deaths. Seven ulnar anastomoses were made. The amount of maximum improvement in the patients who reported was 63 per cent. of the sensory, motor and trophic functions. There were no failures nor indeterminate results, no infections and no deaths. One radial anastomosis was made. No report has been obtained from this patient since he left the clinic. Seven median nerves were repaired. Six (85.7 per cent.) of these patients have been heard from, or have been studied following operation. The average time before maximum improvement was reached was twenty-one months, with 72 per cent. return of the sensory, motor and trophic functions. There was one failure, no indeterminate results, no infections and no deaths. Ten musculospiral anastomoses were done. Nine (90 per cent.) were heard from after operation. The average time before improvement was noticed was twelve months; the average time before maximum improvement was noted was twenty-seven months. The amount of improvement in the patients benefited was 72 per cent. of the sensory, motor and trophic functions. Twenty per cent. only of these patients were improved; in 30 per cent. the results were indeterminate, and in 50 per cent. they were failures. In one case the wound became infected. There were no deaths. Four external popliteal anastomoses were made. The average time before improvement was noticed was eleven months; the average time before maximum improvement was reached was approximately twenty-four months. The average improvement obtained was 43 per cent. return of the sensory, 30 per cent. of the motor, and 80 per cent. of trophic function. In one case the result was a failure (infection) and in another the result was indefinite. Two sciatic nerves were repaired. One of the two patients was heard from following operation; he reported 40 per cent. return of the sensory, motor and trophic functions. One right recurrent laryngeal nerve was anastomosed. Improvement was first noticed twelve months after the operation; maximum improvement—90 per cent. return of the motor function—was reached at the end of thirty-six months. Adson points out that the degree of regeneration depends on (*a*) duration of time between injury and repair, the shorter the period the greater the regeneration. The possibility of regeneration is very slight after three or four years, (*b*) actual loss of nerve tissue, and (*c*) retraction of severed ends. In the technic of nerve repair (*a*) no covering is necessary if the freshened ends can be sutured in close apposition; (*b*) if an intervening gap remains it should be tubulized; preferably by fascia; (*c*) if the gap is longer than 5 cm. tendon transplantation and arthrodesis should be considered instead of nerve anastomosis; (*d*) autogenous transplants may be considered for short gaps, but they are of no greater value than tubulization; (*e*) in all technic, the wound should be free from hemorrhage and infection and the nerve ends should not be trumatized; and (*f*) during the postoperative convalescence, the paralyzed muscles should be massaged and passive motion should be administered.

Unilateral Renal Tuberculosis.—Herman cites a case of primary tuberculosis of the urinary bladder. The patient, a women, aged 30 years, complained of burning on urination and pain in the upper abdomen and back. The cystoscopic examination disclosed the presence of ulcerations typical of tuberculosis. The ureters and kidneys were examined and found negative for tuberculosis.

Operation for Dupuytren's Contracture.—Under general anesthesia, without the use of a tourniquet Gill makes a transverse incision along the distal palmar crease. Through this incision alone a careful dissection is made of the entire palmar fasica to or beyond the crease at the base of the thenar eminence, as far toward the base of the palm as is necessary, and to the web of the fingers. The skin is adherent to the fascia, and the dissection must be made carefully to avoid buttonholing the skin. With proper retraction, as the dissection proceeds, it is found that the entire fascia can be exposed and freed within the limits mentioned. The contractured fascia is then excised without injury to the underlying tendons, vessels and nerves. The tendons do not require lengthening as they do not participate in the contracture. If contractured fascia is present on the palmar aspect of the proximal phalanges, it may be excised through transverse incisions along the crease at the base of each finger involved. If, now, it is found that the proximal interphalangeal joint cannot be extended, or that it can be extended and flexed again only with a snap, the head of the first phalanx must be excised through a transverse dorsal incision over the joint. A small free fat transplant from the thigh is inserted smoothly beneath the palmar skin. It will lie in position without sutures. It is placed here to prevent subsequent adhesion of the skin to the tendons and to reconstruct the normal softness and plumpness of the palm of the hand. The incision is closed with a few interrupted sutures of No. 0 chromicized catgut. The hand is dressed on a well padded splint for a week.

Boston Medical and Surgical Journal

Aug. 21, 1919, **181,** No. 8

*Consecutive or Interrupted Hospital Training for Pupil Nurses. A. Worcester, Waltham, Mass.—p. 221.
Treatment of Early and Doubtful Cases of Cancer. R. B. Greenough, Boston.—p. 224.
*Torsion of Spermatic Cord. H. M. Clute, Boston.—p. 231.
The Nelaton Probe. J. C. Warren, Boston.—p. 235.
Panniculitis. Its Diagnosis and Treatment. F. A. Cummings, Providence.—p. 236.

Consecutive or Interrupted Hospital Training for Pupil Nurses.—Worcester defends the plan of nurses' training adopted by the Waltham Training School for Nurses, which believes that it is an educational advantage to interrupt the hospital training of its pupils by a few months of training in home nursing.

Torsion of Spermatic Cord.—According to Slute the diagnosis of torsion of the spermatic cord should not be difficult. In acute complete torsion of the cord, the onset is very sudden with severe pain in the testis. This pain often radiates along the inguinal canal and may radiate down the thigh or into the pelvis. Vomiting often occurs at the onset, but does not persist. More or less shock and prostration is present at first. Fever does not occur early but one or two degrees may be present later in the course of the condition. The testis is tender soon after the onset. After twelve or eighteen hours the scrotum becomes slightly red-hot, swollen and very tender on the affected side. Edema of the skin was present in two of Clute's cases. The epididymis may be palpated in front of the testis, especially if the case is seen early. In cases seen several days after the onset, the relations of testis and epididymis cannot be defined because of their swelling and the presence of some degree of hydrocele. The spermatic cord in the inguinal canal is neither enlarged nor tender, except near the point of torsion. The prostate and seminal vesicles are negative to rectal examination. In partial torsion of the cord the symptoms are similar but less severe. Recurrent attacks of pain occur in the testis, followed by slight swelling of the scrotum. The pain is often mild and of a relatively short duration. Vomiting and fever are unusual. In any case after detorsion, the symptoms disappear as quickly as they arise. Untreated, the pain, tenderness and swelling persist for many days. The treatment of torsion of the cord depends on whether or not the testis is fully descended and on the duration of the torsion. In any case seen shortly after the onset of the symptoms, detorsion should be attempted. Since the usual direction of the twist is from within outward and forward, the reverse should first be attempted. Increasing pain demands that an attempt to turn the testis in the other direction be made. If detorsion cannot be done, an operation is necessary. In fully descended testes, an incision is made in the scrotum and the tunica vaginalis opened. An attempt is made to untwist the cord and to restore the circulation to the testis by the application of hot towels. If the case is not seen early, this attempt will fail. Orchidectomy should then be performed. The best treatment for torsion of an undescended testicle is orchidectomy. If, for any reason, this cannot be done, a plastic operation returning the testis to the scrotum, if possible, and at least fixing it to prevent future twists, is indicated.

Colorado Medicine, Denver

August, 1919, **16**, No. 8

Contributions of Colorado Physicians to Medical Literature and Journal of American Medical Association As Index. C. D. Spivak, Denver.—p. 192.

Illinois Medical Journal, Chicago

August, 1919, **36**, No. 2

Relationship of State Department of Public Health and Medical Profession. C. St. C. Drake, Springfield.—p. 57.
Results to Be Expected from a Tonsillectomy or an Adenectomy C. F. Burkhardt, Effingbam.—p. 59.
Spinal Anesthesia in General and Genitourinary Surgery. G. F. Thompson and J. S. Nagel, Chicago.—p. 62.
Glance at Some of Old and New Theories on Causation of Cancer. J. R. Pennington, Chicago.—p. 66.
Tuberculin Treatment of Tuberculosis in Children. E. Lackner. Chicago.—p. 76.
Selection of a Practical Method of Blood Transfusion. K. F. Snyder, Freeport.—p. 81.
Little Journey to Home of John Hunter. W. E. Shastid, Pittsfield. —p. 84.

Journal of Abnormal Psychology, Boston

February, 1919, **13**, No. 6

What Is the Problem of Stuttering? M. G. Blanton and S. Blanton. —p. 303.
*Are the Present Psychologic Scales Reliable for Examination of Adults? An Analytical Comparison of Examinations for Children and for Adults. S. L. Pressey and L. W. Cole, Boston.—p. 314.
Psychologic Analysis and Reeducation. M. J. Hamilton.—p. 324.

Present Psychologic Scales.—Pressey and Cole report the study of the psychologic examination of fifty normal children and 110 feebleminded children and 115 adults of feebleminded grade, all grading on the scale between the ages of 8 and 12. The major purpose was to determine the applicability of he present psychologic scales to work with adult individuals. In connection with this a comparison of normal and feebleminded children was made to obtain some evidence as to the distinctive features of the defective mentality. Individuals more than 20 years of age show a definitely greater irregularity on a psychologic scale than do normal or feebleminded children. Feebleminded children are not distinguished from normal children by greater irregularity. The feebleminded show an examination of a makeup different rom that given by normal children. In general, the mentally defective show a better sensorimotor ability than normal hildren of the same mental age, but a smaller number of ideas and a poorer ability for the recombination and use in a new situation. Adult individuals again give a result istinctly different. The strikingly different makeup of the xamination given by the adult individual is used as an argument, (*a*) for the use of the "intelligence quotient" or coefficient of intelligence" as a form of expression for the esults of the psychologic examination and (*b*) for the evelopment of methods and tests especially adapted for se with adults.

Journal of Industrial Hygiene, New York

August, 1919, **1**, No. 4

Factory Inspection and Factory Inspectors. G. M. Price, New York. —p. 165.
Hernia in Industry. C. A. Lauffer, East Pittsburgh, Pa.—p. 177.
Chronic Manganese Poisoning. D. L. Edsall, E. P. Wilbur and C. K. Drinker, Boston.—p. 183.
Public Health Nursing and Industrial Hygiene. M. Beard, Boston.— p. 194.
Industrial Poisoning by Compounds of Aromatic Series. A. Hamilton, Boston.—p. 200.

Journal of Laboratory and Clinical Medicine, St. Louis

August, 1919, **4**, No. 11

Communicable Disease in U. S. Army During Summer and Autumn of 1918. V. C. Vaughan, Ann Arbor, Mich., and G. T. Palmer, Springfield, Ill.—p. 647.
Rôle of Pathologist in Practice of Medicine. W. C. MacCarty and A. C. Broders, Rochester, Minn.—p. 687.
*Lethargic Encephalitis. C. M. Stafford, Detroit.—p. 691.
Combination Tambour and Membranemanometer and Modified Spring Manometer. D. E. Jackson, Cincinnati.—p. 695.
Experiences in Purchase of Basic Fuchsin. F. L. Mickle and M. B. Sherwood, New Haven, Conn.—p. 698.
Method for Making Glass Arterial Cannules. J. A. Higgins, Chicago. —p. 700.

Lethargic Encephalitis.—The highly interesting point in relation to the case cited by Stafford is in regard to the bacteriologic findings of the specimens of spinal fluid. A smear of the centrifugalized sediment of the first puncture showed, in addition to lymphocytes, a number of rather large diplococci. Cultures were made on ascitic agar, Loeffer's medium, blood agar, and in ascitic broth, but with negative results. The fluid from the second spinal puncture also showed, under the microscope, this same diplococcus, but cultural attempts in these same aforementioned mediums were likewise negative. In an endeavor to secure a culture at any cost, both the first and second specimens of spinal fluid were placed in the incubator overnight at 37.5 C. The following morning numerous minute flocculi were observed throughout both tubes. They were placed in the centrifuge and thrown down. By inoculating ascitic agar slants with this centrifugalized sediment a sparse growth was obtained, which increased as it was transplanted repeatedly. The organism grows rather poorly on plain agar. The colonies on this medium resemble streptococcus colonies, except that they are more delicate and slightly smaller. The organism is a gram-positive diplococcus, frequently occurring in short chains of three or four loosely joined cocci. It stains, but rather poorly, with all common laboratory dyes, some organisms being deeply stained and others slightly. It produces no capsule. In smears from forty-eight hour cultures, it was observed that the chains show a tendency to divide longitudinally, i. e., a distinct and continuous cleavage can be noted, extending throughout the length of the short chain of cocci. This probably accounts for the clusters of organisms, resembling staphylococci, which are commonly encountered in smears from older cultures. Growth on blood agar plates did not produce any hemolized areas or greenish zones. The inoculation of a guinea-pig intracardially with one half the growth on an ascitic agar slant failed to produce any ill effects. A rabbit, inoculated intravenously with two large doses, seven days apart, the first consisting of the growth of one ascitic agar slant suspended in physiologic sodium chlorid solution and the second, the suspended growth of three agar slants, apparently developed no illness, but the presence of agglutinins was demonstrated. Another rabbit inoculated intraspinally with the growth from an ascitic agar tube suspended in physiologic sodium chlorid solution showed no ill effects.

Journal of Orthopedic Surgery, Lincoln, Neb.

August, 1919, **1**, No. 8

Traumatic Genu Valgum: Fracture of Patella. E. M. Little. London, Eng.—p. 457.
Loop Operation for Paralytic Equino Valgus; Principles of Operative Treatment of Paralytic Deformities of Foot. R. Whitman, New York.—p. 459.
Ambulatory Treatment of Fracture of Neck of Femur. E. H. Bradford, Boston.—p. 465.
Fracture Dislocation of Head of Right Humerus. C. F. Painter, Boston.—p. 469.
Chronic Septic Inflammation in Bone Following Gunshot Wound. W. E. Gallie.—p. 470.
Osteochondritis of Hip. P. W. Roberts, New York.—p. 493.

Medical Record, New York

Aug. 23, 1919, **96**, No. 8

Clinical Value of Preliminary Study in Renal Surgery. A. G. Rytina, Baltimore.—p. 311.
Cripples of a Community. Survey of Disabled Children and Adults in Cleveland, Ohio. D. C. McMurtrie, New York.—p. 314.

Cases of Heart Failure. B. Robinson, New York.—p. 317.
Moon and Insanity. E. H. P. Ward, White Plains, N. Y.—p. 318.
Physiopsychic Cure of a Drug Habitué. J. C. Densten, Scranton, Pa. —p. 320.
Case of Acute Gangrenous Pancreatitis. M. D. Bloomfield, Philadelphia.—p. 322.
Pseudarthroses of Humerus Consecutive to War Wounds. C. Dujarier, Paris.—p. 323.

Military Surgeon, Washington, D. C.

August, 1919, **45**, No. 2

Report on Intensive Antityphoid Campaign in Southwestern Germany, Analysis of Data on Typhoid Carriers at Trier, Germany. P. A. Schule, U. S. Army.—p. 127. To be Cont'd.
Vital Statistics in Their Military Relations. A. L. Benedict, U. S. Army.—p. 138.
Problem of Hospital Organization: Coordination of General Surgery and Surgical Specialties. A. D. Bevan, Chicago.—p. 150.
Serum Treatment of Epidemic Cerebrospinal Meningitis, at Camp Devens. A. H. Terry, Jr., A. E. F., U. S. Army.—p. 160.
Method of Handling Venereal Disease at Camp Dix. C. H. D. Shivers, U. S. Army.—p. 167.
Present Surgical Problems in U. S. Army Hospitals. H. W. Orr, Lincoln, Neb.—p. 176.
Measles at Camp Zachary Taylor, Kentucky, Summer of 1917 to Winter of 1919. H. Fox, Camp Zachary Taylor, Louisville.—p. 185.
War Dermatology in France and Preventive Measures Taken. F. C. Knowles, U. S. Army.—p. 200.

New Jersey Medical Society Journal, Orange

August, 1919, **16**, No. 8

Gonococemia and Metastatic Gonorrhea. H. L. Goldstein, Camden, N. J.—p. 261.

New York Medical Journal

Aug. 23, 1919, **110**, No. 8

Treatment of Acute Diseases of Biliary Passages and their Complications. J. B. Deaver, Philadelphia.—p. 309.
Severe and Uncontrollable Hemorrhage Following Mastoidectomy in a Patient Suffering from Purpura. T. J. Harris, New York.—p. 311.
Medical Surprises in Italy. C. U. Moore, Portland, Ore.—p. 314.
*Influenzal Pneumonia at Camp Greene, N. C. C. P. Brown, Philadelphia, and F. W. Palfrey, Boston.—p. 316.
Preventive Gynecology. A. B. Leeds, Chickasha, Okla.—p. 321.
Common Skin Disease Frequently Seen in School Children. S. D. Hubbard, New York.—p. 322.
Destructive Action of Neosalvarsan on Leukocytes in Acute Lymphatic Leukemia. H. Lowenburg, Philadelphia.—p. 326.
Necessity for Early Amputation. H. Brachet, Bordeaux, France. —p. 327.

Antipneumococcus Serum in Influenzal Pneumonia.—Polyvalent antipneumococcic serum was administered at Camp Greene in 158 cases of pneumonia, the cases being selected according to two principles. In all Type I cases the patients received serum unless from their condition when type determination was heard from it was judged that the patient could be expected to recover without serum. In certain severe cases where there was danger of an unfavorable outcome, Brown and Palfrey considered themselves justified in giving the patients the benefit of the possibility of improvement by serum treatment without waiting for type determination. Of the pure Type I cases, there were 113, and twelve men died, a mortality of 10.6 per cent. Of the total cases where pneumococcus Type I was present either alone or associated with another type, there were 133 cases and thirteen deaths, a mortality of 9.7 per cent. Serum was given in doses of from 100 to 150 c.c., intravenously, repeating at eight, twelve and sometimes twenty-four hour intervals according to response on the part of the patient. In certain cases one dose seemed to be sufficient to turn the tide toward recovery; other cases required one or more repetitions. The largest amount given in any single case was 600 c.c.; however, the average amount given was 300 c.c. The possibility is at least suggested that the nonspecific foreign protein reaction may serve to some extent to stimulate reaction against infection.

New York State Journal of Medicine

August. 1919, **19**, No. 8

*Physiology and Pathology of Endometrium. L. W. Strong, New York. —p. 289.
*Distribution of Adenomyomata Containing Uterine Mucosa. T. S. Cullen, Baltimore.—p. 295.
*Obstetric Surgery, E. P. Davis, Philadelphia.—p. 299.
*Clinical Study in Preoperative and Postoperativa Blood Pressure and Their Relation to Renal Function and in Shock and Hemorrhage. J. O. Polak, Brooklyn.—p. 303.
*Corpus Luteum Extract in Vomiting of Pregnancy with Report of Cases. J. K. Quigley, Rochester.—p. 306.
Report of Two Cases of Nasal Sinus Suppuration in Relation to Mastoidectomy. H. B. Blackwell, New York.—p. 307.
Surgery at Evacuation Hospitals. C. H. Peck, New York.—p. 309.
Policy and Program of Physical Reconstruction of Disabled Soldiers of U. S. Army. F. Billings, Chicago.—p. 311.

Note.—The articles by Drs. Strong, Cullen, Davis, Polak and Quigley are also published in the *American Journal of Obstetrics* **80**:113; 122; 130; 139; 183 (Aug.) 1919.

Psychobiology, Baltimore

January, 1918, **1**, No. 4

Classification of Groups. C. W. Bock.—p. 277.
Synchronous Motor Kymograph. K. Dunlap, Baltimore.—p. 319.
Dunlap's Method for Mean Variation. B. Johnston.—p. 325.
*Action of Some Antipyretic Analgesics on Psychologic Reaction Time. D. I. Macht, S. Isaacs and J. Greenberg, Baltimore.—p. 327.

Action of Antipyretic Analgesics on Psychologic Reaction Time.—A careful study and analysis of all the data obtained has led Macht and his associates to the following conclusions: The results obtained with antipyretics are quite different from those found after morphin or opium. No primary stage of stimulation or shortened reaction time was noted after administration of antipyretics, except possibly after small doses of quinin. It was found that in all cases the ordinary doses of antipyretics produced either very little effect on the reaction time, or if affecting it at all, they always impaired it as indicated by the prolongation of the mean readings, by the increase in the mean variations of readings, or by both. The most powerful or depressant drug in this respect was found to be pyramidon. It was furthermore interesting to note that when the antipyretics exerted an influence on the reaction time, the simple reflexes or reactions to sound, light and touch were more prolonged or impaired than the more complex association tests. Of the three simple reactions that of touch was more generally retarded than that of sound or light. The association tests were also depressed or impaired, but usually in a distinctly lesser degree than the simple reactions or reflexes. Experiments with combinations of the various antipyretics gave results which could be explained by a simple summation or addition of the individual effects of the components. No so-called synergism or potentiation of one drug by another was observed. The curious difference in the effect of the drugs on the simple reactions as compared with that on the more complex ones is the direct opposite of the results obtained after administration of opium or morphin. In the latter case, the simple reactions were always less impaired than the more complex association tests. A comparison of the findings obtained with the two groups of analgesics, the opiates or narcotics, and the antipyretic analgesics, seems to point to some lower synapse as the seat of action of the coal tar derivatives.

Southern Medical Journal, Birmingham

July, 1919, **12**, No. 7

Osler and the South. L. F. Barker, Baltimore.—p. 345.
Tribute to Sir William Osler. H. A. Kelly, Baltimore.—p. 346.
*Angioneurotic Edema: A Preliminary Report. C. R. Austrian, Baltimore.—p. 348.
Chronic Nephritis and Gout. H. A. Christian, Boston.—p. 353.
Mechanism of Natural and Acquired Immunity to Pneumococcus in Man. P. W. Clough, Baltimore.—p. 360.
Therapeutic Study of Benzyl Benzoate in Bronchial Spasm or Asthma. D. I. Macht, Baltimore.—p. 367.
Intensive Arsphenamin Therapy. H. H. Hazen, Washington, D. C. —p. 371.
Introduction to Preliminary Course in Physical Diagnosis. W. S. Thayer, Baltimore.—p. 374.
*Acute Pancreatitis (Pancreatic Necrosis). J. C. Bloodgood, Baltimore. —p. 382.
Stricture and Calculus of Ureter from Diagnostic Viewpoint. G. L. Hunner, Baltimore.—p. 396.
Significance of Urogenital Disorders in General Diagnostic Study of Women. E. H. Richardson, Baltimore.—p. 403.
Case of Keratitis Profunda (or Disiformis?) with Microscopic Examination. F. H. Verhoeff, Boston.—p. 409.
Robert Pencil, a Pediatrist of the Protectorate. J. Ruhräh. Baltimore. —p. 416.

Angioneurotic Edema.—Austrian emphasizes that angioneurotic edema is a symptom and not a disease, and to show that in those cases in which the immediate cause of this manifestation can be discovered and removed, the symptom can be relieved. In one case the symptoms were the result of sensitiveness to ham; another patient reacted to white beans, another to fish, another to veal, and a fourth to strawberries.

Acute Pancreatitis.—Bloodgood adds two cases to nine others seen by him during the past twenty-five years. He is convinced that drainage of the lesser peritoneal cavity through the gastrocolic omentum meets the indications more than any other suggested treatment. The best method of examining the pancreas, if one does not wish to go through the gastrocolic omentum and fat without more evident signs, is to withdraw the omentum and colon and inspect and palpate the pancreas through the mesocolon.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

August, 1919, **27**, No. 8

Transplantation of Vermiform Appendix into Female Bladder to Supply an Absent Urethra. C. M. Rosser, Dallas, Texas.—p. 165.
Preparation and Use of Surgical Solution of Chlorinated Soda. M. Smith, Oklahoma City.—p. 167.
Technic of Arsphenamin Administration. O. L. Suggett, St. Louis.—p. 170.
Appendicitis Complicating Pregnancy. A. P. Heineck, Chicago.—p. 172.

Virginia Medical Monthly, Richmond

July, 1919, **45**, No. 4

Nervous and Psychic Effects of Influenza. J. A. Hodges, Richmond.—p. 77.
Appendicitis with Abscess and Diffuse Peritonitis. Results of Operation in 100 Cases. G. P. LaRoque, Richmond.—p. 82.
Fosinophilia. R. S. Preston, Richmond.—p. 85.
Digestive Disturbances from a Diagnostic Standpoint. D. L. Harrell, Suffolk, Va.—p. 89.
Report of Pompholyx and Erythema Nodosum. T. W. Murrell, Richmond.—p. 91.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 2, 1919, **2**, No. 3057

Growth of Surgery of Front in France. A. Bowlby.—p. 127.
Abdominothoracic Wounds of Warfare. G. Taylor.—p. 131.
*Acute Diverticulitis of Transverse Colon: Resection of Bowel; Recovery. H. F. Vellacott.—p. 134.
Inguinal Route for Radical Cure of Obturator Hernia. E. T. C. Milligan.—p. 134.
Perforated Duodenal Ulcer in Man of 83: Operation: Recovery. H. H. Brown.—p. 135.

Acute Diverticulits of Transverse Colon.—In the case reported by Vellacott the patient, a woman, aged 36 years, had been subject to attacks of pain in the upper abdomen for about eighteen months. This pain was severe at times, but had no relation to food though she had to be careful what she ate. On the day of admission she "had had indigestion all day," which developed into acute pain quite suddenly about 5 p. m. Vomiting and the signs of acute appendicitis were all present except that the maximum tenderness and rigidity were situated to the right of and close to the umbilicus, nevertheless the diagnosis of appendicitis was made. At operation considerable free fluid was present in the abdomen with a faint smell of *B. coli.* The appendix was seen to have been the seat of former disease, but was obviously not the cause of the present attack. Adherent to the transverse colon, lying in relation to the second part of the duodenum, was a small amount of "lymph" and a mass the size of a large walnut was felt in its upper and posterior wall. The omentum was wrapped round this. From the mass a thick band passed up into the transverse mesocolon toward the central group of lymph glands. This band and the mass in the bowel were so hard that Vellacott diagnosed malignant disease with perforation and decided to resect. About 6 inches of the gut were accordingly resected and an end-to-end union made. On examining the part removed Vellacott could find no trace of malignant disease in the lumen of the gut, but on the upper posterior wall was a small opening, an eighth of an inch wide, leading to a cavity in the hard mass. This cavity was a little more than a quarter of an inch in diameter and was filled by a concretion which could be seen from the lumen of the gut. A perforation had taken place from the diverticulum forward into the general peritoneal cavity in front of the transverse mesocolon. The case is of interest as occurring in the transverse colon and at the early age of 36.

Indian Journal of Medical Research, Calcutta

April, 1919, **6**, No. 4

Seasonal Variation in Reaction and Hardness of River Water in India. W. C. Ross and K. N. Bagchi.—p. 423.
Influence of Alkalinity of Natural Waters on Their Turbidity. V. G. Raju.—p. 430.
*Dose of Aluminum Sulphate for Clarification of Turbid River Waters of Bengal. V. G. Raju.—p. 440.
Investigation into Breeding Places of Phlebotomus (Papatais and Minutus) in Lahore. J. L. Mitter.—p. 452.
Study of Endameba Coli. F. W. Cragg.—p. 462.
*Sugar of Blood and Sugar in Urine in Varying Conditions of Health in Bengali. I and II. D. McCay, S. C.. Banerjce, L. M. Ghosal, M. M. Dutta and C. Ray.—p. 485; p. 508.
*Pathogenesis of Deficiency Disease. II. Effects of Deprivation of 'B' Accessory Food Factors. R. McCarrison.—p. 550.
Involution of Thymus in Birds. R. McCarrison.—p. 557.
Preparation of a Purified Agar Powder with Increased Powers of Filtration. J. Cunningham.—p. 560.
Preparation of Culture Media Suitable for Growth of Organisms Used in Vaccines. D. Norris.—p. 569.
*A Rapid Method of Producing Hemolytic Serum Against Human, Sheep, and Goat Erythrocytes. K. R. K. Iyengar.—p. 585.
*Mycotic Affections of Throat Due to Endomyces Tropicalis. H. W. Acton.—p. 591.
Incidence and Importance of Intestinal Entozoa Among Indian Members of Mesopotamian Expeditionary Force. H. W. Acton.—p. 661.
*Theory of Invasion by Infective Agents. A. G. McKendrick.—p. 614.
Pneumocatarrhal Diathesis; Prevention and Treatment of Pneumonia and other Respiratory Infections By Mixed Vaccines. J. P. Johnson.—p. 633.

Clarification of Turbid River Waters with Alum.—The main conclusions reached by Raju as a result of his observations are that with increasing doses of alum there is a progressive improvement in the color and transparency of turbid water until the point of perfect clarification is reached. In no case was any evidence obtained of a negative phase or a retardation of settlement with overdoses of alum; and in no case was any evidence obtained of the existence of a positive association between the alkalinity and the dose of alum required. All the waters examined had, however, sufficient amount of carbonates to react with at least seven or eight parts of aluminum sulphate per hundred thousand.

Sugar of Blood and Urine.—McCay found that the threshold stimulus of the kidney for sugar excretion varies widely in different individuals and in the same indivdual under different circumstances. Glycosurics are met with in whom (1) the threshold is high, usually the condition seen in the fat. Overfed classes: (2) the threshold is low, as in (*a*) the latter stages of (1); (*b*) those who have lost the power of storing, oxidizing and converting sugar into fat; (*c*) those who present an excessive permeability of the kidney to sugar as a result of oxaluria, gout, stone. The limits of the normal variations of the sugar of the urine of Bengalis are from 0.015 per cent. to 15 per cent., the average being 0.065 per cent. No parellelism or arithmetic proportions exist between the concentration of the sugar of the blood and that of the urine in any of the following conditions: (1) normal health; (2) a glycosuric diabetes; (3) varying degrees of glycosuria in different individuals; (4) varying degrees of glycosuria in the same individual. The ingestion of glucose is always followed by an increase in the sugar of the urine, whether the concentration of the sugar of the blood increases or not, i. e., in the healthy potential diabetics and diabetics. Kidney disease may prevent glycosuria even when very marked hyperglycemia is present, up to 36 per cent. Hyperglycemia occurred in one of McCay's cases without glycosuria.

Evidence is also given by McCay to show that excessive carbohydrate diet, besides tending to decrease the oxidizing power of the tissues in a direct manner, acts also indirectly by lessening the secretion of the hydrochloric acid of the gastric juice. This leads to fermentative dyspepsia, gastro-intestinal catarrh and probably pancreatitis. Whether it be a functional derangement or an atrophy following on chronic inflammatory changes, the pancreatic activity becomes depressed, and, accepting the dextrose amboceptor theory, the oxidzing power of the tissues becomes lowered. The potential glycosuric in this way quickly comes under the influence of the ill effects of carbohydrate overfeeding, and hyperglycemia and glysuria are rapidly established.

Pathogenesis of Deficiency Disease.—The experimental studies made by McCarrison showed that the morbid state which results in pigeons from deprivation of accessory food factors of the "B" class resembles closely that resulting from complete vitaminic starvation, but is much less often associated with edema. There appears to exist in unmilled rice, as well as in butter or onions, or both, some factor which tends to prevent the onset of edema. Two food factors appear to be concerned in the production of avian beriberi: (*a*) the so-called antineuritis factor, and (*b*) the antiedema factor. The brain, the suprarenals and the pituitary gland are very sensitive to vitaminic influence in the food.

Rapid Hemolytic Serum Production.—By the use of graded strengths of erythrocyte suspension, from 5 to 30 per cent., a saving in the mortality of rabbits used for the production of hemolytic serum by intravenous injection is effected over other methods in which higher concentrations are used. The use of these concentrations in the method described by Iyengar gives a resulting serum of titer from 1 : 3,000 up to 1 : 7,000, which were higher titers than were obtained by other methods used. The titers obtainable with different antigens varied markedly. Thus sheep erythrocytes gave much higher titers than goat erythrocytes. The injection of human erythrocytes likewise did not give rise to so potent a serum as the injection of sheep erythrocytes.

Mycotic Affections of Throat in Tropics.—There is a mycotic affection of the throat seen in the tropics due to an andomyces. It is described in detail by Acton. This endomyces differs from the albus in growth, culture mediums required and its effect on the various sugars. Acton has, therefore, provisionally named it "tropicalis." The disease can be reproduced by smearing the culture on the back of the throat. The fungus causes a pharyngitis and in debilitated individuals may extend to the bronchi and set up a fatal bronchopneumonia. It may also infect old tuberculous and bronchiectatic cavities. A 2 per cent. solution of liquor formaldehydi swabbed over the back of the throat will cure the pharyngitis in twenty-four hours.

Theory of Invasion by Infective Agents.—The considerations regarding the formation of antibodies are summed up by McKendrick as follows: The introduction of organisms (or their products) into the body system causes an acceleration in the rate of production of antibodies. It is reasonable to assume that the degree of response is proportional to the logarithm of the stimulus and to the tissue reactivity. The stimulating power of an organism (or its products) probably depends on its degree of saturation (sensitisation). These are the hypotheses whose complex forms the theory which McKendrick proposes to adopt. Any disturbance of this relationship, a retardation or acceleration of one sort or another leads to various clinical pictures. For full details the original article should be consulted. A system of classification of diseases due to organismal invasion on the basis of the balance between the protective agencies of the host, on the one hand, and influences acting in a contrary manner on the other, has emerged. This system expresses itself in graded variations in the character of the course and termination of the disease. The main clinical types of disease fall thus into a broken series. Pneumonia, with its critical recovery, stands at the one extreme where protective efforts are in excess. Malta fever, with its succession of relapses, lies very near to the neutral point where the balance is exact. Passing through diseases of the typhoid group, there is at the other extreme the chronic infection, in which protective efforts are dissipated and wasted. Finally, from a consideration of curves of temperature a method has emerged which McKendrick says may prove to be of considerable value in the prognosis of diseases in general. He is convinced that his mathematical equations, arrived at from however imperfect assumptions, appear to be sufficient to account for the more striking manifestations of organismal infections and to be worthy of acceptance as a working hypothesis.

Japan Medical World, Tokyo

July 20, 1919, No. 292

Experimental Study of Life History of Sparganum mansoni Cobbold. T. Okumura. To be continued.

Lancet, London

Aug. 2, 1919, 2, No. 5005

Roentgen-Ray Therapy. R. Knox.—p. 183.
*An Infection in Mesopotamia Due to a Bacillus of the Gaertner Paratyphoid Group. W. MacAdam.—p. 189.
*Commotional Factor in Etiology of Shell Shock. A. Carver.—p. 193.
Intracranial Lesions. R. E. Smith.—p. 196.
*Colectomy. J. Taylor.—p. 197.
*Aneurysm of Heart without Symptoms. C. Wilson.—p. 199.
Flavine in Treatment of Comminuted Fractures of Jaws and Acute Septic Stomatitis. H. W. Turner.—p. 200.
Use of Bismuth and Iodoform (Bipp) In Treatment of Chronic Suppurative Otitis Media. F. Stoker.—p. 200.
*Duplication in Human Spermatozoa. S. R. Tattersall.—p. 201.
Case of Smallpox Simulating Acute Appendicitis. J. K. Haworth.—p. 201.

Bacillus of Gaertner Paratyphoid Group.—A series of inagglutinable organisms culturally and morphologically indistinguishable from paratyphoid were isolated from the blood stream by MacAdam in Bagdad between July and December, 1918, and similar findings have been recorded in a number of cases in other areas of Mesopotamia. The several strains of the organism all have the cultural and morphologic characters of the Gaertner paratyphoid group organisms. It is most closely related to *Bacillus paratyphosus* B and it does not appear to belong to the *B. aertycke* type. Up to the present the organism has been obtained from nine cases, from seven of which it was isolated during routine blood culture investigation of "P. U. O's." In the remaining two cases it was isolated at necropsy from the lungs and spleen, no blood culture having been made during life. The organism has so far not been isolated from the urine or stools in spite of numerous examinations, but at one of the necropsies it was obtained in pure culture from the bile. All the strains give similar microscopic appearances—an actively motile, short, stout gram-negative bacillus or coccobacillus, with some tendency to pleomorphic formation. The growth on agar is less transparent and oily in appearance than the usual paratyphoid cultures, and is usually more profuse. There is no liquefaction of gelatin. On MacConkey's medium the colonies are indistinguishable from the paratyphoids. Biochemically the organism produces acid and gas in mannite, glucose, dulcite, maltose, galactose and arabinose, no change occurring in lactose, saccharose and inulin. Litmus milk becomes at first slightly acid, changing to alkalinity on the fifth, sixth or seventh day; there is no production of indol. On isolation all the strains were inagglutinable even in low dilutions of the high titer serum for *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B and *B. enteritidis* (Gaertner). After eight subculturings in broth spread over a fortnight, all the strains had become agglutinable to *B. paratyphosus* B serum in dilutions of 200 and 250; while in the case of four of the strains, each of which was subcultured on thirty occasions, agglutination was obtained in considerably higher serum solutions. Specific serum for three of the strains have been obtained by the immunization of rabbits, a titer of from 6,000 to 10,000 being reached without any difficulty. Of three patients suffering from the infection who died, two were clinically regarded as having lobar pneumonia. At necropsy the same coccobacillus was isolated from the lungs and spleen and in one instance from the gallbladder also. Respiratory symptoms were a prominent feature of most of the cases, while the symptomatology and course of the fever were usually not suggestive of an enteric group infection. The real identity of the organism is so far undecided.

Commotional Factor in Etiology of Shell Shock.—Experiments were made by Carver on fish, rats and mice, using various kinds of explosives in varying quantities and at varying distances, to determine the existence of commotional and emotional syndromes. Carver tried to outline a picture of the early syndrome which distinguishes the more severe cases of commotional shock, but the symptoms in slighter cases become almost inextricably blended with others which appear identical with those resulting from emotional shock. Hence, Carver concludes that while one may at the two extremes deduce with each the nature of the primary pathogenic factor from a study of the syndrome exhibited, this becomes increasingly difficult as one approaches the intermediate members of the series, and one's judgment is largely determined by the aspect from which one approaches the problem.

Colectomy.—Taylor is an advocate of colectomy in appropriate cases. He has performed the operation six times with excellent results. The rapid improvement in general health was striking; there was no trouble with diarrhea, the bowels only moving about twice a day. Attempts to relieve patients by partial operations were not very successful.

Aneurysm of Heart Without Symptoms.—Wilson's patient was 60 years of age. She had never been ill or an invalid. She died suddenly while attempting to vomit after having had what was believed to be a "stomach" attack for about twelve hours. At the necropsy attention was immediately centered on the bulging pericardium. On puncturing it blood gushed out, and the sac was found to be full of blood, partly liquid and partly clotted. The heart itself was small and the walls rather thin and pale. On the surface of the left ventricle, about an inch above the apex, was a dark circular patch rather smaller than a shilling with a small rent in the center. On section, the patch proved to be a collapsed aneurysmal dilatation; the central portion, where the rupture had taken place, was hardly thicker than brown paper. In other respects the heart appeared normal.

Duplication in Human Spermatozoa.—Tattersall's patient was a man, 25 years of age, suffering from spermatorrhea. The greater number of spermatozoa were normal, but in a few instances one head was furnished with two distinct tails. The tails were quite separate and distinct as far forward as the posterior end of the middle part, with which they join. The proportion of two tailed to normal sperms was about 1:750. A second type of abnormality was also observed. One or two spermatozoa were furnished with two heads and one tail. No abnormality was found in the sexual history of the man's family. There has not been a marked preproderance of one sex among the children born, nor has there been an instance of twins or abnormal children for two generations back.

Seale Hayne Neurological Studies, London

April, 1919, **1**, No. 4

Hysterical Anesthesia; Hysterical Element in Symptoms Arising from Injuries to Peripheral Nerves. A. F. Hurst and S. H. Wilkinson. —p. 171.
Treatment of Insomnia and War Dreams. R. G. Gordon.—p. 185.
*Concussion and So-Called Shell Shock Headache. A. F. Hurst and C. H. Ripman.—p. 193.
*Hysterical Trismus and Other Neuroses of Jaw. S. H. Wilkinson.—p. 196.
Paralysis of Left Half of Tongue Following Gunshot Wound. A. Robin.—p. 202.
Postural Length and Postural Tone in Hysterical and Other Deformities. A. F. Hurst.—p. 203.
Postural Tone of Rectum, with Special Reference to Dyschezia (Rectal Constipation). A. F. Hurst.—p. 208.
Case of Hysteric Idioglossia in a Soldier. C. H. Ripman.—p. 217.
Mental Attitude of Pensioner. A. Robin.—p. 222.
Hysterical Complications of "Rheumatism." R. G. Gordon.—p. 228.

Concussion and So-Called Shell Shock Headache.—The authors suggest that the explanation of the long continued and intractable headache coming on after the concussion caused by a high explosive shell is due to the perpetuation by autosuggestion of a headache which is at first organic in origin and a genuine result of concussion. Being produced by suggestion and cured by psychotherapy, it can be correctly called hysterical. While not every case of prolonged headache following concussion is of this nature, the authors have seen several cases in which psychotherapy was extremely effective after all other methods had failed. It is further suggested that the chronic headache which follows concussion in civil life is probably often of similarly hysterical origin.

Hysterical Trismus and Other Neuroses of Jaw.—Cases are cited by Wilkinson to show that heterosuggestion plays a prominent part in the development of hysterical trismus.

Sei-I-Kwai Medical Journal, Tokyo

May 10, 1919, **38**, No. 5

Einhorn's Duodenum Bucket. Mishikawa.—p. 19.

Siamese Red Cross Medical Journal, Bangkok

April, 1919, **2**, Part 1

Plague in Bangkok City. H. C. Highet.

Archives de Médecine des Enfants, Paris

July, 1919, **22**, No. 7

*Inherited Syphilis and Lessened Resistance. V. Hutinel.—p. 337.
Institutional Tuberculosis in Two Infants. P. Nobécourt and J. Paraf. —p. 355.
*Syphilitic Ulcer of Umbilicus in Infant. Id.—p. 362.
Galloping Lymphosarcoma in Girl of 12. M. Lasalle.—p. 368.
Asthma in Children. J. Comby.—p. 372.

Inherited Syphilis and Points of Lesser Resistance.—Hutinel explains in detail how the taint of syphilis inherited possibly through several generations may render certain organs, glands, bones or other tissues points of lesser resistance. Their development may not be quite finished, and any intercurrent infection localizes by preference at these points of lesser resistance and may persist interminably. Chorea, for example, is exceptionally frequent among children with inherited syphilis. This taint also throws light on the chronic course of nephritis, and as a factor in rachitis it is far from negligible. By thus enlarging the field of syphilis, he offers a prospect of more effectual therapeutics in all these abnormal conditions. Treatment for the inherited syphilis may eliminate this factor more or less completely. He reports encouraging results in abnormal or severe rachitis, anemias, interminable nephritis, cirrhosis of the liver, etc., and warns that the progenitor responsible for the taint may be more than one generation back.

Syphilitic Ulceration of the Umbilicus.—The ulceration at the umbilicus of the month-old babe was unmistakably syphilitic, and seemed to be the only appreciable manifestation of the inherited disease.

Archives de Médecine et de Pharm. Militaires, Paris

January, 1919, **71**, No. 1

Treatment of Pseudarthrosis of the Humerus. C. Dujarier.—p. 1.
Primary Treatment of Fractures and Wounds of Joints. Bréchot. —p. 43.
Research on Sterilization of Dressings, Instruments, Gloves, Etc., in War Surgery. E. Rousseau.—p. 69.

Bulletin de l'Académie de Médecine, Paris

July 1, 1919, **82**, No. 26

*Gas Cysts in Abdomen. Tuffier and Letulle.—p. 5.
Preparation of Dry Vaccine. R. Wurtz and L. Camus.—p. 12.
Operative Treatment of Acute Appendicitis. Témoin.—p. 16.
Correction without Scar of Disfiguring Noses. J. Bourguet.—p. 24.
Operative Treatment of Chronic Intestinal Stasis. V. Pauchet.—p. 27.
*Recalcification by Food. Berthier.—p. 29.
*Milk in Diabetes. P. Le Noir.—p. 31.
Nervous Symptoms after Parachute Descents. G. Ferry.—p. 33.

Gas Cysts in Abdomen.—Tuffier and Letulle report a case of fatal stenosis of the small intestine from the effects of thousands of minute gas cysts in the abdomen. In a second case all the abdominal symptoms subsided after gastroenterostomy. They have found sixty-four analogous cases of encysted pneumatosis on record.

Bone as a Food.—Bertner refers to veal or chicken spongiosa bone cooked in a soup and eaten. Every one, he says, is surprised to find how it can be chewed and how palatable it is. The teeth profit by the mineral salts, and the whole system gains, especially when tuberculosis impends.

Restriction to Milk in Diabetes.—Le Noir thinks that antidiabetic diet is liable in time to have untoward by-effects in persons predisposed to arteriosclerosis, gout, etc., and hence that an occasional change to a milk diet is beneficial. Consequently he orders for an occasional five day period restriction to 2 or 3 liters of milk taken at brief intervals during the day. In 80 per cent. of his seventeen cases marked improvement was realized. In four of the cases the sugar disappeared from the urine after the first course of milk; in nine others it dropped by two thirds or a half after each course.

July 8, 1919, **82**, No. 27

*Forceps in Small Intestine for Twelve Years. S. Mercadé.—p. 39.
*Sanatoriums in Combating Tuberculosis. Armaingaud.—p. 41.
Vaccination of Herbivora against Rabies by Means of Etherized Virus. P. Remlinger.—p. 47.
Comparative Physiopathology and Cytology of Saliva from Submaxillary and Parotid Glands in Mumps. De la Prade and Loiret.—p. 49.
Tuberculosis in Postal Service. Beaufumé.—p. 51.
*Operative Treatment of Severe Hematemesis. M. Cazin.—p. 53.

Forceps in Small Intestine for Twelve Years.—The woman of 63 had had more or less digestive disturbance for a number of years, and Mercadé was operating on account of aggravation of the condition when he discovered casually in the small intestine a hemostatic forceps. A herniotomy had been done twelve years before, and before this a gynecologic operation. The forceps had not been able to pass the ileocecal valve but it had not caused any very serious disturbance during all these years. The intestinal juices had corroded off one blade. The appendix was 22 cm. long, and it was not until after this had been removed that he felt the point of the forceps in the bowel.

The Campaign Against Tuberculosis.—Armaingaud recalls that in 1882 he pointed out the magnificent results obtained in combating tuberculosis by the thirty years of work at the Berck seashore hospital and urged the foundation of little Bercks all along the sea coast, so that in a few years there were seventeen seashore sanatoriums in France. In 1891 he founded the Ligue française contre la tuberculose and in 1899 he founded at Paris twenty courses of lectures on *hygiène antituberculeuse,* one in each ward, each course consisting of eight lessons. It was not until 1894 that Germany roused to undertake similar work. He adds that the German sanatorium statistics include large numbers of persons who had merely nontuberculous bronchitis, etc. He ascertained this in 1902 when he visited a number of German sanatoriums. He adds further that the official statistics for the tuberculosis mortality in Prussia during the seven years, 1886-1892—just before the sanatoriums had been founded—showed a decline of 28 per cent., while during the following seven years the decline was only 23 per cent. He presents evidence further to the effect that an important element in the sanatorium propaganda in Germany was a scheme to sell sanatorium supplies, furniture and equipment generally to other countries.

Operative Treatment for Recurring Hematemesis.—Cazin reports the case of a man of 51 who had had three severe hemorrhages from the stomach during the night after a nervous shock. Nothing but a minute erosion was found near the cardia and a group of clots elsewhere. Each point was sutured together with an over-and-over catgut suture through the mucosa, and smooth recovery followed. In three other cases the hematemesis came on as the first sign of trouble from the stomach. In one, five minute, bleeding ulcerations were found grouped together on an area about 5 by 13 mm. He arrested the bleeding in the same way by a transmucosa catgut suture, suturing the stomach with silk. In another case a severe hematemesis recurred three times with a few days' interval. A bleeding point was found in a small bunch, a Brunnerian adenoma, 4 or 5 mm. in diameter, which he resected. Recovery was uneventful and the young man served afterward all through the war. The outcome has been equally satisfactory in the other cases after these simple interventions. It confirms Dieulafoy's statement that with recurring hematemesis, with menacing symptoms, an operation must be done at once as such interventions are practically harmless.

Journal de Médecine de Bordeaux

July 25, 1919, **90**, No. 14

Aviators' Sickness. R. Cruchet and R. Moulinier.—p. 279.
The Oscillometer plus Auscultation in Study of the Circulation. H. Delaunay.—p. 282.
Postoperative Treatment of Thoracotomy for Empyema. H. Schultz de Brun—p. 291.

Journal d'Urologie, Paris

July, 1919, **8**, No. 1-2

*Nephrostomy. G. Marion.—p. 1.
*Catheterization of the Ureters. E. Pirondini.—p. 13.
Perineotomy for Prostate-Urethra Calculus; Recovery. Farnarier and others.—p. 15.
Hematonephrosis after War Wound. J. Murard.—p. 19.
*Genital Tuberculosis After Unilateral Castration. A. Chalier.—p. 25.
Scrap of Shrapnel in Bladder for Two Years. Girard.—p. 29.
Microscopy in Urologic Practice. M. Vivier.—p. 33.
*Section of Kidney Pedicle. G. Marion.—p. 43.

Improved Technic for Nephrostomy.—When the kidney has to be long drained or the urine permanently diverted from it, Marion works a Tripier dilator into the kidney down into the kidney pelvis. The 1 cm. incision for the purpose is made at the lower third of the external aspect of the kidney, and the dilator is pushed in until it can be felt in the well exposed kidney pelvis, freed from adipose tissue. The branches are then spread and a right-angled drain is pushed down through it into the kidney pelvis and fastened with a catgut stitch to the capsule. The whole procedure is complete in a few seconds (*je ne dis minutes*), and works perfectly. One of his patients has been wearing a drain of this kind for eight years, leading an otherwise normal life, and no one suspects that he wears a urinal as the fact that the drain reaches into the pelvis prevents seeping of urine. Another patient has worn the drain twelve years. He is not incommoded by his drain. He rinses out the pelvis every morning and sometimes changes the drain himself. Both of these men had had the other kidney removed long before

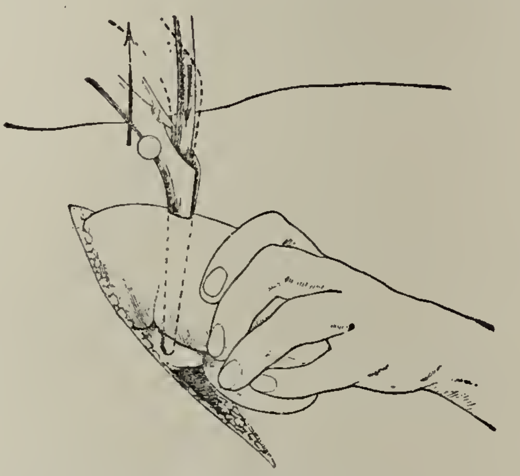


Fig. 1.—The drain is slipped through the dilator into the pelvis and held there as the dilator is withdrawn.

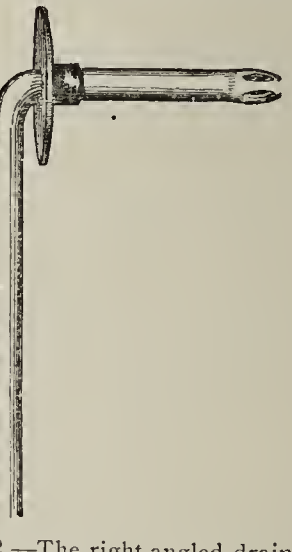


Fig. 2.—The right-angled drain with disk for holding the drain firmly in place.

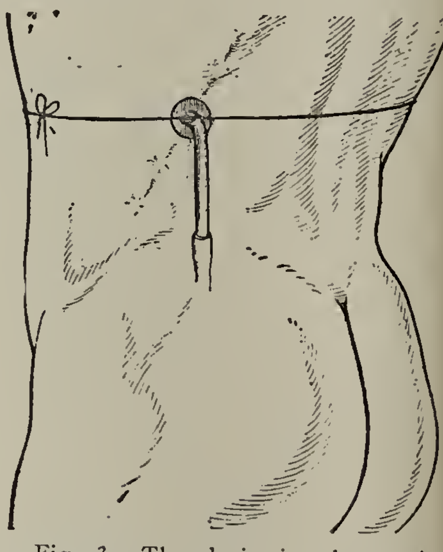


Fig. 3.—The drain in place. A rubber bag fits over the lower end for the urinal.

and calculi kept forming in the remaining kidney until it was drained. If the nephrostomy is done to isolate the kidney from a tuberculous bladder, the ureter should be severed. Nephrostomy without drainage is absolutely bad, he declares.

Correction of Error with Catheterization of Ureters.—Pirondini gives some mathematical formulas for this purpose.

Excision of Tuberculous Epididymis and Vas Deferens.—In Chalier's case the tuberculous right testicle and epididymis had been resected seven years before he excised the epididymis and the vas deferens on the other side, up into the iliac portion of the canal. There has been no recurrence since.

Escape of Kidney Pedicle.—When the ligature or clamp slips and the pedicle slips back while the blood pours from the vessels in it, Marion protests against trying to seize it with forceps. All that is necessary is to tampon hard, piling up the compresses, and then wait four or five minutes. When the tampon is then removed either there is not a drop of blood or merely a slight jet, easily controlled.

Lyon Médical

June, 1919, **128**, No. 6

Recent Legislation on Poisonous Substances. B. Lyonnet and R. Boulud.—p. 273.
*Dysentery and Edema. J. F. Martin and A. Debard.—p. 281. Conc'n.
*Pathogenesis of Fever. Widmann.—p. 286. Cont'n.

Dysentery and Edema.—Martin and Debard report five cases of dysentery with ascites, effusions in joints or edema in the legs, all without any signs of nephritis. All but one young man were about 40 years old, and the edema appeared during convalescence. It lasted from one to ten weeks. Only four other recent cases have been published, but older writers mentioned dropsy as comparatively common with dysentery. In the five cases described here, the edema was accompanied by polyuria and the urine contained large amounts of chlorids, from 23 to 36 gm. instead of the normal average of 10 or 12 gm. The salt content of the blood was low, from 5.38 to 5.96 per thousand, instead of the normal 6.75.

Pathogenesis of Fever.—Widmann here presents further evidence to sustain his conception of the origin of fever. It was recently described in these columns, July 19, p. 231.

Nourrisson, Paris

July, 1919, **7**, No. 4

*Congenital Debility and Atrophy. Lesage and Kouriansky.—p. 193.
*Treatment of Habitual Vomiting. A. B. Marfan.—p. 203.
*Browning the Infant's Food. M. Forest.—p. 217.

Congenital Debility and Atrophy.—Lesage and Kouriansky found that congenital atrophy was due to inherited syphilis in 25 to 35 per cent. of the cases; the Wassermann reaction was positive in this group. In about 50 per cent. there was no Wassermann reaction and an inherited taint from tuberculosis or physical exhaustion of the family or acquired infection was responsible for the atrophy. The atrophy in these two groups is accompanied with transient muscular spasms, but alcoholism is the inherited causal factor with tenacious and persisting spastic atrophy, with negative Wassermann. When syphilis is a factor they give neo-arsphenamin every eighth day, only very slowly increasing the dose from 0.0025 to a maximum of 0.01 gm. After six or seven injections, they suspend it for two months and commence a new series. These small doses can be begun at once after birth, but they should be stopped in case of fever. They reiterate that this technic is the best treatment for latent syphilis in young infants. When there are visible lesions the promptness with which they subside confirms the efficacy of this treatment. The vein at the elbow usually served but, exceptionally, they made the injection in the superior longitudinal sinus. The infant on the day of the injection is fed only with sweetened boiled water. Mercury has not proved satisfactory for treatment of young infants, they say, *Il expose à bien des mécomptes.* The same can be said of neo-arsphenamin when given in such large doses as 0.01 gm. per kilogram, such as Blechmann advocates.

Habitual Vomiting in Infants.—Marfan remarks that when syphilis is a factor in habitual vomiting the infants seem to tolerate mercury lactate by the mouth better than other preparations of mercury. In any event, the child must be fed in spite of his vomiting. Complete and protracted deprivation of food may aggravate the tendency to vomit. The essential point in treatment is to get the child fed, rather than to check the vomiting. If breast milk is absolutely unattainable, asses' milk is the next choice, and next to this, skimmed cow's milk. It is the butter in milk that causes the most disturbance. These infants bear sugar well, and addition of 10 per cent. sugar to skim milk adds materially to its nourishing power. Kefir and buttermilk may answer, but generally they are too acid. He uses them only when diluted with one third water and one third (officinal) lime water. If the infant is 3 months old, he adds a thin gruel with or without maltose; over 6 months a little thicker gruel or *bouillon de légumes*, with increasing proportions of milk. The stomach does not seem to be able to expel these semifluid substances so readily.

When the condition is serious, the infant tolerates better very small feedings at short intervals. He begins with a 2 months babe with restriction to one or two teaspoonfuls of ice water every half hour. Half a day of this rests the stomach completely. Then he begins to feed with a spoon breast milk or whatever food is to be used, not allowing the child to suck as this is liable to arouse the vomiting reflex. All the food should be ice cold, and he gives a teaspoonful every fifteen minutes. If during six hours any of this is retained, he gives two and then three teaspoonfuls every half hour for six hours, and the last quarter of the day gives four or five teaspoonfuls and lets the child sleep unmolested for six or seven hours. The amounts are gradually increased, the intervals lengthened and breast feeding is resumed according to the child's tolerance. By following this plan, the child may still vomit occasionally but enough of the food is retained so that the weight shows gains.

If the vomiting persists in spite of this care, he feeds the child with a medicine dropper, giving the food by drops in the child's mouth every three or four minutes. A thickish rice gruel may be used at one feeding if the child is over 5 months old. He describes other means to vary the feedings, and outlines Hess' method of duodenal feeding, mentioning also Fredet's success in feeding breast milk by the rectum. The underlying nervous excitability must not be neglected, and the bottle should be held almost vertically, instead of horizontal, to prevent swallowing of air. After feeding, the infant's trunk should be held vertical a few minutes to favor expulsion of some of the air swallowed. Hot enemas (40 or 45 C., 104-113 F.) help in combating vomiting, from 120 gm. at 3 months to 200 gm. at 6 months twice a day from the first and later once in two days. Bismuth may be useful, given before feeding to form a protective coating in the stomach, a teaspoonful of a mixture of 2 gm. bismuth subnitrate in 45 c.c. each gum mixture and syrup of poppies. Or 0.25 gm. bismuth subnitrate may be added to the bottle. Hot compresses (55 C., 131 F.) applied to the stomach and abdomen, renewed every hour for five or six hours, may be indicated in the graver cases. Twice a day the child can be put in a hot bath (38 C., 100.4 F.) for ten minutes. Still another measure, if all else fails, is a kind of gentle massage of the abdomen twice a day for five minutes, the hand greased with camphorated oil of chamomile. In these extreme cases, sedatives are called for, and tincture of belladonna is better than opium preparations. The latter do not give good results. He adds to the belladonna some bromid, which reenforces its action, and some sodium bicarbonate as hyperacidity is frequent in these extreme cases and as the bicarbonate has also an anesthetic action. He describes further the technic for lavage of the stomach; this sometimes aids but he warns that in certain conditions it may bring on convulsions.

Browned Flour and Milk.—Forest reports four cases in which *lait au roux* seemed to offer peculiar advantages in feeding the infant. In five other infants it was a failure. It is made by heating 7 per cent. butter and 7 per cent. flour over a gentle flame and diluting with water containing 5 per cent. sugar. Then a third or two fifths of boiled milk is added. Heating the butter seems to dispel the volatile fat acids which are regarded as injurious for the digestive tract. The four infants that thrived on it not only gained in weight but the stools were more numerous and bulkier than with any other method of artificial feeding. There is no starch in the stools and the increased bulk is the result of the stimulation of the digestive secretions by the "browned milk." Hence its special field is for infants with hypotrophy and atrophy but no gastro-enteritis.

Paris Médical

July 5, 1919, **9**, No. 27

*Angina Pectoris and Syphilis. O. Josué.—p. 1.
*Instability of Heart and Temperature. C. Laubry.—p. 4.
*Influenzal Phlebitis. P. Lereboullet and J. Hutinel.—p. 7.
*Cardiac Murmurs. C. Esmein.—p. 9.
*Vertigo in Aortic Insufficiency. J. Heitz.—p. 14.
*Heart-Suprarenal Convulsions. C. Aubertin.—p. 18.
*The Sign of the Dragging Apex. J. Jomier.—p. 20.
The Arterial Tension in Influenza. L. Tixier.—p. 22.

Angina Pectoris and Syphilis.—Josué has been applying the Wassermann test to persons who have had true angina pectoris, but he obtained a positive response only in 33 per cent. These negative findings were contradicted, however, by the success of treatment as for syphilis. There were no further attacks after specific treatment in 90 per cent. of his nine cases. In a few there was slight return of the pains later, but they subsided anew on resumption of treatment. Arsphenamin does not answer; it may bring on serious disturbances with aortic lesions. He obtained the best results with mercurial treatment in minute doses, alternate days, a series of fifteen. This is a vigorous and yet cautious treatment. Josué declares that angina pectoris seems thus to be an almost certain sign of syphilis even in the entire absence of other stigmata of inherited or acquired syphilis. Several convincing cases are reported.

Unstable Heart and Temperature.—Laubry has found that when the heart rhythm keeps normal but grows faster or slower under ordinary stimuli, the temperature fluctuates likewise. Some men presented at times a temperature 1 or 2 degrees higher late in the day than in the morning. Prolonged repose brings it down but not quite to normal. In others there was subnormal temperature in the morning, with a rise of 2 degrees by evening, sometimes. Some of the subjects with this *instabilité thermique* have been under observation for over a year but nothing pathologic to explain this instability has been encountered at any time beyond the unstable balance in the nervous and circulatory system. It may modify decidedly the temperature curve during an intercurrent infectious disease.

Phlebitis from Influenza.—Lereboullet and Hutinel report ten cases from their experience during the recent pandemic in which influenza was followed by phlebitis. It was bilateral in some, and the course was mild.

Interpretation of Heart Murmurs.—Esmein regards the French method of examination for heart murmurs as far superior to the British for various reasons which he explains. It consists in thorough auscultation supplemented by compression of the eyeball. This latter reenforces organic murmurs and weakens or abolishes the inorganic. Radioscopy supplies further evidence when needed. The British accept as organic every diastolic murmur, while the systolic is assumed to have no significance, but this is not accurate.

Dizziness with Insufficiency of the Aorta.—Heitz explains that the dizziness is not actual vertigo, but merely a sensation of emptiness or heaviness in the head which compels a person to sit down to avoid falling. It is evidently due to some disturbance in the circulation in the brain.

Convulsions with High Blood Pressure Without Nephritis.—Aubertin describes the case of a woman of 40 with high blood pressure, hypertrophy of the left ventricle, hyperplasia of the suprarenals, and convulsions, and yet the kidneys seemed to be practically normal. There was aortic insufficiency in this case, but in a second similar case the only assumption seems to be a primary hypertension.

The Lagging Apex Beat.—Jomier comments on the frequent coexistence of valvular disease when the apex beats sluggishly.

Progrès Médical, Paris

June 14, 1919, **34**, No. 24

*Laboratory Findings Compared with Clinical Course in Tuberculosis Suspects. C. Roubier.—p. 229.
Spa Treatment of Organic Nervous Disease. M. de Lépinay.—p. 235.

Tuberculosis Suspects.—Roubier reviews his experience with his last series of 1,000 tuberculosis suspects. With an actual tuberculous lesion at the apex, the clinical and the roentgen findings harmonized in 90 per cent. but the roentgen rays always revealed more extensive lesions than would be surmised otherwise. In some of the others, bronchitis masked the pulmonary lesion but there were four men with no moist râles, no symptoms of condensation and no crepitation after coughing, and repeated examination failed to reveal any physical signs of a tuberculous lesion, but the roentgen rays showed extensive infiltration and tubercle bacilli were found in the sputum. Atypical cases of this kind formed 4.5 per cent. of the men with positive sputum, and they impose the necessity for raying all suspects even when daily percussion and auscultation give negative findings. In five other cases roentgenoscopy showed persistently normal findings, but tubercle bacilli were found in the sputum in some of them after expectoration had been induced with iodid. Rist declares that when nothing abnormal can be seen on the screen or roentgenogram, the lung is unquestionably normal. Roubier adds that in these cases he had to content himself with roentgenoscopy alone; it is possible that in an instantaneous roentgenogram something abnormal might have been detected. In 1.6 per cent. of the cases with positive sputum, both clinical and radiologic findings were so slight as to be only dubiously perceptible. He discusses further the cases with lesions at the base or middle of the lung, and the 307 with chronic bronchitis or permanent impediment to breathing through the nose which had caused the mistaken diagnosis of tuberculosis. This group included further seventeen cases with syphilitic or malignant lesions in the lung or an abscess or interlobar empyema, or else the men (201 cases) were merely narrow chested and suffering from exhaustion, dyspepsia or heart disease. Thus in over 50 per cent. of the 1,000 men the suspicion of tuberculosis proved to be unfounded.

Revue Médicale de la Suisse Romande, Geneva

April, 1919, **39**, No. 4

Forms of Tetanus Observed During the War. C. Carnioley.—p. 158.
Infectious Delirium in Course of Influenza. A. Schlesinger.—p. 167.
*Feeding through Catheter for Infants with Lesions in Mouth, Nose or Pharynx. Kotzareff.—p. 174.
*Intestinal Obstruction from Ascarides. Id.—p. 176.
Contagion from Supposed Healed Chancre. P. Narbel.—p. 181.

Feeding Infants through a Catheter.—Kotzareff gives an illustration of the funnel and catheter with interposed tube, Murphy cock and glass cannula, which he uses to feed infants when conditions in nose, mouth or throat prevent normal feeding. He takes about ten or fifteen minutes to feed a very young infant in this way, imitating the drop method of proctoclysis.

Ascarides Induce Ileus.—In Kotzareff's two cases the women of 40 and 60 had never shown any symptoms of ileus or helminthiasis. Acute ileus compelled an operation, and it disclosed that in both there had been partial occlusion from membranous bands. This occlusion had suddenly become complete from obstruction by ascarides.

Revue Neurologique, Paris

January, 1919, **26**, No. 1

*Disturbance in Sense of Space. P. Marie and P. Béhague.—p. 3.
*Herpes Zoster of the Face. J. A. Sicard, H. Roger and A. Vernet.—p. 15.
*Familial Exophthalmic Goiter. Souques and J. Lermoyez.—p. 20.
The Lhermitte Technic for Staining Neuroglia. A. L. Skoog (Kansas City).—p. 26.
Case of Oneirism and Secondary Delirium of Persecution in Alcoholic Degenerate. L. Babonneix and M. Brissot.—p. 30.
Localizations in the Brain According to Monakow. P. Ladame.—p. 32.

Disorientation in Space After Wound of Frontal Lobe.—Marie and Béhague remark that the war wounds have thrown much light on the functions of the frontal lobe. Deep lesions in particular of the prefrontal region seem to have entailed disturbance in the sense of space in the absence of any objective sign of injury of the nervous or vestibular system. There is no or very slight tendency to headache, dizziness or temporary dimness of vision. The disturbance in orientation is solely in the sense of direction while the idea of time seems to be normal. The various forms of this disturbance are discussed with a few illustrative cases, the details of twelve being tabulated for comparison.

Herpes Zoster of the Face.—The propagation of the herpes to the sympathetic system, ganglions and connected fibrils is described as studied on various cases before and during the war.

Inherited and Familial Exophthalmic Goiter.—Souques and Lermoyez relate that in the family described there have been seven cases of exophthalmic goiter among the sixteen members of the family in three generations. They give illustrations of the four members they have personally examined. The tendency seemed to be transmitted by the males. There were no signs of inherited syphilis; the trouble must be some inherited predisposition rendering the thyroid peculiarly susceptible to diverse infections and intoxications. They list the few similar familial cases on record. In one, dating from 1884, eleven of the sixteen members of the family had developed exophthalmic goiter.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 10, 1919, **49,** No. 28

*Obstetric Examination. E. Jegge.—p. 1033.
Influenza and its Mental Complications. C. Ladame.—p. 1050.

Obstetric Examination.—Jegge remarks that notwithstanding rubber gloves and all precautions, the morbidity of the puerperium still ranges from 5 to 20 per cent. He ascribes this to the woman's own germs, saying that it is absolutely impossible to ensure asepsis of the vagina. He tabulates the findings with 500 parturients examined internally with every precaution and 500 in which no attempt at internal examination was made. These figures include only spontaneous deliveries and no cases of laceration of the perineum. The morbidity was much higher in the internal group and also in the primiparae in both groups. His figures and experiences converted him to the necessity for refraining from internal examination, and he says that he has accomplished very nearly as much without it. He soon learned to tell by palpation from without whether the head was presenting or not, and how far down it had got and its position. With the hand on the perineum of the woman lying on her side, the palm on the lowest segment of the sacrum, the finger tips between the coccyx and anus, slowly pressing inward and upward during an interval between labor contractions, and then giving an abrupt rapid pressure, the hard head can be palpated if it is in the pelvic cavity or pelvic outlet. If the head with its longest diameter has not yet entered the small pelvis, then the findings with this back-of-the-perineum maneuver are negative. If a muscle interferes with it, telling the patient to strain gets this out of the way. This maneuver is particularly useful when palpation from the front is impossible on account of obesity or painfulness. It gave the desired information in nearly 95 per cent. of his cases.

The degree of dilation of the os can be ascertained by way of the rectum almost as well as through the vagina. This is not painful and occasions at the most an unpleasant sensation of pressure. It has a special advantage if cesarean section becomes necessary, but it does not inform in regard to the diameter of the external os. This can be ascertained very readily by palpation of the contraction ring, the wall-like ridge where the thick nonelastic wall of the body of the uterus joins the elastic zone of the cervix. This passive, thin, lower part of the uterus forms an elastic tube, as it were. As this tube stretches, the circular ridge at its upper limit is pushed up, and this pushing up of the contraction ring can be followed with the palpating hand. The height of the ring is thus an index of the increasing diameter of the os. When the os is fully dilated, the distance from the external os to the contraction ring is 10 or 11 cm. This brings 8 or 9 cm. of the distance above the upper margin of the symphysis; this is about equal to four fingerbreadths. At three fingerbreadths the os is as wide as the palm; at four fingerbreadths, the os is fully dilated. If the contraction ring cannot be palpated at all, the os can be assumed to be not wider than a 5 franc piece. Jegge's experiences with this method confirmed its instructiveness and reliability in 91 per cent. of the 100 cases tested. It failed in 4 per cent.; in 5 per cent. various causes conspired to prevent a correct result. By these different means of external examination it is possible to dispense with vaginal examination in very nearly every case. In any event they should precede the latter except possibly when indications call for rapid termination of delivery or anomalies require special measures or the findings with external examination are too vague. In conclusion he reiterates that physicians and midwives fail to realize the responsibility they incur with internal examination, especially with contracted pelvis and placenta praevia which may demand cesarean section. It is never indifferent, and is often directly dangerous even with every possible precaution by experts.

Pediatria, Naples

July, 1919, **27**, No. 7

*Preleukemic States in Children. C. Martelli.—p. 385.
*The Initial Phase of Scurvy. O. Cozzolino.—p. 407.
*Nodose Erythema. C. Pestalozza.—p. 435.

Preleukemic States in Children.—Martelli applies this term to a condition in which the blood is of the leukemic type in children with some inherited taint and constitutional predisposition to anomalies in the thymus and lymphatic system. He has long made a special study of blood diseases, and has come to the conclusion that leukemia, lymphosarcoma, etc., are preagonal states; the organism exhausted by its cytotoxic struggle has yielded to the action of the pathogenic causes that have been undermining it. By keeping oversight of changes in the blood, we can see when this cytotoxic struggle is going on, and when collapse is impending, so that by prompt measures we may be able to ward it off, combating the underlying syphilis, tuberculosis, malaria or sepsis. He describes seven cases in detail with the necropsy findings in some, and declares that this preleukemic state is peculiarly liable to develop early in life. The metaplasia of the blood-producing tissues may be the unsuspected fatal factor in many cases of anemia, enteritis, hemorrhagic diathesis, malaria, syphilis, tuberculosis, etc. In forty-five cases of leukemia he found tuberculosis in thirteen; syphilis in seven; malaria in five, streptococcus or staphylococcus sepsis in four each, and various bacterial associations in ten. By vigorously combating the primary disease, the tendency to the preleukemia may be arrested, and he suggests that it might be possible to arrest the tendency to metaplasia of the blood-producing organs by roentgen treatment as for established leukemia. He has no facilities for this himself, but hopes that others will give it a trial. There is no doubt that the preleukemia stage, which reveals the toxic metaplastic irritation of the blood-producing organs, can be checked and conquered if the physician examines the blood and gives the proper treatment when he notes intense pallor, unjustified hemorrhages, enlargement of glands and spleen without any apparent infection to explain them.

Scurvy in Infants.—Cozzolino refers to the initial phase, the vague abortive type in particular which occurs in infants the same as in adults, and often escapes detection unless the gums are examined as a routine measure. In the eight cases described of this initial type, the infants were from 12 to 26 months old, and all but two were boys. He compares the literature on the subject from various countries. In forty-seven out of ninety cases published from Parma, the parents were poor, while in other countries the well-to-do classes seem predominantly affected.

Erythema Nodosa.—Pestalozza calls attention to the fact that tuberculosis was beyond question in the seven cases described of erythema nodosa in children.

Riforma Medica, Naples

June 28, 1919, **35**, No. 26

*Tumor in Esophagus Simulates Aneurysm. A. Litvak.—p. 518.
*The Kidney as an Organ for Hemolysis. T. Silvestri.—p. 523.
Autoserotherapy in Pleurisy with Effusion. E. Mello.—p. 525.
Intestinal Flora in Relation to Surgery. E. Aievoli.—p. 527.

Tumor in Esophagus.—Litvak remarks that a tumor may be long developing in the esophagus without causing the slightest symptoms. Then, when it reaches a certain size or a larger lump of food is passing it, serious pain and difficulty in swallowing develop suddenly. The pain and dysphagia may then temporarily subside if the tumor softens, or they may progress. The pains may deceptively resemble those with aneurysm of the aorta. He calls attention in particular to pain in the back and left side of the neck, its tenacity and intensity and the exacerbation when the neck is stretched, while the pain is relieved by bending the neck. The trachea may be pushed aside with either tumor or aneurysm, and adhesion to the aorta may permit transmission of the aortic pulse to the trachea, as may occur with aneurysm. In a case reported the tumor protruded both into the lumen and outside, and had induced recurrent paralysis.

The Kidney and Hemolysis.—In this preliminary note, Silvestri reports further research which seems to confirm his previous statements in regard to the destructive action on kidney tissue and also on the blood of pathologic kidney tissue injected into the peritoneum of animals. Scraps of other organs injected in the same way have a similar destructive action on kidney tissue but not on the blood; the hemolytic action seemed to be peculiar to kidney tissue in such experiments. He has had under supervision for years several cases of paroxysmal hemoglobinuria, and in three he has never been able to detect hemoglobinemia but each in this group has chronically pathologic kidneys with a history of nephritis from five to nine years before.

Rivista di Clinica Pediatrica, Florence

April, 1919, **17**, No. 4

*Latent Tuberculosis in Nurslings. L. M. Spolverini.—p. 169.
*Infant Feeding in Italian Manual, 1552. A. Spallicci.—p. 187.

Latent Tuberculosis in Infants.—Spolverini has applied tuberculin skin tests to 900 supposedly nontuberculous children under 1 year old, and obtained a positive response in 63. This is 7 per cent. in all, but only in 0.80 per cent. of the 8 infants 3 or 4 months old; 2.44 per cent. of the 22 from 4 to 6 months old, and 3.66 per cent. of the 33 from 6 to 12 months old. The predisposing causes in the infants and in the parents and environment are tabulated, with the pathologic findings in the infants. Radioscopy showed that the glands at the right hilum were affected more often than the left; those at the left hilum do not show unless they are of considerable size, being concealed by other shadows. These glandular lesions could be detected only by raying. From the clinical point of view the tracheobronchial glands are the first manifest localization of the disease. His table reemphasizes that familial contagion is the most dangerous factor, and that in the cities search should be made for infants born into an infected environment and they should be taken away, into the country, with close medical surveillance.

Early Pediatrics in Italy.—Spallicci quotes freely from a work published by Mercuriale in 1552, with the title "Nomothelasmus," dealing with the feeding and training of infants and young children. It shows, he adds, that pediatrics in Italy was born from enlightened common sense.

Archivos Españoles de Pediatría, Madrid

April, 1919, **3**, No. 4

*Anomalous Forms of Tuberculous Meningitis. C. Juarros.—p. 193.
*Operative Treatment of Spastic Paralysis. M. B. Ansart.—p. 202.
*Epinephrin in Treatment of Rachitis. F. Corominas.—p. 215.
Adenoid Vegetations in the Etiology of Tuberculosis. A. Martín Calderin.—p. 225.

Anomalous Forms of Tuberculous Meningitis.—Juarros describes the various types as fulminating, latent, protracted, and those which begin with symptoms suggesting an ordinary infectious disease. There may also be anomalous predominance of one or more symptoms, and the disease may affect certain regions exclusively and may induce clinical pictures simulating chorea, Little's disease, intoxication and poliomyelitis. The disease may also prove misleading on account of the absence of the usual symptoms.

Operative Treatment of Spastic Paralysis.—Ansart refers to Stoffel's operation which after a brief vogue seems to be now discarded by surgeons in Spain. But he insists that this operation is the preferable intervention with spastic paralysis, basing his statements on four cases in his own experience and on the physiology of nerves (Cajal), as well as on extensive experiments on dogs. His experience and reasoning further teach that an operation on the tendons should supplement the Stoffel operation when the contracture has reached a certain stage.

Epinephrin in Rachitis.—Corominas ascribes to endocrine insufficiency an important share in the production of rachitis, and declares that epinephrin is indicated to whip up the endocrine system.

Crónica Médico-Quirúrgica, Havana

March, 1919, **45**, No. 3

*Conjunctivitis of the Fornix. J. Santos Fernández.—p. 83.
Technic for Dacryocystectomy. M. V. Escolano Sabater.—p. 96.

Conjunctivitis of the Culdesac.—Santos Fernández gives an illustration to show how infiltration and swelling of the conjunctiva between the tarsal portion and the bulbar portion can be detected by everting the lid. The conjunctivitis then shows as a red and swollen line along the lower edge of the fold made by the everted lid. Pus can accumulate in this culdesac and escape local treatment. It has sometimes been mistaken for trachoma. The process in the culdesac is not actual inflammation but the infiltration feels like a foreign body, and keeps up an irritation of the nerves that sets up a reflex winking and twitching of the eyelids. This is so characteristic that the conjunctival culdesac should always be examined when a tendency to abnormal contraction of the eyelids is noted. The patients have always been boys in his experience. Local treatment is that for any mild conjunctivitis, but as the subjects are usually of the lymphatic constitution, general hygiene is particularly important in such cases, and a change to seashore or mountains. The affection is not contagious, but the subjects are peculiarly susceptible to infection and hence should be guarded with special care against infection of all kinds.

Gaceta Médica de Caracas

June 15, 1919, **26**, No. 11

*Chagas' Trypanosomiasis in Venezuela. E. Tejera.—p. 113; Pino Pou.—p. 113.
Appendicular Dyspepsia. L. Razetti.—p. 114.
*Perforation of Intestine in Typhoid. A. d'Empaire.—p. 116.

American Trypanosomiasis in Venezuela.—Tejera and Pino Pou each describe a case of Chagas' disease in Venezuela, and report the finding of *Trypanosoma cruzi* in the insects, *Rhodnius prolixus*.

Typhoid Perforation.—D'Empaire relates that the perforation occurred at the ninth day of typhoid in his little daughter of 7. There had been profuse diarrhea during the disease. A large perforation was found in the ileum and a patch nearby seemed on the point of perforating, but as this intestine seemed in good condition otherwise, these two regions were sutured. In this and in three other operative cases the median laparotomy gave ample oversight.

Revista Médica Cubana, Havana

February, 1919, **30**, No. 2

Roentgen Diagnosis of Gastric Ulcer. A. Inclán.—p. 55.
*Ichthyol Internally in Urticaria. L. Espín.—p. 65.
*Differential Diagnosis of Tumor in Mediastinum. F. Suárez.—p. 68.
Cardiac Forms of Influenza. R. Grau y San Martín.—p. 73.

Ichthyol Internally in Urticaria.—Espín reports six cases in adults and children in which marked improvement followed internal administration of ichthyol. In the first case the colored man had been tormented for nine months with intense itching, only briefly relieved by any measures. The itching was most severe in the palms and soles. It had begun eighteen months before, and of late it had become so intense that the man was unable to sleep. Espin gave him a pill of 0.25 gm. ichthyol and 0.10 gm. magnesium carbonate.

He fell quietly asleep forty-eight hours later, and has had no signs of the urticaria during the year and a half since. In a case of urticaria following the eating of fish, the cure was not complete until ten days after the ichthyol had been begun. Others were cured in one or three days. The dose was reduced for a child of 9 to 0.15 gm. of the ichthyol and 0.05 of the magnesium carbonate. Espin does not attempt to explain the action of the ichthyol in these cases but his success in the otherwise rebellious cases speaks for itself.

Tumor in Mediastinum.—In Suárez' case there had been intermittent periods of difficulty in breathing and in swallowing for nearly four years, and they had been growing more frequent and severe and the dyspnea finally interfered with sleep. The trachea was pushed toward the right and a small tumor could be palpated in the right supraclavicular triangle, but the veins and glands in the region seemed normal and the assumption of a benign tumor was confirmed by the successful operation. There was nothing to suggest syphilis or alcoholism. In conclusion Suárez reviews the various sets of symptoms induced by tumors at different points in the mediastinum.

Siglo Médico, Madrid

May 24, 1919, **66**, No. 3415

*Operative Treatment of Strabismus. B. Castresana.—p. 413. Cont'n.
*Leprosy in Spain. Hernández Sampelayo.—p. 418.

Operative Treatment of Strabismus.—Castresana's technic was described in these columns, Aug. 9, 1919, p. 461.

Leprosy in Spain.—Sampelayo recalls that there have been endemic foci of leprosy in Spain for centuries, but it is also being imported from abroad. The only effectual prophylaxis, he reiterates, is isolation, and provisions for this are urgently needed in the invaded provinces.

Vida Nueva, Havana

April, 1919, **11**, No. 4

*History of Medicine in Cuba. I. Castellanos.—p. 74.
Eye Symptoms of Toxemia of Pregnancy. F. M. Fernández.—p. 76.
Prenatal Care. S. García Marrúz.—p. 79.
Lichens Blighting Olive Trees in Parts of Mexico. A. S. Nuñez.—p. 92.

History of Medicine in Cuba.—Castellanos refers to Trelles' new "Biblioteca Cientifica Cubana" which lists the works of 1,700 Cuban medical writers from the earliest times to date, including the writings of Cubans who, like Albarran, settled in other countries. The first "Manual of Histologic Technic" published in Spanish was San Martín's work in 1888. Cajal's manual did not appear till a year later. The first Pasteur institute on the American continent was founded at Havana in 1887, one of the first in the world for the treatment of rabies.

Mitteilungen a. d. med. Fakultät. d. k. Univ. Tokyo

April 29, 1918, **19**, No. 3. Rec'd June, 1919

*Histologic Research on the Membranous Labyrinth of the Tadpole. T. Asai.—p. 315.
*Distribution of Iodin in Animal Body. K. Fujisawa.—p. 389.

The Labyrinth in the Tadpole.—Asai studied both the toad and the frog tadpole, with special research on the physiologic functions of the terminal nerve epithelium of the pars neglecta of the membranous labyrinth. He offers what he thinks is a satisfactory explanation of this function.

Distribution of Iodin in the Body.—Fujisawa reports extensive clinical and experimental research which has apparently established that organs with a tuberculous focus contain more iodin than others. In tuberculous tissue, the iodin forms an organic compound with fat and lipoid substance but not with albumin. Organs with a suppurating focus, bacterial or aseptic, also contain more iodin than usual, but the iodin in the pus is in the form of an alkaline iodid and not as an organic compound. Cancer tissue also stores up more iodin than ordinary tissues; sarcoma not so much as carcinoma. The largest proportion is in the softened part. Syphilitic tissue takes up more iodin than other organs, and it forms an organic compound with fat and lipoid substance but not with albumin. The iodin in exudates is in the form of an alkali iodid, not forming an organic compound with fat and albumin.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

May 31, 1919, **1**, No. 22

*Dangers of Acetylene Welding. J. P. L. Hulst.—p. 1933.
*Underfeeding and Cerebral Lesions. J. K. A. Wertheim Salomonson. —p. 1941.
Underfeeding of Children. M. van der Hoeve.—p. 1948.
*Tonsillectomy and "Thymus Death." H. Burger.—p. 1951.

Dangers of Acetylene Welding.—Hulst explains that carbon monoxid poisoning was probably responsible for the death the fourth day of the man of 34 who had been welding for half an hour inside a large boiler. Acetylene gas does not contain deadly phosphorus and sulphur gases or nitric acid, and the necropsy findings were negative, including spectroscopic examination of the blood. This does not conflict with the assumption of carbon monoxid poisoning as this gas soon disappears from the blood after it has done its deadly work. Since the man had been given welding work to do he had complained several times of nausea and that he had no appetite, which has often been noted with chronic carbon monoxid poisoning. The blood should be examined at once for carbon monoxid when symptoms develop in a person working with an acetylene gas welder.

Softening of the Brain and Cerebral Hemorrhage.—Salomonson has noticed that since food has been scanty and dear, he has not encountered so many male cases of cerebral hemorrhage as in previous years, but on the other hand, the number of cases of softening of the brain has increased fourfold. The total figures for nearly seven years in his service are forty-six of the latter to thirty-eight of cerebral hemorrhage, but for the first four years the totals were only fourteen to twenty-one. Bread cards were introduced in 1915 and potato cards in May, 1916, and they were soon followed by great restrictions in fat and meat. During the last half of 1918 the ration of food was apparently at the lowest possible figure. There was first a general loss of weight and then a decline in the blood pressure. The pulse rate also declined, dropping to 40 or 50 or even less in the morning. The blood pressure declined to 7 or 8 cm. mercury, and Schlittenhelm has reported a decline to 4 and 5 cm. mercury. A further phenomenon for which Salomonson considers the undernourishment responsible was a weakening of the heart sounds at the base, evidently connected with the low blood pressure. The young and robust had their blood pressure decline the same as the elderly with pathologic vessels. Even with hard, tortuous vessels the pulse was remarkably weak. The circulation was thus below par throughout, and in terminal, more or less pathologic arterioles the circulation might die out completely. This is almost certain to entail arteriothrombosis,and when this occurs in a cerebral artery a focus of softening results. The low pressure and the reduced pumping power of the heart deprive some of the smaller vessels of their full supply of nourishment. Among these the vasa vasorum suffer so that a vicious circle is set up. It is not a casual coincidence that the cases of softening of the brain have grown more numerous while apoplexy is becoming rarer. The prognosis according to his experience is much more favorable with the former than with the latter. Nearly all the cases of encephalomalacia improved notably under medical measures.

Tonsillectomy and Thymus Death.—Burger reports the death of a youth of 15 under chloroform for tonsillectomy. The anesthesia and the operation had proceeded smoothly but immediately after the operation had been concluded, the heart action and respiration stopped. Necropsy showed the thymus more than twice the normal size, and the thymicolymphatic status explained the fatality. This status seems to be particularly dangerous for goiter operations, and judging from Burger's own case and three he has found on record, the same is true of tonsillectomy. Kofler's fatal case was the only fatality in his 6,000 tonsillectomy cases, and Kafemann's in 10,000. In one of the thymus death cases, death did not occur till the following day, after an interval of respiratory disturbance. In all the others death occurred at the close of the operation, before rousing from the anesthetic. Burger adds that there does not seem to be any certain means for detecting the thymicolymphatic status beforehand; aneurysm or retrosternal goiter may simulate a large thymus.

Hospitalstidende, Copenhagen

July 2, 1919, **62**, No. 27

Occurrence of Influenza Bacillus. M. Kristensen.—p. 801. Com'd in No. 26, p. 777.

July 9, 1919, **62**, No. 28

*Wassermann Tests in 1918. T. E. H. Thaysen.—p. 825.

Wassermann Tests.—Thaysen found a positive response in 10.9 per cent. of the men and in 11.7 per cent. of the women among 738 hospital patients tested. In thirty-six cases the positive Wassermann was the only thing that suggested syphilis.

Nordiskt Medicinskt Arkiv, Stockholm

May 15, 1919, **51**, Internal Medicine Section No. 4-5

*Phlegmonous Gastritis. H. Sundberg.—p. 303.
*Symmetrical Gangrene. H. Marcus.—p. 469.

Phlegmonous Gastritis.—Sundberg gives the details of 17 cases from the clinics at Stockholm and Upsala, and tabulates these and others he has found on record—a total of 215 cases of phlegmonous gastritis. His tabulation alone fills 60 pages and his bibliographic references 8 pages. The inflammatory process develops mainly in the submucosa. He says that Hedenius was the first to suggest the infectious origin (1871); streptococci have been demonstrated in 71 of 95 cases examined. In only 8 per cent. of all the cases listed were the patients of the well-to-do class; 25 per cent. of the total number had been hard drinkers. In the 17 personally observed cases, there was always a history of chronic gastritis, and the secretion of gastric juice was abnormally low. The inflamed mucosa is peculiarly vulnerable, and the deficient gastric secretion leaves it defenceless. Infection can occur by direct implantation of germs or by way of the blood. Pus in the vomit is the most instructive sign of the affection, especially when the amount is large and the intervals short. Another instructive sign is that the pains which may come to resemble those of a perforating gastric ulcer subside when the patient sits up after reclining. This was constant in his cases, and the high fever also testified against perforating gastric ulcer. In 33 per cent. of the fatal cases nothing was found to indicate peritonitis. Rational treatment can be only by resection of the diseased portion but spontaneous recoveries are known. Cases in which after an exploratory incision revealing supposedly incurable cancers, the patients survived for years afterward, may have been cases of phlegmonous gastritis on the road to healing. The death rate in his nonoperative series was 92 per cent. Cases in men are nearly three times more numerous than in women. The ages were between 20 and 60. High fever and general malaise, headache and thirst, with vomiting and sometimes violent and persisting hiccup often usher in the disease.

Symmetrical Gangrene.—In Marcus' four cases the Raynaud disease developed as an acute infectious disease of septic nature, and in three of them a tumor was found in the mediastinum or pancreas which evidently interfered with the functioning of the vasomotor nervous system. Reviewing the literature shows the prevalence of symptoms showing disturbance in the sympathetic system, along with symptoms of septic infection, malaise, insomnia, mental haziness. Tumefaction of joints is common, as also eruptions, pain, albuminuria, weak heart, enlargement of spleen, subsidence of the reflexes and tender points suggesting neuritis. The clinical picture thus combines features of both sepsis and rheumatism. There is evidently an inherited predisposition to vasomotor disturbances of the Raynaud type, and they develop under some provocative cause, catching cold, trauma, spinal processes or tumors. Syphilis may be a factor; no comprehensive data have been recorded in this line; in his own cases there was nothing to suggest inherited syphilis except possibly the tumors. He is now engaged on experimental research trying to induce symmetrical gangrene with inoculated infection.

Norsk Magazin for Lægevidenskaben, Christiania

July, 1919, **80**, No. 7

*Aphasia. G. H. Monrad-Krohn.—p. 705.
*Modification of Reflexes after Physical Exertion. Id.—p. 728.
*Social Service for Children at American Hospitals. K. Utheim.—p. 733.
*Neurorecurrence after Arsphenamin Treatment. J. H. Berner.—p. 742.
*The Genius Epidemicus. IV. A. Magelssen.—p. 749.

Aphasia.—Krohn reiterates here the advantages of the method of examining persons with aphasia which he first described in the *Journal of Mental Science* in 1917. This takes into account all the psychosensory and psychomotor functions involved in speech, and thus renders possible a clinical nomenclature of the different forms of aphasia. He gives a critical survey of the various theories on aphasia and the speech center or rather speech region.

Changes in the Reflexes After Physical Exertion.—Krohn tabulates the findings in respect to the knee-jerk in forty-nine men just before and after a ski racing tournament covering a hilly course of 50 km. In all but two the knee-jerk was found afterward decidedly attenuated or abolished altogether. The race took nearly five hours, and the modification in the reflex was evidently a manifestation of fatigue. In ten of the men the response was weaker on the right side than on the left, suggesting that the right side was used more than the left.

Welfare Work for Children in American Hospitals.—Utheim describes the work of the child health organizations, the classes for undernourished children, and other departments of welfare work for children in connection with certain American hospitals.

Neurorecurrence After Arsphenamin Treatment of Syphilis.—Berner reports the case of a young woman who developed headache, vomiting and deafness six months after acquiring syphilis. It had been treated at monthly intervals with five injections of arsphenamin. The Wassermann reaction was positive and the symptoms were those typical of neurorecurrence. They subsided under potassium iodid three times a day for three weeks, and then neo-arsphenamin. He reviews some German and Norwegian literature on neurorecurrence, and remarks that the prognosis should always be drawn with some reserve as although the symptoms may subside, even without treatment, there is usually some defect left in the functioning. The earlier and the more vigorous the treatment the better the outlook.

Influenza and Extremes of Temperature.—Magelssen discusses what he calls the genius epidemicus. He has noticed that certain weather conditions precede epidemics of influenza. This affects masses of people all around the globe, practically simultaneously, and this he thinks explains the pandemics by rendering the people susceptible to disease. A chart showing the epidemics of influenza at Christiania since 1847 and the temperature during these eighty years reveals a close connection between certain weather conditions and the epidemics. In the year preceding the epidemics the winter temperature had been unusually cold, and the following spring had come on suddenly, prematurely warm, and the summer was unusually hot. This abrupt transition from cold to hot may modify the heat regulation in the body in some way, and thus reduce the resisting power to diseases in which the vasomotor tone is low and the vitality and vital functions are depressed. In these characteristics influenza resembles the symptoms which often develop on moving from a temperate to a tropical climate.

His data suggest that the limits between influenza, catarrhal fever and ordinary colds are not very decided, and that the virus is made up of the same familiar germs of old. The susceptibility to the virus and the virus and the intensity of its action are the results of a temporary constitutional weakness which in turn is the result of the action of the temperature. His charts indicate that the weakening of the constitution from this cause makes its influence felt for about three years at least. The practical conclusion follows that in periods of epidemic disease it is wise to refrain from needless exposure to extreme cold or extreme heat and from sudden transitions. One reason perhaps why the young and robust suffered most from influenza was because they exercised so much in military drill, in athletics, in dancing, etc., and were gathered in underheated or overheated rooms. Prolonged diaphoresis and bed rest seem to offer the best prospects in treatment.

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THE INFLUENCE OF THE WAR ON PREVENTIVE MEDICINE AND PUBLIC HEALTH *

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SPRINGFIELD, ILL.

Those who have observed the thought and tendencies in preventive medicine of the present time must be impressed that the war will mark a definite turning point in public health activity and that there lies before us a period of reconstruction and reorganization in methods of health administration. The dominant thoughts underlying this readjustment are that both military and industrial power are dependent on man power and that the strength and efficiency of our man power will be determined, in the last analysis, by the health of the individual. In this readjustment, and born of our war-time experiences, disease prevention will be regarded as more important than disease suppression, and health promotion will take precedence over both. The public health administration of the future will be a forward-looking administration. While giving attention, as it has in the past, to the specific sources of illness, it will devote itself largely to the prevention of human ailments by the development of maximum health and, in pursuing this policy, it will deal with the individual more than ever before.

During the war, health became a matter of the utmost importance. It acquired a new practical value which, for the first time in our national life, has come to be appreciated by all intelligent people. The war also gave us some valuable and, incidentally, some disconcerting facts in regard to the physical condition and health of the people, and afforded an opportunity to try out the efficiency of modern preventive measures unrestricted and unhampered by prejudice, ultraconservatism or narrow opinion. As never before, public health work was given adequate financial backing. Efforts in disease prevention were made without the embarrassments arising from considerations of cost. For the first time we were able to demonstrate in a large way that good health is actually a purchasable commodity, and the American people have passed favorable judgment on the results of that demonstration.

This progressive policy, adopted in dealing with the health of the military forces, was doubtless due, to a large extent, to the fact that we were enabled to observe the experiences of European warring nations for some time before we became participants and, further, that we entered the war at a critical period when everything depended not only on the character of our military forces, but also on the productive ability of our industries. We had been awakened to the urgent necessity for the maximum of nation-wide physical efficiency.

The people as a whole have learned a new lesson as to the importance of individual and national health in time of war. They have also had it impressed on them that, while hostilities have ceased, the war is not over—that the period of reconstruction will make large demands on the physical resources of the nation—and they stand ready to continue and extend those health activities which have proved effective during the past two years.

The finding of the exemption boards and of army medical examiners came as a first awakening shock, disclosing, as they did, a surprising prevalence of physical disability, largely preventable in character, leading to the rejection, in the average community, of almost 20 per cent. of the young men who were presented for military service. These findings, incidentally, demonstrated conclusively the value of one of the modern means of health promotion too generally ignored in the past—the periodic, physical examination of presumably healthy persons for the detection of early disease.

Of the disclosures made by the various examining boards, none excited more general comment than that of the great prevalence of venereal diseases and tuberculosis—the two diseases which, in many ways, have been longest neglected in our public health activities. The grave apprehension which had already attached to tuberculosis in the European nations and the prompt action in the United States, in providing a large corps of tuberculosis experts for army service and in establishing large sanatoriums for returned consumptive soldiers, changed the attitude of the American people very radically toward that disease and indicated the necessity for more extensive antituberculosis activities in the future. States and communities in which restrictions and regulations for the control of tuberculosis have been largely ignored on account of indifference or prejudice now find the people and the medical profession ready and anxious for any reasonable restrictive action. In one state alone, the lessons from the war have made such impression that while few public sanatoriums existed prior to that time, forty such institutions have been created by popular vote within the past two years, each with its attendant dispensaries and community nursing service.

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*Chairman's address, read before the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

RECOGNITION OF IMPORTANCE OF VENEREAL DISEASES

The awakening to the importance of venereal diseases and the change in public sentiment in regard to them have been even more spectacular. Health officers and the general public have always been reluctant to deal with these ailments frankly, and the campaigns of education have been generally half-hearted and weak. Certain press associations, reflecting the commonn sentiment of a few years ago, passed resolutions disapproving the use of the words "gonorrhea" and "syphilis" in the public prints. In view of this timid policy, and possibly as a result of it, the recently published statements of Vaughan and Palmer[1] are significant. While all other communicable diseases which sorely beset the armies during the Civil War have been greatly decreased and, in some instances, practically eliminated, there was found to be a very large increase in gonorrhea in the army of 1917 as compared with 1861.

The manner in which the federal government, through its military medical departments and under the provisions of the Kahn-Chamberlain law, have attacked the venereal disease problem, not only of soldiers, but also of the civil population, established a new policy and line of action from which the health officers of the future will never recede. Venereal diseases are being discussed before general audiences without hesitation, and educational and restrictive measures are being carried out such as would not have been possible had it not been for the accent placed on the subject when the nation was at war. The method of dealing with individuals who are presumably spreaders of venereal infection is a striking index of our entirely changed point of view. In many communities, prostitutes are now being apprehended, but, instead of being fined or committed to jail, which could have no influence whatever on the prevention of disease, these unfortunate women are sentenced, but the sentence is suspended so that they may be committed to general hospitals for treatment and from which they are discharged only when they have clinically recovered or when the best obtainable evidence indicates that they are no longer sources of infection. This is another indication, incidentally, of the individualization in health work which will unquestionably be a large factor in the health programs of the future.

CHILD WELFARE WORK

The acute problem that has confronted the European nations, particularly France and Belgium, of a decreasing birth rate and a greatly increased mortality, has attracted world-wide attention and has centered unusual interest on the field of child welfare, and this interest has been accentuated by the realization that much of the physical inefficiency disclosed by examining boards might have been avoided had there been more intelligent thought on the subject of child conservation in the past. It is, of course, generally recognized that the span of human life has been increased about six years during the past generation and that it is possible further to extend life expectancy; and it is further recognized that this gain in the life period is largely due to the prevention of infant mortality, so that child welfare work appears at present to be the most hopeful field for public health endeavor and the one promising the most direct and definite returns.

In the attempt to reduce infant mortality, as carried on throughout the nation today, the chief efforts are directed toward keeping the well baby well, following the policy of health promotion rather than that of direct disease prevention; and the public health organizations are devoting themselves to the development of the individual child through better baby conferences, infant welfare stations, community nurses and other factors that are relatively new to public health organizations.

EXTENSION OF CLINICAL ACTIVITIES

This individualization in health work, illustrated in what has been done during the war in tuberculosis, venereal diseases and child welfare, foretells a definite new departure in the public health administration of the future—the development of extensive clinical activities. In the past, with certain exceptions, health departments have taken no part in diagnosis except in the contagious and infectious diseases of epidemic type and through the services of diagnostic laboratories. If the policies adopted both here and abroad during the war are to be continued and extended, it seems inevitable that health authorities must render increased diagnostic and clinical services, including the early diagnosis essential to recovery from tuberculosis; the diagnosis of venereal diseases and the treatment of such cases especially for indigent persons; the development of well baby clinics and clinics for the reeducation of victims of poliomyelitis, on the diagnosis and treatment of trachoma, and so on. To carry out this work successfully, the various health departments will be compelled to employ physicians of highly specialized skill, and will necessarily have to make provision for far more generous compensation than is customary among public health agencies at the present time.

This extension of clinical service by health authorities, contrary to the opinion occasionally expressed, will prove directly beneficial to the medical profession as a whole. It is a matter of common agreement, wherever such public clinical work is undertaken, that, as a result of its educational influence, there is a decided and immediate increased demand for professional service among the patients of private physicians. In this way, the results of public health clinical work extend much farther than merely to that part of the public which the clinics themselves actually serve.

The work that is being done by the Department of Reconstruction of the United States Army, under the leadership of Col. Frank Billings, suggests possible extensions of public health activity since, in the broader and newer conception, public health work includes every activity that will increase the physical efficiency of the individual or community or which will restore the physically unfit to the highest point of health. To what extent this policy of reconstruction can be properly utilized in the future is open to question; but, in the development of our future program, it is entitled to serious consideration. Certainly the work that has already been done by some health departments in the training and reeducation of persons crippled by poliomyelitis has been so gratifying and far-reaching as to justify the belief that reconstruction will one day be a part of public health promotion.

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[1] Vaughan, V. C., and Palmer, G. T.: Communicable Diseases in the National Guard and National Army of the United States During the Six Months from September 29, 1917, to March 29, 1918, J. Lab. & Clin. Med. 3: 635 (Aug.) 1918.

DEVELOPMENT OF HEALTH OFFICIALS FROM MEDICAL OFFICERS

It is obviously impossible to discuss at this time all the phases of preventive medicine influenced by the war, but one factor which will have a tremendous effect in altering the public mind in regard to health administration is the return to civil life of thousands of physicians who have received intensive training in sanitation and preventive medicine during their military service. It is to be expected that a large number of these physicians, having had their first experience in public service, will be reluctant to return to private practice, and there may be developed from them an unusually competent group of health officials; while those who return to private practice will exercise a new and salutary influence in their own communities.

POPULAR INTEREST IN PUBLIC SERVICE

In addition to this, there will be scattered throughout the nation approximately 4,000,000 young men who have had impressed on them in no uncertain terms the paramount importance of disease prevention and health promotion, and who have seen the advantage of yielding cheerfully to reasonable health regulations. These young men will naturally assume the leading part in their community affairs during the next generation and, with the guidance of public health departments of broader vision and larger resources, will materially influence the history of preventive medicine of the future.

The greatest changes in health development, however, will come out of the tremendous interest in public service created during the war and which found expression in the upbuilding of many large extragovernmental organizations engaged in various phases of patriotic and philanthropic work. With the war over, these organizations have been casting about for desirable fields for the expenditure of their energies and, in the majority of instances, they have settled on some phase of public health activity. This has created a situation which is disturbed and unique, full of possibilities for splendid progress and equally full of possibilities for confusion, overlapping, conflict and wastefulness.

This great popular interest will doubtless serve to stimulate the governmental health agencies to greater endeavor and will overcome official apathy and ultraconservatism. If these volunteer agencies can be properly coordinated under governmental guidance, they can be a tremendous influence for good. Unguided, however, the very multiplicity of organizations, the ease with which private funds are now obtainable for health purposes, and the lack of uniformity in views and methods will lead to wastage in money and effort and to the ultimate weakening and discredit of public health endeavor. The war has left us in a critical condition, full of possibilities for good and bad, in which sound judgment and firm policy by health authorities are imperatively needed.

Is Your Community Fit?—What effort has been made to ascertain whether or not your milk supply is safe? Diphtheria, scarlet fever, septic sore throat, typhoid fever, dysentery, all may be spread by unsafe milk. A system of inspection and efficient pasteurization will protect people from milkborne diseases. If your community is too small to bear the expense of dairy inspection, it should at least enjoy an adequate system of pasteurization under proper supervision.—*Pub. Health Rep.*, April 25, 1919.

THE HIGHER AND BETTER EDUCATION OF THE DENTAL STUDENT *

EUGENE S. TALBOT, M.D.
CHICAGO

The object of the formation of this section was to assist in establishing a closer relationship between the mother profession of medicine and the younger specialty of dentistry, and eventually to place the specialty on a medical basis. How much has been accomplished in this direction since its formation, history has shown. Certainly the interest displayed by the ablest men in the medical profession by their presence, in reading and discussing papers, demonstrates that they have done more than their share in placing this section on an equal footing with the other sections in this great Association.

In my early practice of dentistry I soon realized that if I was to become a successful practitioner, I must know more of pathology than I had obtained in the dental school. To obtain that knowledge I must attain a medical education; and although it was a hardship for a man with a family to abandon practice for two years, I have been more than compensated by the broader knowledge and fellowship which I have acquired. Every man starting out in life should have high ideals, and those ideals should be so broad and advanced that it requires a lifetime to accomplish the end.

The ideals firmly fixed in the minds of those men who organized this section were that dentistry, being a part of the healing art, should and must be a part of the medical profession, and that a thorough medical education was just as necessary for treating diseases in the mouth as diseases in any other organ of the body. The dental schools have begun to realize this fact, for since this section was established, the college course has been extended from a two-year to a four-year course, the entire length of a full medical education.

It is rarely the lot of man to live to see his ideals developed to their highest attainments. Nearly all of the organizers of this section have passed on. With one exception, however, they all lived to see great advances along the lines of their ideals.

The stomatologist with his medical education is on an equal footing with the men practicing in every other department of the healing art, and is, therefore, freely consulted in the most difficult and obscure etiologic symptoms of disease in which the mouth, jaws and teeth may possibly be a factor.

As time goes on and the etiology of disease becomes better understood, the relationship of the general practitioner and the stomatologist must become more intimate. It stands to reason, then, that the man who treats the mouth, jaws and teeth must be a medical specialist, equal to the best medical specialist in other branches of the healing art.

It may be of interest to the members present to know that in the thirty-nine years of its existence, this section has not received a single paper on the subject of the mechanics of dentistry. All papers presented and read before the section have been on the subject of pathology or on some subject of interest to both physicians and stomatologists. By adopting this plan, physicians have been as much interested in reading the papers of this as of other sections.

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* Chairman's address, read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

On the other hand, many dentists subscribe for The Journal or obtain access to it through physicians in their vicinity. Through this section, therefore, there has developed a closer relationship between medicine and dentistry. The future of this section has a prosperous outlook. Focal infections arising from diseased teeth, and also the associations as a result of the war, have drawn the stomatologist and the medical practitioner into closer relationship. We have arrived at the period when one cannot possibly get on without the other. Physicians are seeking specialists who are qualified to assist them in a proper diagnosis of disease, and naturally associate with those who are medically educated. In the future, therefore, the man who wishes to be a success in his specialty must have a medical training.

The future of the section is assured. Dr. Black comes to us as secretary in the fulness of youth and experience. I am sure that he will direct the future welfare of the section to a higher and broader usefulness.

WOUNDS OF THE FACE AND JAWS

Modern methods of war and its destruction have developed a line of surgery of the face and jaws that could not have been produced in any other way. Injuries due to explosive shells have caused more extensive wounds than can be produced in any other way. These include fractures, destruction of bone structure, and lacerations of the associate soft parts.

We have with us at this meeting stomatologists who have been most active in the different branches of this service and who will demonstrate the latest methods of teaching of the treatment of wounds.

FOCAL INFECTIONS

It has been shown and accurately demonstrated that 95 per cent. of all roots of teeth are imperfectly filled. In other words, owing to irritations in the process of treating and filling the roots of teeth or to the decomposition of tissue after filling, pathologic changes occur about the roots, as shown by the roentgen ray and microscope. These pathologic changes have been known to the profession for the past eight or ten years, and yet the same methods of treatment are applied today as formerly. How long would the medical profession continue to perform an operation on any other tissue of the body, knowing that the technic was so faulty? My researches on animals during the past twelve years,[1] show that the least irritation produced in the treatment of the roots of the teeth will cause absorption of the alveolar process and roots, with irritation and inflammation of the peridental membrane.

Abnormal collateral arterial development in the roots of the teeth and the abnormal development of the granular layer of Tomes—researches of which have not yet been published—demonstrate the almost complete hopelessness of permanent success, no matter how well the root may have been filled.

The number of focal infections and disturbances from faulty root fillings, local and systemic, is appalling. The average dentist, not being grounded in pathology, does not and cannot appreciate the seriousness of his faulty treatment. A different method of root filling must be immediately instituted or devitalized teeth must be extracted. A rule which I have adopted is that a patient's health is worth more than all the natural teeth.

FAULTY METHODS OF PRACTICE

From time to time, in the past thirty years, I have repeatedly called the attention of the profession to the fact that modern dentistry is producing more disease than any other one cause. The profession is beginning to realize the truth of this statement. Since the first dental college was established, there has gradually developed a method of practice of mechanics regardless of pathologic results. The method of practice, at best, has benefited the individual patient only for the time being. On the other hand, after operations are performed, disease has followed in almost every instance.

Our present method of treatment has not benefited the race as a whole. Decay of the teeth and deformities of the jaws have increased from generation to generation until at the present time hardly a child under 12 years of age can be found free from tooth decay and deformities of the teeth and the jaws. Since our present methods of procedure are faulty, we must resort to radical changes in treatment and devote our entire attention to preventive measures.

MEDICAL TEACHING VERSUS DENTAL TEACHING

The wonderful progress made in medical teaching in the last fifteen years should be an incentive for the better education of the dentist. In 1904 there were about 156 medical schools in this country. Through the influence of the Council on Medical Education the standard has been raised and the number of schools, by combining one with another or by dropping some out altogether, has been reduced in the last fifteen years to eighty-five. From 80 to 95 per cent. of these schools now require for admission two years of work in a college of arts and sciences, as compared with only 2.5 per cent. of all colleges holding that requirement in 1904. In some of the schools there has been a continuous session of the four quarters plan, whereby the student is allowed to select any three quarters of the year that best suit his convenience to complete his yearly term.

The chairman, Dr. John M. Dodson,[2] in his report asked: "Is there a logical reason why the student should not be allowed to utilize the summer months in full-time medical work in residence and thus complete the present requirement of four sessions in three calendar years, his year of internship in a fourth year, and so enter into active practice a year earlier than has been possible under previous regulations?"

Under the four quarters scheme, seven weeks may be provided for vacations so that attendance on the four quarters is no hardship for the student in good health who desires to avail himself of the privilege.

Dr. N. P. Colwell,[3] in stating the further needs in medical education, said that an improvement still greatly needed in medical schools concerns the methods of clinical instruction of medical students. Students should be enabled to complete most of their didactic courses in the third year, so that most, if not all, of the time of the fourth year may be devoted to clinical courses for groups of about six students each in the hospital wards.

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[1] Talbot, E. S.: Dental Cosmos, May, 1919.

[2] Dodson, J. M.: Problems in Medical Education, J. A. M. A. **72**: 821 (March 15) 1919.

[3] Colwell, N. P.: Recent Progress and Further Needs in Medical Education, J. A. M. A. **72**: 822 (March 15) 1919.

These changes, so necessary in medical schools, are just as necessary in the dental schools. I have advocated these changes in dental teaching for a number of years. Why should a student spend four years in college when he can save a year far easier than the medical student, since only half of his curriculum is given up to didactic teaching and the other half to the mechanics of dentistry? The mechanics of dentistry can very easily be taught in the summer months, and the fundamental principles of medicine and dentistry may be left for the winter months. The curriculum can be so arranged that the student can have from five to seven weeks' vacation, which is from three to five weeks longer than the vacation of the average professional man.

I have held for many years that the dental school could not make a professional man out of the student by the present method of teaching, even if the course should be extended to six or eight years. There are two grades of dental colleges in the United States: those that are an actual part of universities or colleges, and those that are not. Those that are a part of universities have nothing to do with the matriculation of students. Those that are not have everything to do with the entrance requirements of students. There is an unwritten law among the dental schools that all students entering must be either graduates of a high school or they must successfully pass an examination covering the average high school requirements. The result is that a large percentage of the students entering the dental schools other than those connected with universities or colleges have not an education equal to that of our common schools. It is possible that the dean can explain how these students enter.

Having entered, this uneducated student immediately begins to ascertain what is necessary for graduation. He soon learns that the mechanics of dentistry is the essential thing, since he cannot graduate until he can successfully perform certain operations on the teeth and make artificial dentures. Most of his thought and time is spent along these lines. Courses are pursued in the departments of anatomy, physiology, pathology, bacteriology, chemistry, etc., but are not considered of so much importance as it is the mechanics of dentistry that counts toward graduation and practice.

The student begins his mechanical training almost as soon as he enters school. The result is that the ignorant young man, following the line of mechanics, on graduation enters practice as a mechanic rather than as a professional man. As I have already stated, by this method of teaching, a six-year or eight-year course would not improve the mentality or standing of the individual in the community.

Again, students entering the dental school from the farm, shop and factory are unmindful of what is required of them when they enter practice. They pay their fee and expect to be qualified to serve the public successfully when they enter practice. They soon learn, however, that a broader knowledge of the essentials of medicine is necessary to cope successfully with the conditions presented by their patients than they had received in their dental training.

The remedy is easy. Make a professional man out of the dentist, as well as a mechanic. Require the student to take one or two years' work in the arts and sciences. This will relieve the dean of the dental school of all responsibility of the preliminary requirements. The first two years of work in the dental school should be given up to didactic teaching. The student should not be permitted to operate on patients or perform mechanical laboratory work until the third year. All or nearly all of the last two years may be given up to the practical side of the specialty. The preliminary training in the laboratory of the academic and premedical courses will give the student all the finger training that is necessary to prepare him for his dental activities.

BOOK READERS

There are about 45,000 dentists in the United States. Out of that number not over 500 buy books relating to their specialty, or read them. The reason for this has already been explained. Dentistry is a part of the healing art. There is no reason why the dentist should not be as well educated as the physician and hold an equal position in the community. It is high time that the profession itself awoke to the situation and demanded better qualified graduates from our dental schools.

UNIVERSITY SCHOOLS

This section has always used its influence on the side of the university schools. Your secretary has made it a point to attend the annual meetings of the Dental Faculties Association of American Universities when possible, and has always been received with much cordiality. He has read and discussed papers relating to the higher and better education of the dentist. I would suggest that the executive committee of this section be made a standing committee to attend the annual meetings when possible and use its influence on behalf of this section to suggest improvements in special teaching and to encourage the teachers in their efforts to place their schools on an equal footing with other departments of the healing art.[4]

TRENCH FEVER IN THE AMERICAN EXPEDITIONARY FORCES *

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NEW YORK

Trench fever is a disease that has been recognized and differentiated from other morbid conditions during the recent war. While there is little doubt that it existed previously in some place or places, there is no doubt that to all medical officers it presented new problems in diagnosis, prognosis and treatment.

There are descriptions of the disease and reports of its occurrence in all armies on the western front. But from the mass of reports it is impossible to determine the original source of the infection or the line of spread from area to area. The constant movement of troops in an army, the ever changing composition of every unit, make epidemiologic studies very difficult and accurate reconstruction of the mode of diffusion of a well known disease virtually impossible. When we consider that on the western and eastern fronts and behind the lines there were troops from nearly every country in the world, it is easy to understand how an unknown disease, which might have been endemic in some out-of-the-way country, might rapidly gain a foothold among men who had not developed any natural immunity.

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[4] The discussion on this article will be found on page 836, this issue.

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

The difficulties in collecting accurate statistics concerning trench fever were increased by the recency of its discovery. It was never made a reportable disease because the conditions which must be fulfilled to make reporting compulsory could not be clearly defined. For many months most medical officers were ignorant of the existence of the disease, let alone its manifestations in the patients under their care. To the entire medical profession the nature of the disease was more or less a mystery. The fact that the term "pyrexia of undetermined origin" (P. U. O.) was applied in the diagnosis of most cases is sufficient indication of the general attitude toward the malady. Although the specific nature of the infection was established by McNee, Brunt and Renshaw in 1916, it continued to be confused with other acute infections. The term "pyrexia of undetermined origin" was applied to all these conditions, even though it usually implied trench fever.

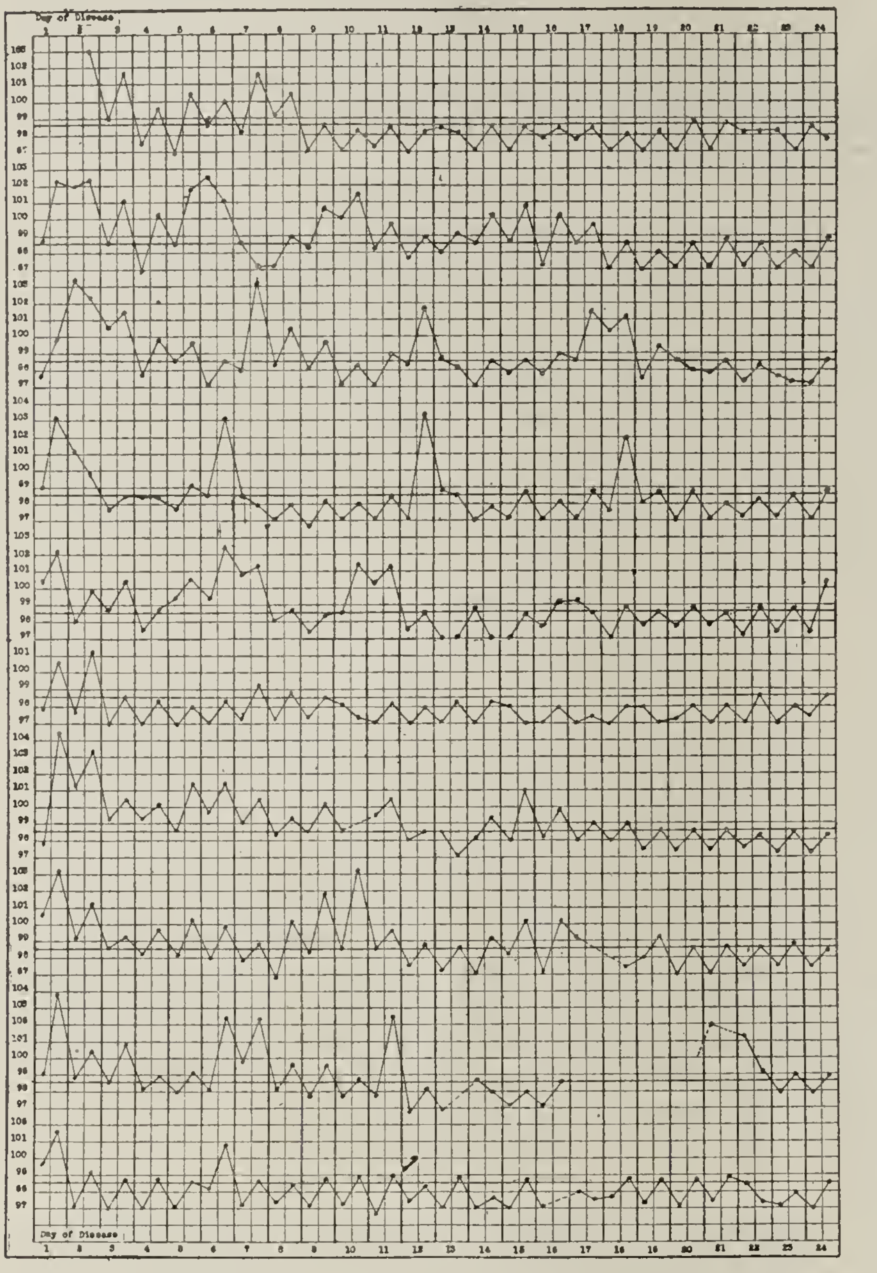

Chart 1.—Different types of fever that may occur from inoculation of different persons with the same strain of virus. In the next to the last case the temperature was normal from the twelfth to the fiftieth day. In this chart the temperature after the blank space marks the febrile relapse on the fifty-first and fifty-second days.

DIAGNOSIS

While it is fairly easy to describe the general disease trench fever, it is much more difficult to make an exact diagnosis in many individual cases. This difficulty arises from the variety of manifestation.

Fever, which is the most common of all the symptoms, does not always follow any one course. Various efforts have been made to separate the types of fever into two or three groups. The most comprehensive classification is that of the British Expeditionary Force Trench Fever Commission:

(*a*) Relapsing, either regular or irregular.

(*b*) One single short bout resembling influenza.

(*c*) Continuous fever extending over a longer period, resembling in its form typhoid or paratyphoid fever.

While such classification is useful, it should be emphasized that the cases do not always fall into one of these groups. A case with regular relapses may later have long continued low-grade fever. The febrile relapse may occupy only four to six hours, and hence may be missed if only morning and evening temperatures are taken. Again, the entire fever may continue less than forty-eight hours. The case with three or five days continuous fever without a subsequent relapse may be easily mistaken for influenza.

Charts 1 and 2 illustrate the different types of fever that may occur from inoculating different individuals with the same strain of virus. They are abstracted from charts of the volunteers inoculated by the American Red Cross Trench Fever Commission.

The other clinical manifestations of trench fever, taken separately, are even less diagnostic. The sudden onset with headache, general muscular pain and anorexia is seen in other acute infections. The "pink eye" resembles the conjunctival congestion so frequent in influenza. The nystagmus, elicited on extreme lateral rotation of the eyeballs, may be present normally and is seen in other febrile states.

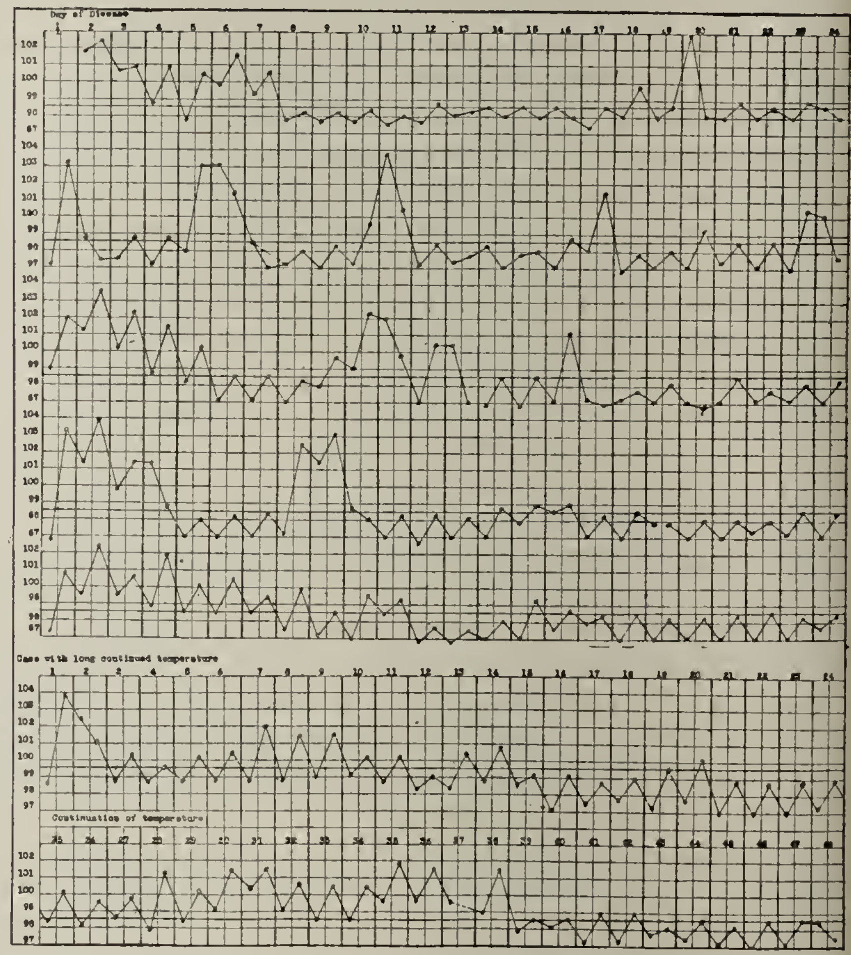

Chart 2.—Different types of fever that may occur from inoculation of different persons with the same strain of virus.

An enlarged spleen is found in typhoid fever and malaria, either of which may be mistaken for trench fever. The trench fever spleen, however, is harder than that found in typhoid fever and not so large as that often present in malaria.

The trench fever rash may be mistaken for typhoid rose spots, if the evolution of the individual macules and the relation of their appearance to the other manifestations of the disease are not carefully recorded.

The neck pains may suggest meningitis; the pain in the back, lumbago; and the abdominal pains, appendicitis or acute peritonitis. The joint and muscle pains are often mistaken for subacute or chronic rheumatism or myalgia. The painful joints in trench fever are not swollen. The shin pains in trench fever are the most characteristic symptoms of the disease, although they are not always present. Similar pains are described in dengue fever, and in soldiers after long marches or after standing in mud or water for long periods.

There is no laboratory method which has a direct diagnostic value. Leukocytosis is usually found during the periods of pyrexia, but leukopenia is occasionally as marked as in typhoid fever or dengue.

The reason for reciting these confusing points is to show that a correct diagnosis is not readily made in a single examination or from the consideration of a few symptoms or signs. It is only by careful daily examinations and the recording of the findings, as well as by the elimination of other diseases, often by laboratory methods, that the largest proportion of correct diagnoses can be made.

The preceding remarks apply to the difficulties in making a diagnosis in every army under field conditions. Certain special difficulties existed in the American Expeditionary Forces. During the period when most of these cases occurred, we were passing through the influenza epidemic. It is usual for physicians to apply the name of the most prevalent acute disease to all pyrexias of undetermined origin that come under their observation. In this way they make the largest number of correct diagnoses, but at the same time many incorrect ones. Trench fever and influenza closely resemble one another at the onset. Many cases can never be differentiated. Most cases require prolonged observation and continuous temperature records. In the rapid movement of patients from one hospital to another, the temperature records frequently were not sent with them. The temperatures and pulse rates were often taken, but not recorded, because there was no convenient place to record them. It is self-evident that the field medical card should have a special blank for the recording of temperatures. Then the degree and the time of fever would be noted, and the medical officers in the hospitals in the rear would not be at a loss to know what had gone on in the forward areas. This knowledge is important for the proper care of both sick and wounded.

TABLE 1.—TRENCH FEVER AND PYREXIA OF UNDETERMINED ORIGIN IN THE AMERICAN EXPEDITIONARY FORCES

	Trench Fever			Pyrexia of Undetermined Origin	
	1917	1918	1919	1918	1919
January	..	3	188	.....	2,476
February	..	1	61	.....	1,477
March	..	3	51	.....	703
April	..	4	14	.....	396
May	..	0	...	.....	.....
June	..	19	...	1,748	.....
July	..	33	...	1,393	.....
August	1	29	...	1,552	.....
September	2	67	...	3,474	.....
October	0	33	...	3,759	.....
November	3	15	...	3,214	.....
December	2	26	...	1,747	.....
Subtotals	8	233	314	16,887	5,052
Totals			555		21,939

Influenza was constantly present in the American Expeditionary Forces, there being 190,689 cases reported from July, 1917, to May, 1919. In addition there were 21,939 cases of pyrexia of undetermined origin. It is easy to understand how a number of cases of trench fever might have been missed in these 212,628 cases.

ETIOLOGY AND COURSE

Both the British and American Trench Fever Commissions have shown that the body louse is the chief agent in transmitting the virus from man to man. The British commission feels that the chief mode of inoculation is by the scratching of the feces of infected lice into the skin of louse infested men. The American commission showed that infection did occur following the bite of infected lice, even when there was no visible excoriation of the skin. The elucidation of the exact mode of inoculation is purely an academic problem, for it is certain that lice living under normal conditions can easily transmit the infection. The virus remains active for a long time in dry louse feces. It is also present in the urine of trench fever patients, its resistant qualities being shown by the fact that the concentration of such urine by drying does not kill it. It will pass through a Chamberland filter. Its thermal death point is above 60 C. All these characteristics show that it belongs to the group of resistant filterable viruses.

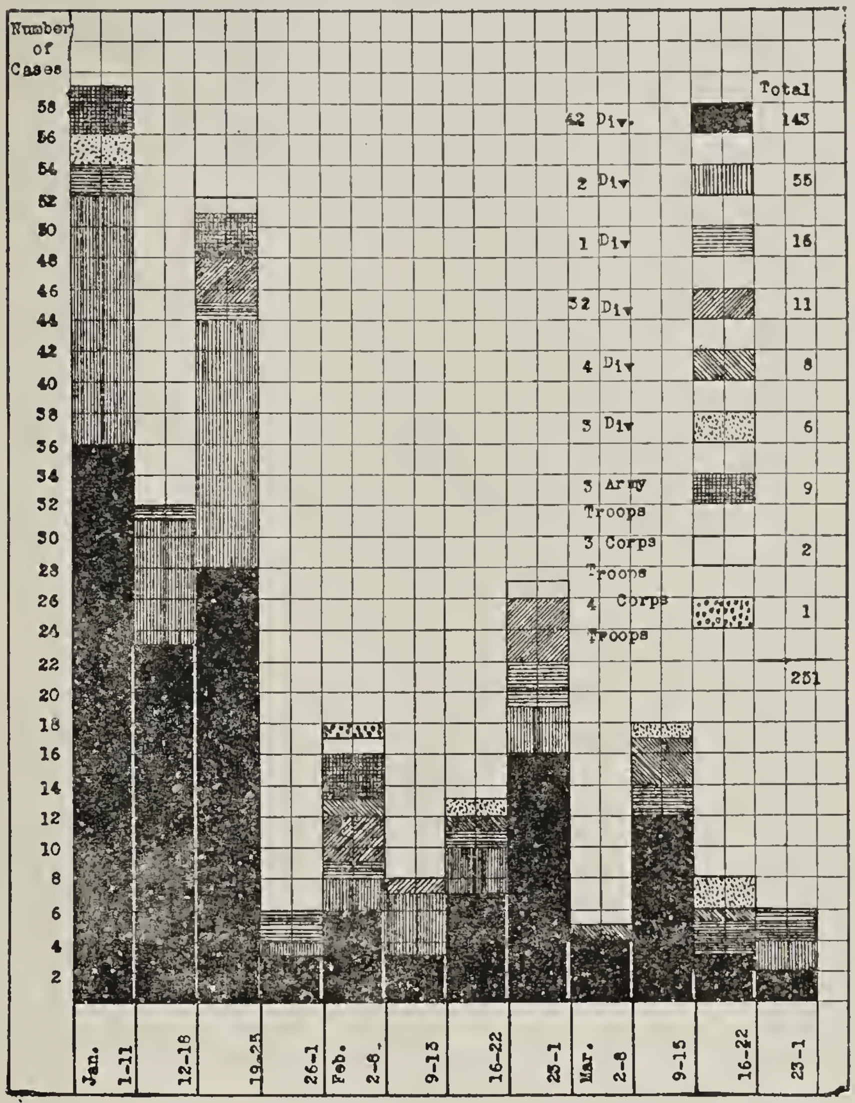

Chart 3.—Incidence of trench fever in troops of Third Army, Jan. 1-March 1, 1919.

The course of the disease in human beings is different from that ordinarily seen in most other acute infections. In many ways it resembles malaria. The number of relapses is variable. It tends to become subacute or chronic in many patients. In some there are long periods of latency, the patient appearing perfectly well, with later an acute exacerbation. There is no known specific cure. Recovery is evidently due to the development of some type of immunity. Lice may take up the virus from a patient weeks or months after the onset of the disease. Just as there is no known laboratory method of diagnosis, so there is no known method of determining when a patient may be no longer a source of infection.

PROPHYLAXIS

From the foregoing observations, three factors must be considered in preventing the spread of the disease: (1) the louse as the transmitting agent; (2) the human foci of infection, and (3) the resistant nature of the virus.

TABLE 2.—DISTRIBUTION OF TRENCH FEVER CASES IN FORTY-SECOND DIVISION

	165th Infantry																149th Field Artillery									Military Police				
Company	A	B	C	D	E	F	G	H	1	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X					
Jan. 1-11	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	1	1	2	1	3	..	..	..	..	..
12-18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..
19-25	..	1	..	1	..	..	..	1	..	2	1	1	..	..	..	..	1	..	1	..	1	1	..	..	..	..	..	..	..	..
26- 1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

	166th Infantry																150th Field Artillery									150th M. G. Bn.				
Company	A	B	C	D	E	F	G	H	1	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X	A	B	C	D	X
Jan. 1-11	..	..	..	2	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
12-18	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
19-25	..	..	..	2	..	1	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
23- 1	..	..	..	..	..	..	..	..	1	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	1	1	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..

	167th Infantry																151st Field Artillery									151st M. G. Bn.				
Company	A	B	C	D	E	F	G	H	1	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X	A	B	C	D	X
Jan. 1-11	.	..	2	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..	..	1	..	..	..	..	1	..	..	..	..	..
12-18	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	4	..	..	..	1	..
19-25	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
9-15	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

	168th Infantry																117th Engineers									117th Fd. Sig. Bn.		117th Amm. Tr.		
Company	A	B	C	D	E	F	G	H	1	K	L	M	M.G.	Hq.	Sup.	X	A	B	C	D	E	F	Hq.	Sup.	X					
Jan. 1-11	.	2	..	3	..	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
12-18	.	..	1	..	1	..	..	..	..	2	..	3	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..
19-25	.	..	..	..	..	..	1	1	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
9-15	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

The extent of lousiness of soldiers under field conditions is well known by many medical officers. Peacock reported that at least 95 per cent. of British soldiers living in the trenches were lousy. Many sanitary reports from our own army indicate a similar degree of infestation among American troops. Among the first sixty American volunteers who reported to the American Trench Fever Commission, 38.3 per cent. were infested, even though the entire detachment was supposed to have been recently deloused. It is remarkable how soon an entire division will become infested after an ordinary delousing. Constant, thorough inspection and easily accessible bathing facilities and delousing apparatus are necessary to keep all the troops of an army vermin free. It is needless to dwell on the general lack of these requisites during an active campaign.

Our troops must have come into contact with many soldiers with trench fever. The disease was very prevalent in the British army. At least ten of our divisions spent a portion of their training period in the British area. Reports from American base hospitals attached to the British army show that a number of our soldiers were infected with the disease in this area, even though the proportion was not so high as among British troops. It is impossible to state accurately the degree of prevalence of the disease in the French army. We know, however, that it did exist. It was present to a considerable degree among the German soldiers, so that our advancing troops were exposed to infection in the captured trenches, and the troops of the army of occupation were exposed to a certain extent in German billets and barracks.

INCIDENCE OF TRENCH FEVER IN THE AMERICAN EXPEDITIONARY FORCES

Table 1 shows that only a small number of cases of trench fever were reported in the American Expeditionary Forces. These figures are probably far from representing the actual number of cases. All of the reasons for making diagnosis difficult were constantly in operation. Many of the diagnoses were missed because of the rapid movements of the sick, but probably many more were missed because medical officers were not acquainted with the manifestations of the disease. This statement is borne out by the experience in the Third Army. Early in January, 1919, after the troops were in the areas they were to occupy permanently, and most of the sick were under continuous observation in the evacuation hospitals, a number of cases of typical trench fever were brought to light.

TABLE 3.—DISTRIBUTION OF TRENCH FEVER CASES IN SECOND DIVISION

	9th Infantry								12th Field Art.	23d Infantry										15th Field Art.		
Company	A	B	C	D	H	L	M.G.	Hq.	F	C	D	E	F	G	I	L	M.G.	Hq.	Sup.	F	Hq.	Sup.
Jan. 1-11	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	1	2	..	..	1	..
12-18	..	1	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..
19-25	1	..	1	1	1	1	1	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
9-15	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..

	5th Marines		2d Engineers	1st Field Sig. Bn.	17th Field Art.				6th Marines					2d Amm. Tr.		2d San. Tr.		6th M. G.
Company	17	49			C	F	Hq.	X	15	75	78	95	X	B	D	16th Amb.	23d Fd. Hosp.	X
Jan. 1-11	1	..	..	1	..	1	1	1	..	1	..	..	..	..	1	1	1	..
12-18	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	1
19-25	..	..	..	2	..	1	1	..	1	..	..	1	..	1	..	..	..	..
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..
23- 1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE 4.—DISTRIBUTION OF TRENCH FEVER CASES IN FIRST, THIRD, FOURTH AND THIRTY-SECOND DIVISIONS, THIRD CORPS, FOURTH CORPS, AND THIRD ARMY TROOPS

	1st Division															32d Division										3d Corps Troops	
	16th Inf.	28th Inf.			18th Inf.					6th F. A.		7th F. A.		1st Amm. Tr.	P. E. S.	125th Inf.			126th Inf.	127th Inf.				128th Inf.	323d F. A.	308th Eng.	146th F. A.
Company	K	B	F	M.G.	C	E	F	H	L	A	Hq.	D	F			C	F	X	M	F	H	K	Hq.	C	F	C	B
Jan. 1-11	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12-18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19-25	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	1
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	1	1	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
16-22	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	1	..	..	..	..	..	..	1	..	1	..	2	..	1	..	..	..	1	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

	3d Division					4th Division							4th Corps Troops	3d Army								
	4th Inf.	7th Inf.	6th Eng.		76th F. A.	39th Inf.	47th Inf.			58th Inf.		11th M.G. Bn.	51st Pion.	1st Pion.		3d Army Bakers	Hq. Troop	Evac. Hosp.	S. C. 1	A. T. C.	149th Inf.	327th F. A.
Company	D	Hq.	B	E	D	X	D	F	I	F	I			A	K			4	F	4	(?)	(?)
Jan. 1-11	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..
12-18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19-25	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1
26- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 2- 8	..	..	..	..	..	1	..	..	..	..	..	..	1	..	1	1	1	..	..	..	..	..
9-15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16-22	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Mar. 2- 8	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9-15	..	1	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
16-22	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
23- 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

An attempt was then made to acquaint all medical officers in the field and evacuation hospitals with the manifestations of the disease, the mode of transmission, and prevention. By means of informal reports, the medical officers of the various units from which cases came were urged to insist on better delousing measures.

Chart 3 shows the incidence and distribution of cases in the various units by weeks for the first three months of this year. All of the reports were made from the evacuation hospitals. In several of the cases reported between the 1st and the 11th of January, the onset occurred in December. In fact, many of the patients stated that their trouble began at the time of the march forward from the Argonne region into Germany. Taking the figures as they stand, however, we see that over three-fourths of the cases occurred in two divisions, the Forty-Second and the Second. The effect of delousing and removing patients from their division is well demonstrated, for after the third week in January the number of cases fell off rapidly in each division. The distribution of cases throughout the division, corps and army troops down to units as small as companies is shown in Tables 2, 3 and 4.

Cases were identified from 162 different companies. From each of 110 of these companies one case was diagnosed, from thirty-five companies two cases, from ten companies three cases, from five companies four cases, from one company five cases, and from one company seven cases. Thus, while the infection was widespread throughout the army, it was not very extensive in any one unit. The figures suggest that foci of infection had been present among the troops only a short time. It is interesting to note, however, that the two divisions with the heaviest rate had been overseas since 1917. The lower rate in the other old division, the First, is in line with the general low sick rate in that division.

By the first of February, delousing facilities were fairly adequate. This month the rate dropped to less than half that of January, and in March it was about one fourth the January rate. The continuation of the disease in February and March was probably due in part to infection incurred in January, and in part to infection contracted elsewhere. At this time, large numbers of men were going on leave to various parts of France where troops from other units of the American Expeditionary Forces were also on leave. Leave, with the diminished medical supervision and the necessary crowding on trains and in billets, was a fruitful source of infection of all kinds.

A comparison of the number of reported cases (300) in the entire American Expeditionary Forces in the first three months of 1919 with the number from the Third Army for the same period reveals the fact that five sixths of the reported cases were from the Third Army. In spite of the heavy incidence in two of the divisions, it is highly improbable that one seventh of the entire American Expeditionary Forces would furnish five sixths of the cases, especially when several of the divisions then in France had been more exposed to trench fever. We are, therefore, forced to conclude that a considerable number of cases existed throughout the American Expeditionary Forces that were never recognized.

POSSIBILITY OF SPREAD

The return of so many soldiers to civil life will doubtless result in distributing foci of infection throughout the country. Every possible precaution is being taken to see that the troops are completely deloused before embarkation and demobilization. Nevertheless, the possibility of long latent periods and late relapses, as well as the power of body lice to take up the virus during the late periods of the disease, must be borne in mind. Lice are not confined to armies. In our cities there is constant danger of transmission of any louse-borne disease if human foci of infection exist.

The fact that trench fever is not fatal has naturally caused it to be disregarded when there were so many more urgent conditions demanding the attention of the medical officers. As an economic problem, it must be recalled that, on the average, a trench fever patient is incapacitated for six weeks. Often the infection persists for months. The effort syndrome is a not infrequent sequela; indeed, this symptom may be an indication of the persistence of the infection. It is, therefore, important to keep in mind, as after-war problems, both the possibility of the spread of the infection and its effect on discharged soldiers.

ABSTRACT OF DISCUSSION

Dr. William S. Thayer, Baltimore: The only way to learn the practice of medicine is by practice and experience, and there is no greater demonstration of that than what has been shown in the paper by Dr. Swift. Dr. Swift went up into the active area and found trench fever; the rest of us did not find it.

Dr. Ernest Zueblin, Cincinnati: I think any new disease of which we have heard so much is liable to arouse our curiosity, and I think we are really fortunate to have Dr. Swift tell us about his experience. With the discussion of a new disease such as trench fever, many questions arise which I would not like to touch on at the present moment, but first I would like to know whether in addition to the cardiac manifestations any other syndromes have been encountered; second, whether the means of controlling the lice have been sufficient to prevent any further propagation of the disease; and third, how long a time is required, that is, for how long a time the patient is still to be considered as infective and a danger to the community, and what are the means available to determine the extent and duration of a cure from the disease.

Dr. Homer F. Swift, New York: I forgot to mention that the disease is not fatal. We do not know of any patient who died as a result of trench fever. I think in the British army a large proportion, 50 per cent., of the cases of D. A. H., had trench fever. Another late symptom is the persistence of leg pains and lumbar pains. Many of these patients come in with the diagnosis of chronic rheumatism or chronic lumbago, and when you go back and reconstruct their histories, you will find that they began with definite relapses every few days. Unfortunately, we have no way of telling how long a patient will remain a source of infection. We have no laboratory method of diagnosing the disease, and we have no way of telling how long that patient will infect a louse before a louse will infect a human being. I think as long as a patient is showing active symptoms of the disease he should be a subject for isolation, not strict isolation as in measles, but isolation from infestation.

The second point as to the amount of heat necessary to kill the virus, you will see that from 56 to 60 C. kills the lice and also kills the eggs, so that for ordinary purposes heating clothes at 60 C. is sufficient to delouse. That is not sufficient to kill the virus in the feces of the lice or the virus in the clothes that may have come from urine or saliva, so that it takes a higher degree of heat to disinfect clothes which have come into contact with trench fever patients, as well as disinfect them.

RECURRENCES AFTER OPERATIONS FOR EMPYEMA *

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The final results of the treatment of empyema of the chest can be ascertained only after the elapse of a considerable period. This period is of variable length and depends on the organism causing the infection, on the size and shape of the cavity, and on the particular method of treatment adopted. There is a minimum possibility of recurrence when the sinus has been completely obliterated by a gradual approximation and cicatrization of its walls. Recurrences are more common when an empyema is allowed to close while a cavity containing air still exists. If the Carrel-Dakin treatment has not been used to sterilize the cavity, the percentage of recurrences is particularly high. In addition, there are two other possible causes of reaccumulations of pus; either that isolated collections have escaped detection throughout the period of drainage, or that a part of the cavity has become sequestrated by a contraction of its walls. Long continued observation after apparent cure is necessary to eliminate all sources of error.

I am in the fortunate position of having been able to complete the records of 123 cases of empyema, observed first by the Empyema Commission at Camp Lee, Va., and subsequently at General Hospital No. 12 at Biltmore, N. C. All of these patients were admitted

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* From the Walter Reed General Hospital.

during the first six months of 1918, and as far as results are concerned, permit a comparison between the treatment of empyema by simple drainage and drainage combined with the Carrel-Dakin method. These cases naturally fall into two groups: Group 1 consists of 100 cases which had been treated by simple drainage immediately following diagnosis, and includes the cases up to the middle of April, 1918. Fifty-six patients were healed under this treatment; the empyema in the remaining forty-four became obstinately and persistently chronic until treated by the Carrel-Dakin method. In only ten cases was a thoracoplasty of moderate extent finally indicated. In Group 2 there were twenty-three patients who were admitted during April and May of 1918. They were treated by preliminary aspiration until the primary infection of the lung had subsided, and subsequently by thoracotomy and surgical solution of chlorinated soda.

TABLE 1.—RECURRENCES

	Month after Healing									
	1	2	3	4	5	6	7	8	Unhealed	Total
A. Resection immediately after diagnosis	..	..	..	..	..	..	..	..	..	100
I. Healed without Carrel-Dakin treatment	..	..	..	..	..	..	..	..	..	56
Recurrences in healed sinus	3	5	0	1	0	0	0	1	0	10
Recurrences distant from sinus	1	1	1	1	0	0	0	0	0	4
Bacteria:										
Hemolytic streptococcus	4	6	0	1	0	0	0	1	0	12
Sterile	0	0	1	1	0	0	0	0	0	2
II. Simple drainage, healed under Carrel-Dakin treatment	..	..	..	..	..	..	..	..	..	44
Recurrences in healed sinus	0	1	1	0	1	0	0	0	0	3
Recurrences distant from sinus	0	0	0	0	0	0	0	0	1	1
Bacteria:										
Hemolytic streptococcus	0	0	1	0	1	0	0	0	1	3
Sterile	0	1	0	0	0	0	0	0	0	1
Number of thoracoplasties	..	..	..	..	..	..	..	..	..	10
B. Aspiration, followed by open drainage:										
Carrel-Dakin treatment throughout	..	..	..	..	..	..	..	..	..	23
Recurrences in healed sinus	0	0	0	0	0	0	0	0	0	0
Recurrences distant from sinus*	0	1	1	0	0	0	0	0	2	4
Bacteria:										
Hemolytic streptococcus.	0	0	0	0	0	0	0	0	1	1
Staphylococcus aureus ..	0	1	0	0	0	0	0	0	1	2
Sterile	0	0	1	0	0	0	0	0	0	1
Number of thoracoplasties.	..	..	..	..	..	..	..	..	..	3

* "Recurrences distant from sinus" includes undiscovered pus pockets resulting from multilocular empyema and lung abscesses. The mortality in Group A was high and these conditions were common in the necropsies which were performed. Of the total number of patients in Group B (twenty-four), only one died. This accounts for the high percentage under this heading.

Among the cases healed under simple drainage, fourteen, or 25 per cent., of the recurrences were encountered within eight months after the primary healing. The majority of these were discovered during the first or second months, either during routine examination or because of a rise of temperature. Ten of these cases, occurring at the site of the primary operation, were caused by the hemolytic streptococcus, the organism which was the cause of the original infection. The pus collections in the remaining four were found either at the apex of the pleural cavity or very high in the axilla, and probably were the result of isolation of a part of the original cavity by adhesions soon after operation. Although they were all purulent, living streptococci were found in only two; the others were sterile.

Among the sixty-seven cases healed under the Carrel-Dakin treatment, comprising the refractory empyemas of the earliest group as well as those in which surgical solution of chlorinated soda had been used throughout, there were eight recurrences. Three of these occurred at the site of the previous operation; two of these were due to the hemolytic streptococcus, while the third was merely a collection of a small amount of clear, sterile fluid. Except for a lung abscess found at the angle of the scapula, the remaining five recurrences were at the apex of the pleural cavity. Bacteriologic examination revealed streptococci in two of these cases, *Staphylococcus aureus* in two cases, and one was found to be sterile pus.

A study of these recurrences is an interesting demonstration of the efficacy of the Carrel-Dakin treatment. The group treated by this method not only shows a higher percentage of perfect results, but also that the pus pockets which were discovered were usually at some distance from the original focus.

In discovering these secondary foci of pus there were two symptoms which proved to be of the greatest value: 1. The patients either never regained their normal weight or even lost weight in spite of the fact that they were continuously kept on high carbohydrate diet. In this connection it is interesting to note that in the cases of recurrence in two patients whose weight was above that recorded on admission to the army, the fluid was sterile. 2. In all cases of recurrence of a purulent nature, the pulse rate was always rapid and there was also a moderate fever. There were, in fact, two different types of fever present. Fever of a very acute nature was found most frequently in cases which had been allowed to close before complete sterility was obtained; in these the febrile reaction was sharp and was usually accompanied by constitutional symptoms. In other cases a mild evening temperature of 99 to 99.5 F. was observed, especially when the pus pocket was at some distance from the primary empyema and was evidently of long standing. These points were well illustrated by the following histories:

TABLE 2.—EFFECTS OF CARREL-DAKIN TREATMENT

		Recurrences	
	Total	No.	Per Cent.
Cases healed under simple drainage......	56	14	25
Cases healed under Carrel-Dakin treatment	67	8	12

REPORT OF CASES

Case 1.—A patient admitted March 26, 1918, with bronchopneumonia developed a massive streptococcic empyema within the next two days. A costectomy was done, March 29. The wound healed after three months under simple drainage. When the patient was admitted to the hospital he weighed 160 pounds, and by the time the wound had healed he had regained all the weight lost during the acute stage of his illness. A routine examination, as well as a study of the roentgenograms made immediately after the wound had healed, revealed no abnormality other than a mass of adhesions and thickened pleura in the region of the scar. No further symptoms developed until July 27, when the temperature suddenly rose to 103, with malaise and all symptoms of a systemic infection. Physical examination and roentgenograms detected no change in the findings from those of the previous examinations. In the absence of other abnormal findings the chest was aspirated in the line of the old cicatrix; this revealed a small amount of pus which contained streptococci in pure culture.

Case 2.—Jan. 2, 1918, a patient previously admitted with measles developed a bronchopneumonia and an empyema, which subsequently was treated by simple drainage. When the wound healed, April 15, the pulse rate averaged 120 and the afternoon temperature rose to 99.5. He was also 20 pounds underweight. In spite of a forced carbohydrate diet he gained very slowly. July 5, during a routine examination, the following findings were recorded: "The pulse rate, which is 104 even in the recumbent position, is markedly accelerated on exertion, and is accompanied by dyspnea. The hands are cold and moist. There is usually an evening temperature of 99 to 99.5 F. The expansion of the right chest is limited; the percussion note is resonant except over the scapula and between the inner border of the scapula and the vertebral column." When this dull area was aspirated, sterile pus was found. Subsequently the cavity was drained and healed under Carrel-Dakin treatment. At the time of his discharge in December, 1918, he had gained 4 pounds in weight.

COMMENT

The two histories just recorded illustrate the types most frequently encountered in the twenty-two recurrences I have observed. In the reaccumulations in the immediate vicinity of the first operation, physical and roentgen-ray examination often failed to differentiate between small collections of fluid and the thickened pleura which exists in practically every perfectly healed case. It is for this reason that the cicatrix was always aspirated first when there were symptoms of recurrence and the chest findings were apparently negative. Collections of pus in other parts of the chest could be definitely localized by physical and roentgen-ray examinations.

Small collections of fluid in the chest gave physical findings which varied according to their location. The most constant physical finding was an impairment of the percussion note; at times, however, it was impossible to differentiate between fluid and thickened pleura. It was also observed that areas of dulness which were entirely separated from the diaphragmatic dulness were usually due to fluid; those which merged gradually into the diaphragmatic dulness, particularly when associated with an abnormally high diaphragm, could be more readily accounted for by the cicatricial tissue which was present. There was some variation also in the character of the note elicited. In small sacculations there was moderate dulness instead of the flat resistance which is encountered in massive exudates. Tactile fremitus was diminished over the central area of fluid collections except in those located anteriorly over the right apex and along the hilum of the lung; in these areas increased fremitus and marked bronchial breathing were the rule. Auscultation was often unreliable and misleading, although it may be definitely stated that usually the respiratory sounds were distant. Areas of dulness in the axilla were always accompanied by diminished breath sounds and diminished vocal fremitus. In order to determine definitely the cause of these abnormal physical signs, it was found preferable to study them carefully in conjunction with stereoscopic plates before diagnostic aspiration was attempted.

Not only were stereoscopic plates preferable, but usually they were absolutely necessary. The plates were examined for abnormal shadows denoting the presence of pus pockets, for intrapulmonary lung markings, and for evidence of abnormalities in the pleura. The lesions at the apex were usually easily discovered because they produced a deep shadow, but a careful examination was always required to determine whether the pus collection was anterior or posterior to the lung. In the axillary shadows there was always difficulty in distinguishing between fluid and thickened pleura. Frequently, particularly when a cavity had closed after draining but a short time, a dense shadow extended from the apex to the diaphragm along the axilla; with the gradual devascularization of the cicatricial tissue which causes this shadow, the plates became perfectly clear in this area and eventually resembled a partial pneumothorax. It was evident from many observations of this character, and from a comparison of the findings at secondary operations with the plates, that frequently thick scar tissue did not intercept the roentgen ray. Aspiration was often the only means of determining the nature of these abnormalities in the axilla. The pulmonary striae along the bronchi and their smaller branches were usually very heavy on the affected side. They could be readily followed outward from the hilum, and served as a guide in locating the border of the lung. In abscesses these lines radiated from the point of infection.

Two cases of lung abscess were observed at intervals during the period that these characteristic markings were developing. One, which was found just under the pleura at operation, had probably existed from the time of the initial bronchopneumonia. Both the lung and the adjacent pleura were irregularly thickened. The second case was kept under observation until dense radiating lines had formed through the involved lobe, and the pleura overlying the process showed evidence of inflammation. Both cases would have been confused with pleural pus collections if they had not given these characteristic plates and if numerous râles had not been heard on auscultation. It is certain that aspiration is the only way of definitely deciding the cause of many of the abnormalities found in the plates.

The treatment of these recurrences depended entirely on the character of the fluid found. When it was clear and sterile, aspiration was all that the case required. With the exception of one which was completely evacuated at the diagnostic puncture, all the purulent fluids were drained by thoracotomy. Cases which have shown a recurrence at the site of the primary operation frequently have recurred again in spite of the greatest care exercised in treating them; in many of these cases of second recurrence there were small pieces of necrotic bone in the sinuses. The care of these cases required the closest cooperation between the surgeon, the internist and the roentgenologist.

Curative Workshop and Vocational Apprenticeship System.—A plan has been developed by the federal board for vocational education, with the cooperation of the commandant of the Navy Yard and the commanding officer of the Naval Hospital at Norfolk, Va., for the establishment of a combined curative workshop and subsequent vocational apprenticeship system, which may be used as a standard for all Navy yards. The general features of the plan as outlined by the board are as follows: ambulant convalescent patients may be given therapeutic training through appropriate operations and exercises in the shops of the Navy Yard, but under conditions which duplicate actual productive shop conditions. The federal board's representative advises with the men and with the surgeon in charge. These two men decide on appropriate work. In the office of the yard is another representative of the board, a coordinator, who receives the prescription and arranges for training under a competent mechanic who has also been trained as an instructor by the federal board. Men having completed their period of hospital training and therapeutic training may continue to receive vocational training in a wide variety of Navy Yard occupations. Neither in the therapeutic phase nor in the vocational phase is it assumed that men will necessarily eventually become employees of the Navy Yard. The work is carried on at the expense of the federal board, with the cooperation of the Navy Yard authorities.

THE THERAPEUTIC ASPECT OF BLOOD TRANSFUSION *

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The recent wave of enthusiasm for transfusion was initiated by the introduction of simplified methods for transferring blood, the elimination of dangers, and an increasing appreciation of the therapeutic value of the procedure. The nearer one approaches giving blood as it exists within the vessels of the donor, the nearer one attains ideal conditions. Numerous procedures have been suggested to render the technic of anastomosing vessels less difficult; but none have survived the practical test, so that indirect methods have gradually taken their place. These are of two types; those supplying whole unmodified blood, and those which add an anticoagulant. The first group is represented by the method of Kimpton and Brown,[1] by that of Lindeman,[2] and by the one[3] described by me in this journal some years ago.[4]

These methods mechanically overcome the technical difficulties of direct transfusion. However, the problem has also been attacked by rendering the blood noncoagulable by the addition of small quantities of sodium citrate.[5]

The relative merits of unmodified blood and of blood thus modified by means of sodium citrate is one of the points of active interest in connection with this subject. As is well known, the latter method has recently gained considerable vogue and, indeed, by some is claimed to render other methods of transfusion unnecessary. From my point of view, transfusion of unmodified blood cannot be so lightly set side.

One of the differences between unmodified and citrated blood is manifested clinically by the more frequent occurrence of reactions with the latter method. Drinker and Brittingham[6] state that, after citrate transfusions, febrile reactions occur in 60 per cent. of cases and a chill in 57 per cent. In my series of unmodified blood transfusions, febrile reactions have occurred in about 10 per cent. and a chill in about 3 per cent. This difference in the number of disagreeable reactions is due to an abnormal condition of the blood platelets and the red cells in the citrated blood. It has been shown by Novy and DeKruif[7] that blood acquires toxic properties in direct proportion to the path it has traveled toward coagulation. Even though it does not absolutely coagulate, processes take place within it as soon as it is poured forth from the vessels which change its nature and render it less suitable as a body fluid. These coagulative changes have been shown by Drinker and Brittingham to be associated with the platelets which become abnormal as soon as they leave the vessel. They write:

> The grade of abnormality of these elements depends to some degree on the extent . . . of the handling which they are compelled to undergo in the varied methods of transfusion. . . . There is no practical method for citration of the large quantities of blood needed for transfusion which certainly prevents the early changes of coagulation. The methods in use simply arrest the process. The truth of this statement will be testified to by many who have used the citrate method with complete coagulation of the blood at a critical point in the transfusion.

Methods for using whole unmodified blood can probably be similiarly criticized, though to a less extent. Here there is infinitely less handling, and coagulation cannot have progressed so far since the blood is out of the body a shorter period. By the method described above,[3] the blood is out of the body about five seconds.

Drinker and Brittingham have also shown experimentally that "the mere addition of a dose of sodium citrate" to red cells induces slight abnormality, as evidenced by an increased fragility and an increased tendency to hemolyze. The corpuscles are damaged by sodium citrate operating as a specifically harmful substance. This is of particular importance when transfusion is performed in hemolytic diseases.

These studies seem to show, what *a priori* would seem to be most likely, that from a biologic point of view the delicate blood tissue must be altered in the carrying out of a transfusion of citrated blood. For diseases in which blood is indicated for itself, that is, when it is required as a tissue, as in the various anemias, especially when the disease is hemolytic in nature, there can be no question as to the relative merits of unmodified blood which runs almost from vessel to vessel and that which has been handled, chemically altered and allowed to remain for an indefinite length of time outside of the body. The transfusion of unmodified blood is the procedure of choice. It must be admitted, however, that the technic for giving citrated blood is simple, and that therefore in cases of hemorrhage, in which the purpose is not so much to supply normal blood for pathologic blood as to furnish the impoverished circulation with an adequate supply or to bring about cessation of hemorrhage, citrated blood may serve as a substitute.

It has long been recognized that unless the donor and patient belong to the same iso-agglutinin group, iso-agglutination and isohemolysis are possible dangers to the patient. Agglutination frequently occurs with hemolysis, but hemolysis is always associated with or preceded by agglutination. Therefore, if tests are made which eliminate the possibility of aggutination, hemolysis is also automatically guarded against. Although any of the recognized methods for testing this phenomenon may be employed, the microscopic methods recommended by Moss[8] or Lee[9] and by Rous and Turner,[10] are the simplest and quickest. By the method of Moss, mixtures of the patient's cells with Groups II and III serums are made and examined under the microscope. In this way the patient is placed in his proper group.[11] The proper subject is selected from a list of donors whose groups are known and whose Wasserman test is negative.

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* Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Kimpton, A. R.: Boston M. & S. J. **178**: 351 (March 14) 1918.

[2] Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, Am. J. Dis. Child. **6**: 28 (July) 813.

[3] The mechanical principle involved in the instrument used in this method is the establishment of two channels by means of which a record syringe is automatically connected alternately with a vein of the donor and then with one of the recipient. At the same time that the record syringe is connected with the donor for the aspiration of blood, a syringe with saline solution is connected with the recipient, and vice versa. It is this immediate and continued flushing with salt solution of that channel through which blood is not passing that insures freedom from clotting. The technic is as follows: Alongside the instrument which has been fixed to a table, the arms of the patient and the donor are placed. The tubes leading from the instrument are connected to the cannulas after the latter have been inserted through the skin into the recipient's and the donor's veins. A record syringe is then inserted into the instrument, and blood is aspirated. When the syringe is filled, the stopcock is turned and then the blood is injected. Simultaneously saline solution is forced through the channel which is not being used for the aspiration or injection of blood. This procedure is continued until the desired amount is transfused. In order to prevent clotting, a stream of ether is played on the barrel of the record syringe while it is being filled with and emptied of blood. In this way only one record syringe is required, regardless of the amount transfused.

[4] Unger, L. J.: A New Method of Syringe Transfusion, J. A. M. A. **64**: 582 (Feb. 13) 1915; Recent Simplifications of the Syringe Method of Transfusion, ibid. **65**: 1029 (Sept. 18) 1915; Transfusion of Unmodified Blood: An Analysis of One Hundred and Sixty-Five Cases, ibid. **69**: 2159 (Dec. 29) 1917.

[5] Lewisohn, R.: M. Rec. **87** (Jan. 23), 1915; Weil, Richard: Sodium Citrate in the Transfusion of Blood, J. A. M. A. **64**: 425 (Jan. 30) 1915.

[6] Drinker, C. K., and Brittingham, H. H.: Transfusion Reactions, Arch. Int. Med. **23**: 133 (Feb.) 1919.

[7] Novy, F. G., and DeKruif, P. H.: Anaphylatoxin and Anaphylaxis, J. A. M. A. **68**: 1524 (May 26) 1917.

When standard Groups II and III serums are not on hand and when donors are not so available or are not classified according to groups, the more direct method of Rous and Turner[12] is of value. According to this method the blood of each donor is tested against that of the recipient without first determining its respective group. If no agglutination takes place, the donor is suitable as far as iso-agglutination and isohemolysis are concerned.

In New York there is a group of professional donors who have been used repeatedly, indeed, too often. The opportunity was therefore presented to observe the effect on the donor of giving blood repeatedly for transfusion. This is a study of clinical interest simulating conditions in which hemorrhage occurs from time to time in considerable amounts, and seems therefore worthy of greater attention than it has been heretofore granted. Within a few days, signs of secondary anemia appear which will be recovered from entirely provided sufficient time is allowed to elapse. If, however, the donor submits to repeated and frequent transfusions, the anemia may become intense. Two donors had a hemoglobin of only 55 per cent., in spite of the fact that four and eight weeks had elapsed since their last transfusions. One of these men had been a donor for four and one-half years and had given blood on fifteen occasions. Because of the anemia he went to work at a mountain summer resort where he had plenty of food and fresh air; but after three months his hemoglobin was only 67 per cent. For the succeeding three months he received arsenic and iron (six months after his last transfusion), and his hemoglobin rose to 98 per cent.

The statistics relating to another donor are interesting and seem worth recording as showing how much the body can withstand in this respect: At the time of this man's first transfusion, he weighed 175 pounds. Six and a half years later he weighed 201 pounds. During this period *he underwent sixty transfusions, donating about 50,000 c.c. of blood,* for which he had received $1,700. This man, therefore, had lost his total blood volume ten times during this period. His hemoglobin, taken nine weeks after his last transfusion, was 70 per cent., otherwise he was apparently in good health.

After donors have given up blood repeatedly over a period of years, certain changes result. There is a definite secondary anemia which in some cases may be intense. There is poikilocytosis and anisocytosis of various degrees. In no case were nucleated reds observed. The leukocytes are increased in number, varying between 10,000 and 14,000. The differential count is about normal. The anemia is probably due to the fact that sufficient time is not allowed between transfusions for the rise to normal of the hemoglobin and red blood cells. In one case observed, this anemia was not permanent and the donor recovered from it. This fact is of practical importance because in pernicious anemia in which repeated transfusions are necessary, a particular donor often seems to be able to institute remissions when other donors fail.

DOSAGE

With blood, as with other therapeutic measures, the amount given is a factor in determining the result. A donor can with safety supply one quarter of his blood volume. Just how much of this a patient should be given is dependent on various factors. For infants the usual dose should be from 80 to 150 c.c. For adults, from 800 to 1,000 c.c. This amount, of course, varies with the weight, the condition of the patient's heart and lungs, and the disease for which the transfusion is being performed.

Overtransfusion from the donor's standpoint is evidenced by an increase of the pulse and respiratory rates, repeated yawning or deep sighing. Changes in the rhythm of respiration may occur before a change of the pulse rate. If these symptoms appear, the transfusion should be discontinued. Pallor and sweating are occasionally followed by collapse. From these symptoms he will quickly recover if the transfusion is discontinued.

As regards the patient, hypertransfusion is more serious. This may lead him to complain of precordial distress, headache, backache, or pain in his legs. A more important sign, however, is a short, sharp cough. If the transfusion is continued, the cough will be repeated. The cough, when it does appear, occurs irrespective of the rate at which the blood was transfused. One should *not transfuse more than 200 c.c. after the first cough.* In only one case has this sign been disregarded. In this instance 500 c. c. were transfused after the first cough. This was the only case in my series in which transfusion was complicated by hypertransfusion; pulmonary edema developed, and the patient died.

INDICATIONS FOR TRANSFUSION

The indications for transfusion[13] are: (1) hemorrhage; (2) diseases of the blood; (3) toxemias; (4) infections; (5) shock, and (6) general debility.

1. *Hemorrhage.*—This is one of the conditions in which blood transfusion is the ideal form of treatment. It serves not only to replace loss of blood but also to check actual bleeding. In acute hemorrhages, the results are naturally more brilliant than in less fulminating bleeding. In about 85 per cent. of the cases of acute hemorrhage, bleeding can be stopped by one transfusion.

2. *Diseases of the Blood.*—In secondary anemia, the results are satisfactory, provided the primary

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[8] Moss, W. L.: Blood Transfusion, J. A. M. A. **68:** 1905 (June 23) 1917.

[9] Lee, R. I.: Brit. M. J. **2:** 684 (Nov. 24) 1917.

[10] Rous, Peyton, and Turner, J. R.: A Rapid and Simple Method of Testing Donors for Transfusion, J. A. M. A. **64:** 1980 (June 12) 1915.

[11] If the patient's cells are agglutinated both by Group II and Group III serums, the patient is in Group I; if they are agglutinated by neither II nor III, he is in Group IV; if by III serum and not by II, he is in Group II; and if by II serum and not by III, he is in Group III.

[12] The following simplifications of the method of Rous and Turner have been satisfactorily employed by me: In a pipet used for counting leukocytes, one part of 10 per cent. sodium citrate and ten parts of the patient's blood are mixed. A similar specimen of the donor's blood is collected. From these specimens, by means of a third pipet, are mixed nine parts of the donor's blood to one part of the patient's, and also one part of the donor's to nine parts of the patient's. A drop of each of these mixtures is put on a slide, a drop of physiologic sodium chlorid solution is added, a cover glass is applied, and examination is made under the microscope. Any clumping, not rouleau formation, is agglutination, and this donor should not be used. Usually the clumping appears immediately, but it is wise to observe the mixture for fifteen minutes.

[13] Unger, L. J.: Transfusion of Unmodified Blood: An Analysis of One Hundred and Sixty-Five Cases, J. A. M. A. **69:** 2159 (Dec. 29) 1917. Libman and Ottenberg, Blood Transfusion: Indications, Results. Am. J. M. Sc., **150:** 36 (July) 1915.

cause is removed. In pernicious anemia, transfusion yields results superior to any other mode of therapy. Frequently it acts as a lifesaving measure by initiating the onset of a remission. There is no evidence, however, that the disease can be permanently cured in this way. Nevertheless, by repeated transfusions, remissions can be effected and the lives of some patients made useful for years. In such cases, if possible, the same donor should be successively employed. The amount of blood does not seem to be the determining cause of a remission. Small amounts have often been of as much value as large amounts. When transfusion is successful, the increase in strength and appetite is very striking. It will relieve the anemia and the symptoms secondary to it—dyspnea, palpitation, mental symptoms, etc. In no instance did it lead to an increased secretion of hydrochloric acid by the stomach. If transfusion is repeated because the first one failed to bring about a remission, a different donor should be employed, and this procedure should be continued until, if possible, the desired effect is achieved. In such cases, retransfusion should be resorted to before all the ground that has been gained is lost. In certain cases, however, even this procedure is of no avail.

Hemophilia is not cured by transfusion; but for the bleeding of hemophilia, it is practically a specific. It will succeed when all other methods fail. Valuable time should therefore not be lost in attempts to control bleeding by other methods, since we have at our command a specific that will not only control the hemorrhage but also replace the lost blood.

In purpura hemorrhagica, the results of transfusion are only fairly good. Repeated transfusions are often necessary to control the bleeding.

In acute lymphatic leukemia, only a temporarily favorable effect can be secured by transfusion, even though we withdraw a large amount of blood by phlebotomy and make use of a massive transfusion obtained from two donors, or employ repeated transfusions, or carry out transfusions very early in the disease.

In bleeding of the new-born, transfusion is a specific. An almost exsanguinated infant, too weak to cry and in a dying state, is transformed immediately into an apparently healthy, rosy and crying baby. As in hemophilia, it will save the lives of those who are not helped by subcutaneous injections of serum or blood. Temporizing by using less effective measures may cost the baby's life. This is especially true in cases of melena neonatorum, which are the most serious because we do not know just when the hemorrhage began or how much internal hemorrhage is taking place. Just as soon as the diagnosis of bleeding from the stomach or the bowel of the new-born is made, transfusion should be performed.

3. *Toxemia.*—Transfusions have long been used in a limited number of types of toxemia. It is in this group that the indications ought to be enlarged, especially in the toxemia of pregnancy and in toxemias associated with acute infections, such as pneumonia and typhoid fever.

4. *Infections.* — In localized pyogenic infections, transfusion will increase the patient's vitality and aid in overcoming the infection.

In bacteremia when the source of the organisms can be found and eliminated, the results are excellent, as in cases of sinus thrombosis following mastoiditis in which the jugular vein has been ligated. In postpartum sepsis only one patient out of about twenty recovered; the others showed merely temporary improvement.

5. *Shock.*—Transfusion is at times valuable in shock. It seems possible that the nearer the transfusion approaches the advent of the shock, the more likely it is to be successful.

6. *General Debility.*—Transfusion should be used preliminary to operations as a supporting measure, and thus lessen the postoperative mortality. In debilitating conditions, such as inoperable carcinoma and pemphigus, it will improve the patient's general condition and prolong life.

SUMMARY

There is a far greater number of reactions following transfusions with citrated blood than with unmodified blood. This is due to alterations in the blood cells. The platelets undergo early coagulative changes. Sodium citrate acting as a harmful foreign substance renders the red cell more fragile and more easily hemolyzed. This undesirable result is of especial importance in hemolytic diseases.

Transfusion of whole unmodified blood is the procedure of choice when blood is required as a tissue. When it is wanted merely to replenish an impoverished circulation with an adequate supply, citrated blood may serve as a substitute.

For the selection of donors, a simplified and rapid microscopic method, such as that suggested,[12] is desirable.

Repeated withdrawal of blood for transfusion may produce in the donor an intense secondary anemia with an increase in the leukocyte count. In the illustrative case reported, sixty transfusions were performed within a period of six and one-half years, with the removal of fifty liters of blood.

The onset of hypertransfusion is evidenced by the patient's giving vent to short, sharp coughs. This signal has been of decided value as a warning of impending danger. The giving of more than about 200 c.c. of blood after the occurrence of "the signal cough" may prove fatal.

Transfusion yields moderately good results in infectious and debilitating conditions. The best results are obtained in toxemias, in shock, in cases of hemorrhage, and in diseases of the blood, in which it is frequently of life saving value.

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ABSTRACT OF DISCUSSION

Dr. E. W. Peterson, New York: Any one who has done a large amount of this work will encounter these miracles. As has been pointed out, whole blood administered by transfusion as a hemostatic is such. Most of my work has been with the citrated method, but I think just about as good results are obtained from the citrated method as from the modified.

Dr. Frank W. Hartman, Washington, D. C.: My experience has been with the citrate method. I want to ask Dr. Unger about these reactions, whether a reaction was really anything more than uncomfortable to the patient, and whether the results in the final stages were better than with the unmodified blood mixed with the whole blood.

Dr. Lester Newman, Washington, D. C.: My experience has been entirely with citrated blood. I agree with Dr. Peterson as to some of the failures.

Dr. E. Libman, New York: To avoid difficulties resulting from errors in the agglutination tests, it is wise when citrate transfusion is to be done to make tests with citrated specimens. My experience with transfusions in cases of infections leads me to believe that they act only as a supportive measure. In cases of infection, the blood itself is usually bactericidal. What we need are methods for developing tissue immunity. Some observers have been misled into thinking that transfusions act in a bactericidal fashion because the bacteria often disappear from the blood after transfusion. However, this usually only happens if there has been a reaction after the transfusion. When, in a case of general infection, a reaction occurs after transfusion, the blood is apt to become free of bacteria for a day or two. The same thing will happen, however, if you get a reaction after injecting a salt solution. In some interesting studies made in cases of streptococcus endocarditis by Dr. Epstein, with a colloidal preparation of iodin, the bacteria would sometimes disappear from the blood for three or four days, and then return. Too much stress cannot be laid on the proper examination of the donor. It is not sufficient to make the tests—the donor must be examined from head to foot. This is of the greatest importance in excluding all lesions of syphilis unaccompanied by a positive Wassermann reaction. To avoid the effects of putting in large amounts of blood, it is important to cut down the fluids before the transfusion is performed. In cases of cardiac disease, especially mitral stenosis, great caution must be used as regards the amounts of blood given. The cough symptom as described by Dr. Unger is very valuable. The two most valuable methods are the Unger and the citrate methods. The citrate method appears to cause more reactions than the Unger method; in febrile cases, both methods are apt to produce chills and rises of temperature. In patients in very poor condition from toxic diseases, in which it is important to avoid a chill, the Unger method may be preferable. It is necessary that studies be made as regards the effects of and the contraindications to the use of transfusions in cases accompanied by various renal conditions. I know of two instances in which a citrate transfusion caused a temporary blocking of the kidney. It may be found that the same will occur in cases of renal disease when other forms of transfusions are used.

FOREIGN BODIES WITHIN THE EYEBALL *

JOHN O. McREYNOLDS, M.S., M.D., LL.D.
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The literature on this subject has been so thoroughly reviewed by Würdemann, Ramsey and others that we may pass at once to the practical consideration of the various points that naturally arise for decision and action; and if we can succeed in so presenting the most important problems as to develop a full discussion, the result would be the ripened conclusions of American ophthalmology.

The whole matter, so far as the patient and the surgeon are concerned, can be resolved into the three primary questions:

1. What are the location and character of the foreign body?
2. What are the proposed measures of relief?
3. What will be the probable immediate and remote results?

LOCATION AND CHARACTER OF FOREIGN BODY

The answer to the first question involves a careful analysis of many circumstances and facts. Is the foreign body actually within the globe, or has it been withdrawn through the point of entrance, or has it gone entirely through the globe and found lodgment in the postocular tissues? These questions are fundamental and yet may involve perplexing difficulties. The media may be so clouded by hemorrhage or corneal, lenticular or vitreous opacities that a satisfactory examination with the ophthalmoscope or with other instruments for direct inspection would be impossible. The foreign body may be of such a nature as to offer no resistance to the roentgen rays, or it may be so minute as to cast no perceptible shadow, or it may be nonmagnetic and hence would give no response to the magnet or sideroscope. Here it is that the history may be of the greatest value, as some illustrative cases will emphasize.

We have all many times encountered injured eyes in which it was difficult to determine whether the foreign body was just within or just without the sclera, especially when the foreign body was evidently driven with considerable force, or was small, or was not impervious to the roentgen rays. Injuries of this kind are, frequently, bird shot injuries with intraocular hemorrhage; and, fortunately, the roentgen ray will usually be sufficient to determine the location. Occasionally the presence of postocular hemorrhage with proptosis will point to traumatism behind the globe and will confirm the roentgen-ray findings. In such cases, if the traumatism is not excessive we may avail ourselves of the ten-day period of probation admissible in all cases of eye injury without risk of sympathetic ophthalmia, and many illuminating features may develop. The postocular hemorrhage after a short time may show as a dark discoloration about the lids, and the swelling will subside and the inflammatory features recede to such a degree that we may safely persist in our efforts to save an eye that might have been sacrificed under the suspicion of a retained foreign body. As a rule, small aseptic bodies, passing entirely through the eyeball and lodging in the retro bulbar cellular tissue, may be allowed to remain, and they generally give rise to no future trouble.

Some regard may be paid to the propelling force and to the distance traversed by the foreign body before entering the eye as bearing on the question whether it has lodged within the eye. If it is within the globe and cannot be extracted, an enucleation or evisceration will be the probable result sooner or later. If it has passed entirely through the globe, the prognosis will depend largely on its path. If it enters the sclera posterior to the ciliary region and in its passage has produced very little hemorrhage and no injury to the macular region, the result may be favorable as to the preservation of vision. If, however, it passes through the lens or ciliary body with much laceration of the tissues, the primary wound will probably be followed by inflammatory changes leading to loss of the eyeball.

Having determined the location of the foreign body to be within the globe, we must next consider the toleration for such bodies by the different anatomic structures, which vary greatly in this respect, and also the chemical and bacteriologic character of the foreign body. Generally, those tissues which are most abundantly supplied with nerves and blood vessels are the least tolerant of foreign invasion. The iris and ciliary body especially resent the presence of an intruder, while the lens, if slightly wounded, may indefinitely accommodate a sterile particle of small magnitude. The posterior segment of the retina and choroid may, by throwing around the foreign body a protecting cov-

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* Read before the Section on Ophthalmology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

ering of plastic exudate, bear the intruder for a considerable time, while the vitreous with its sluggish reaction may allow the foreign body to float freely in its mass. The chemical nature of the foreign body greatly influences its tendency to produce reaction; thus, glass may be harbored kindly, while copper will provoke a prompt and decided response. But the most important feature in the character of a foreign body relates to its bacteriologic status. All portions of the internal structures of the eyeball offer good media for the propagation of various micro-organisms, but many of these bodies before entering the eye have been sterilized by heat, and a study of this factor may be helpful in arriving at a wise conclusion. Much depends on the virulence of the organisms that may be introduced with the foreign body. If an active infectious process is once established within an eye containing a foreign body, the prognosis is more unfavorable. I have, however, seen cases of vitreous infection, demonstrated as such by microscopic findings, in which a rather extensive intra-ocular operation succeeded in mechanically removing all of the infected tissue, with the preservation of the globe.

With reference to the size, we might say that the larger foreign bodies involve greater hazard by virtue of the traumatism which they inflict on their entrance, although the promptness and ease with which they are generally removed would be factors in their favor.

It has so happened in my experience that eyes wounded with glass do not as a rule contain the pieces of glass. The wounds are frequently badly lacerated, but may yield a fairly good result.

As bearing on the nature of a retained foreign body, the presence of a distinct siderosis is quite characteristic of a ferruginous body which has been undergoing partial or complete absorption.

MEASURES OF RELIEF

The method of removing a foreign body from the eye depends entirely on its character, size and location. A natural division as to character would be magnetic and nonmagnetic, the former being more easily removed because of the availability of magnetic influence. Much has been written about the kind of magnet that is most efficient. The dictum of Haab that "He who has the strongest magnet will get the best results" must be taken with some modification.

The facility with which the magnet may be manipulated, thus bringing the electrode into the most favorable approximation to the foreign body, must constitute a most important factor. My personal preference is for the improved Sweet magnet, which has the usual power requisite for attracting magnetic bodies, and in addition its electrode can be brought in contact with the foreign body in any part of the globe. The Haab magnet, the Victor magnet, the intrapolar magnet and other large magnets are especially applicable to those cases in which it is sought to remove the foreign body through the anterior chamber in accordance with the views advocated by Haab.

Since the introduction of the more accurate methods of localization by the roentgen ray, the relative value of the medium sized magnets as compared with the giant magnets has been advanced. I think no one now would prefer the giant magnet in the case of large foreign bodies, on account of the violent force developed, which might do harm to uninjured structures; but it has some advantage in those cases in which the foreign body has not been accurately located and in which it is situated in the anterior segment of the globe. Even in the case of foreign magnetic bodies in the vitreous, after a scleral incision, the point of the giant magnet may be applied to the opening of the wound, either alone or in conjunction with magnetized probes, forceps or scissors; and if unsuccessful, this procedure may then be followed by the use of the Sweet magnet, which has the advantage of greater ease in accurate manipulation.

It is a matter of considerable importance to decide wisely as to the route to be adopted in the removal of a foreign body, whether by the anterior or the posterior route. And it must be admitted that there are advantages in both methods, and the difficulty is in discriminating between the two in each individual case. My own experience has emphasized the safety and practicability of removing foreign bodies through a scleral incision whenever the foreign body is easily accessible by this route. I have not seen retinal detachment at the seat of the incision follow such a procedure, and when detachment has occurred it was due to the inflammatory process induced by the presence of the foreign body and by the original traumatism.

On account of the dangers of iridocyclitis, with a possible transferred ophthalmitis, I have a profound respect for the anterior segment of the eyeball, and would prefer to employ no procedure which would add anything to the traumatism in this region. Unless the conditions are such that the foreign body can be smoothly extracted by this route, I should prefer to invade the posterior segment of the globe rather than the ciliary zone.

RESULTS

The immediate and remote results must have regard, not only to the injured eye, but also to the fellow eye. In general terms, we might say that the immediate result in the injured eye will be favorably influenced by the following factors: accurate localization, the early removal of the foreign body, the minimum of traumatism by the flight of the missile and the subsequent operative procedure, the noninvolvement of the ciliary body, the lens and the macula region, and the negative chemical and bacteriologic character of the foreign body.

It must be remembered that the victory has not been won when the foreign body has been brilliantly extracted from the interior of the globe. We must still await, some times through weeks and months and years, the final processes of degeneration, retinal detachment and clouded media which may bring but grief and pain for promised joy.

We must remember not only that the insidious danger of sympathetic ophthalmia lurks in the presence of the foreign intruder, but also that the seeds of disaster are sometimes sown in its pathway, springing up into that fateful fruitage which brings total blindness with its blighting brood of unavailing regrets.

ILLUSTRATIVE CASES

The purpose of this report of Cases 1, 2 and 3 is to emphasize some important features pertaining to the localization, the extraction and the final result in cases of exceedingly minute foreign bodies within the globe. We have always recognized the full significance of the retention within the eyeball of all foreign bodies of a magnitude capable of being determined by the ordinary methods; but some special consideration might be given to the behavior of those particles so extremely small as to cast no shadow, after the skilful application of the most powerful and efficient roentgen light.

As to localization, I might say that we have felt since the introduction of the Sweet method that all magnetic metallic bodies could be certainly located with accuracy; but I have encountered some recent cases that show that some particles of this kind may elude the roentgen ray and still be clearly perceived by the ophthalmoscope and extracted by the giant magnet. The cases were examined by roentgenologists of unquestioned ability and extensive experience, who have repeatedly rendered me the most valuable assistance in the localization of very minute masses of foreign matter within the globe, and I esteem it a pleasure to bear testimony, unreservedly, to their patience and skill.

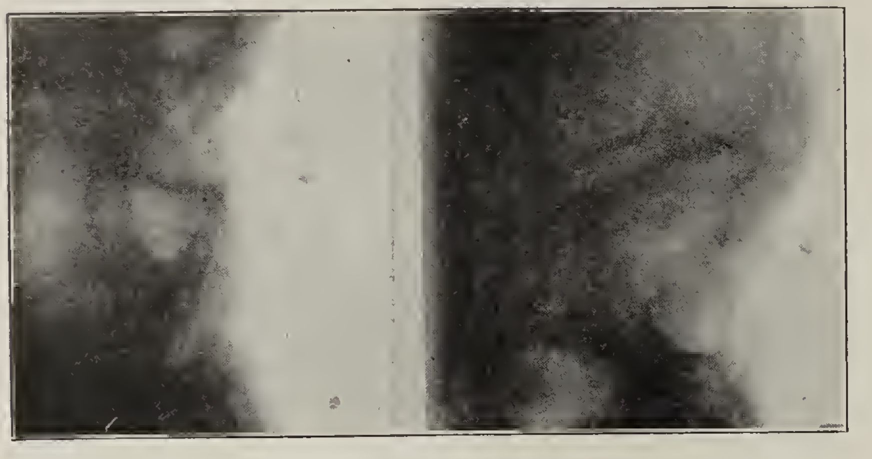

Fig. 1 (Case 3).—Roentgenographic appearance of the eye before (left) and after (right) attempt at extraction of the foreign body. The first picture showed a distinct shadow of a foreign body located as shown in the diagram, Figure 2. The second picture, taken some time after the attempt at removal with the giant magnet, shows no foreign body, but the patient had a complete secondary cataract with a marked degree of siderosis.

Case 1.—Mr. R. of Weatherford, Texas, came to me with the history of a slowly developing cataract in the right eye, beginning some weeks after the supposed receipt of an injury to the eye four months previously. He had been carefully examined by a competent ophthalmologist who reported traumatic cataract from concussion, a condition which we all frequently have occasion to observe.

On my first examination with lenses of high power, I discovered on the temporal side of the sphincter pupillae a minute opening through the iris tissue, in diameter equal to the cross-section of a cambric needle. This opening at first appeared dark in color, like a speck of pigment, but on lateral illumination I could see the opaque lens substance through this minute aperture. I then applied the giant magnet directly to the corresponding area of the cornea, and the lens and iris were observed to advance slightly. I described the occurrence to the roentgenologist, and requested a close examination of the anterior segment of the globe. After repeated trials, no foreign body could be definitely located. I then invited the roentgenologist to be present at the proposed extraction of the steel. An incision was made along the corresponding arc of the limbus, and through this incision I passed a pair of fine steel iris forceps, and up to the minute opening in the iris above described. Then, while I held very firmly to the forceps, the tip of the giant magnet was brought in contact with the forceps at the point of entrance of the latter into the anterior chamber. Then the current was turned on and the magnet and attached iris forceps were gently withdrawn from the eye, bringing out of the lens and through the needle hole in the iris an exceedingly delicate piece of steel. With the most accurate jeweler's scales available the foreign body was declared imponderable, but was estimated to weigh approximately one-thousandth of a carat. Its length was 2.2 mm., its breadth was 0.2 mm. and its thickness was that of the finest thread. The accident occurred while the patient was standing a few feet from one of his employees, who was using a chisel on a piece of marble. The vision was not at first impaired, and the pain and reaction were insignificant; but at the time of my examination, the lens was completely opaque. It is interesting that so slender and so delicate a piece of metal should be driven such a distance and with such force as to become completely embedded in the lens and yet remain unbroken by its impact.

The indications are that a cataract extraction at any subsequent time will secure for the eye useful reading vision.

Case 2.—Mr. L. A. of Dallas was operated on in conjunction with my partner, Dr. Seay. The history clearly traced the injury to a blow which the patient struck on a chisel, and the vision became at once impaired, but gradually cleared up, so that a minute piece of metal was distinctly seen with the ophthalmoscope near the center of the vitreous chamber. The trabeculae of the vitreous were broken down in the lower segment of the vitreous, thus allowing limited movement of the metal when the eyeball was quickly rotated.

The roentgen ray was called into requisition for confirmation, as a question had arisen as to whether this movable mass was of metal or of pigment. No shadow whatever was developed, and the magnet failed to make any impression on the mass. But the ophthalmoscopic picture was so conclusive that we made an incision in the region of the equator and between the external and inferior rectus muscles. Through this scleral opening we passed into the globe delicate steel iris forceps until their points approximated the foreign mass. Then we applied the tip of the giant magnet to the forceps at the point of entrance of the latter into the vitreous chamber. The current was then turned on and the magnet and forceps gently withdrawn from the eye, bringing along a very minute, polyhedral piece of steel. The eye was again examined with the ophthalmoscope, and a piece of metal was discovered in the central area of the vitreous. So we reinserted the forceps and applied the magnet as before; when they were withdrawn from the eye, the remaining piece of steel was found attached to the distal extremities of the forceps.

The ophthalmoscopic examination showing no more foreign material, a double conjunctival flap was carried by mattress sutures over the scleral wound, and the usual surgical precautions followed. After a lapse of more than ten months, the media are still clear and the vision is normal.

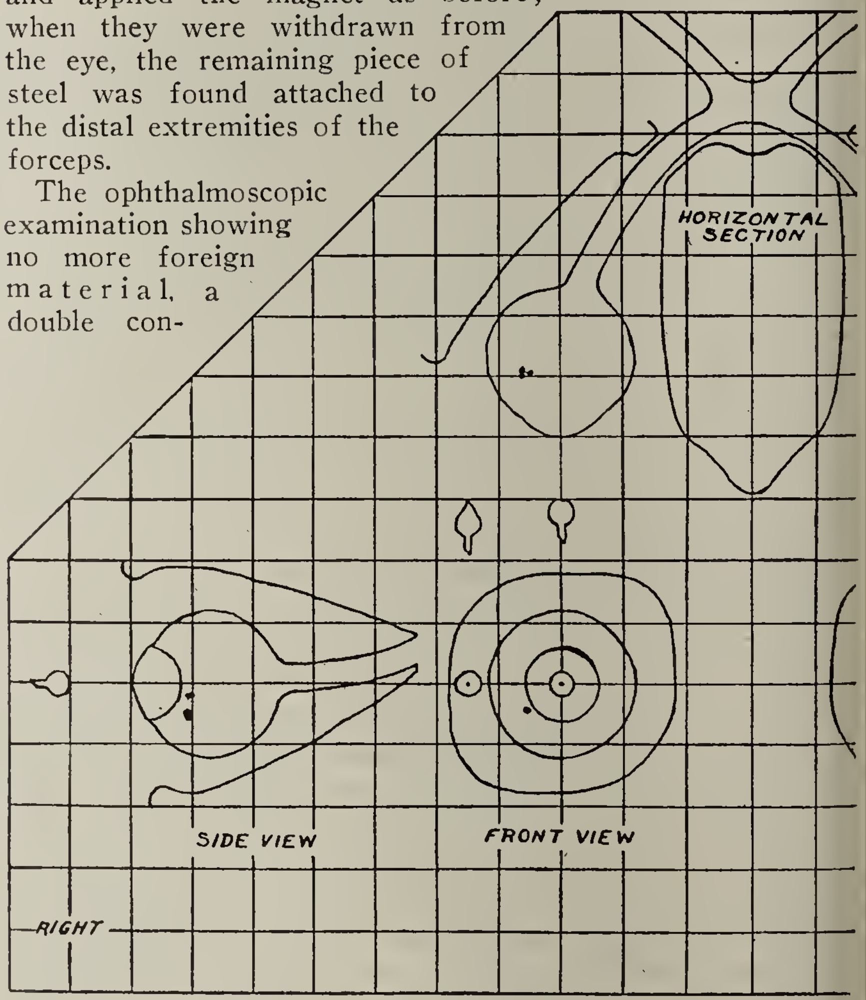

Fig. 2 (Case 3).—Diagrams showing the location of the foreign body.

Case 3.—Mr. G. H. of Groesbeck, Texas, was struck in the eye, July 5, 1915, by a piece of steel, causing pain and immediate reduction of the vision. The vision then improved; and when the patient was seen, July 6, by my partner, Dr. Seay, the vision was 20/40. The roentgenogram at that time showed a distinct shadow of a foreign body 1 mm. in diameter and situated 12 mm. back of the center of the cornea. Dr. Seay applied the giant magnet to the point of entrance of the steel without producing any distinct impression (Figs. 1 and 2).

An operation for extraction was then advised, but the patient preferred delay because of the existence of useful vision and the absence of pain.

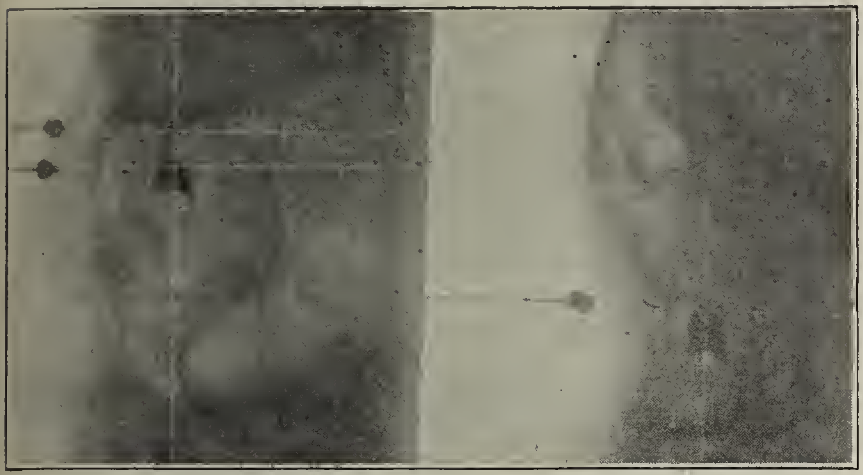

Fig. 3 (Case 4).—Roentgenographic location and appearance of the foreign body in the eye.

Recently the patient presented himself with a complete secondary cataract and with a marked degree of siderosis, converting a light blue iris into a rusty brown, with brownish deposits on the lens. The roentgenogram by the same expert as before failed to show any foreign body whatever. We accordingly extracted the opaque lens so that now through the moderately clear media we can confirm the roentgenographic findings of complete absence of any foreign body, and useful vision has been secured for the injured eye.

The indications are that the piece of iron had undergone complete solution in the vitreous, and the resulting salts of iron had become deposited in the various intra-ocular tissues. The case is worthy of record as bearing on the question of the solubility of metals in the humors of the eyes and on the further question of the influence of these resulting salts on the transparency of the lens, the substance of which was not stained by the salts of iron but was completely protected by the capsule. The lenticular opacity was evidently due, not to direct injury but to nutritional changes in the uveal tract. The final result in all cases must await the action of those gradual processes of vitreous contraction and retinal detachment which may supervene even after the lapse of many months to mar the satisfaction of our best achievements.

Cases 4, 5 and 6 were extensive injuries, and they serve to illustrate the possibilities in such cases even in the presence of definite infection.

Case 4.—Master C. C. of Greenville, Texas, aged 14 years, exploded a copper shell by striking it with an ax. A piece of the margin of the shell from which the ball and powder had been extracted was driven into the eyeball. This occurred, May 2, 1911. The wound in the lid was repaired by Dr. C. E. Cantrell, who sent the patient to Dallas for operation, which was performed, May 3, after an accurate roentgenogram had been made by Dr. J. M. Martin. The weight of the piece of copper was 3 grains, and the dimensions were 5 by 9 mm. The location was 3 mm. below the horizontal plane of the cornea, 10 mm. to the temporal side of the vertical plane of the cornea, and 8 mm. back of its center. The roentgenogram and diagram (Figs. 3 and 4) are herewith presented. The wound in the sclera began at the upper and outer portion of the limbus and extended through the ciliary region for one-eighth inch; the pupil was irregular and vision reduced to the perception of fingers at 3 feet. A new incision was made through the sclera below the external rectus over the situation of the foreign body, which was extracted with forceps, together with the contiguous portions of the vitreous, which had become opaque and slightly yellow from the inflammatory process, which was infectious in character as shown by the microscope. Both wounds were then freed from the adjacent uveal tissue, and closed with a double layer of conjunctiva secured in position by mattress sutures. An interesting feature is that the infectious process in the vitreous did not extend, evidently because the infected portions were freely removed with the foreign body embedded therein. The normal form and comfort of the eyeball have been maintained, and the patient has since graduated with honor at the Virginia Military Institute and has played his part in the military affairs of his country.

The chief lesson taught by this experience is the value of freely removing infected vitreous surrounding a retained foreign body rather than allowing it to remain within the globe. It is simply an extension of the general surgical principles so well established during the war, but which perhaps have not been so widely accepted with reference to the vitreous humor, which we have sometimes been too uncompromising in preserving.

Case 5.—Ben McC. of Cleburne, Texas, was struck in the eye by a piece of steel, Dec. 25, 1917, which was accurately located by Dr. Bond of Fort Worth and Dr. Martin of Dallas as being 7 mm. above the horizontal plane of the cornea, 3 mm. to the temporal side of the vertical plane, and 13 mm. back of the center of the cornea (Fig. 5). The dimensions were 1.5 by 7 mm. Operation was performed, December 28. A scleral incision was made over the site of the foreign body, which was extracted with the magnet; and then the surrounding vitreous, which had become opaque and yellowish from inflammatory exudate, was also freely excised and submitted to a careful bacteriologic examination, which showed a pure culture of *Staphylococcus albus,* as also did the piece of steel and an excised piece of the injured iris. The wound was closed by double layers of conjunctiva held in position by mattress sutures, a method which I have used for many years with great satisfaction. It is conveniently and aptly designated as the double breasted coat conjunctival covering. Its advantages were fully described by Dr. Lee Mastin Francis in a paper before this

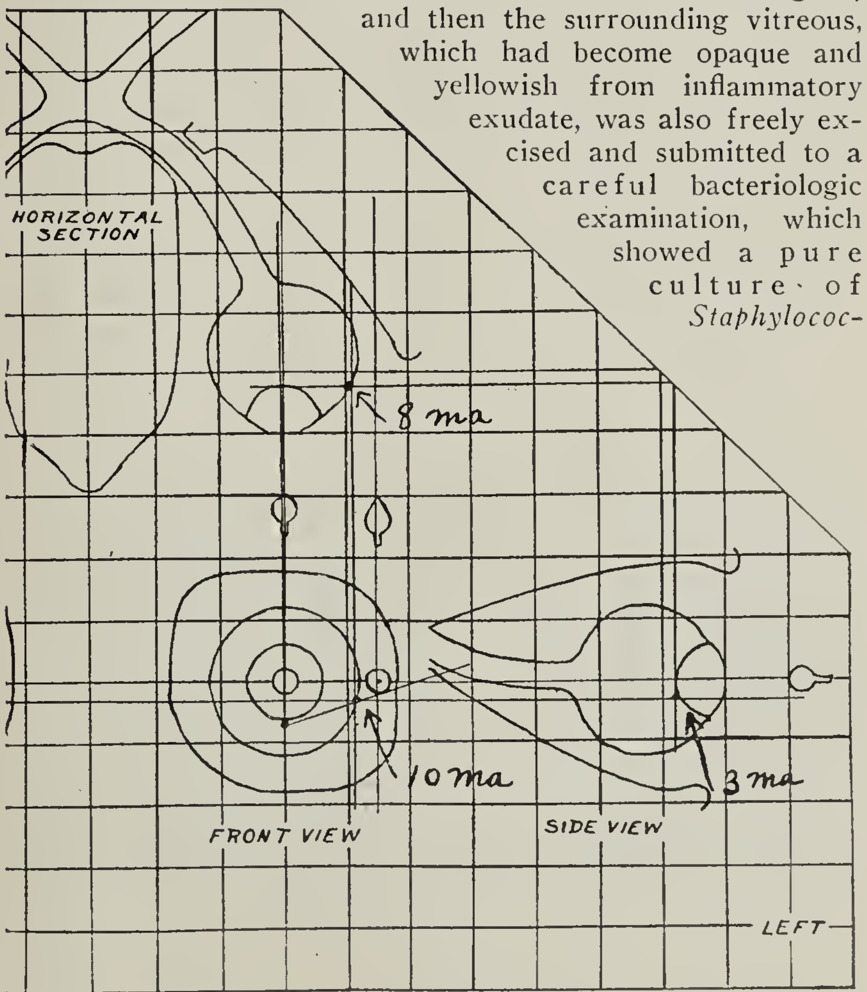

Fig. 4 (Case 4).—Diagrams showing the location of the foreign body in three planes.

section some years ago. The wound healed without any unfavorable manifestations, and presents a reasonably satisfactory appearance, as indicated by the photograph (Fig. 7).

The method employed in excising the opaque infected vitreous consisted in grasping the tenacious exudate with forceps and gently drawing it through the wound, catching successively new holds on the infected tissue with curved iris forceps, somewhat after the manner of drawing a bucket from a well with a rope, continuing the procedure as long as opaque vitreous presented. My feeling in the matter is that no good can result from leaving in the eye infected material, and that the small loss of vitreous involved is easily compensated for by the improved bacteriologic status of the eye in the process of healing. I will add in this connection that in all injured eyes, when I am confronted with the possibility of transferred ophthalmitis during my efforts to save a severely injured eye, I am in the habit of adopting a measure suggested by our distinguished confrère, Dr. Harold Gifford—saturating the system with salicylates before any sympathetic manifestations appear.

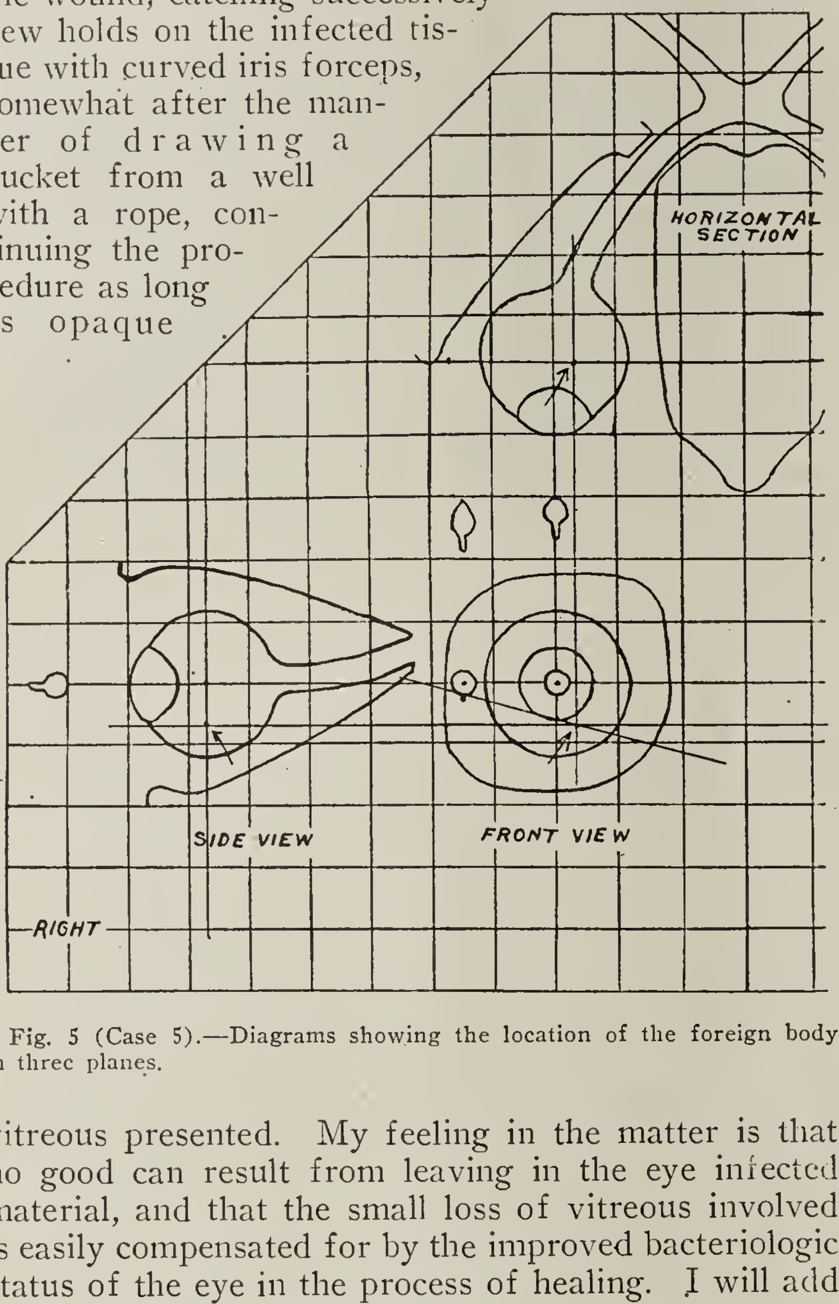

Fig. 5 (Case 5).—Diagrams showing the location of the foreign body in three planes.

Case 6.—Mr. B. of Dallas County was, in conjunction with another man, arranging to blast some rock in excavating for a cistern. The discharge of giant powder occurred prematurely, killing instantly the comrade of the patient, and inflicting on the latter the injuries now to be described. When the patient was brought to me two days after the accident, the left globe had been reduced to a perfectly disorganized pulp which admitted of no rational procedure but enucleation, which was accordingly performed. The right globe was perforated in two places by lacerated wounds, and an examination revealed the presence of three pieces of rock within the eyeball, one piece being about half as large as the nail of the little finger. The eye was considerably inflamed and evidently infected, as shown by the character of the discharge. But as the fellow eye was utterly lost and the only possibility of vision depended on the eye not totally gone, I decided to make the most of a poor opportunity. So, after as thorough disinfection of the injured organ as the circumstances would permit, I made an incision into the globe to an extent greater than half of the circumference of the cornea, in order to be able to reach the scattered fragments of rock which had lacerated and had become embedded in the iris. Unfortunately, the difficulties encountered by the surgeon in dealing with fragments of rock within the globe are much greater than in the case of steel bodies, because the latter can be extracted by the aid of various forms of the electromagnet. And fragments of rock are much more difficult to handle successfully than pieces of wood, because the increased weight of the former is such that when the globe is opened they tend to make a dive for the deeper regions of the vitreous. In this case it was necessary to remove large areas of the lacerated iris in order to be sure of the fragments of rock. The extraction of the rocks and the removal of the injured iris we accomplished by the combined use of hooks and forceps. After the operation the lids were kept closed with light compresses saturated in cool boric acid solution, and at frequent intervals instillations of a mydriatic were made and lotions of mild antiseptics employed. After a few weeks the patient was discharged from St. Paul's Sanitarium with ability to read ordinary type.

In Cases 7, 8 and 9, the foreign body was allowed to remain in the eye for a considerable time, and failed to respond to any measures but the intra-ocular application of magnetic electrodes.

Case 7.—Mr. W. B. C. of Dallas was struck in the eye by a piece of steel which I present herewith, together with the roentgenograms (Fig. 8) taken in advance of the operation, which was performed eight weeks after the injury. The weight of the steel is 1/100 carat, and the location was 6 mm. below the horizontal plane of the cornea, 6 mm. to the nasal side of the vertical plane of the cornea and 9 mm. back of its center. There was a circumscribed corneal opacity surrounding the track of the steel, and vision amounted to dim perception of fingers. The iris had closed up the anterior capsular opening produced by the entrance of the steel into the lens, and had thus restricted the access of aqueous to the lens substance with consequent limitation of the opaque zone. An incision along the limbus was made and the iris drawn away from the lens with iris forceps, exposing the point of entrance of the steel. An electrode of the improved Sweet magnet was introduced into the opening thus disclosed. The current was turned on and the magnet with the attached piece of steel removed. The eye, which had continued to be irritable before the operation, now quieted down completely, and a subsequent cataract extraction should result in useful vision.

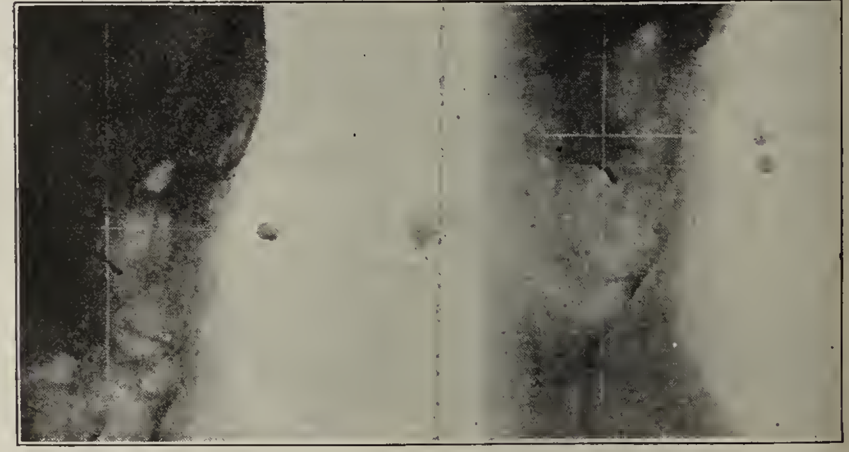

Fig. 6 (Case 5).—Roentgenographic appearance of foreign body and scar.

This illustrates the toleration of the lens for foreign bodies and the action of the iris in limiting the extent of lenticular opacity by preventing the free access of aqueous to the lens substance. The application of the giant magnet to the cornea failed to develop any response, while the direct contact with the electrode of the Sweet magnet was effective, showing that even in the case of foreign bodies located in the anterior segment of the eye, the giant magnet applied according to the method of Haab cannot always secure the best result.

Case 8.—Mr. J. C. A. of Clarendon, Texas, was struck in the eye with a piece of steel three years previously, and the foreign body was located by a roentgenogram near the posterior pole of the eye embedded in the retina.. As the lens was cataractous, it was extracted in the usual way and immediately an iron probe was passed through the corneal wound, through the pupillary space, through the vitreous, until its point was approximately in contact with the foreign body. Then the electrode of the giant magnet was applied to the probe at its point of entrance into the cornea, the current was turned on, and the magnet and probe gently withdrawn, together with the foreign body attached to the distal extremity of the probe. The eye healed without trouble and for some months retained useful vision, after which the patient passed out of observation.

Fig. 7 (Case 5).—Appearance of patient after operation.

The history of this case shows the feasibility of utilizing the pupillary space as a doorway through which we may safely reach the vitreous when an extraction of the lens is necessary. I think this route for the introduction of magnetized probes has not been widely employed; but it offers an avenue that is worthy of our consideration.

Case 9.—Mr. E. D. of Dallas, Texas, aged 35, was struck in the eye in 1905 by a piece of steel, and the vision was lost at once. Confrères failed to locate any foreign body, and the eye remained fairly quiet for three years, when photophobia and other manifestations of sympathetic weakness in the good eye developed, while the injured eye was cataractous and showed a marked degree of siderosis.

The piece of steel was located (by the roentgen ray) near the posterior pole, embedded in the retina. The lens was extracted and an iron probe passed through the corneal wound, through the pupillary space, and through the vitreous until it approximated the foreign body. The electrode of the giant magnet was applied to the probe at its entrance into the anterior chamber, the current was turned on and then the magnet, probe, and foreign body were gently withdrawn. The healing process was uneventful and the patient retained useful vision for several years, when the degenerative changes progressed to the point of abolition of vision in the injured eye, although the fellow eye has been free from indications of sympathetic involvement.

Case 10.—Lieutenant S. of Love Field, an aviator, was referred to me by the post surgeon, Major Earthman, within a few hours after the receipt of an injury which was occasioned by the impact of some foreign body driven by the tremendous force of the propeller. Examination showed that a small foreign body about the size of a duck shot had penetrated the upper lid and had entered the globe in the superior segment of the ciliary zone. There was a prolapse of uveal tissue, and blood filled the anterior chamber, with immediate loss of vision. Apparently a foreign body was either within the eyeball or had passed on through into the retrobulbar region. The roentgen ray showed absolutely nothing, but this could have been explained by the hypothesis that the foreign body was not impervious to the roentgen rays. Nevertheless, as the danger of sympathetic involvement could not reasonably be apprehended within ten days, it was safe to use conservative measures, so the protruding uveal tissue was removed and the usual surgical measures employed for a few days, when the hemorrhage became absorbed and the lens was found to be clear, the fundus normal and the vitreous presented a few floating remnants of the previous hemorrhage, which subsequently became completely absorbed. The eye was free from pain or suspicious inflammatory changes, and will probably remain a safe and useful organ of vision, the degree at present being 20/30.

What evidently occurred at the time of the injury was that the foreign body which struck the eye had a sharp point, which permitted a partial penetration which was limited by the size of the foreign body and was immediately spontaneously withdrawn, thus presenting a punctured wound without the retention of a foreign body within the globe. This illustrates the necessity for the utmost conservatism in differentiating retained foreign bodies from punctured wounds presenting many circumstances and appearances that might obtain in either condition.

In connection with extensive wounds of the cornea produced by the entrance of foreign bodies, something might be said concerning the closure of these wounds after the foreign bodies have been removed.

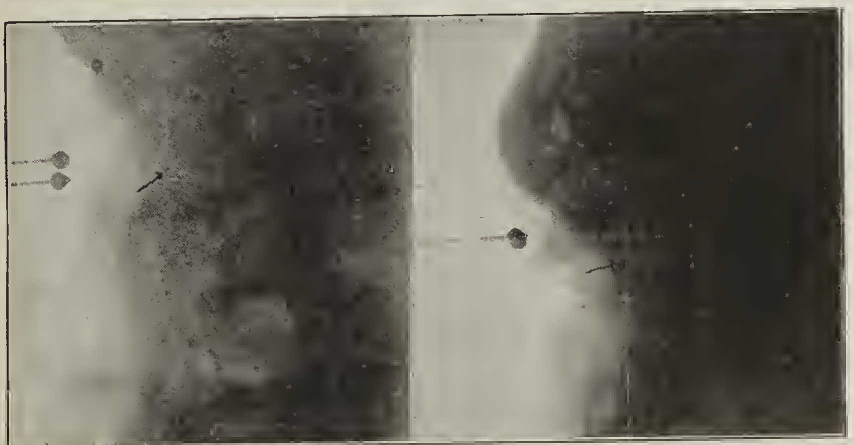

Fig. 8 (Case 7).—Roentgenographic appearance of the eye and orbit just prior to the operation for foreign body, which was performed eight weeks after the injury.

Case 11.—The procedure can be illustrated by the case of a young woman, Miss M. N., whose eye was cut wide open by glass from an explosion in the chemical laboratory of the Southern Methodist University in Dallas. The irregular, gaping wounds extended entirely across the cornea; and as normal approximation was impossible, the problem developed of securing a closure of the wounds.

This was accomplished by providing a bridge of bulbar conjunctiva, swung like a hammock across the cornea and retaining its original attachment at either extremity. This conjunctival bridge, carrying its vascular supply was allowed to remain in contact with the wounds until the healing process was completed and then it was carefully dissected away, leaving only linear scars to mark the situation of former gaping wounds.

ABSTRACT OF DISCUSSION

Dr. William M. Sweet, Philadelphia: Dr. McReynolds has so fully covered every phase of the subject of foreign body injuries of the eyeball that there is nothing new to add. It is now generally recognized that the first consideration is to determine whether the body which caused the injury has lodged within the eyeball or orbit, and if within the eye, its position and approximate size. Many injured eyes have been lost in the past by delay in making the diagnosis of a foreign body in the globe, local measures being employed for a considerable period until the metal or other material causing the traumatism was so covered with exudate that attempts at extraction failed. I have always favored the scleral incision for the removal of steel from the vitreous chamber. As most of the particles are at or posterior to the equator of the globe, the body has a shorter distance to travel than if brought around the lens. It is only in the few instances in which the metal is of small size, and with no irregular surfaces to be caught in the anterior uveal tissues, that I have drawn the metal into the anterior chamber.

May experience in retinal detachment following extraction agrees with that of Dr. McReynolds. I have not found the separation at the site of the incision in the sclera but in other portions of the vitreous chamber. In the cases in which detachment occurs, I believe it is due to the contraction of the newly formed inflammatory lesions at the point in the retina or choroid where the parts have been injured by a fairly large body, or, in instances in which a smaller body has remained imbedded for several days or weeks, to the traumatism which has followed the drag of the magnet in loosening the metal from the exudation in which it was imbedded. With the apparent trivial character of so many of these foreign body injuries to the patient and his friends, the ultimate results as to vision are rather unsatisfactory; and yet I fail to see any possible improvement in our present methods of diagnosis or operative procedure. One third of all cases in which there has been perforation of the globe by a foreign body are lost; some from primary infection, some from inability to remove the body, and a larger number from late iridocyclitis. Where extraction has been successful, only a few secure useful vision. Our endeavors, therefore, must be in the direction of earlier diagnosis of a retained foreign body in the eyeball and its prompt removal. This will come with the recognition by the general profession of the serious nature of perforating wounds of the eyeball in workmen in industrial establishments, and earlier consultation with the specialist. It has been my practice in all perforating wounds of the eyeball, especially those of large size, to cover the opening with a conjunctival flap. When an incision is to be made in the sclera for the extraction of steel from the vitreous chamber, a cut is first made in the conjunctiva, the membrane undermined for a short distance, and the edges of the cut held apart by two threads. After extraction of the steel the edges of the cut conjunctiva are closed over the incision in the sclera. I have seen a few cases in which the roentgen rays failed to give a shadow of a foreign body that was in the eyeball. A thin foreign body may be so situated that the edge of the metal is toward the tube, and only a faint line of shadow is cast that may be lost in the shadow of the orbital bones. If the examination points to a probable foreign body in the globe not shown in the first roentgenograms, it is advisable to make additional plates, with the tube in different positions, so that a shadow is secured on the plate free from the shadow of the bones of the orbit.

Dr. R. H. T. Mann, Texarkana, Ark.-Texas: Several years ago I began some experimental work to see if the dangers from operations on the interior of the eye could not be much lessened by increasing the air pressure on the outside, thus equalizing the pressure of the interior of the globe and preventing the flow of vitreous from the eye during an operation for the removal of foreign bodies in the vitreous chamber. These experiments have so far been carried on in the thoracic chamber apparatus, at the Lenox Hill Hospital, in New York City. The first steps of the experiments have consisted in trying to ascertain whether both operator and the eye should be in the air tight chamber, or whether the operator should be in the air tight chamber and the patient on the outside of the chamber, with the air pressure exerted against the anterior segment of the eye alone. It seems from the present limited experiments which have been performed that this is along the lines which will have to be adopted, because the pressure in the eye may increase as rapidly as the pressure on the outside which prevents the equalization of the pressure. It is perfectly feasible for the operator, without any difficulty, to remain within the air tight chamber with the pressure increased to the pressure of the normal eye, which is 25 mm. of mercury. The increased blood pressure in the interior of the eye is somewhat offset by the hard coats of the eye, and this will be of considerable assistance in retaining the vitreous within the eye itself. I think that the air pressure can be exerted on the anterior segment of the eye during operations, thereby preventing the loss of vitreous and the collapse of the eye. If this can be done, it will not only simplify very much the removal of foreign bodies from the vitreous chamber, but also render easy other operations on the eye where there is danger of losing the vitreous. The reason why all the vitreous does not escape now is because the pressure becomes equal, and with the patient looking up gravity prevents it from all escaping.

Dr. John Green, St. Louis: The possibility of a localized infection of the vitreous immediately surrounding the site of the foreign body suggests one objection to the anterior route. Given an infected foreign body in the vitreous, with the point of entrance in the sclera the patient coming under observation soon after the accident, that method of extraction which, so far as possible, follows the track made by the entering foreign body, should be followed in its extraction. The adoption of any other route means the risk of infecting a previously uninfected track. It is as though we should streak an infected platinum loop along a previously unstreaked surface of the culture medium.

Dr. Edward Jackson, Denver: Many very interesting points have been brought out, and among them I wish to refer to one. The most common and dangerous failure of roentgen-ray localization of foreign bodies in the eye, which I have encountered, has been the report that the foreign body was outside of the eyeball, when it was really within it. I think that probably is due to the fact that sufficient allowance has not been made for the divergence of the rays used in localizing. The rays are always divergent. The amount of divergence depends especially on the distance it is from the eye. Most men using the diagrams which have been prepared for this purpose are not at first inclined to take that into account. Such diagrams should have printed on them some reference to it. If the diagram represents the exact size of the eyeball, and is intended to represent in millimeters the exact position, there should be a table indicating the increase of dimensions, which would be caused by using the tube at six inches, eight inches, ten inches, etc. The printing of something of that kind on the diagram will call the attention of the roentgenologist and the surgeon to the fact that the negative obtained shows the part magnified.

Dr. W. M. Sweet, Philadelphia: On the charts for plotting the position of the foreign body, allowance is made for the divergence of the roentgen rays. If the body is of large size, it is customary to localize the two ends. A slight error is possible in foreign bodies at the posterior part of the vitreous, owing to the injured eye being larger or smaller than the diagrammatic eyeball of the chart, which measures 24 mm. Accuracy of localization depends on the determination of the distance of the indicating ball of the apparatus from the center of the cornea. If the roentgenographer fails to carefully make the measurements the localization of the foreign body will be inaccurate.

Dr. Allen Greenwood, Boston: I trust the few brief remarks I will have to offer will never again be applicable. Never again do we want to go through the experiences we have been through, but if, perchance, some of you are called on to do work such as was done in the last few years in France, you will find that handling these cases in the military organization is entirely different from the civilian method in many ways. In the hurry of work in mobile and evacuation hospitals, it is difficult to get roentgen-ray work done with accuracy and speed. Therefore, in removing foreign bodies the magnet, besides the work of removal, is of great service from a diagnostic standpoint and it should be thus used. If a foreign body is demonstrated it possibly can be brought into the anterior chamber and then removed with the smaller magnet. I would call your attention to the magnet we used most in France, which weighs nearly sixty pounds, the large one of Dr. Lancester, which has practically the same pull as the giant Haab. The question of the removal of foreign bodies by the posterior route or by the anterior route, so-called, will probably never be settled as some men would prefer one and some the other. Both methods are useful but both have limitations. I extracted most of the foreign bodies I saw through the posterior route, only removing very small ones by the anterior route.

I want to add a word in regard to the use of the conjunctival flap. Some of you have seen Military Manual No. 3 in which you will find advocated the use of the conjunctival flap and the hammock flap of Dr. N. C. Reynolds, which have been used for covering the central wounds of the eyes and with excellent results.

Dr. Lee M. Francis, Buffalo: I want to emphasize what Dr. Sweet brought out, that is, taking pictures of the suspected foreign body from more than one direction. In one case in Base Hospital No. 115, in which we selected an anterior route as the roentgenogram gave us the idea that it was a small one, instead of having a round body, we had a spicule of steel four millimeters in length. We should have used the posterior route and we would not have lost it. We must be sure of the third dimension of the foreign body.

Dr. George S. Derby, Boston: During eight months of the time I was in France I had the opportunity of working in the principal eye base at Boulogne. At least 500 foreign bodies in the eyes were treated. I had an opportunity of talking with a number of French surgeons who were treating this class of cases. The British are strongly in favor of the extraction by the anterior route, and that was the principal mode of operation in France by them. The French, however, used the anterior route in some cases and the posterior route in others. You may have a foreign body when there is no sign of a perforation, or none is visible, at least. Do not overlook that. It must not be thought because you have no sign of entrance that it is not there. The roentgen ray is a fine test, but the final test is the magnet. The giant magnet should be used in all doubtful cases. I believe small foreign bodies measuring less than one millimeter should be extracted by the giant magnet by the anterior route. The British used it for larger pieces. If you cannot get a small body in one sitting, try it again, either the same day or the following day. I have seen a number of cases where it was not brought forward until three or more trials, and then it was successfully extracted. Sometimes we are in doubt as to whether the foreign body is in the eye or has passed through the eyeball. Where the perforation is complete one gets an evident degree of proptosis of the eyeball, and this I believe is an excellent diagnostic sign.

Dr. E. E. Holt, Portland, Me.: When I presented my first series of cases of removal of foreign bodies from the interior of the eye to the American Ophthalmologic Society, more than thirty years ago, some of the members were sure that disastrous results would follow this practice. This series of cases, as well as the second series of cases presented to this society, and all of my subsequent cases, were followed as carefully as it was possible to follow their subsequent history without finding that this practice did lead to disastrous results. The diagnosis of all my cases in the first two series of cases presented to the American Ophthalmologic Society was made from the circumstance of the accident, the size and location of the wound in the eye, electromagnet and the ophthalmoscope. When the foreign body could not be detected by the ophthalmoscope there was no more difficulty experienced in removing the metal than when it could be readily seen. When the wound was small or was located in the cornea, the metal was removed by making a flap of the conjunctiva and an incision into the eyeball in the inferior outer quadrant, using a medium sized hand magnet for its extraction. My experience teaches me that time is an element of the greatest importance in the successful removal of foreign bodies from the interior of the eye, there being much less reaction when it is removed on the same day of the accident than at any subsequent time. This is of so much importance that I should prefer to operate without a roentgen-ray examination if I could not get one right away after the case came under my care provided I was quite sure the foreign body was in the eye. As the essayist says "watchful waiting" will not do, something must be done to remove the foreign body from the eye if we are to treat these cases successfully. When my first series of cases was presented to the American Ophthalmological Society, some of the members expressed surprise that I should have so many more cases than the rest of the members. The explanation made at the time was that I began the practice of removing the foreign body from the interior of the eye, thus saving the eye with sight instead of removing the eye, as had been expected by all concerned, and insisted that it should be done at the earliest moment possible after the accident. This practice becoming generally known among those liable to these accidents, they lost no time in having it carried out at once. The reason why the other members of the society had so few cases at that time came from the fact that it was taught that when an eye was injured by metal penetrating it, in what had been designated the "dangerous zone," and the metal remained in the eye, the eye should be removed. This was done by the general surgeon. Thus the specialist did not see many of these cases. When, however, it became more generally known that a foreign body could be removed, thus saving the eye with sight, the specialist was consulted and he began to have cases commensurate with accidents of this nature.

Dr. Oliver Tydings, Chicago: For some years we had the first and only giant magnet west of the Allegheny Mountains, and in that time we have had a great number of injuries. We came to look on the giant magnet as being an infallible diagnostic instrument; but our delusion was dispelled, and not with a case tried once or twice, but frequently; not by one man, but by three of the most competent men in the profession, until we discovered that the roentgen ray disclosed what a giant magnet would not. And we are able to locate the pieces of steel with the roentgen ray that we could not with the giant magnet. I do not know why, but there are times when iron or steel is diamagnetized, and you will have that experience. With regard to the localization, it is very important. I can recall a case localized behind the globe which I did not disturb, and it got well with good visual acuity; but that case is a sad commentary on the neglect of treatment afterwards. In this case a foreign body had passed through the globe, injuring the lens, which was absorbed. Vision after several months with correction was 20/20. When next seen a quiet iritis had distorted the pupil, which interfered greatly with vision and 22/100 was the best that could be obtained until after the long use of scopolamin the vision was again brought to practically normal. On account of its position, no attempt was made to find out what the foreign body was. I think it was a shot, and is still posterior to the globe and doing no damage.

Dr. John O. McReynolds, Dallas, Texas: An important question arises as to the magnetic quality of various alloys of iron, and it is well known that a high percentage of manganese may render the iron nonmagnetic and hence in such cases the magnet would be of no value either in diagnosis or in operation. One of the most difficult problems in connection with these cases is presented after the foreign body has been successfully removed. It is this, how long are we justified in persisting in our efforts to save a seriously wounded eye? My own conviction is that if the eye is going to do any good this fact will be indicated within a period of three weeks and further delay may unnecessarily imperil the uninjured eye.

THE MAXIMUM PHYSIOLOGIC LYMPHATIC REACTION IN DEEPLY PENETRATING WOUNDS OF THE EYEBALL

E. L. JONES, M.D.
CUMBERLAND, MD.

While the deep tissues of the eyeball are among the body's structures most highly susceptible to infection from penetrating wounds, they have profited very little by the great principles of wound sterilization as developed by modern antisepsis, and eyes so injured are daily being removed, as compound fractures of extremities in the old days were followed by amputations to save the patient from death from sepsis. This is true because the delicate structures of the eye cannot stand any really efficient germicide. Nor can such be given free access to the seat of infection, nor can the parts be laid open for free drainage, nor can damaged tissues be cut away as in recent war surgery.

How, then, may this situation be altered for the better? The answer is to be found in exciting an abundant flow of lymph, which is nature's antiseptic and tissue restorer, and goes to every part of the eye that a germ can reach. There may be other ways of producing this reaction, but the one that I have employed for a number of years is a massive subconjunctival injection of mercuric cyanid in conjunction with certain other drugs, by which the subconjunctival spaces on the ball, and the loose tissues of the lids are speedily distended to their utmost with lymph, preventing in most instances the lids' being opened for several days, and often causing swelling even on the face. How much lymph circulates through the tissues is not known; but the amount which transudes out can easily be told by squeezing out a pad which has been on an eye for twenty-four hours, after having been wet with about 2 ounces of water. If to this be added nitric acid, it will curdle so that it is as dense as buttermilk.

In my experience, covering fifteen years, all manner of extensive and deep penetrating wounds, many attended by nonrecoverable foreign bodies, have healed with no signs whatever of infection, or of degeneration or damage aside from the initial injury. In a paper on "Foreign Bodies Within the Eyeball," read before the Section on Ophthalmology at the recent session of the American Medical Association, Dr. McReynolds[1] states that the victory has not been won when the foreign body has been brilliantly extracted, and anxious days of waiting in fear of sepsis follow. He speaks of the slow degenerative changes which may follow after months or years, including detachment of the retina.

It was said by Dr. Herman Knapp, in the early days of giant magnet extraction, that these cases made a grand impression at first, but that many patients ultimately became blind. Mr. Gustavus Hartridge[2] says, in discussing this subject before the Ophthalmological Society of the United Kingdom in 1915:

> The patient appears to make an excellent recovery, and leaves the hospital with perhaps almost normal vision; months later the vision of the eye gradually fails, and on examination, a large detachment is found. I have seen dozens of such cases, and would venture to state that the majority of cases in which a foreign body is removed from the back of the eye through the vitreous end this way.

Another prolific source of destruction, in my belief, is the organization and shrinking of profuse vitreous hemorrhage. It is my contention that all of these patients should be given the massive cyanid injection which sterilizes the eye, furnishes lymph to repair damaged tissue, and promotes absorption of blood effused into the vitreous. Furthermore, the swelling of the conjunctiva closes and covers the wounds, and protects them from conjunctival secretions, serving the purpose of the double flap suture advocated by Francis, and the sliding flap operation recommended in the official Military War Manual No. 3 on ophthalmic surgery.

A number of oculists who have used the injection in cases of intractable diseases have found that it serves them well; let us hope it will be given the same trial in cases of deeply penetrating wounds, and the wounds attendant on magnet operations.

Dr. McWhinnie[3] has detailed a series of phenomenal results from these injections, among them an extensive scleral wound made by a dirty fish knife, presenting a condition for which textbooks advise immediate enucleation, in which the eyeball and vision were saved by the injection. I have in sundry publications pleaded for the single massive injection instead of frequent small or salt water injections, and have had my beliefs confirmed by men who have used the plan advocated. The detractors are found among those who use the small or mild injection, and fail to excite the maximum physiologic lymphatic reaction.

A SECOND ATTACK OF SYPHILIS TWO YEARS AFTER THE FIRST

CURABILITY OF THE DISEASE *

JAY FRANK SCHAMBERG, M.D.
PHILADELPHIA

In view of the fact that the Wassermann reaction is not infrequently negative in the presence of indubitable evidence of active syphilis, in the minds of many, this query has arisen: "How can we ever be sure of the complete extinction of the disease?" Indeed, many physicians have expressed doubts as to its curability. It is important for the profession to have placed before it as much convincing evidence pointing to the radical extermination of the syphilitic infection as possible, in order that there may be developed a crystallized scientific judgment on this important question. There is every reason to believe that many patients treated intensively in the early primary stage are cured, for they commonly remained free of symptoms for years and repeatedly have negative blood tests. But these data do not of themselves constitute evidence of cure.

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[1] McReynolds, J. O.: Foreign Bodies Within the Eyeball, J. A. M. A., this issue, p. 818.

[2] Hartridge, Gustavus: Tr. Ophth. Soc. U. K., 1915, Vol. XXXV, p. 125.

[3] McWhinnie, New York M. J. **107**: 343 (Feb. 23) 1918.

* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

In the subjoined case, in which treatment was given after the secondary symptoms had developed, a definite cure took place:

REPORT OF CASE

A man, aged 23, contracted syphilis in June, 1917. During a drunken orgie, he and two companions cohabited with the same woman, and all three became infected. (The other two victims were treated by us for syphilis.) The patient, with a suspected chancre of the meatus, was first seen, June 21, in the hospital of the University of Pennsylvania, by Dr. Hollingsworth Siter. July 2, a macular eruption appeared on the body. An intravenous injection of neo-arsphenamin was given, and also some mercury by mouth. August 14, the patient presented himself at the University Hospital with headaches, inequality of the pupils and exaggerated patellar reflexes. The Wassermann reaction was positive. A second dose of neo-arsphenamin was administered.

PROTOCOL OF PATIENT WITH TWO ATTACKS OF SYPHILIS WITHIN TWO YEARS

6-21-17	Suspected chancre of meatus.
7- 2-17	Macular eruption on body. Ulceration and induration about meatus.
7- 2-17	Injections of neo-arsphenamin; also mercury by mouth.
8-14-17	Headaches. Inequality of pupils. Exaggerated patellar reflexes. Enlarged cervical glands. Injection of neo-arsphenamin.
8-17-17	Wassermann positive.
9- 9-17	Came under treatment at Polyclinic Hospital. Wassermann tests with three different antigens, ++++, +, and ++++.
9-22-17	Arsenobenzol brand of arsphenamin 0.6 gm.
9-25-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
9-29-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., cholesterinized antigen, —; syphilitic liver, +; acetone insoluble lipoids, ±.
10- 2-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
10-12-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
10-19-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —; Hecht-Gradwohl, weakly +.
11- 8-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., —, —, —.
11-15-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., cholesterinized antigen, +; —, —.
12-13-17	Arsenobenzol brand of arsphenamin 0.6 gm.; W. R., cholesterinized antigen, +; —, —.
Nine monthly Wassermanns in Army, negative.	
4- 4-19	Second attack of syphilis—chancre, roseola, followed by varioloform syphilid.
4-26-19	Arsenobenzol brand of arsphenamin 0.4 gm.; W. R., ++++, ++++, ++++.
4-29-19	Neo-arsphenamin, 0.75 gm.; W. R., ++++, ++++, ++++.
5- 9-19	Neo-arsphenamin, 0.6 gm.; W. R., ++++, ++++, ++++.
5-12-19	Arsenobenzol brand of arsphenamin, 0.4 gm.; W. R., ++++, ++++, ++++.
5-17-19	Neo-arsphenamin, 0.9 gm.; W. R., ++++, ++++, ++++.
5-20-19	Arsenobenzol brand of arsphenamin, 0.4 gm.; W. R., ++++, ++++, ++++.
5-26-19	Arsenobenzol brand of arsphenamin, 0.4 gm.

The patient came under my care Sept. 9, 1917. Three days later, the Wassermann reaction with cholesterinized antigen was ++++; with alcoholic extract of syphilitic liver, +, and with acetone insoluble lipoids ++++. Between Sept. 22 and Nov. 15, 1917, the patient received eight intravenous injections of the arsenobenzol brand of arsphenamin, the Wassermann reaction becoming negative after the first injection, but relapsing to a weak positive on several subsequent occasions. He was drafted into the Army, and while at two southern camps, because of a deep scar on the glans penis, had a blood test taken monthly for nine months. All of these tests proved negative.

After his discharge from the Army, he again lived with a woman with whom he had been living before he entered the Army. April 4, 1919, he appeared at my clinic at the Polyclinic Hospital with a generalized, pinkish-red roseola. This developed within a fortnight into an extensive varioloform syphilid, covering the face, trunk and extremities (Fig. 1). There was a large chancre on the foreskin opposite the corona (Fig. 2), a site different from that of the first chancre. Six Wassermann tests made between April 26 and May 26 were strongly positive (++++) despite seven administrations of arsphenamin and neo-arsphenamin. During this period, the chancre and eruption promptly disappeared under the treatment.

To summarize, the patient contracted syphilis in June, 1917; after treatment with the arsenobenzol brand of arsphenamin he had repeated negative Wassermann reactions until the early part of 1919, when he contracted another chancre, followed by a widespread and severe papulopustular syphilid, and had a strongly positive Wassermann reaction. It is obvious that this patient had been cured.

COMMENT

This case is all the more remarkable in view of the fact that the patient was irregular in his attendance at the University Hospital, and that, through neglect, he developed what were, in all likelihood, evidences of an early meningeal involvement, characterized by headaches, inequality of the pupils, and exaggerated patellar reflexes. It is interesting to observe that not a vestige of immunity against the second attack remained. Indeed, the second attack was more severe than the first, and the Wassermann reaction bids fair to be more resistant to treatment. In this case, the evidence of a second attack is, in my opinion, indisputable. I believe that the deduction that the patient was cured of his first attack is warranted by all of the facts.

Cases of this character are most instructive in the light they throw on the curability of syphilis. The excellent pathologic researches of Warthin at Ann Arbor were persuading many physicians to believe in the dictum enunciated many years ago (under a different therapeutic regimen), "Once a syphilitic, always a syphilitic." I believe that we are in a position at the present day, with more powerful and scientific drugs at our command, to state that syphilis is a curable disease. The criteria of cure are difficult to establish, because the evidential value of negative Wassermann tests is not conclusive. In view, however, of cures such as the one above reported, we may perhaps place more faith in repeatedly negative serologic tests and the absence of symptoms as indications of probable cure.

1922 Spruce Street.

ABSTRACT OF DISCUSSION

DR. JOSEPH ZEISLER, Chicago: Dr. Schamberg brings up the question of inunctions as against the injection of insoluble salts; he presents the subject of reinfection and finally gives us his routine of arsphenamin treatment, a matter in which we are all interested because we would like, at last, to get to something more than experiments. Reinfection of syphilis was observed long before we knew of arsphenamin, and the observation of Dr. Schamberg merely adds another instance to these interesting cases. I do not believe that Dr. Schamberg will be able to convince a majority of his hearers that injections of insoluble salts are not safe as compared to inunctions. That is a subject that has been rehashed often, and if Dr. Gottheil were here he would be a more able advocate than I. I think every one will go away still adhering to his previous methods. I highly value the inunction methods, but consider the injection method as excellent and believe the danger of injecting insoluble salts at the present time may be practically ignored. We are much interested to learn of Dr. Schamberg's combined treatment. It is a fine point, this injection on alternate days and the inunctions on off days. I have personally for sometime, at least in fresh cases, practiced the intensive arsphenamin treatment on three successive days, as advocated by Dr. Pollitzer, following it with inunctions, or injections; but these are merely technical details.

DR. WILLIAM H. GUY, Pittsburgh: We all understand that in the treatment of syphilis we are dealing with a chronic infection by *Spirochaeta pallida,* and that a cure depends on our ability to destroy every spirochete with which the individual is infected. We also know that we have two drugs, arsphenamin and mercury, which are effective spiro-

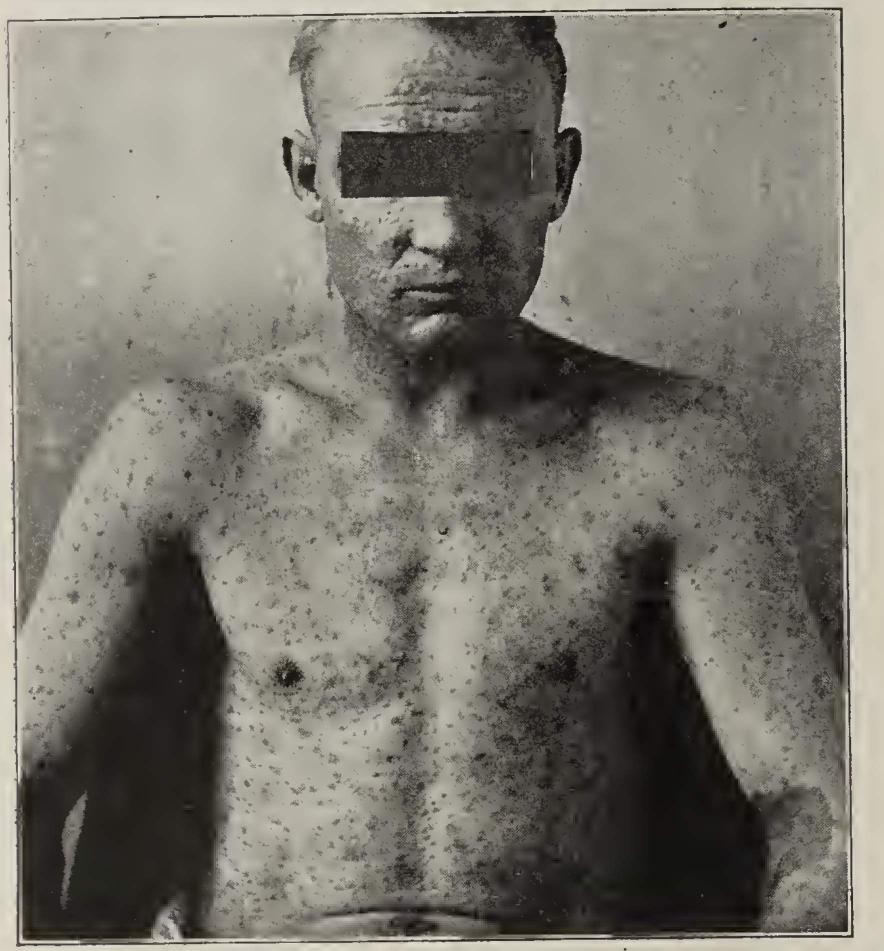

Fig. 1.—Varioloform syphilid: eruption of second attack.

cheticides, arsphenamin being the better of the two. As Dr. Schamberg has pointed out, the result he is able to obtain is dependent not only on the frequency of dosage but on the size of the dose, the aim being to secure as high a concentration of the drug in the blood stream as possible in order to destroy as many spirochetes as possible in the short length of time arsphenamin remains in the blood stream. I would like to ask Dr. Schamberg if he does not think that results would be better if larger doses were given. We know that Ehrlich failed in his attempted "therapia magna sterilisans" because of the rapid elimination of the drug. It has been shown by Swift and Ellis that there is but little spirochetal action on the part of the blood serum six hours after administration of a full therapeutic dose of arsphenamin. Inasmuch as the destruction is immediate and depends on the concentration in the blood stream, I think that the best results would be obtained by using as great an amount in the blood stream as could be tolerated. I have used the plan of Dr. Pollitzer in which arsphenamin is given on each of three successive days at the rate of 1 gm. to each 30 pounds of body weight in a series of fifty cases without any bad results. Reiger of Indiana prefers neo-arsphenamin on account of lower toxicity and aims to obtain a sustained saturation of the blood stream by the drug. He gives a 9 dg. dose at one hour intervals. It is new and has not been tried extensively, but is worthy of consideration. He claims better results than by anything else. Regarding mercurials, every one is familiar with the objections to inunctions. The fact that we are able to give patients a large amount of mercury intramuscularly and keep them saturated with the drug without bad results is too definite to be disproven. In my series of 30,000 intramuscular injections I have made a note of but a single serious reaction. In the large number given in the army it has been infrequent that any trouble has developed, and if the patient is carefully examined before the injection, regarding particularly the condition of his elimination apparatus, and then following his injection his reactive phenomena are noted and dosage estimated accordingly, the injection method may be pursued, I believe to better advantage than the inunction.

Dr. John E. Lane, New Haven, Conn.: I think we all agree with Dr. Schamberg that the proper method of treating syphilis, and especially early syphilis, is to give the patient mercury and arsphenamin at the same time and to give as much as is consistent with safety. We all realize the objections that can be raised against the intramuscular injections of the insoluble salts of mercury and against inunctions. I hope that Dr. Schamberg will at some future time make some studies of the soluble salts of mercury used intravenously. Some of the French physicians have for a long time used the cyanid, but I know of no studies as to its relative effect on the Wassermann reaction. I have frequently used it with no injury to the veins and no other untoward results, though it is said to cause duodenitis occasionally and rarely hemorrhagic duodenitis in susceptible patients. A thorough study of the effect of this method of treatment would be of interest.

Dr. Harry G. Irvine, Minneapolis: The principal object of attempting to treat people for syphilis is to arrive at a cure of their syphilis. It seems a lamentable thing that during the past eight or nine years during which we have had arsphenamin, most of the time has been spent in attempting to arrive at some standard method for giving arsphenamin, and each year has brought forth some new combination of arsphenamin and mercury, whether it should be given with, or after, or before, or what not, and a great many papers have been written to show that such and such a treatment in such and such a time brings forth a negative Wassermann. I think we have devoted altogether too much effort to this sort of thing and not a sufficient amount of effort to following cases treated with a certain technic, a number of years ago, and bringing out to the profession what has really been accomplished in the "long distance" cure of these cases. I do not believe that anybody is prepared to say yet that a negative Wassermann extending over a year or year and one half means a cure of syphilis. We may find that patients who remain serologically well for a period of years may still bring forth paresis and tabes but sufficient time has elapsed so that some figures could be forthcoming if the men would devote their time to taking up these old cases and showing the results of treatment from every standpoint, rather than producing a negative Wassermann.

Dr. Henry H. Hazen, Washington, D. C.: For the past two years I have been using arsphenamin in much the same way as Dr. Schamberg has reported and now have seventy-five cases. In two cases when the interval was reduced to two days, a very severe urticaria developed after each injection. We then proceeded with the injections by the method Stokes brought out—the use of atropin preceeding injections. At three days intervals the results were very good but in two cases very bad urticaria developed in the two days' interval.

Dr. Jay Frank Schamberg, Philadelphia: I trust that Dr. Zeisler has not misunderstood me in what I stated concerning the use of insoluble preparations of mercury. In using arsphenamin it is important that the drug should be eliminated properly through the kidneys. Whenever an injection is given, a certain amount of the drug is deposited in the liver and in certain other organs. If the elimination through the kidneys is interfered with by either a preexisting renal insufficiency or by some damage to the kidneys produced by large doses of mercury, some of the arsphenamin is retained in the system. Arsenic may split off or oxidize and symptoms of arsenical poisoning are induced. When arsenic and mercury are given conjointly, the latter by intramuscular injection, the dose must be small enough to be safe. Under other circumstances one may have more latitude in the amount of mercury injected. Whenever intramuscular

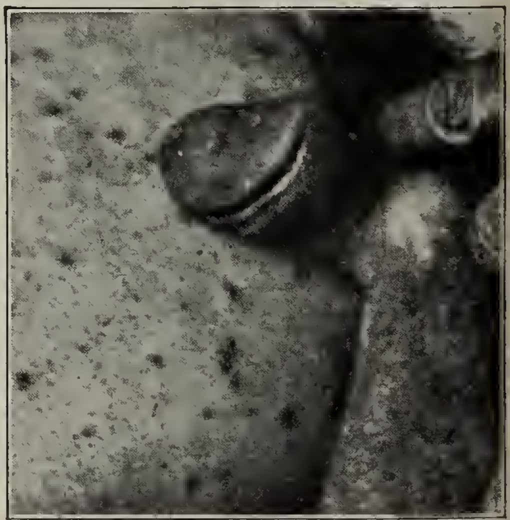

Fig. 2.—Euruption on thigh; scar of old chancre on glans; second chancre on foreskin over corona.

injections of mercury are given, there is an accumulation of the drug from week to week. Dr. Zeisler is correct in stating that cases of second attacks of syphilis have been reported in the literature. I am not familiar with any cases in which such a long chronologic record has been available of the Wassermann test during the first attack, the interim, and a second attack. We realize that there is nothing new in the method of treatment which we have suggested. Physicians are groping for a technic which will secure the best results. Each syphilologist today treats syphilis according to his own experience; one man uses an extremely intensive treatment with successive daily injections in full dosage; another uses weekly injections, still a third combines mercury and arsphenamin, etc. We submit the method which we have described for what it is worth and for the trial of others. It will of course be necessary for us to study serologically the cases in which negative Wassermanns have been induced, for as long a period as it is possible to keep them under observation. The advantage of the method in question is that we use the two important remedies in syphilis, but use each in smaller dose than when it is used separately, and at the same time we increase the frequency of the intravenous treatment. By shooting with two arrows, we are more apt to kill the spirochete than by aiming with merely one. We have found it possible to give three weekly injections of arsphenamin in 0.3 gm. doses, with inunctions on alternate days, for several weeks, without materially disturbing the patient's well being or producing any damage to his organs. With respect to the use of soluble preparations of mercury intravenously, we have had quite a little experience. Even when the mercurial salts are used in 50 c.c. of water it has been our experience that the veins became so sclerosed that it renders them unfit for subsequent arsphenamin injections. We have used bichlorid, succinimid, the cyanid and other salts, but with the same effect. Syphilis is probably the greatest medical problem that the world has to deal with at the present time. We are persuaded that it is a curable disease, and that is an important consideration both for patients and for physicians. The matter to be determined is the best and safest method of bringing about this cure.

STRICTURE OF THE RECTUM *

FRANK C. YEOMANS, M.D.
NEW YORK

Stricture of the rectum, excluding neoplastic stenosis, is not a disease entity but is the result of a congenital malformation, or of an infection, inflammation, irritation or trauma (either mechanical or surgical). In form, strictures are annular, tubular or valvular.

ETIOLOGY

Broadly speaking, all strictures are congenital, traumatic or inflammatory.

Congenital Strictures.—These occur at the junction of the anus and rectum, and are due to imperfect or incomplete absorption of the anal membrane. As a rule, they are recognized early, and then methodical dilatation usually effects a cure. A partial membrane may persist, requiring surgical removal, or ulceration may occur above it, causing a true fibrous stricture.

Assigned Causes of Traumatic Stricture.—These are pressure of the fetal head in prolonged labor, foreign bodies (enteroliths), unskilled instrumentation and operations for hemorrhoids, fistula and resection.

I have seen no instances in which pressure of the fetal head has caused a stricture, though I have operated successfully in four cases of rectovaginal fistula following prolonged labor; but no stricture was present. Foreign bodies perforate the mucosa, causing abscess, and enteroliths may be the cause of extensive ulceration; but stricture has not followed in the cases I have seen, though, of course, it is possible. In one of my cases, stricture was due to clumsy instrumentation.

Stricture should never follow a properly performed hemorrhoidectomy. In the ligature or clamp and cautery operations, the tumors are removed in the axis of the bowel, leaving a strip of mucosa between the adjacent hemorrhoids. To insure a canal of normal caliber and to hasten the absorption of exudate, digital dilatation is begun on the fifth day and repeated twice weekly for a month till healing is complete.

Stricture may follow a Whitehead operation, especially if union is not primary. Other equally unfortunate sequelae caused me to abandon the Whitehead operation many years ago, and I believe that it has no place in the surgery of a condition that can always be cured by a safer and simpler operation. Incontinence rather than stricture is to be feared after operation for fistula. Certain neglected cases of blind external and blind internal fistula may, however, form stenoses. In the latter, the only opening is between the anal sphincters. Tonicity of the sphincters impedes drainage and infiltration, and connective tissue formations extend circularly around the intestine, forming a stricture at the level of the internal sphincter, as occurred in two of the cases reported. Resection of the rectum and end-to-end suture are usually followed by some degree of stenosis at the line of union. This is a valid argument against resection and in favor of perineal extirpation whenever anatomically possible.

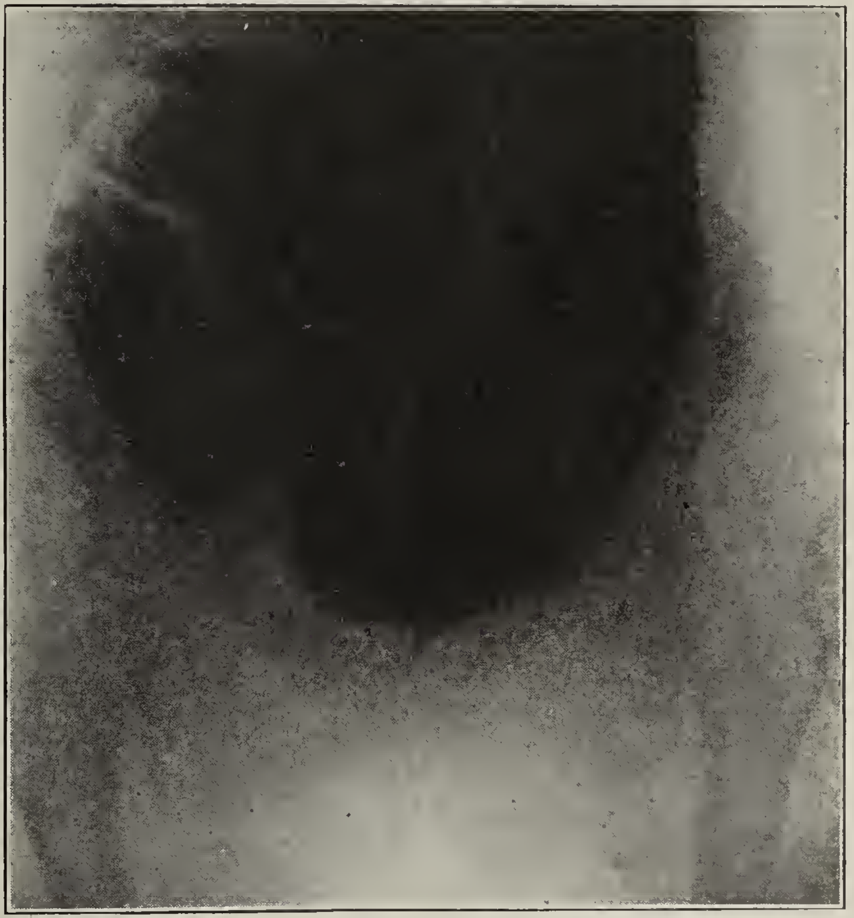

Fig. 1.—Rectum almost obliterated by syphilitic stricture.

Inflammatory Strictures.—These comprise by far the largest group, and they are of the greatest clinical importance. The infection may be simple or specific. So-called simple infections include amebic and bacillary dysentery; gonorrhea, and infection by colon bacilli, streptococci and staphylococci, of various strains, leading to acute and chronic inflammation. So, far from being simple, these infections are still quite obscure and complex. The possibility of a simple infection causing a stricture is debatable. Unless the submucosa is extensively involved, clinically a stricture seldom, if ever, occurs. In four cases of bacillary dysentery, more than 100 cases of amebic dysentery, six cases of gonorrhea of the rectum, and a large number of cases of chronic ulcerations of mixed types of infection, many of the latter involving the entire colon and rectum and personally observed for several years, no patient has developed stricture. These limited observations accord with the more complete statistics of Woodward,[1] who states that no cases of stricture following dysenteric ulceration were reported during the war, or have been since. Among the United States troops there were 287,522 cases of dysentery, 28,451 being of the chronic form. Deaths numbered 9,431, of which 3,855 occurred in chronic cases.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Specific Infections.—The specific infections are tuberculosis and syphilis.

Tuberculosis: It is generally conceded that tuberculosis of the intestine in adults is clinically always secondary to a pulmonary lesion, either active or quiescent. Tuberculosis tends to cause stricture of the small intestine and cecum rather than of the terminal colon. The comparatively frequent occurrence of intestinal tuberculosis without stricture formation is noteworthy. Just why this should be so is not clear, but seems to depend on two factors: (*a*) the way the tissues react to the tuberculous infection, and (*b*) the character and amount of secondary infection present. If the natural resistance of the host is weak, secondary infection predominates, and the inflammation is likely to be destructive. On the contrary, if the host possesses strong natural resistance, productive inflammation may occur, with the formation of cicatricial tissue and a stenosis.

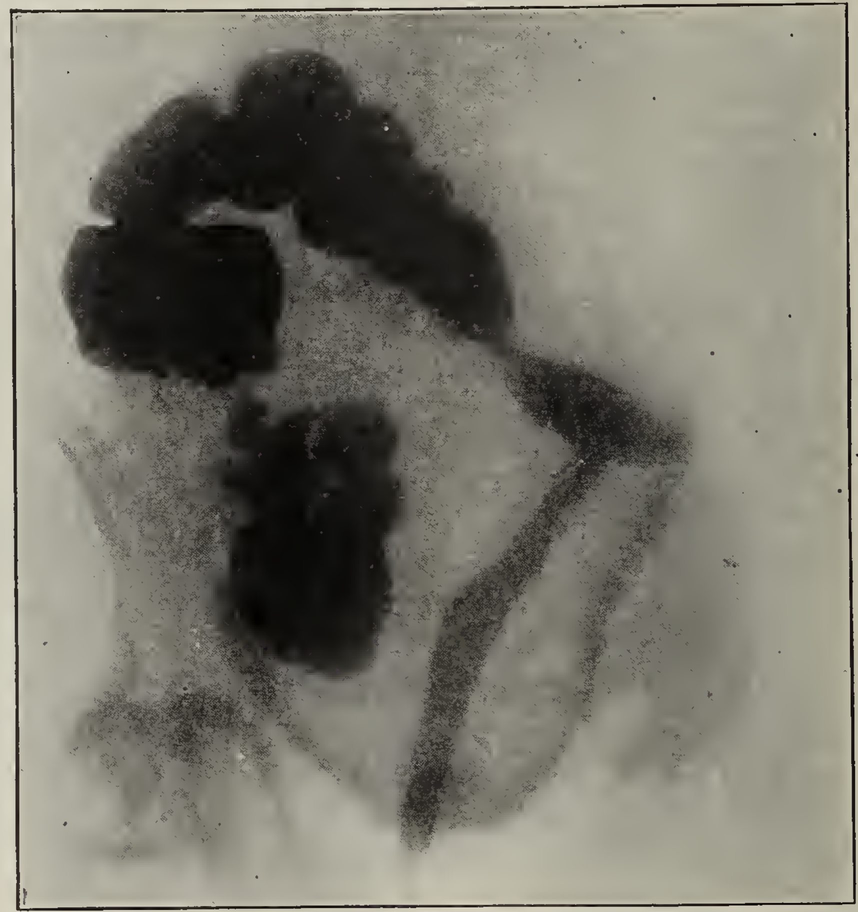

Fig. 2.—Bougie inserted through rectal stricture. Second stricture in transverse colon. Confirmed by operation.

Syphilis: This, in the tertiary stage, is rightly agreed to be the commonest infection causing stricture. It was the cause of 80 per cent. in my series of inflammatory and perirectal cases.

Gummas and obliterating endarteritis and, according to Rieder, a proliferation of the intima of the rectal veins even to their obliteration, are responsible for the ulcer. If the ulcer is not healed, there is a rapid production of connective tissue, and the foundation of a stricture is laid. The reason syphilitic strictures occur more often in women than in men (sixteen females as compared to eight males in my cases) is explained by Quénu and Hartmann on anatomic grounds. The lower group of rectal veins anastomose directly with branches of the external pudendal, and the latter originate in the posterior commissure of the vulva, the chief seat of syphilitic infection.

PATHOLOGY

Whatever the nature of the infection, the steps in the formation of inflammatory stricture seem to be much the same, namely:

1. Infection and inflammatory process.
2. Ulceration of the mucosa.
3. Round cell infiltration and production of connective tissue, which tends to encircle the bowel.
4. Persistent contraction of this new-formed fibrous tissue.
5. Compression and atrophy of the muscle.

In a word, the formation of inflammatory stricture depends on an extensive production of connective tissue which persistently contracts.

The pathology explains the marked tendency to ulceration below syphilitic stricture. By inflammation and compression of the vessels, the arterial blood supply is limited, while the return flow is obstructed; so the natural tendency of the ulcers to heal is weakened, and their response to local and constitutional measures is impaired.

OTHER STRICTURES

Spasmodic or Phantom Strictures.—Most authorities deny the occurrence of spasmodic or phantom strictures, while a few others have reported isolated instances. They are alleged to occur at the site of attachment of the levator muscles to the rectum and at the rectosigmoidal juncture. Failure to pass the sigmoidoscope into the sigmoid is, in my experience, the consequence of (*a*) an anatomic condition, the acuteness of the angle at the rectosigmoidal juncture; (*b*) a pathologic condition, as represented by constricting peritoneal bands and adhesions, and (*c*) is rarely attributable to spasm, the spasm being temporary. No case of cicatricial stricture that I have seen was due to muscular spasm.

Valvular Stricture.—This is a special form of the inflammatory class. The valves of Houston, nonobstructive, resilient structures normally present in the rectum, are a frequent site of inflammation and ulceration, with consequent infiltration and contraction, and thus occasionally they become the site of a stricture.

Perirectal Strictures.—These may be due to inflammation in adjacent organs, or they may follow an operation on them.

DIAGNOSIS

A history of progressive constipation and futile straining at stool, or frequent fetid passages, suggests a local examination, by which a stenosis is easily recognized. It is necessary, however, not only to discover the stricture but also to determine its nature, size, form and length, and the degree of infiltration and extent of ulceration above and below it. Most strictures are within the palpable area—the lower 4 inches of the rectum—forty-seven of my fifty cases being within 10 cm.

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[1] Woodward, J. J.: Medical and Surgical History of the War of the Rebellion.

Congenital and traumatic (including operative) strictures present few difficulties in diagnosis. They are usually annular, and ulceration is limited or absent. Inflammatory strictures, however, must be differentiated from carcinoma. Carcinoma usually begins abruptly and has a sulcus below it. The growth itself is ulcerated and characteristically feels irregular, hard and nodular. The approach to an inflammatory stenosis is generally a gradual, conelike, firm contraction. The mucosa below, when ulcerated, feels granular.

After the digital examination, I employ the graduated proctoscope of my model, one-half inch in diameter and 10 inches long. Through this, the examiner can note the ulceration below, discover strictures beyond the reach of the finger, pass the tube through the lumen in nearly all cases, and so determine their length and see the extent of any ulceration above. By using a tube of larger caliber, a specimen forceps, which I have devised for the purpose, can be introduced and the tissue secured for histologic examination when malignancy or tuberculosis is suspected. Scrapings may also be taken from the ulcerated surface for examination for tubercle bacilli.

Finally, roentgenograms are made twenty-four hours after a bismuth meal and also after a barium clysma. These (*a*) outline the stricture (Fig. 1); (*b*) demonstrate others at a higher level, a rare occurrence but one to be anticipated (Fig. 2), and (*c*) show the length of sigmoid available in case of operation.

A Wassermann test of the blood should be taken in every case of stricture. The reaction is positive in most cases of syphilitic stricture, and in my series occurred in 86 per cent. of the cases. The tuberculin reaction is so often positive in adults that little reliance can be placed on it for diagnosis.

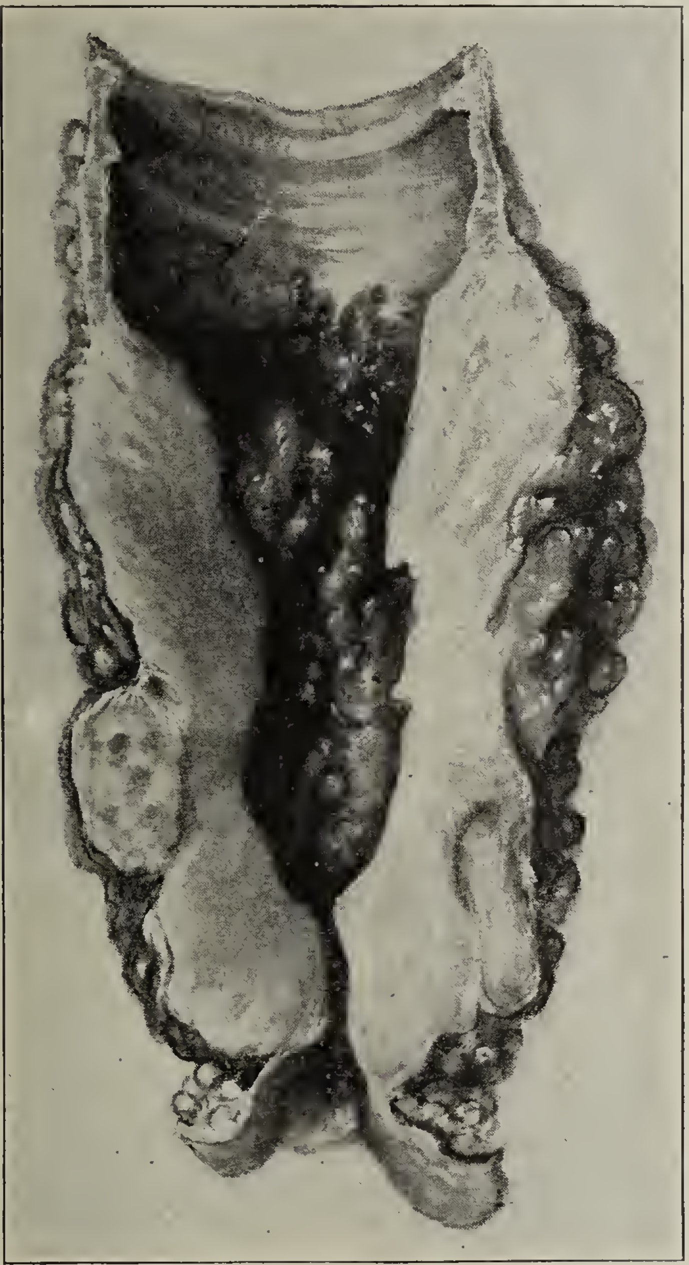


Fig. 3.—Stricture of rectum removed by perineal extirpation, 1909. Patient cured.

PROGNOSIS

The prognosis varies with the nature of the stricture and the treatment instituted. For congenital and traumatic cases the prognosis is good. For inflammatory strictures, the tuberculous excepted, good management will insure a life of comparative comfort in most cases, and sometimes an operative cure can be effected. If neglected, abscess, fistulas, obstruction and toxemia lead to a fatal issue.

TREATMENT

Preventive Treatment.—Nearly all operative strictures could be prevented by proper surgical technic and suitable postoperative care, as indicated under "Etiology." It was noted under "Pathology" that an ulcer is the usual initial gross lesion in inflammatory stricture. Most ulcers in their early stages respond to local and constitutional treatment, healing with a scar limited to the mucosa or mucosa and submucosa, with no marked narrowing of the bowel lumen. Thus, the greatest measure of prevention is to heal the ulcer in the prestricture stage.

Treatment After Development.—When a stricture has developed, the treatment is constitutional, local and surgical. Patients in the majority of advanced cases are debilitated and underweight. The diet should be liberal, excluding only fermentative foods. In syphilitic cases arsphenamin should be administered till the Wassermann reaction is negative, if this can be accomplished without inducing arsenical poisoning, and should be followed by mercury given hypodermically, and the iodids. Specific treatment does not affect the cicatricial tissue already formed, but is employed as a general measure.

Dilatation has a very important place in the management. Patients in some cases can by this means be carried along very comfortably without operation, and dilatation is always employed after proctotomy to maintain the patency. Forcible dilatation by metal instruments or hydrostatic pressure is so likely to rupture the bowel that it should never be used. The safest instruments for dilatation are soft rubber Wales bougies in graduated sizes. Beginning with the largest that can be introduced comfortably, bougies are passed semiweekly in increasing sizes until a No. 7, at least, can be retained for from ten to fifteen minutes. The bowel is irrigated daily with a 2 per cent. peroxid solution.

While dilatation seldom cures a cicatricial stricture, it will enable many of its victims to lead a life of comfort and health, handicapped only by the little extra time required for the treatment.

Surgical Treatment.—This includes proctotomy, colostomy and excision.

Proctotomy is the incision of the rectum. If the incision is made above the sphincters, it is termed internal proctotomy; if through the sphincters, external proctotomy. Internal proctotomy is occasionally employed for valvular strictures, but it is preferable to divide them with a spring clip devised for the purpose. Fibrous strictures are usually near the anal strait and are accompanied by extensive ulceration and suppuration, requiring the free drainage that external proctotomy affords. Beginning in the mucosa, 1 or 2 cm. above the stricture, the stricture, both sphincters and all intervening tissues are divided by a clean incision carried back to the tip of the coccyx. Hemorrhage is controlled by superimposed strips of gauze, and a half-inch rubber tube is passed up beyond the incision. The bowels are confined from five to eight days, and thereafter irrigated daily and bougies passed to prevent recurrence. While proctotomy does not cure an inflammatory stricture, it is a perfectly safe procedure that any surgeon can execute quickly, gives immediate relief, and is one of the most beneficent operations.

Colostomy for stricture is for either a temporary or a permanent purpose, and is made in the sigmoid or the transverse colon. If a colostomy is performed preliminary to excision, it is temporary; but if radical treatment is not contemplated, a permanent artificial anus is formed. Colostomy enables us to explore the abdominal cavity, relieves obstruction and toxemia, and prevents constant infection and irritation of the strictured area.

FIFTY CASES OF STRICTURE OF THE RECTUM

			Sex		Race		Wassermann			Location				Form			Treatment				Result		
Classification	No. of Cases	Average Age	Male	Female	White	Colored	Positive	Negative	Not Taken	Anal Canal	Within 5 Cm.	Within 6 to 10 Cm.	Over 10 Cm.	Valvular	Annular	Tubular	Dilatation	Proctotomy or Incision	Colostomy	Excision	Died	Improved	Cured
Congenital.........	4	25 mos.	4	..	4	..	..	1	3	4	..	..	..	..	..	..	2 imp.	2 1 imp. 1 cured	..	..	..	3	1
Traumatic and operative........	9	37 yrs.	5	4	9	..	..	4	5	8	..	..	1	..	..	..	5 3 imp. 2 cured	3 cured	..	..	..	3	5
Following fistulas.	7	38 yrs.	5	2	7	..	..	6	1	4	..	2	1	1	3	..	1 imp.	3 1 imp. 2 cured	..	..	..	2	2
Inflammatory:																							
(a) Simple infection (?)........	1	58 yrs	1	..	1	..	..	1	..	..	..	1	..	1	..	..	..	1 imp.	..	..	..	1	..
(b) Tuberculous.	3	43 yrs.	2	1	3	..	..	2	1	1	..	2	..	..	2	1	..	..	1 lived 3 yr.	..	1	..	..
(c) Syphilitic....	24	34 yrs.	8	16	16	8	18	3	3	..	16	7	1	..	8	16	13 12 imp. 1 cured	5 imp.	2 imp.	1 cured	..	19	2
Perirectal..........	2	40 yrs.	..	2	2	..	..	2	..	..	1	1	..	..	2	..	1 imp.	..	..	..	..	1	..
Total..........	50	....	25	25	42	8	18	19	13	17	17	13	3	2	18	17	22	14	3	1	1	29	10

Indications for colostomy in the transverse colon are: (*a*) a short sigmoid, when it is proposed to perform a perineal excision later, and (*b*) demonstration by roentgenograms of another stricture at a higher level, as occurred in one of my cases (Fig. 2).

Excision, theoretically at least, is the ideal treatment for organic stricture. With our increasing experience and success in the perineal and the abdominoperineal operations for extirpation of the rectum for carcinoma, we should endeavor to apply similar methods to suitable cases of stricture. When feasible, excision should be performed either as a primary operation or secondary to colostomy, after active infection has subsided, complicating abscesses and fistulas have healed and the patient's general condition has improved. With a sigmoid of average length (16 inches), from 6 to 8 inches of bowel can be removed by the perineal operation without great difficulty in most cases, and this would cover all rectal strictures. The modified technic of Quénu and Hartmann is to be preferred.

REPORT OF CASE

In illustration is the case of Mrs. M. B., aged 31, who complained of constipation and rectal discharge for ten years before I saw her in 1909. Forcible dilatation under ether had been performed seven and four years before, and bougies passed at irregular intervals. A syphilitc stricture began just above the anal strait, admitting only a 13 F. urethral catheter. Vaginal examination indicated that the stricture was about 2 inches long. Aug. 24, 1909, I performed a perineal extirpation, removing 5 inches of the rectum (Fig. 3). The patient is now well, weighs 128 pounds, as against 104 when operated on, and has one or two formed stools daily, with perfect control.

SALIENT FEATURES

The salient features of the accompanying table are:

1. Thirty-seven of the fifty cases, including the seven in which strictures were due to fistulas, were inflammatory.

2. Twenty-four, or nearly 50 per cent. of all cases, were syphilitic.

3. Of the patients in the syphilitic cases, eight were males and sixteen females; sixteen were white and eight colored; the Wassermann reaction was positive in eighteen and negative in three clinically syphilitic, and in three cases the test was not made. The reaction was therefore positive in 86 per cent. of the cases in which the test was made.

4. In forty-seven cases, or in 94 per cent. the strictures were within 10 cm. of the anus, and therefore palpable.

5. The patients in forty cases were treated and observed for a long time. Of these, one, tuberculous, died in three years; the condition in twenty-nine was improved, that is, the patients have maintained comfortable lives, and ten, two of them syphilitic, were cured.

171 West Seventy-First Street.

ABSTRACT OF DISCUSSION

Dr. John L. Jelks, Memphis, Tenn.: Gonorrhea is a prevalent cause of stricture of the rectum, especially among the colored race; but gonorrheal strictures are usually lower and begin in the anal canal almost always. Tuberculosis and chancroid with ulceration are also prominent causes of stricture. Syphilis is more often a cause of stricture than is admitted or than is proved. Many strictures of the rectum that are known to be syphilitic give a negative Wassermann. I am glad to note, however, that the doctor is having his Wassermanns made from the spinal fluid. These strictures that are syphilitic in origin primarily are not syphilitic in the end. They are mixed infection, ulcerations and fibrous infiltration. Some of them are very hard and do not constitute a syphilitic mass. Dysentery is often but not quite so often as some other diseases a cause of stricture. I have seen a number of dysentery ulcerated strictures. I am not sure, however, that there was not a secondary or associated infection. Cancer, when it appears to produce stricture, is more often higher. That is a diagnostic point well worth consideration. I have been amazed at the lack of symptoms in some cases. I have performed at least two colostomies in the last year, one of them on a negress brought into the operating room to be operated on for hemorrhoids, no diagnosis of stricture having been made. There was almost a complete obstruction and the intestine and stomach were enormously dilated, the woman in such desperate condition that it was necessary to immediately perform a colostomy. A few weeks ago another negress had a diagnosis of appendicitis made until by accident one of the physicians tried to put his finger into the rectum. Colostomy was absolutely necessary as a means of saving her life. In the treatment mercury and iodids should be avoided unless the mercury is given in the tissues, and not by the mouth. Avoid iodids. I believe they are contraindicated and should not be given. Arsphenamin in its various forms is our best means of immediate syphilitic treatment, but is worthless when late strictures have developed. Surgical drainage is the first drainage. If it is a late stricture, however, fibrous structure having been thrown out, there is absolutely no cure for those cases but enucleation of the rectum, and that should always be considered as early as is at all safe for the patient's welfare; because when external or internal proctotomy is performed, whatever one may do to drain the patient must be told: "You will not be well. Therefore, you must consider the fact that in the end you must have this rectum removed."

Dr. Holland H. Donaldson, Pittsburgh: The percentage of cases of stricture of the rectum depends on several things: First, it depends on the part of the country from which the patients come. The percentage given by Dr. Yeomans would be the average percentage of nonmalignant strictures as treated in our northern cities. This is rather an unusual report of fifty nonmalignant strictures. It is a great relief to hear of some major surgery of the rectum for nonmalignant disease, because we find such a large percentage of incurable or inoperable strictures of the rectum due to cancer. The only class of strictures of the rectum the surgeon can prevent is the class of cases due to traumatism by operation. I would agree with Dr. Yeomans that the Whitehead operation as a routine operation for hemorrhoids should be discontinued, but I hardly agree with him that it should be discontinued entirely. I believe that in cases of hemorrhoids, associated with prolapse of the mucous membrane, where the other operations which deal with individual hemorrhoids are not specially applicable, it is the operation of choice. But it is not an operation for the novice. It is an operation for good surgical technic, especially with reference to prevention of traumatism of tissue, injury to the sphincter muscles and prevention of tension of sutures which is the most important of all. The tissues should be cut as you suture them. Light catgut sutures should be used and interrupted sutures rather than continued sutures. I believe a Whitehead operation in such a case, performed by good surgical technic, is the operation of choice. I would like to ask Dr. Yeomans to tell us how he performs the operation of colostomy and if he has had intussusception occur through an ordinary colostomy opening. I have had this complication occur during the last year in a patient on whom a simple colostomy was done for a hopeless cancer in which there was already metastasis in the liver. In that case the colostomy was done by making a McBurney incision, drawing the bowel up and holding it by a glass rod. In three months that patient developed an intussusception.

Dr. J. Rawson Pennington, Chicago: The etiology of rectal stricture is still in doubt. Syphilis as a causative factor has run the gamut of professional opinion, vehemently advocated and just as vigorously denied. As in tuberculosis, stricture may occur in syphilitic individuals as a coincident. In the fibrous type the transformation involves all the intestinal tunics alike; consequently, the mucosa is adherent and cannot be separated. At the upper end of the stricture, however, this fibrous transformation may cease abruptly and the mucosa remain normal. In June, 1916, after a cursory clinical examination, I did a posterior proctotomy on a close fibrous stricture 2½ inches in length and probably tuberculous, in a patient 35 years old. After the incision the mucosa was loosened for about ½ inch around the upper angle of the wound. A "U" suture of heavy braided silk was passed through the proximal angle and out through the distal angle and tied, thus approximating the upper and lower angles. Similar sutures were passed through the loosened mucosa and made fast to the mucosa and skin at the lower angle of the wound. Eighteen months later the patient returned, saying the stricture had recurred. Only a thin veil of mucous membrane at the anorectal junction was found. This was easily broken and a No. 9 Wale's bougie passed readily through the entire strictured area. The roentgen ray revealed tubercular deposits in lungs at this time. In my experience medication is futile in organized rectal strictures. Recently, however, I have observed that modern methods of treatment may control and check syphilitic hemorrhagic proctitis and ulcer, which might lead to stricture. Rectal stricture—one of the great banes of syphilis—can be prevented if ulcer is treated early before great destruction begins. This leads me to again urge periodic proctoscopic examinations. Some years ago I succeeded in dilating a colostomy stricture from the size of a small probe to that of one's thumb by keeping it packed with small pledgets of cotton covered with petrolatum. This success induced me to use one of my rectal tampon covers in a similar way in rectal stricture with some degree of success.

Dr. J. Coles Brick, Philadelphia: Dr. Yeomans has presented an instrument for the purpose of diagnosis. The pathologists of the Jefferson Hospital tell me that a crushed section removed by any cutting instrument is not suitable for the purpose of diagnosis and ask for a nice, cubical piece. If the stricture is where the peritoneal vessel occurs that is particularly dangerous. If you do not get a correct diagnosis you are misled. If you attempt to remove or do remove a proper section it is dangerous. Therefore, I say that the diagnosis is properly made by clinical judgment and secondary symptoms. Do not take out a crushed section; you will be misled. Do not try to remove a proper section or you will do damage.

Dr. Dwight H. Murray, Syracuse, N. Y.: In securing a section, I use a snare, and I find that I can cut tissue in that way without any crushing. I do not remove it rapidly. I put the snare over the tissue that I want to take, and then take about ten minutes in drawing the snare up so as to cut the section off. Then I do not get the excessive bleeding that might follow rapid removal of the section. A child 16 months old was brought to me six months ago. The child had a congenital stricture and had been passed around from one physician to another until three or four had seen the case. The child had never had a proper bowel movement, and could not have had with the stricture it had. Last September when the child was a year old it began to make peculiar straining and pressure, and crying with every stool. When I saw the child it had a mass as large as a baby's head and I could just about get the tip of my finger into the anal canal. The only bowel movement that child was getting, notwithstanding that it was getting castor oil and cathartics and enemas, was just a little washed off from the outside. I did a posterior proctotomy, and then proceeding with my mining tools to dig out the "pay dirt," I got a full paint can of hard feces, dry and hard as timber, so that it would sound like a stone when it dropped into the pus basin.

Then for five days after that every morning I would get a few more of the same degree of hardness, showing that the colon was filled from one end to the other with this impaction.

Dr. E. G. Martin, Detroit: I wish to emphasize the nonsurgical treatment of syphilitic stricture. In seven cases from our clinic at Harper Hospital, which were tentatively diagnosed as syphilitic from the history and examination, and afterward verified by the Wassermann blood test—all occurred in colored people. Most of these strictures were small in caliber but dilatable by the finger without anesthesia; one patient required anesthesia, being very sensitive. However, the stricture was easily dilated and cleared out without instrumentation. Three are symptomatically cured, all have greatly benefited from antisyphilitic treatment, and dilatation once or twice a week. I have referred particularly to the annular strictures, the tubular cicatricial ones usually requiring more radical treatment. Of the seven blood Wassermanns, one was negative; of three spinal fluid Wassermanns, but one was positive.

Dr. John L. Jelks, Memphis, Tenn.: Will some physician tell us in what proportion of cases he gets a positive Wassermann from the blood and what proportion from the spinal fluid?

Dr. Charles Drueck, Chicago: In the cases of old syphilis or patients who may be suspected of having syphilis, when they have drifted around to several practitioners, it is unreliable to try to get Wassermanns of the blood, and I have limited all my examinations where I really am anxious about them to spinal punctures, and I place a great deal more dependence on this, believing that when I get a negative it is a negative.

In those cases where we have a differentiation come up between a benign and a malignant tumor I feel that the loss of weight is sometimes important. In all these rectal cases there is disturbed digestion, not necessarily a disturbed assimilation; but if that disturbed digestion has gone on for a reasonable length of time, two or three years, and the patient has not lost weight, we can infer that it is not progressive. On the other hand, a case that has gone on with disturbed digestion, with pelvic symptoms suspicious of cancer for a couple years, I feel must lose some weight. I do not see how they can keep up their weight in the malignant cases.

Model Dairies in Mesopotamia.—According to U. S. Consul Oscar S. Heizer, at Bagdad, the British military authorities have established model dairy farms at Bassorah, Amara, Kut, Bagdad, Ramadi, Hillah and Nasiriyah. These are managed by experts and the milk is treated under hygienic conditions. Each farm has been equipped with an up-to-date dairy plant and machinery and the whole dairy produce, consisting of milk, cream, and butter is turned over to the military hospitals. Large numbers of cattle have been imported from India and efforts are being made to improve and increase the herds in Mesopotamia.—*Commerce Reports.*

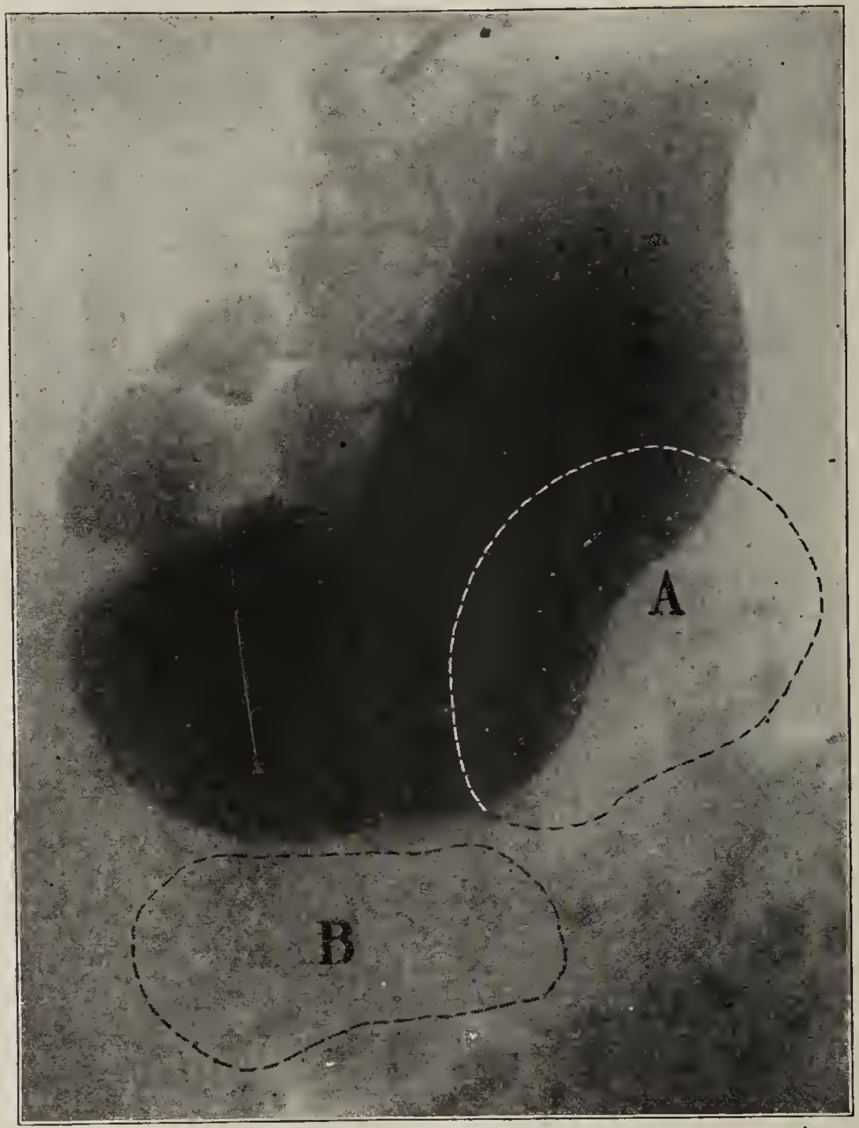
Clinical Notes, Suggestions, and New Instruments

THE WHISTLE TEST: AN AID IN THE DIAGNOSIS OF GASTRIC TUMOR

Robert M. Lewis, M.D., Baltimore

In the field of abdominal surgery, nothing is more important and interesting than making the diagnosis in a case of puzzling abdominal tumor. Often one cannot tell at all at first sight just what organ is involved. Arriving at the right anatomic diagnosis often depends on the careful elimination of several possible contiguous sites of disease.

In the upper abdomen, a variety of tumors are frequently encountered. In this region, where the stomach is the commonest organ primarily involved in the event of a new growth, a cancer of the pylorus or greater curvature has frequently been mistaken not only for malignant disease of other organs, but also for a movable kidney or spleen, a cyst of the pancreas, a retroperitoneal growth, an enlarged gallbladder, or an intraperitoneal abscess.



Palpable intraperitoneal masses: *A*, gastric growth; *B*, tumor not springing from stomach.

A skilled examination by use of the roentgen ray usually determines, fortunately, whether or not the stomach is at fault. The stomach tube also often gives circumstantial evidence of the presence of gastric cancer in the form of blood; but in the absence of this finding one cannot exclude malignancy.

Blowing up the stomach by Seidlitz powders or other means is a rather dangerous and unreliable way of outlining the organ. For several years I have employed a simple means of quickly and accurately determining the boundaries of the stomach, and in a number of puzzling cases have plainly proved or disproved the gastric involvement before the patient came to the roentgen-ray room or operating table. The method is so easy and efficacious that possibly it is in use elsewhere; but I have never seen it employed in any other clinic and therefore venture to describe it.

The patient with an intra-abdominal tumor of an unknown point of origin is fed a fine duodenal tube equipped with any one of the usual types of metal buckets. This is swallowed with two glasses of water. If there is any difficulty with choking, it can often be overcome successfully by enclosing the metal piece in a gelatin capsule. A rubber syringe or injection bulb is connected with the free end of the duodenal tube. When the stethoscope is placed over the epigastrium and little spurts of air are suddenly injected through the tube into the stomach by squeezing the bulb, the listener at once hears a bubbling or whistling sound under the stethoscope, apparently right in his ear. In moving the stethoscope bell about he continues to hear, as long as it is placed directly over the stomach, a sharp direct sound. As soon as the stomach border is passed, however, and the bell is placed over the colon or small intestine, the sound at once becomes distant and less distinct. In this way the organ can be mapped out with remarkable exactitude.

Next, let the bell be placed over the tumor. Here, if the mass is a gastric growth, the sound will continue to be heard close at hand, as over the stomach. On the other hand, if the mass springs from a neighboring organ, no matter how near it lies, the sound produced when the air is injected at once seems quite distant. So great is the difference in the transmission of the sound that no experience of previous trials is necessary for the examiner to say immediately and with certainty that the mass in question is or is not a gastric tumor.

The test is easily applied and, without upsetting the patient, gives valuable information. It would seem worth while to determine the position and outline of the stomach in this way every time a tube is passed on a new patient. I have examined a number in cases in which the diagnosis was in doubt, and the method has so far never failed me.

A glance at the illustration will be found helpful. *A* and *B* indicate palpable intraperitoneal masses: *A,* a gastric growth; *B,* a tumor not springing from the stomach. Listening over the stomach or over *A* will give the same nearby distinct sound, while over *B,* though near the stomach, the sound is distant.

It is likely, too, that the same test will prove of value in examining growths in the left iliac fossa. By introducing the bucket into the sigmoid or rectum it is reasonable to suppose that the sound will be transmitted along the ascending colon. In this way tumors of the ascending colon can probably be distinguished from retroperitoneal and other growths.

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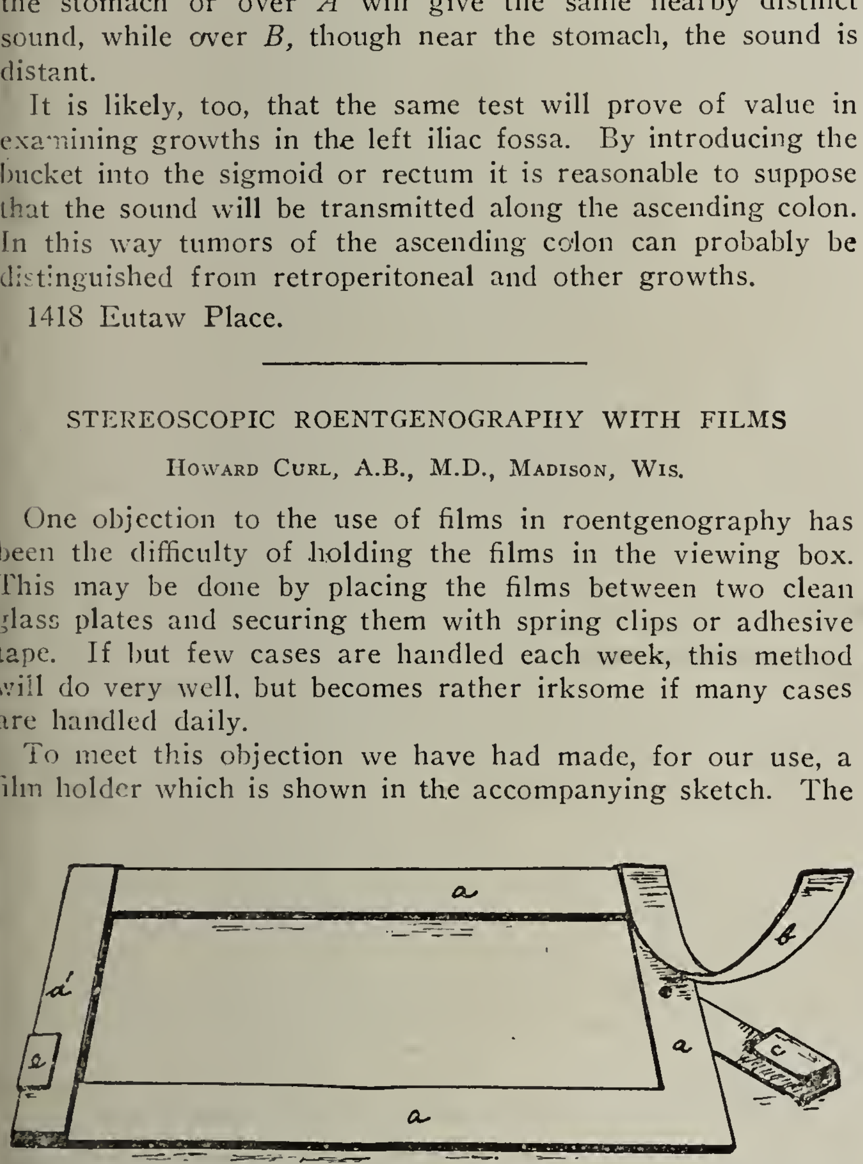
STEREOSCOPIC ROENTGENOGRAPHY WITH FILMS

Howard Curl, A.B., M.D., Madison, Wis.

One objection to the use of films in roentgenography has been the difficulty of holding the films in the viewing box. This may be done by placing the films between two clean glass plates and securing them with spring clips or adhesive tape. If but few cases are handled each week, this method will do very well, but becomes rather irksome if many cases are handled daily.

To meet this objection we have had made, for our use, a film holder which is shown in the accompanying sketch. The frame (*a*) is made of galvanized iron. It should be heavy enough not to bend easily. The outside dimensions are the same as those of the film with which the holder is to be used. Each side and end are from one-half to three-fourths inch wide, depending on the size of the frame and the weight of the material. Across each end is a brass spring (*b*). One end of the spring should bend around the edge of the frame and be riveted on the under side, so that the spring is free from the form on the upper side and will admit the film to the edge of the frame. The other end of the spring is brought down and held with a brass clip (*c*).



Film holder for holding films in the viewing box in roentgenography: (*a a*) frame; (*b*) brass spring; (*c*) clip; (*d e*) spring and clip in place.

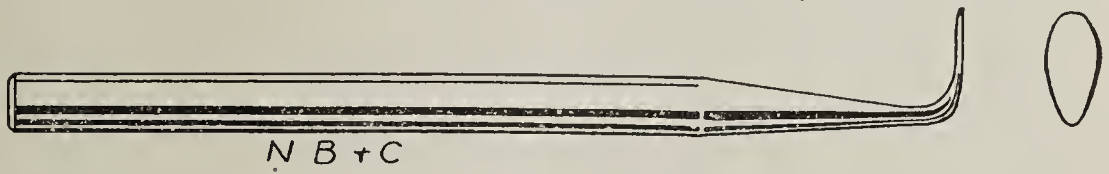
These film holders can easily be made by any tinsmith or plumber, and if a number are kept on hand, films may quickly be inserted for the viewing box.

With this arrangement, stereoscopic work may be done just as satisfactorily and easily as with plates, and especially is this true if the double coated or duplitized films are used, as they are stiffer and more easily handled than the single coated film.

DURAL SEPARATOR AND BONE ELEVATOR FOR CRANIOTOMY

Adolph M. Hanson, M.D., Faribault, Minn.

This illustration, actual size, represents an instrument for separation of the dura from the internal table and elevator for fragments of the internal table following the use of the drill in craniotomy preparatory to the cutting of the osteoplastic flap. The instrument is inserted to the dura, portions of the remaining internal table are lifted up, and the instrument is rotated between the thumb and forefinger, separating the dura from the internal table well beyond the margins of the opening made by the drill.



Dural separator and bone elevator for craniotomy.

RESECTION OF THIRTEEN FEET OF ILEUM

John R. Littlefield, M.D., Cumberland, Md.

S. W., a woman, aged 22, married, nullipara, weight, 110 pounds, admitted to the Western Maryland Hospital, March 23, 1919, had been operated on for pus tubes in September, 1917, drainage being required. This operation was followed by an uneventful recovery and good health until March 15, 1919, at which time she consulted her physician for the relief of abdominal pain associated with vomiting and preceded by constipation. Her condition increased in severity and, March 22, the vomitus assumed a fecal character. Small semisolid bowel evacuations occurred, March 17 and 18. On the night of March 22, she was placed on a train and brought to the hospital, a distance of 159 miles.

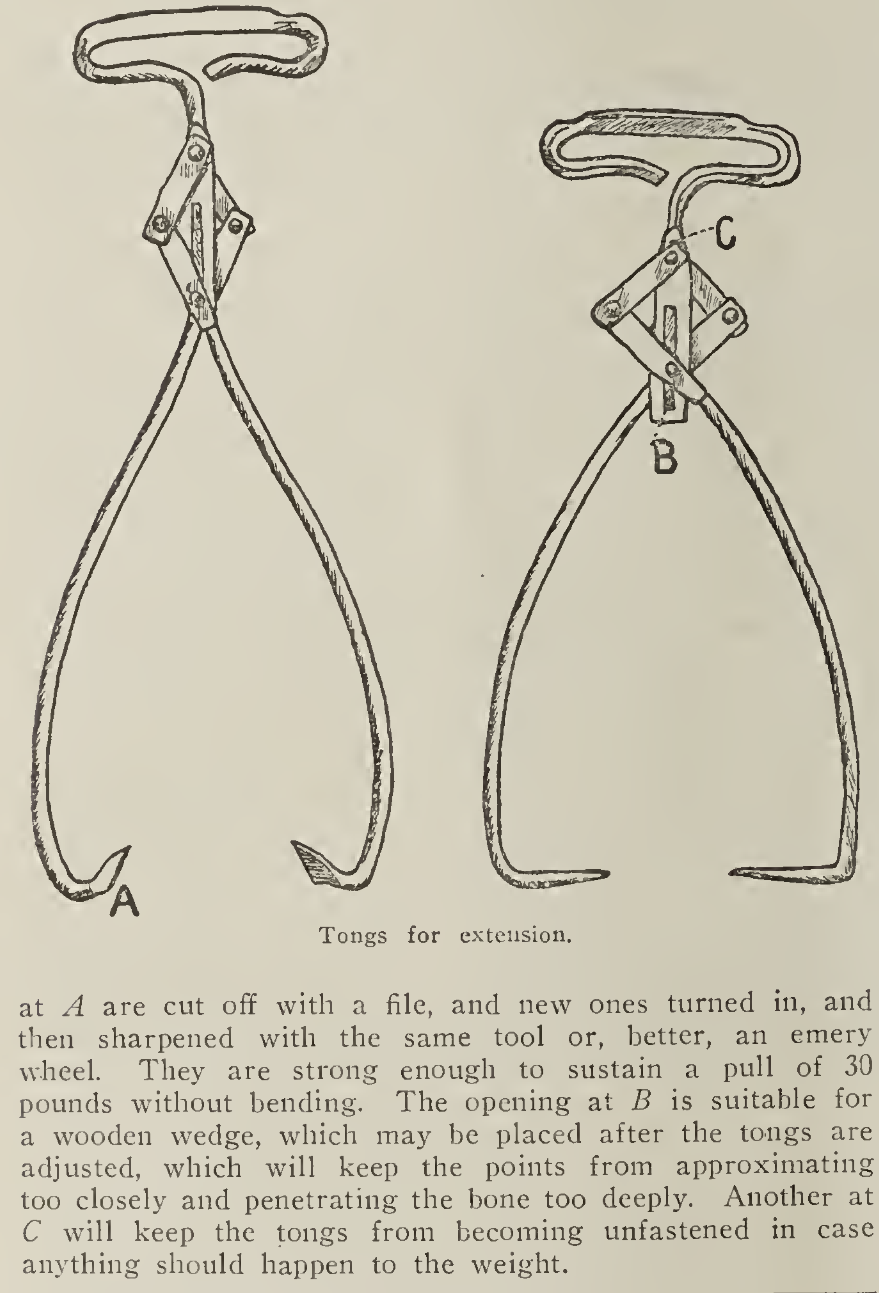
On admission the vomitus was of a distinct fecal character; the temperature was 97 by mouth; pulse, 120, and respiration, 20. The abdomen was greatly distended, and was very tender and rigid. Peristalsis was absent. There was no hernia in the scar of the previous operation. The old scar was excised and the peritoneal cavity opened, a moderate amount of blood-stained fluid escaping with the protrusion of a large segment of gangrenous and distended bowel. Large areas of peritoneum had sloughed from the bowel wall, and the muscular coat was plainly visible in these areas. The omentum was found to be rolled into a firm band and, with a knuckle of intestine, was firmly adherent to the left horn of the uterus. These adhesions were broken and the entire loop of gangrenous bowel was delivered from the abdomen. This loop, including sound tissue at each end, and measuring 13 feet, was isolated by ligating with small tape and then excised, the mesentery being rapidly transfixed and ligated as the resection progressed. An end-to-side anastomosis was made by sutures, an end-to-end anastomosis being impossible owing to the tension which would have resulted, there remaining only 6 inches of the jejunum and what appeared to be about 4 feet of the ileum. The abdomen was closed without drainage. One hour and ten minutes was required for the operation.

The after-treatment consisted of maintaining the Fowler position, rectal drip tap water for the first twenty-four hours, followed by a 10 per cent. solution of glucose during the next forty-eight hours. Hypodermics consisting of atropin sulphate, 1/150 grain, morphin sulphate, 1/8 grain, and a little digitalis were administered every four hours for the first twenty-four hours. The stomach was washed every four hours, but the vomiting of a dark foul-smelling fluid continued for seventy-two hours. The patient complained of great thirst, and after the first twenty-four hours was allowed moderate amounts of water by mouth. Ten days after operation a small abscess developed in the incision which promptly healed after the pus was evacuated. The patient left the hospital, April 24, weighing 93 pounds. She slowly recovered her strength and, June 1, resumed her housework and has continued doing housework to the present time—June 29. She now weighs 109 pounds and eats well but complains of abdominal pains after eating coarse food, pastries, etc.

HOME-MADE ICE TONGS FOR EXTENSION

B. F. Stevens, M.D., El Paso, Texas
Attending Surgeon, El Paso County Hospital

Ice tongs for extension may be easily and cheaply improvised from a pair purchased at a five and ten cent store, as here shown. To make them suitable for our use, the ends at *A* are cut off with a file, and new ones turned in, and then sharpened with the same tool or, better, an emery wheel. They are strong enough to sustain a pull of 30 pounds without bending. The opening at *B* is suitable for a wooden wedge, which may be placed after the tongs are adjusted, which will keep the points from approximating too closely and penetrating the bone too deeply. Another at *C* will keep the tongs from becoming unfastened in case anything should happen to the weight.



Tongs for extension.

The Drop in the Birth Rate in France.—The *Bulletin Médical* quotes Rebeillard's official report to the Conseil général on the child wards of the state in the département de la Seine. He stated that the number of births which was 73,599 in 1911 was only 47,480 in 1918, and during this last year the number of children abandoned by their parents was 3,149. The proportion of children thus turned over to public charity has risen from 4.90 per cent. in 1911 to 6.90 per cent. in recent years. The infant death rate, which was 19.66 before the war, has risen to 40 per cent. in 1918. The almost complete lack of wetnurses has contributed to this high death rate. In 1912 the Assistance publique had 1,363 wetnurses at its disposal, but in 1918 the number fell to sixty-five.

ABSTRACT OF DISCUSSION

ON PAPER OF DR. EUGENE S. TALBOT

(*This issue page 805*)

Dr. G. V. I. Brown, Milwaukee: The government has made a radical ruling during this war, distinguishing between the plastic surgeon and the facial surgeon who must have had a medical degree, and the dental oral surgeon who had only the dental degree. The National Dental Association is going to give quite a little consideration to this matter at its next meeting. I think that the question that Dr. Talbot deals with, and the suggestion that he makes in his paper of having an executive committee from this section attend meetings where there is discussion of dental education, representing in a more or less official way this section, is one that is worthy of thought.

Dr. M. I. Schamberg, New York: It becomes an absolute duty on our part, as a section, to take a definite position in the matter of the medical education of the dentist. At no time in the history of dentistry or medicine has it become so apparent to the medical profession, to the lay public, and to those of us who are vitally interested in this special feature, that medical education of the dentist and the complete medical education, is essential. I am convinced that there has been no period in the history of dentistry or medicine, when the opportunity is so favorable for this change. Men who take three or four years of study, which is almost paramount to the course in the medical schools, are entitled to a situation in this world, equal to the graduate of the medical school. It is asking too much of a man to spend that amount of time, and then be looked on as only obtaining partial medical culture. I would merely sound one note of caution in approaching the subject: that we do not put it quite in the way the chairman has. I think probably he might be induced to modify that term—of saying that they can have their mental training during the winter, and mechanical training during the summer, because that is almost a slap at mechanical training, which, after all, must be mental as well as manipulating.

Dr. E. A. Bogue, New York: There is in the dental profession, an idea of lack of recognition by medical men that is pretty general. As soon as our men are prepared the medical profession is prompt to recognize. If it were in the power of this section to encourage the younger men to go through the medical school it would be desirable. I knew pretty intimately Sir John Tomes and J. Smith Turner, who are responsible for the dental law of England; yet, with all the care which was given by them and their friends, the unqualified practitioner in number surpasses the other practitioners in England today. There are many in England to come up to the level which has been formed by our well qualified men during the war.

Dr. Frederick B. Moorehead, Chicago: One does not need to look far to discover the trouble in dental education. The whole fault lies in the organization of a separate training for dentists. The dentist should receive, in a large measure, the same training as the physician, and dentistry will never be a satisfactory component of medicine until the dentist and physician are on an educational parity. To bring about the necessary change in dental education, it will require several years and must be done by evolutionary rather than devolutionary methods. We face a condition, and not a theory, in the premises. The people must be cared for in the matter of dentistry, and with the increasing knowledge on the part of the layman of the dangers of mouth infections, there is going to be a corresponding increased demand for dental services. To meet this demand more dentists will be needed. It would seem, therefore, that the first responsibility in dental education is not to decrease the output of dentists, but strengthen the dental curriculum to a point which will bring about a change of character in the dental students. We have at present, a four year curriculum with a high school graduation for admission, and in 1921 the better dental colleges of the country will require one year of college for admission to the dental curriculum. This will necessarily decrease the output of dentists somewhat, and the requirement of one year of college for admission will probably have to stand for a number of years at least before any additional steps can be taken with safety. As soon, therefore, as the supply or demand will warrant, two years of college should be required for admission to the dental curriculum, which will place the dental student and the medical student on a basis of equality. When this step has been reached the first two years in dentistry and medicine may be identical. At the end of this period the dental student may undertake special training, and the medical student may also select his own special field of practice. A degree in medicine should then be conferred on both groups. We have before us an exceedingly difficult task, which must be faced with considerable thought and care. The supply must not be reduced seriously, and yet at the same time the training of the dentist must be of a different character if he is to functionate as an intelligent part of the medical program. It may be true that the question is too large for any early solution, and that we shall have to arrange for the special training of persons who will practice dentistry from a medical standpoint purely, and continue to train students for the general practice of dentistry as in the past.

DR. W. C. FISHER, New York: We speak of requiring a one year course in college. The Council on Medical Education, in their report, emphasize one great point: That there was one year of the four years in the high school that could be saved; and it was the consensus of opinion of many of the faculties, that the first year in college is almost a wasted year. If you are going to ask one year college education as a requisite of entrance to the dental college, you are asking a man to spend a year almost wastefully because that first year in college is a year of finding oneself. The Council on Medical Education thought that they must stop adding years to the time when a man may take his degree; that the limit has not only been reached, but it has really been passed; that they must now endeavor to go back to the preliminary education, and cut off years from that. This differs distinctly from Dr. Moorehead. If the young man is capable of going to college from high school, he is capable of going to medical or dental college. The medical faculty could exercise over these students the same care in their dental and medical colleges that they obtain in the schools of letters.

DR. ARTHUR D. BLACK, Chicago: I think that no matter from what angle we discuss this question, we must eventually come back to the ground on which Dr. Talbot has stood for all these years, and that is that the education of the dentist must be practically the same in its foundation work as that of the physician. I believe there is no question in the minds of most men who are interested in medical education, but that it would be thoroughly practical to cut out a year somewhere in the high school, or possibly in the grade school, and thereby bring a man up to entrance to the medical school a year earlier. In proposing to do so, we can not overlook the fact that a comparatively small percentage of high school graduates enter college, so that our problem is a side issue with those who are in charge of the elementary schools. I only mention that to emphasize the complexity of the problem that we have before us. In the management of our public schools, educators seem to be gradually coming to the realization that a year cut off for everybody, would be to their advantage, and eventually this may be brought about.

I would like to emphasize what Dr. Moorehead has said of the necessity of this being an evolutionary matter, and to impress the fact that it will take a good many years to accomplish our present objective. Suppose, for example, that the dental schools require one year of college for entrance in 1921, and that possibly in 1925 they require two years of college; that means it will be 1929 before we have our first graduates of a dental school on a parity with the graduates of the medical schools of today. It seems like a long time in advance, and yet that is the very earliest time within which the change can be made. Nevertheless, if we look backward for a period of ten, fifteen or twenty-five years, I think we can not help but realize that we have been making progress in all these years, and we are going to continue.

DR. CHARLES R. TURNER, Philadelphia: I feel that dental education has a present plotted out for itself, the same program that it has ever plotted out for itself. Dental prestige in America came, of course, originally from the development of the mechanical or the manipulative side. It was that, of course, which brought it to the attention of the practitioners of this profession in other parts of the world; in fact, for many years, that was "'American dentistry." That is all there is to it; and that very thing has been our undoing. We have hitched our wagon to that thing for too long a time, so that, as we all know perfectly well, we are now beginning to realize that it has blinded us to a proper appreciation of the vital relationships of these things. Now we have within the last few years been paying particular attention to trying to correct that thing, but attaching greater significance to what may be called the vital relationship of dental operations; and it has been along that line that dental education has been working in the last few years. We must remember that the dentist must not only have knowledge, but he must have skill. It is wise for us to bear that phase of the matter in mind, and I must confess that I am disposed to feel that the training of the fingers should start as early as possible.

DR. EUGENE S. TALBOT, Chicago: I brought out in my paper the vital points that we have got to consider immediately, the points that I have stated in the paper have been known from a pathologic point of view for a great many years, and I have occasionally, from time to time, called the attention of the profession to those vital things in pathology, the statement I made more than thirty years ago, that dentistry was producing more pathology than any one cause is beginning now to be recognized. The vital points in this paper have got to be considered right away, for the reason that we are producing more pathology than the patient; that is to say, nearly every operation that is performed in the mouth produces and leaves later in the mouth a pathologic condition. We have got to immediately change our methods of teaching. The whole thing lies in the dental school. We have got to teach pathology, and make mechanics a second consideration.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BENZYL ALCOHOL (See New and Nonofficial Remedies, 1919, p. 52).

Benzyl Alcohol (Van Dyk).—A nonproprietary brand of benzyl alcohol complying with the tests and standards for benzyl alcohol.

Manufactured by Van Dyk and Co., New York City.

CINCHOPHEN. — A nonproprietary name applied to phenylcinchoninic acid (Acidum Phenylcinchoninicum, U. S. P.).

Actions, Uses and Dosage.—See under Phenylcinchoninic Acid and Phenylcinchoninic Acid Derivatives (New and Nonofficial Remedies, 1919, p. 226).

Cinchophen-Abbott.—The Abbott Laboratories have adopted the name cinchophen for the product accepted as phenylcinchoninic acid-Abbott (see New and Nonofficial Remedies, 1919, p. 227).

Cinchophen-Morgenstern.—Morgenstern and Company have adopted the terms cinchophen and sodium-cinchophen-water for the products accepted as acid, phenylcinch.-Morgenstern and sodium phenylcinch. water-Morgenstern (see New and Nonofficial Remedies, 1919, p. 227).

Cinchophen-Calco.—A brand of cinchophen. It complies with the standards for Acidum Phenylcinchoninicum, U. S. P.

Manufactured by the Calco Chemical Company, Newark, N. J., U. S. patent No. 1,075,171 (Oct. 7, 1913; expires 1930), No. 1,197,462 (Sept. 5, 1916; expires 1933), No. 1,086,881 (Feb. 10, 1914; expires 1931) under license from the Chemical Foundation, Inc.

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SATURDAY, SEPTEMBER 13, 1919

THE INHERITANCE OF ACQUIRED CHARACTERS

There is something almost dismal in the currently popular theories of heredity, so far as they apply to the human race. If we complacently accept the mendelian doctrine, the outcome of all matings and consequently the hope for the future seems to depend on the almost inflexible mathematical distribution of unit traits through the fortuitous unions that occur. Education, under this doctrine, cannot create capacity; it can merely enable an individual to utilize more fully his inherent potentialities. Training does nothing more than give an opportunity to latent capacities. Hundreds of experiments have demonstrated that acquired characters cannot be transmitted. Neither accidental mutilations nor intentional operative alterations in the organism become transmitted to the offspring. The children of parents with amputated limbs continue to be normal in respect to these appendages.

Fischer[1] has recently urged the reacceptance of the theory of inheritance of acquired characters, interpreting the latter in the lamarckian sense. He submits that mutilations are not acquired in the true functional sense—they are inflicted. Truly acquired characters are those developed in a functional way through the effort or performance of the individual concerned. In urging this point of view, Redfield[2] has pointed to the records of horse breeding, one of the fertile fields for the accurate study of heredity. It is claimed that training, that is, functional activity, is indispensable to secure acceptable inheritance. Speaking of racehorses, Fischer says that "the winners of a new generation are the progeny of hard working parents, the losers the sons and daughters of the retired best families." In the domain of dairy cattle the functional character of milk production seems to be enhanced with each successive calf in the record families. Early born calves are far less likely to be great producers than are the later offspring of the same cows. The youngest daughters of the oldest cows are shown by experience to tend to be superior.

The corollary to this contention that performance is not without influence in heredity has been sought by Fischer[1] in the pages of human history. Insisting that, other things being equal, a father or mother of maturer years is more definitely possessed of acquired mental character than a younger one, Fischer maintains the thesis that the offspring of older parents have exemplified in a striking way the inheritance of the acquired characters. According to his statistics, if the probability of being eminent when born of a father between 35 and 40 is taken as unity, the probability if born at 25 is less than one fifth as great. Ascending the age scale, the probability at from 50 to 55 is five times that at from 35 to 40, and over 60 it is ten times that.

Statistics on human heredity are notably difficult of analysis. The study of the inheritance of character, such as mental traits or degrees of eminence, which cannot be measured in customary ways, is beset with many entanglements. But since the current rockbound conceptions of inheritance and its limitations fail to satisfy the searcher for "new hopes," every attempt to find a more flexible possibility of human betterment than the current eugenics theories afford will find some hearing.

PROTEIN SYNTHESIS: A CHAPTER IN TISSUE REGENERATION

In the higher forms of life, such as man, the metabolic processes never become dormant. Energy is required every minute of every hour during life to enable the indispensable functions to be continued. Consequently, whenever the food intake is insufficient for the needs of the body, the organism is compelled to "live on itself." Loss of protein is an invariable accompaniment of this enforced squandering of the hoarded resources; but it has long been recognized that such a loss can be diminished or even prevented by adding other foodstuffs to the diet. The student of nutrition has accordingly learned to speak of the "protein-sparing action" of these nutrients, among which carbohydrates rank first in this respect.

How do carbohydrates "spare" protein? Do they merely act by furnishing energy which directly replaces protein that would otherwise be disintegrated for immediate use? If so, the explanation of the protein-sparing action or protein-protecting power of carbohydrate would be that it checks the destruction of tissue protein at its source. If this were the correct and sole interpretation of what carbohydrate feeding accomplishes, it ought to be "protective" toward protein only so long as the fuel value of the food is insufficient. But an abundance of carbohydrate may even lead to protein storage when the energy intake is otherwise adequate. Hence, as Sherman[1] clearly points out, the fact that addition of carbohydrate or fat to a diet already sufficient may cause an actual shortage of protein indicates that the protein-sparing action of these foodstuffs involves something more than merely the question whether the body needs to burn its stored protein as fuel.

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[1] Fischer, M. H.: The New Hope in Heredity, The Unpopular Review, **11**: 320 (April-June) 1919.

[2] Redfield, L.: Dynamic Evolution, New York, G. P. Putnam's Sons, 1914.

Another explanation for the favorable effect of carbohydrate feeding on protein metabolism has been sought in the suggestion that sugars or their derivatives in some way intervene in the reconstruction of protein fragments into amino-acids and new protein. From this standpoint, protein might be spared by carbohydrate, not because its breakdown is prevented at the source, but because the carbohydrate helps to fix and thereby conserve disintegration end-products so that they are rendered available for the building of new protein in the body. In favor of this view, Whipple[2] and his associates of the George Williams Hooper Foundation for Medical Research, University of California Medical School, have cast new experimental facts. Their observation that a suitable chloroform anesthesia during a fasting period will provoke a type of necrosis that may lead to the destruction of one half or more of the liver tissue, and that under favorable conditions complete repair can be effected in a few days, has given an opportunity to study the rôle of diet in the reconstruction. The exceptional character of this restitution is indicated by the fact that the tissue may be renewed at the rate of from 100 to 150 gm. (3 to 5 ounces) per day, equivalent to the construction of a mass of liver cells the size of the normal spleen or kidney every twenty-four hours.

The report states that liver repair is much more rapid and complete on a sugar or high carbohydrate diet than it is on starvation. In fact, an injury of one half of each liver lobule may be completely repaired in nine days on a sugar diet, but only 50 per cent. repaired under fasting conditions. In such cases, protein must obviously be synthesized on a large scale. Hence Davis, Hall and Whipple insist that their observations furnish convincing evidence that the "protein-sparing action of carbohydrate" in this instance is a true conservation of protein cleavage products. This evidence, they add, cannot be explained as protein sparing at the source or as simple inhibition of protein autolysis or catabolism.

Fats, on the other hand, do not aid liver regeneration in the way just noted; nor is meat as favorable to rapid repair as is a rich carbohydrate diet. Davis and Whipple,[3] who ascertained these facts, recognize that fat may spare protein in ordinary metabolism. When fat is burned as fuel, protein is protected from destruction. But since fat lends no essentially superior efficiency to the repair processes after liver necrosis in the way that sugar does, we must conclude, with the latest investigators, that fat acts as a "protein sparer" not by conservation of end-products and reconstruction of new liver tissue, but by some protecting action at the source of tissue catabolism. This defines what they conceive to be a clean-cut difference in the metabolism of fat and carbohydrate relating to protein construction and destruction. Since heavy protein feeding has been found most favorable to the regeneration of serum proteins,[4] it remains to be ascertained whether the interesting observations made on a large organ like the liver are peculiar to it or apply to metabolism in all parts of the body. Equally undemonstrated is the suggestion[2] that the liver may be the place in which the union of carbohydrate and protein split products may be made permanent, whether the resultant products are to be used in the liver or elsewhere in the body.

THE TREATMENT OF ACUTE EMPYEMA

Among the interesting developments in the field of surgical therapy in the past two years, few have exceeded that of empyema of the chest in the thoroughness of the study to which it has been subjected, and in the applicability of the results of such study to the problems of civil life. In the prewar days it had been accepted that the proper treatment of an accumulation of pus in the pleural cavity was free drainage by thoracotomy, with or without rib resection, and usually without irrigation, supplemented by the use of breathing exercises and mild calisthenics to encourage expansion of the lungs. A few surgeons attempted further to supplement thoracotomy by the use of a suction apparatus applied to the drainage tubes, but without sufficient success to encourage general adoption of this measure.

The objections to simple thoracotomy were in general twofold: 1. It permitted collapse of the lung through the equalization of air pressures within and without the pleura. This collapse occasionally became permanent, necessitating secondary operations of dubious prognosis for the obliteration of the discharging cavity thus produced. 2. The abundant drainage for the first few days or weeks following operation frequently became a great burden to nurse and patient. As these objections were of sufficient importance to stimulate interest in any method that promised to obviate them, the results of the efforts of the Army Medical Corps in the treatment of large numbers of postinfluenzal empyemas have been eagerly followed. Early in the epidemic, thoracotomy and drainage were instituted as soon as the diagnosis was made, with a very high resultant mortality. Thereupon three general plans of treatment were developed: 1. A revival, with modifications, of the old Thiersch or closed method in which a catheter is passed into the chest through a trocar and the trocar removed, the catheter being anchored to the chest wall by adhesive plaster; to the outer end of the catheter is attached a collapsible rubber tube, the free end of which is inserted into a bottle of water. "The theory is, that when the patient expires, the pus runs out through the tube, and on inspiration the collapsible walls of the tube are sucked together and prevent the entrance of air, and cause negative pressure in the chest, favoring expansion of the lung." [1] 2. The Thiersch method plus the instillation of antiseptic solutions, chief of which were surgical solution of chlorinated soda (Dakin's solution) and formaldehyd glycerin. 3. Thoracotomy with free, open drainage plus irrigation with antiseptic solutions.

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[1] Sherman, H. C.: The Chemistry of Food and Nutrition, New York, The Macmillan Company, 1918, p. 210.

[2] Davis, N. C.; Hall, C. C., and Whipple, G. H.: The Rapid Construction of Liver Cell Protein on a Strict Carbohydrate Diet Contrasted with Fasting: Mechanism of Protein Sparing Action of Carbohydrate, Paper III, Arch. Int. Med. **23**: 689 (June) 1919.

[3] Davis, N. C., and Whipple, G. H.: Liver Regeneration Following Chloroform Injury as Influenced by Various Diets: Mechanism of Protein Sparing Action of Fat, Paper IV, Arch. Int. Med. **23**: 711 (June) 1919.

[4] Kerr, W. J.; Hurwitz, S. H., and Whipple, G. H.: Am. J. Physiol. **47**: 356, 370 and 379 (Dec.) 1918.

Conflicting reports have appeared concerning the efficacy of each of the numerous modifications suggested, but at last we seem to have returned to the prewar conception of the necessity of free, open drainage in the treatment of true empyema, the principal remaining bone of contention being that of the instillation of antiseptic solutions into empyema cavities. Dodge[2] is emphatic in his declaration against the use of antiseptic irrigations, maintaining that "irritating antiseptics," such as Dakin's solution, not only do not assist in removing fibrin masses, but actually cause a fibrinous exudate to appear on the pleura, binding the lung down and so greatly interfering with the obliteration of the empyema cavity. According to Dodge, if the drainage opening is of sufficient size and correctly located, nothing more is essential; in exceptional cases, irrigation with a bland solution, such as physiologic sodium chlorid solution, may be desirable. The majority of reports speak favorably of Dakin's solution in empyema, some going so far as to regard it as essential. In some instances it certainly appears to have greatly shortened convalescence.[3]

In a discussion of this subject it should never be forgotten that empyema occurring in influenzal pneumonia is quite different, pathologically, from the postpneumonic empyema with which we are familiar in civil life.[4] In the former, a purulent pleural exudate appearing within a few hours of the onset of pneumonia is of secondary importance to the pulmonary condition. If prompt thoracotomy is done, grave respiratory embarrassment is almost certain to follow. The source of intoxication at this time is in the lungs, not the pleura. Treatment should be palliative—by aspiration. As the pneumonic process subsides, the pleural exudate may be absorbed without further treatment; if spontaneous cure does not occur, thoracotomy will be necessary, but should never be done while the pulmonary inflammation is active. Early thoracotomy was apparently an important contributing cause of the high mortality from empyema during the early months of the epidemic. In the case of empyema following lobar pneumonia, the pleural exudate becomes purulent late in the course of the pneumonia, and as a rule is then the sole source of the toxemia from which the patient suffers. The fundamentals of treatment in this condition are those of the prewar period.

PHYSIOLOGIC RELATIONSHIPS OF IODIN

The importance of iodin and its compounds for the proper functioning of the healthy organism is beginning to be appreciated. The rôle of the element to which reference is here made is a purely physiologic one—an influence quite distinct from the effects which have long been ascribed to iodids as they are used in large doses in human therapy. Most important of the newly recognized features is the relationship between the function of the thyroid glands and the iodin-containing material present therein. For example, Marine of Cleveland has observed that the amount of iodin is inversely proportional to the degree of hyperplasia of the gland; and when the hyperplastic condition becomes fully developed, scarcely a trace of iodin is left in the gland. When the hyperplasia gives place to colloid goiter, the iodin increases both relatively and absolutely. Moreover, it has been found that if an iodid is administered to an animal suffering from hyperplasia, the hyperplastic condition promptly disappears and the animal becomes normal.[1] We have also called attention to the recent observations of Marine and Kimball[2] on the efficacy of small doses of an iodid administered to schoolchildren living in goitrous regions, such as those about the Great Lakes in the United States. The fetal athyreosis observed in domestic animals in some of our Western states can likewise be averted by dietary administration of small quantities of iodin-bearing substances.

The minuteness of the quantities of iodin involved in these various physiologic functions has made it difficult to obtain accurate estimations of them. In the thyroid, where the element accumulates, the few milligrams of iodin present can be ascertained analytically; but the far smaller proportions which must be assumed to circulate from time to time incidental to their physiologic performance have eluded analytic pursuit. Recently, through refinements in the methods for determining very small quantities of iodin, Kendall[3] of the Mayo Clinic has estimated the amount in blood at approximately 0.015 mg. per hundred c.c. The content in the tissues is slightly greater—about 0.03 mg. per hundred gm.; in the liver it may reach 0.04 mg. per hundred gm. of this glandular organ. These statistics are of interest in indicating the extremely small amounts of iodin-containing compounds that seem to be essential for metabolic needs.

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[1] Lund, F. B.: The Advantages of the So-Called Decortication of the Lung in Old Empyema, J. A. M. A. **57**: 693 (Aug. 26) 1911.

[2] Dodge, W. T.: Empyema at Base Hospital, Camp Sherman, Ohio, J. A. M. A. **72**: 1808 (June 21) 1919.

[3] Rodman, J. S.: Empyema, Ann. Surg. **70**: 49 (July) 1919. Stevens, F. A.: Recurrences after Operations for Empyema, The Journal, this issue, p. 812.

[4] Hartwell, J. A.: Treatment of Empyema, Ann. Surg. **70**: 55 (July) 1919.

[1] Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 752.

[2] Marine, David, and Kimball, O. P.: J. Lab. and Clin. Med. **3**: 41, 1917. Thyroid Hyperplasia and Iodin, J. A. M. A. **70**: (March 23) 1918.

The crystalline compound thyroxin, which Kendall has succeeded in isolating from the thyroid gland and which he regards as the physiologic hormone of that structure, contains about 60 per cent. of iodin. According to numerous observations at the Mayo Clinic, 1 mg. of thyroxin increases the metabolic rate 2 per cent. in an adult person weighing approximately 150 pounds. Kendall estimates that this figure is in reasonable accord with the quantities of iodin actually found in circulation. It is asserted that if only a single administration of thyroxin is given, a demonstrable action may fail to be produced. Three or four successive daily administrations may be necessary in order to evoke evidences of hyperthyroidism. Kendall's explanation[3] for this is found in his observations on the elimination of thyroxin from the body. He asserts that as much as 60 per cent. may be rapidly eliminated with the bile. In one instance 8 per cent. was found in the urine, so that a remaining one third of the hormone introduced may be assumed to have been taken up by the thyroid gland. This, Kendall says, indicates why the single administration does not produce a physiologic response. It is only the continued presence of the iodin compound within the body which results in the increase in metabolic activity. These findings have an obvious bearing on thyroid therapy.

Current Comment

THE JUNCTION OF URETERS AND BLADDER

A few years ago, it was customary to ascribe an ascending nephritis, following an infection of the bladder, to the reflux of bacterially contaminated urine through the ureter openings backward to the kidneys. An offhand consideration would make this seem to be the most plausible mode of transmission of infectious material from the lower to the upper parts of the urinary tract. Latterly, however, investigation has made it quite probable that the lymphatics may play an unsuspected part in this migration of microbial invaders. This view is strengthened by the accumulating evidence that the normal closure of the ureters is competent to prevent a reflux of urine toward the kidney. Recently, further support has been afforded by the investigations at the Physiological Laboratory of the Johns Hopkins University by Satani.[1] He observed experimentally on animals that the bladder can be distended very fully and so maintained without any leakage into the ureter lumen. However, after destruction of the muscles of the bladder wall which cover the intraparietal part of the ureter, the ureter opening no longer functions so perfectly as a valve. Ordinarily, it appears, the distended bladder muscles over the ureter press this tube together closely so as to prevent reflux. Under normal conditions, then, a backward flow of urine cannot take place. In addition to the anatomic relations which bring about this physical prevention, Satani maintains that the physiologic activity of the musculature at the intraparietal portion of the ureter lends assistance. He refers to a layer of longitudinal muscle on the outer side, while the Waldeyer ureter sheath covers a portion of the medial side. The contraction of the former tends to close the orifice, and the contraction of the latter causes the lip-shaped upper rim to protrude. These mechanisms, according to Satani, assist to prevent the reflux of urine into the ureter.

ORTHOPNEA

Orthopnea is the term applied to the condition of certain patients suffering from dyspnea (and notably from cardiac dyspnea), who cannot breathe as comfortably when lying as when sitting. The reason for the advantage of the upright posture has been a matter for conjecture for some time. Recently Pearce[2] summarized the uncertainty by stating that the greater vital capacity in the upright position, the favoring of the return of the venous blood from the cerebral vessels because of the enlarged thoracic cavity, and the increase in the reserve air in the lungs are all factors to be considered. A more rational explanation of the phenomenon of orthopnea has, however, latterly been offered by Haldane, Meakins and Priestley,[3] who have shown that anoxemia, or deficiency of oxygen in the circulation, and shallow breathing are interrelated in surprising ways.[4] Excess of carbon dioxid causes in the main deepening of respiration; lack of oxygen causes in the main shallow and quick breathing. Now the recumbent posture tends to accentuate any irregularity that may exist in the expansion of the lungs. Shallow breathing causes uneven ventilation of the lungs. The irregularities are less marked when the patient is in the upright position. As the English observers interpret the situation, there are persons in whom the ineffectiveness of the circulation reaches such a degree as just to make the respiratory center begin to respond to anoxemia, with its attendant shallow respiration. The patient may be fairly comfortable so long as he remains at rest in an upright position. As soon as he lies down, the irregularity in the expansion of the lung alters his condition for the worse. "He still has the abnormally great drain of oxygen in the systemic blood, and in addition the oxygenation of the blood in the lungs is no longer so efficiently carried out and consequently the arterial blood carries a less quantity of oxygen than before. There is, therefore, a condition in which an increased call on the oxygen carried by the blood is coincident with a diminished saturation of the hemoglobin in the arterial blood with oxygen. Naturally, therefore, it is to be expected that there will be an exacerbation of symptoms when the patient lies down." If, as Haldane, Meakins and Priestley argue, orthopnea is due to shallow breathing caused by and intensifying anoxemia, the indication for a method of relief is clear. Oxygen should be added to the inspired air. It is interesting to note that such interferences with abdominal or thoracic movement as may be caused by corsets can hamper the even expansion of the lung sufficiently to induce periodic breathing, which is a sign of oxygen deficiency. In this case, too, the effects are more conspicuous when the person is lying down.

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[3] Kendall, E. C.: Physiological Action of the Thyroid Hormone, Am. J. Physiol., **49**: 136 (June 1) 1919.

[1] Satani. Y.: Experimental Studies of the Ureter, Am. J. Physiol. **49**: 474 (Aug. 1) 1919.

[2] Pearce, R. G., in Macleod: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 313.

[3] Haldane, J. S.; Meakins, J. C., and Priestley, J. G.: The Effects of Shallow Breathing, J. Physiol. **52**: 433 (May 20) 1919.

[4] Anoxemia, or Oxygen Deficiency, and Abnormal Respiration in Certain Diseases, editorial. J. A. M. A. **73**: 768 (Sept. 6) 1919.

MODEL ORDINANCES FOR VENEREAL DISEASE CONTROL

The widespread efforts to suppress venereal diseases have necessitated the adoption by many of our cities of ordinances for this purpose. In order to aid cities desiring to legislate on this subject, the U. S. Public Health Service, with the assistance of the Law Enforcement Division of the War Department, has prepared and issued a compilation of suggested and adjudicated ordinances which have proved successful in combating venereal diseases.[1] These include a general venereal disease control ordinance, and special ordinances regulating the licensing of hotels and rooming houses, public vehicles and public dance halls, an ordinance prohibiting advertisements of venereal disease nostrums, and ordinances for the regulation of restaurants and grill booths, prohibiting the sale of venereal disease medicine except on prescription, and regulating "massage parlors." Cities desiring to enact ordinances on these subjects are advised to secure in each case the advice of competent local counsel for changes in form or substance as may be required by special constitutional, legislative or charter considerations. Each of the model ordinances has been in operation in different cities and, it is stated, has been found effective for the particular purpose for which it is drafted.

APPRENTICESHIP IN THE CARE OF THE BABY

Apprenticeship in practical work is an indispensable part of a well rounded training in more than one field of professional education. Apprenticeship may become something more than mere vocational training. It represents the opportunity to apply in concrete ways the conclusions derived from a theoretical study in some field of learning—of subjecting to the test of experience the dicta of the textbook and the lecture hall. In medicine, apprenticeship found its application in older days through the service which a young man "reading" in the office of a physician was able to render under the tutelage of his professional master. Today it is exemplified in the experience gained by the medical student through his hospital internship or dispensary service. In the domain of home economics, which has become so firmly intrenched in the education of American women, the practice house has afforded something comparable to what the hospital offers to the medical student. Recently the varied activities in the practice houses of one large educational institution, the University of Minnesota, have been diversified still further by affording opportunities to observe as well as to assist in the care of infants.[1] The latter are secured from orphanages. This form of apprenticeship in the study of the homemaker's job is an innovation which deserves to be watched with interest. The attempt to train teachers of future homemakers thus fundamentally ought to be no more difficult than the introduction of a real medical apprenticeship has been.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending September 5, there were 7,176 officers in the Medical Corps, a decrease of 359 from the previous week. The Medical Reserve Corps contained 3,370. The total number of physicians discharged since the beginning of the war is 24,947.

Dr. Oman Becomes Fleet Surgeon

Charles M. Oman, Commander, M. C., U. S. Navy, has been appointed aid to the commander in chief of the U. S. Atlantic fleet, and fleet surgeon. During the war Commander Oman served as commanding officer of U. S. Hospital Ship *Comfort*, and later of U. S. Naval Base Hospital No. 1, Brest, France. He has been recommended for the Distinguished Service Medal.

Favors Universal Military Training

The National Tuberculosis Association has notified the United States Senate that it is in favor of universal military training legislation. Senator James W. Wadsworth, chairman of the Senate Committee on Military Affairs, has presented the following resolution to the Senate:

> *Be it Resolved*, That the National Tuberculosis Association, through its executive officers, take immediate steps to secure the cooperation of all other great health organizations, especially the American Medical Association, and state and territorial health officers, in placing before the American people a united demand for the adoption of universal military service as a public health measure.

The resolution was referred to the Senate Committee on Foreign Affairs for consideration.

Amendments Offered to War Risk Insurance Act

Under date of August 26, a bill was introduced by Mr. Sweet in the House of Representatives, to amend and modify the War Risk Insurance Act. The amendment provides for the appointment of a director of the Bureau of War Risk Insurance, to conduct the bureau. It defines "active service"; increases the amount of compensation for disability; enlarges the class of beneficiaries so as to include in addition to those already included, uncles, aunts, nephews, nieces, brothers-in-law and sisters-in-law, of the insured. Another section provides that the bureau may make provision in the contract for converted insurance for optional settlements to be selected by the insured, whereby the insurance may be payable either in one sum or instalments of thirty-six months or more. The bill bears the endorsement of the Secretary of the Treasury, who urges that all of the amendments shall be made at the earliest possible moment. In the report of the committee favorably referring the bill back to the House, is an interesting table as to what constitutes disability, with percentage. For example, epilepsy with fits occurring daily is 100 per cent. disability; fits occurring periodically at intervals of two to four days is 80 per cent.; from eleven to thirty days is 40 per cent., and at intervals exceeding thirty days, 20 per cent. The entire human body is thus classified as to percentage of disability of various parts.

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[1] Venereal Disease Bull. 39, U. S. P. H. S.

[1] The information here given was derived from Home Economics Field Note, The Vocational Summary 2: 69 (Aug.) 1919.

Personal News of the Services

Edgar E. Hume, Lieut.-Col., M. C., U. S. Army, who is at present on duty as medical director of the Red Cross Mission to Serbia, has been given the Serbian Order of the White Eagle.——Charles E. MacDonald, Major, M. C., U. S. Army, who has been on duty in the Evacuation Post at Hoboken, has been ordered to duty as surgeon on the U. S. S. *Agamemnon* which has been turned over to the Army, and sailed for Brest, September 3.——Roger Brooke, Col., M. C., U. S. Army, was guest of honor at a luncheon given by the National Tuberculosis Association, August 26. He gave a comprehensive talk on the discoveries in the Army, as to the prevalence of pulmonary tuberculosis in the male population when the selective service law was put into operation, and the steps taken by the Army for the relief and cure of men so affected.——A life size oil painting of Major-Gen. Merritte W. Ireland, Surgeon-General, made by Lieut. Maurice L. Bower, Sanitary Corps, has been hung in the hall of the main stairway in the Army Medical Museum, Washington, D. C.

Awards of Distinguished Service Medal

The Distinguished Service Medal has been awarded by the commander in chief of the American Expeditionary Forces by order of the President, to the following officers of the American Expeditionary Forces for exceptional meritorious and distinguished service in France, Belgium and Russia.

WALTER AUGUSTE YVON DUBAIL, General, French Army. "Through his distinguished efforts one of the largest hospitals in Paris was made available for the American E. F."

EMILE CASTELLI, Colonel, French Army. "Advisor to the Medical Service of the American E. F., assisted in preparation of comprehensive hospitalization program."

EDOUARD CHARLES LAVAL, Lieut.-Col., French Army. "Member of the 4th Bureau, French General Headquarters, was closely associated with front-line medical tasks in the American E. F., and by co-operation, aided us in procuring hospital facilities."

PIERRE FELIX MORTIER, Major, French Army. "Medical member of the French Mission at General Headquarters, American E. F., later in medical section of Central Bureau of Franco-American relations. labored with conspicuous success in interests of the sick and wounded."

MICHAEL D. BERGER, Comdt., French Army. "While serving in D. T. M. A. was in personal charge of practically all movements of troops and hospital trains."

TINARDON, Commandant, French Army. "Member of the 4th Bureau, General Staff, French Army, rendered invaluable service to the American E. F., in connection with selection of suitable sites for depots and hospitals."

PAUL ALBERT JOSEPH PETIT, Commandant, French Army. "Attached to the Medical Section Central Bureau of Franco-American Relations, and later at G-4, General Headquarters, American E. F."

C. H. BURTCHAELL, Lieut.-Gen., British Army. "Director General of Medical Service, British E. F., provided adequate hospitalization and evacuation facilities for sick and wounded of American troops serving with British Armies."

Sir T. H. J. C. GOODWIN, Lieut.-Gen., British Army. "Surgeon-General. British Army, placed at disposal of American divisions serving with the British forces all evacuation and hospitalization facilities at his command."

JAMES L. BEVANS. Colonel, M. C., U. S. Army. "Served with distinction as chief surgeon of 3d Army Corps."

JAMES D. GLENNAN, M. C. "In charge of hospitalization division in office of chief surgeon, directed establishment, equipment and operation, as well as evacuation service of all American hospitals in France."

ELMER A. DEAN, M. C. "Came to France with base hospital unit, which he established, later organized and commanded first large hospital center at Bazoilles."

JOHN W. HANNER, M. C. "Commanding officer of Evacuation Hospital No. 1, displayed high professional attainments and loyal devotion to duty, subsequently chief surgeon, 4th Army Corps.

JAMES A. McCOY, M. C. "Served with conspicuous success as commanding officer, American Red Cross Hospital No. 111, at Jouy-sur-Morin and Chateau-Thierry, from June to August, 1918."

CHARLES R. REYNOLDS, M. C. "Division Surgeon, 77th Division, chief surgeon 6th Army Corps and later chief surgeon 2d Army, displayed qualities of leadership, high professional attainments and rare judgment."

ROBERT H. PIERSON, Col., M. C., U. S. Army. "For exceptionally meritorious and distinguished services. He served as division surgeon of the Fifth Division, from its organization until the close of hostilities, when he became chief surgeon of the Sixth Army Corps. Due to his sound judgment and efficient director of medical personnel, gas casualties in his division were reduced to a minimum. By his resourceful methods in combating disease he prevented the firing lines from being depleted at a critical time, maintaining a high standard of combat strength efficiency."

C. H. BURTCHAELL, Lieut. Gen., C. B., C. M. G. "For exceptionally meritorious and distinguished services. As director general of Medical Service, British Expeditionary Forces, he displayed untiring zeal, eminent talents, and broad experience in providing adequate hospitalization and evacuation facilities for the sick and wounded of the American Troops serving with the British Armies. His individual efforts counted largely in enabling the American Medical Service to function efficiently."

Distinguished Service Cross Awards

A posthumous award of the Distinguished Service Cross has been made in the case of Ralph E. Powers, Lieut.-Col., M. C., Akron, Ohio, attached 337th Ambulance Company, for service at Ust, Padenga, Russia, Jan. 20 to 23, 1919.

The Distinguished Service Cross has been awarded by the commanding general, American Expeditionary Forces, by direction of the President, to the following named officers:

FRED C. ALBRIGHT, Capt., M. C., U. S. Army, 353d Infantry, Garland, Kan. "For extraordinary heroism in action near Xammes, France, Sept. 13, 1918. When the battalion on the left of his own met with such heavy fire, as it was attempting to take its position, that it was forced to withdraw, leaving many wounded men behind, Captain Albright, with fearless disregard for his own safety, went to the adjoining area, and, under continued heavy artillery fire, cared for all the wounded who had been left there."

JOSEPH A. MENDELSON, Lieut., M. C., U. S. Army, Sanitary Detachment, 305th Infantry, Washington, D. C. "For extraordinary heroism in action near Ville-Savoy, France, Aug. 15-16, 1918. During a heavy enemy bombardment with gas and high-explosive shells, Lieutenant Mendelson worked for more than three hours, picking up wounded and gassed men and securing their evacuation, being forced to remove their gas masks in order to accomplish this work. Though he was almost exhausted from fatigue, he then proceeded to the aid station of another battalion and assisted in treating hundreds of men. Though he was himself suffering from the effects of gas, he refused to go to the hospital upon the completion of this work, as all the other medical officers had been evacuated."

ZODA D. LUMLEY, Capt. M. C., U. S. Army, 357th Infantry, Kampsville, Ill. "For extraordinary heroism in action in the St. Mihiel offensive, September 14, and near Baalon, France. Nov. 10-11, 1918. In the St. Mihiel offensive he showed marked personal courage advancing his first aid station with the front line. Near Baalon he maintained a dressing station far to the front, under terrific artillery and machine-gun fire, showing absolute indifference to personal safety that he might aid the men on the firing line during heavy gas bombardments."

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Birmingham — Beddow, W. H. (L.)
O'Connell, E. (L.)
Mobile—Rowe, M. (L.)
Wylam—Stewart, R. C. (C.)

ARIZONA

Phoenix—Sargent, W. H. (M.)

ARKANSAS

Bassett—Barksdale, O. (L.)
Litle Rock—Rose, W. D. (C.)

CALIFORNIA

Hayward—Harbeck, C. J. (M.)
Kerman—Arnold, D. E. (M.)
Los Angeles—Gillis, J. P. (L.)
Mueller, O. H. (L.)
Paulson, A. M. (L.)
Madeline—Smith, L. C. (M.)
Pacific Grove—Hart, F. R. (L.)
San Francisco—Brown, J. R. (C.)
Faber, H. K. (C.)
Spalding, J. B. (C.)
Vischi, G. J. J. (L.)

COLORADO

Denver—Hopkins, T. M. (C.)
Zaegel, R. L. (C.)
Trinidad—Scannell, E. J. (M.)

CONNECTICUT

New Haven—Groark, O. J. (L.)
Harten, J. A. (L.)
Lewis, D. M. (C.)
Van Duzen, R. E. (L.)
New London—Young, J. F. (L.)

DELAWARE

Wilmington—Mullin, J. H. (C.)

DISTRICT OF COLUMBIA

Washington—Allen, J. H. (C.)
Pedrick, F. B. (C.)

FLORIDA

Apalachicola—Ferris, F. F. (M.)
Nocatee—Whittle, C. C. (C.)
Palmetto—Harrison, M. (L.)
St. Augustine — Griffin, J. B. (L. C.)
Tampa—Carlton, L. F. (C.)

GEORGIA

Alpharetta—Brooke, G. C. (L.)
Atlanta—Copeloff, M. B. (C.)
Coldwater—Gaines, T. H. (C.)
Milner—Hunt, K. S. (L.)
Newnan—Farmer, M. H. (C.)
Pavo—Beggs, J. M. (C.)
Rome—Routledge, A. F. (L.)
Savannah—Usher, C. (L.)
Waynesboro—Morton, H. J. (M.)

ILLINOIS

Anna—Keller, D. H. (C.)
Ashley—Stevens, H. I. (M.)
Aurora—McCullough, J. D. (L.)
Bloomington — Gardner, W. H. (L. C.)
Bushnell—Duntley, G. S. (C.)
Chicago—Alt, G. L. (C.)
Appelle, C. G. (L.)
Ashworth, J. P. (M.)
Conroy, F. J. (C.)
Deacon, F. (M.)
Frisque, L. L. (M.)
Green, T. S. (C.)
H'Doubler, F. T. (C.)
Hedge, H. M. (M.)

- Chicago—Hicks, C. J. Jr., (L.)
    - Holden, D. (L.)
    - Lang, H. W. (C.)
    - Lewin, P. (C.)
    - Lewis, K. (L.)
    - Loewe, G. M. (C.)
    - McMeel, J. E. (C.)
    - Moulton, E. V. (C.)
    - Nixon, S. D. (M.)
    - Peterson, H. M. (C.)
    - Pierzynski, T. S. (L.)
    - Rosenblum, P. (C.)
    - Skleba, L. F. (C.)
    - Smart, C. E. (L.)
    - Smith, R. A. (C.)
    - Staib, H. A. (C.)
    - Straus, D. (M.)
    - Syverson, B. C. (C.)
    - Webb, J. L. (L.)
    - West, L. C. (L.)
    - Wolf, S. (L.)
- Concord—Magill, S. R. (C.)
- Danville—Williamson, J. H. (C.)
- East St. Louis—Short, L. B. (L.)
- Freeport—Voigt, L. G. (C.)
- Hoopeston — McCaughey, R. S. (M.)
- Kankakee—Sullivan, F. J. (C.)
- Latham—Pope, H. O. (C.)
- Mount Greenwood — Murphy, R. C. (C.)
- Newton—Fuson, L. H. (C.)
- Paris—Shipman, F. E. (L.)
- Peru—Smeltzer, C. E. (L.)
- Quincy—Earel, J. W. (M.)
- Springfield—Harmon, C. F. (C.)
    - Henkel, H. B. (C.)
    - Patton, C. L. (M.)
    - Sorgatz, G. F. (C.)
- Streator—Higinbotham, C. J. (C.)
- Waggoner—Ford, C. (C.)
- Walnut Hill—Cruzen, R. E. (C.)
- Waukegan—Schwartz, B. T. (C.)
- Woodstock—Francis, H. M. (C.)

INDIANA

- Albion—Green, J. W. (C.)
- Bloomington—Culmer, W. N. (C.)
- Evansville—Huber, J. G. (L.)
- Fort Wayne—Benninghof, D. R. (M.)
- Huntington—Dippell, E. T. (M.)
- Indianapolis—Miller, D. L. (C.)
- Jamestown—Johnson, T. B. (C.)
- Kentland—Van Kirk, G. H. (C.)
- Lafayette—Schreiber, A. W. (C.)
- North Liberty — Sprague, J. S. (C.)
- Rockville—Stevens, C. T. (L.)
- Sullivan—Higbee, P. (C.)
- Terre Haute — Congleton, G. C. (L.)
- Union City — Welbourn, M. A. (C.)

IOWA

- Clinton—Martindale, E. L. (M.)
- Davenport—Decker, H. M. (C.)
    - Kemmerer, T. W. (C.)
- Fort Dodge—Schultz, A. A. (C.)
- Iowa City—Campbell, T. R. (C.)
    - Nelson, L. A. (L.)
    - Stong, E. S. (C.)
- Keokuk—Kinnaman, C. H (C.)
- Mason City—Murphy, F. G. (C.)
- North English—Geiger, U. S. (C.)
- Ottumwa—Hammer, L. A. (C.)
- Salem—Stewart, E. A. (C.)
- Sioux City—Nervig, I. E. (C.)
- Whiting—Harman, C. (C.)

KANSAS

- Atchison—Pearl, F. A. (C.)
- Hugoton—Day, B. H. (M.)
- Leavenworth—Brown, C. E. (L.)
- Saline—Padfield, E. G. (L.)
- Topeka—Dawson, A. M. (C.)

KENTUCKY

- Cynthiana—Carr, H. (C.)
- Heidelberg—Treadway, L. (L.)
- Jeffersontown—Dravo, E. L. (L.)
- Lexington—Herring, H. G. (L.)
- Louisville—Robertson, G. A. (C.)

LOUISIANA

- Glenmora—Reid, W. E. (L.)
- Lakeland—Lorio, L. F. (L.)
- New Orleans—Buffington, W. R. (C.)
    - Dauterive, H. J. (C.)
    - Faget, E. B. (C.)
    - King, E. L. (C.)
    - Martin, T. W. (M.)
    - Perkins, R. T. (L.)
    - Schmidt, P. C. (L.)
    - Tillery, B. (C.)

MAINE

- Bangor—Willey, W. B. (L.)
- Lewistown—Pelletier, J. J. (C.)
- Monson—Sampson, H. W. (C.)
- Portland—Milliken, H. E. (M.)

MARYLAND

- Baltimore—Jaffe, B. M. (L.)
    - Linhardt, O. V. (L.)
    - Looper, E. A. (C.)
    - Luckett, C. L. (L.)
    - Reber, R. L. (L.)
- Darlington — Snodgrass, F. P. (L.)
- Easton—Stevens, A. M. (C.)
- Frostburg—Michel, W. (C.)
- Indian Head — Simmons, M. J. (M.)
- Kitzmiller—Miller, E. J. C. (C.)
- Mount Savage—Murray, F. A. C. (C.)
- Preston—Downes, J. R. (L.)
- Towson—Jenifer, D. T. (L.)

MASSACHUSETTS

- Boston—Begg, A. S. (L. C.)
    - Hall, F. C. (L.)
    - Wickham, T. W. (C.)
- Brookline—Carroll, T. F. (C.)
- Chelsea—Wilson, C. H. (L.)
- Fall River—Doyle, J. H. (M.)
    - Lyon, W. S. (L.)
- Gardner—Benoit, S. J. (C.)
- Holyoke—Farr, I. H. (L.)
- Marion—Hopkins, R. H. (L.)
- Pittsfield—Schneider, H. A. (C.)
    - Sullivan, J. A. (M.)
- Somerville—Allison, C. E. (L.)
- Worcester—Bowers, G. F. H. (L.)

MICHIGAN

- Ann Arbor—O'Leary, J. J. (L.)
- Athens—Van Camp, E. (M.)
- Bellevue—McLennan, H. E. (C.)
- Cassopolis—Kelsey, J. H. (C.)
- Cheboygan—Sahs, A. J. (L.)
- Coleman—High, C. V. (C.)
- Detroit—Albrecht, H. F. (L.)
    - Clippert, J. C. (C.)
    - Currie, E. M. (C.)
    - Gonne, W. S. (L.)
    - Gostanian, J. (L.)
    - Hooper, V. J. (C.)
    - Mancuso, V. S. (C.)
    - McCormick, C. W. (L.)
    - McDonald, A. W. (C.)
    - McEwan, J. W. (M.)
    - Ormond, J. K. (C.)
- Flint—Bahlman, G. H. (C.)
- Hamtramck — Carmichael, R. H. (C.)
- Kalamazoo—Crum, L. J. (C.)
- Saginaw—McKinney, A. R. (C.)
- St. Johns—Scott, W. A. (C.)
- Watersmeet—Curry, G. T. (L.)
- Whitehall—Hercik, W. L. (C.)
- White Pine—Dinsmore, A. J. (L.)

MINNESOTA

- Benson—Van Slyke, L. H. (L.)
- Duluth—Holm, G. A. (C.)
- Hutchinson—Hanson, H. V. (C.)
- Northfield—Babcock, F. M. (L.)
- St. Paul—Maloney, T. J. (C.)
    - Mortensen, N. G. (C.)
    - Taylor, K. (L. C.)

MISSISSIPPI

- Fayette—McNair, J. C. (M.)
- Greenville—Archer, J. G. (C.)
- Indianola—Newell, S. D. (C.)
- Meridian—Douglas, G. F. (C.)
- Shubuta—McDevitt, J. A. (C.)

MISSOURI

- Blackburn—James, L. S. (L.)
- Kansas City—Dail, O. C. (C.)
    - Monahan, E. P. (L.)
- Kirkwood—Murrell, R. E. (L.)
- Martinsville — Wessling, L. A. (L.)
- Mexico—Blanks, C. L. (C.)
- Reger—Tunnell, J. D. (L.)
- Richmond—Higdon, E. F. (L.)
- St. Louis—Blakemore, J. M. (C.)
    - Donahue, J. C. (L.)
    - Garstang, D. B. (C.)
    - Gomien, S. (L.)
    - Haley, R. R. (L.)
    - Harbour, S. C. (C.)
    - Kirchner, W. C. G. (M.)
    - Leighton, W. E. (M.)
    - Munson, C. L. (M.)
    - Myerdick, A. H. (C.)
    - Saenger, N. (C.)
    - Scheff, A. L. (L.)
    - Urbanowski, L. V. (L.)

MONTANA

- Miles City—Arnold, J. E. (L.)
- Missoula—Anderson, E. C. (C.)

NEBRASKA

- Falls City—Miner, H. C. (C.)
- Loup City—Longacre, O. E. (M.)
- Omaha—Pinto, A. S. (L. C.)
- Potter—Hynes, W. P. (L.)
- Wahoo—Way, C. W. (L.)

NEW HAMPSHIRE

- Alstead—Stillings, L. C. (C.)

NEW JERSEY

- Bloomfield—Morgan, B. (C.)
- Boonton—Peck, E. N. (C.)
- Elizabeth—Stein, M. H. (L.)
- Hoboken—Ginsberg, G. (L.)
- Jersey City—Lettiere, J. J. (C.)
- Long Branch—Tilton, W. S. (C.)
- Newark—Gilbert, H. J. (L.)
    - Orton, H. B. (C.)
    - Satterer, W. (C.)
    - Sutphen, C. E. (M.)
    - Weber, F. C. (L.)
- Passaic—Udinsky, H. J. (L.)
- Pemberton—Hollingshead, L. B. (M.)
- Perth Amboy—Slobodian, B. F. (L.)
- Raritan—Seaman, B. F. (C.)
- Spring Lake — Leighton, R. L. (C.)
- Trenton—McCullough, J. H. (M.)
    - Potts, M. L. (L. C.)

NEW YORK

- Albany—Butler, L. J. (C.)
    - Cote, L. C. (C.)
    - Shults, B. G. (C.)
- Brooklyn—Delatour, B. J. (L.)
    - Fagone, P. G. (C.)
    - Hamilton, C. E. (C.)
    - Kranzer, L. L. (L.)
    - McClintock, T. H. (M.)
    - McElvare, G. G. (C.)
    - Raphael, J. (C.)
    - Rosenfield, J. (C.)
    - Scher, M. (L.)
    - Weissberg, M. (L.)
- Buffalo—Long, C. E. (M.)
    - Palmer, F. W. (L.)
    - Weed, H. M. (C.)
- Cincinnatus—Grant, J. R. (C.)
- Cohoes—Doody, R. P. (C.)
- Guilderland Center—Hurst, F. H. (M.)
- New Rochelle—Fitzgerald, P. B. (C.)
- New York—Baker, V. C. (L.)
    - Bowerman, W. G. (C.)
    - Buchenholz, S. A. (C.)
    - Calvelli, E. (L.)
    - Campbell, E. A. (M.)
    - Campbell, J. A. (L.)
    - Cole, C. S. (M.)
    - Fern, S. S. (L.)
    - Fox, H. (L. C.)
    - Grosner, J. (C.)
    - Knipe, W. H. W. (C.)
    - Lavelle, T. E. (C.)
    - Lee, J. C. (L.)
    - Lynch, D. B. (C.)
    - May, W. R. (M.)
    - McCrossin, W. J. (C.)
    - McGovern, J. F., Jr. (L.)
    - Morse, S. (L.)
    - Nelson, R. S. (M.)
    - Philips, C. (M.)
    - Sisskind, S. G. (L.)
    - Sprowl, R. J. (M.)
    - St. Lawrence, W. P. (M.)
    - Stephenson, J. W. (M.)
    - Thomas, W. C. (L.)
    - Toshack, C. E. (L.)
    - Uran, W. W. (C.)
    - Volk, M. L. (L.)
    - Warren, M. (M.)
    - Winarsky, M. (L.)
    - Winternitz, D. H. (C.)
    - Zabriskie, E. G. (L. C.)
- New York Mills—Mitchell, H. M. (C.)
- Olean—Greenleaf, C. A. (C.)
- Philmont—Knapp, J. C. (L.)
- Plandome—Sanborn, F. R. (M.)
- Plattsburg—Rowlson, I. A. (C.)
- Port Chester—White, J. F. (M.)
- Poughkeepsie—Harrington, J. T. (M.)
- Plattsburg—Bond, F. B. (C.)
- Rochester—Hurley, J. E. (M.)
    - Smith, A. L. (C.)
    - Wronker, H. (L.)
- Staten Island—Soldini, E. C. (L.)
- Troy—Loewenstein, A. M. (C.)
- Watertown—Hawkins, N. L. (C.)
- Weedsport—Goodwin, C. E. (C.)
- White Plains — Ramsdell, E. G. (M.)

NORTH CAROLINA

- Greensboro—Pate, F. J. (C.)
- Rocky Mount—Clark, H. E. (L.)
- Wallace—Robinson, J. D. (C.)

NORTH DAKOTA

- Devils Lake—Moeller, T. O. E. (C.)
- Regan—Reedy, P. G. (M.)
- Tioga—Simon, O. B. (L.)

OHIO

- Athens—Hooper, E. L. (M.)
- Bellaire—Reed, C. L. (C.)
- Burton—Dayton, N. A. (C.)
- Canton—Peters, C. M. (M.)
- Cincinnati—Dryer, C. S. (M.)
    - Mayfield, A. L. (L.)
    - Pirrung, J. E. (M.)
- Cleveland—Birge, R. H. (M.)
    - Burhans, C. W. (C.)
    - Ibershoff, A. E. (C.)
    - Stone, A. A. (L.)
    - Wilkins, G. R. (C.)
- Columbus—Adams, R. O. (C.)
    - Hodges, W. H. (L.)
    - Oelgoetz, A. W. (L.)
- East Palestine—Atchison, J. S. (L.)
- Findlay—Balsley, A. W. (L.)
    - Watson, C. (C.)
- Hamilton—Millikin, M. (C.)
- Mansfield—Mecklem, W. P. (L.)
- McConnellsville—Hill, J. F. (L.)
- Milford Center — Boylan, J. D. (L.)
- Toledo—Hettler, G. A. (M.)
    - Rhodes, F. L. (C.)
- Washington C. H.—Hodson, H. O. (C.)
- Woodville—Trumbull, H. N. (C.)
- Youngstown—Morrall, R. R. (M.)
    - Wolferth, C. C. (M.)

OKLAHOMA

- Alva—Hale, A. E. (C.)
- Billings—Cannon, J. M. (L.)
- Cashion—Bost, J. R. (L.)
- Oklahoma City — Paulus, D. D. (C.)
    - Reed, H. L. (C.)
    - Westfall, L. M. (C.)
- Okmulgee—Westover, R. L. (C.)

PENNSYLVANIA

- Altoona—Galbraith, J. H. (C.)
    - Handwork, A. J. (M.)
- Ambler—Shelly, I. H. (M.)
- Bloomsburg — MacDonald, J. T. (M.)
- Bristol—LeCompte, W. C. (L. C.)
- Carnegie—Magee, J. E. (L.)
- Chester—Crist, J. O. (C.)
    - Pilgram, R. E. (C.)
- Crafton—Morgan, J. S. (C.)
- Dunbar—King, F. J. (C.)
- Hampton—Swab, R. D. (L.)
- Johnstown—Braude, B. A. (C.)
- Lewistown—McCoy, C. M. (L.)
    - Rupp, F. A. (M.)
- Mapleton Depot—Campbell, M. D. (L.)
- McKeesport — Bachman, M. H. (C.)
    - Firestone, S., Jr. (L.)
    - Steele, T. A. (C.)
- Monessen—Duvall, F. C. (C.)
- Mount Oliver—Vates, C. W. (M.)
- Oil City—Bruner, P. L. (L.)
- Philadelphia — Aronson, J. D. (M.)
    - Bloom, G. H. (L.)
    - Brinton, W. (M.)
    - Bromer, R. S. (L. C.)
    - Brooks, M. (L. C.)
    - Colcher, A. E. (L.)
    - Coyle, W. V. (C.)
    - Dare, A. (L. C.)
    - Goldstein, J. S. (L.)
    - Hebsacker, W. F. (C.)
    - Lucke, B. H. E. W. (L.)
    - Merrill, W. J. (C.)
    - Ostheimer, A. J. (L. C.)
    - Park, J. F. (M.)
    - Schwartz, G. J. (M.)
    - Stroud, W. D. (L.)
    - Thompson, W. L. (L.)
    - Williamson, E. G. (C.)
- Pittsburgh—Beddell, S. A. (L.)
    - Evans, R. M. (C.)
    - Fitzgerald, L. H. (L.)
    - Fulton, B. F. (L.)
    - Harrison, F. H. (C.)
    - Lipscomb, J. M. (L.)
    - Lyon, S. E. (C.)
    - Nevling, A. B. (L.)
    - Scott, Z. R. (L.)
    - Vogan, G. S. (L.)
    - Wignall, H. L. W. (C.)
- Polk—Reed, N. S. (C.)
- Ramsaytown—Dick, W. (L.)
- Reading—Bertolet, W. M. (L.)
    - Gerhardt, P. H. (C.)
- Rexmont—Boger, J. D. (C.)
- Scottdale—Griffiths, D. E. (C.)
- Scranton—Allen, J. V., Jr. (C.)
- St. Clair—Jones, E. T. (L.)
- Tyrone—Nason, J. B. (C.)
- Washington—Corwin, J. H. (L.)
- Waterman—Camche, L. J. (L.)
- Wind Gap—Beck, F. A. (C.)

RHODE ISLAND

Providence—Walsh, J. G. (L.)

SOUTH CAROLINA

Charleston—Johnson, W. H. (C.)
Columbia—Benet, G. (C.)
Ward, J. L. (C.)
Easley—Pepper, J. C. (L.)
Laurens—Fuller, L. S., Jr. (L.)
Travellers Rest—Benson, C. P. (C.)
York—Glenn, J. J. (L.)

SOUTH DAKOTA

Rapid City—Ince, H. J. (C.)

TENNESSEE

Bradyville—Adams, J. F. (C.)
Harriman—Neergaard, F. A. (C.)
Lexington—Goff, J. F. (L.)
Nashville—Crutchfield, C. R. (L.)
Welker, L. E. (L.)

TEXAS

Amarillo — Fitzsimmons, C. E. (C.)
Austin—Boerner, M. H. (C.)
Bonham—Foster, E. H. (C.)
Columbus—Youens, W. G. (C.)
Corpus Christi — Bonelli, V. E. (M.)
Fort Worth — Duringer, W. C. (C.)
Francis, F. W. (L.)
Kibbie, K. V. (C.)
Lubbock—Clayton, C. F. (C.)
Menard—Miller, G. B. (C.)
San Antonio—Clark, A. F. (C.)
Tyler—Livingston, J. J. (L.)

UTAH

Salt Lake City — Jansen, F. I. (M.)

VIRGINIA

Abingdon—Motley, J. C. (M.)
City Point—Selinger, M. A. (C.)
Claremont—Wall, H. (C.)
Lacey Springs — Graves, A. W. (M.)
New London—Travis, J. R. (C.)
Roanoke—Hicks, E. M., Jr. (L.)

WASHINGTON

Bremerton—Schutt, R. L. (L.)
Deer Park—Slater, H. H. (C.)
North Yakima—McClure, W. L. (L. C.)
Seattle—Monnich, W. A. (L.)
Snohemish—Durrent, J. A. (C.)
Sumner—Wick, W. W. (L.)

WEST VIRGINIA

Charleston—Davis, E. (M.)
Holden—Chapman, O. P. (L.)
New Martinsville—Schmied, J. D. (C.)
Sistersville—Thaw, R. F. (L.)
Wheeling—Gillespy, T. (L.)

WISCONSIN

Brodhead—Looze, A. J. (L.)
Franksville—Fritchen, A. F. (C.)
Milwaukee—Elias, F. J. (L.)
Gilchrist, R. T. (M.)
Grotjan, W. F. (L.)
Linkman, E. G. (L.)
McCabe, H. (L.)
Nashotah—Fleming, W. J. (C.)
Plain—Fowler, P. H. (C.)
Plainfield—Borden, F. R. (M.)
Princeton—Drill, A. A. (L.)
Sheboygan — Sonnenburg, C. N. (L.)
South Milwaukee—Evans, E. P. (C.)
Wauwatosa—Nugent, A. C. (L.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

San Diego—Little, T. C.

CONNECTICUT

Stamford—Wood, C. L.

DELAWARE

Bacons—Bacon, W. A.

FLORIDA

Jacksonville—Field, T. S.

GEORGIA

Atlanta—Clements, M.
Harrisburg—Adams, F. E.

ILLINOIS

Chicago—Walker, S.

INDIANA

LaGrange—Short, J. T.
LaPorte—Marlay, M. G.

MASSACHUSETTS

Chelsea—Sheppard, G. A.

MINNESOTA

Ponsford—Ballou, J. L.

MISSOURI

Monett—Greever, B. L.

NEBRASKA

Omaha—Gallaghan, A. J.
Sutton—Figi, F. A.

NEVADA

Reno—Stadtherr, A. L.

NEW JERSEY

Plainfield—Ganzmer, G. V.

NEW YORK

Buffalo—Eckel, G. J.
New York—Leshin, H. R.

PENNSYLVANIA

Morton—Tinney, A. G.
Philadelphia—Trowbridge, S. E.

SOUTH CAROLINA

Charleston—Wieters, J. C.

TENNESSEE

Memphis—Bertram, J. C.

TEXAS

Sabinal—Shudenmagen, W. J.

VIRGINIA

Richmond—Childress, C. H.

WASHINGTON

Seattle—Shiley, J. R.

WISCONSIN

Milwaukee—Angell, E. D.

Mortality in Portuguese Army.—Dr. Antonio Barradas reported at the medical congress held recently at Madrid that the Portuguese army on duty in France during the war formed a total of 75,000 men. Of these 75,000, 2,000 died, 1,460 in battle, 340 of disease and the rest are unaccounted for. The Portuguese troops in East Africa lost 6,000 men by disease and only 1,000 in battle. The wounded in France numbered 6,460, of whom 1,460 died. Those disabled more or less permanently amounted to 7,000, 45 per cent. of the disabilities being due to tuberculosis and 340 dying of this disease. The vaccination against smallpox and typhoid resulted in controlling these diseases so that there was no smallpox among the troops and only five deaths from typhoid. The Portuguese physicians did their duty in the war, 300 out of 3,000 in the whole country serving in France.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

DISTRICT OF COLUMBIA

Personal.—Dr. Frank Abbott, medical inspector of the District health department, has been appointed superintendent of the Washington Asylum Hospital.

ILLINOIS

Midwife Fined.—Mrs. Anna Tutlin, Rockford, who is said to have been placed under bonds recently, following the illness of a young woman to whom she is said to have given an abortifacient, is reported to have been fined $50 and costs, September 4.

Personal.—Dr. Charles F. Lynch, Chicago, has been appointed health officer of Aberdeen, S. D.——Dr. William R. Marshall, Clinton, has been elected president of the Black County Anti-Tuberculosis Association.——Lieut.-Col. George de Tarnowsky has returned to Chicago after an extended service abroad with the Army in the war zone and with the American Red Cross in Poland and southeastern Europe.

Treatment of Socially Unfit.—The Chicago Municipal Morals Commission, August 30, inaugurated a movement to rid the city of vice and venereal disease. The plan provides for the segregation of all infected persons and a fund of $120,000 appropriated by the state and city government has been made available for carrying on the work. It is proposed to organize a special vice squad, and all suspects will be sent to the Iroquois Memorial Hospital for examination, and if found affected will be held until cured. The president of the county commissioners of Cook County has been asked to set aside a large ward in the Cook County Hospital for the treatment of these cases.

Illegal Practitioners Fined.—The Illinois Department of Registration and Education arrested Mrs. Lulu C. Parmenter of Galesburg and Stefan W. Sobolewski of 1111 North Marshfield Avenue, Chicago, for treating human ailments without a license. They are said to have been fined, respectively, $25 and costs and $50 and costs.——It is reported that D. H. Prince of Love's Park was arrested recently by the Illinois Department of Registration and Education for practicing medicine without a license and was fined $100 and costs. Prince was charged with diagnosing an ailment of a young woman in Rockford as goiter and was said to be receiving for medicine a large part of the money contributed by the charitable workers of Rockford for the support of the family of the young woman. At the trial Prince was compelled to return all the money he had received for his so-called professional treatment.

INDIANA

Personal.—Dr. Fred W. Terflinger has resigned as superintendent of the Northern Hospital for the Insane, Logansport, and was succeeded by Dr. Paul E. Bowers of Whittier, Calif., September 10.

Prisoners Treated by Public Health Service.—All prisoners in the Marion County Jail, Indianapolis, will hereafter be examined for venereal disease and treated for the same by the United States Public Health Service clinic.

School Inspectors Appointed.—The Indianapolis Board of Health has appointed the following physicians as inspectors of public schools: Carrie J. Reid, Martha J. Smith, George J. Martz, James M. Smith, Joseph L. Conley, Albert W. Miller, Colin V. Dunbar, Charles F. Bayer, William Wise and Clarence N. Harris.

LOUISIANA

Tuberculosis Hospital Not Health Menace.—In a suit brought by Le Bourgeois et al. to enjoin the city of New Orleans from establishing and maintaining a tuberculosis hospital in the city, one of the plaintiffs alleged that the hospital would endanger the health of those living in the vicinity. The supreme court, however, does not take this view. In its decision it states ". . . If it were proved with certainty that this hospital would endanger the health of this plaintiff or his family, perhaps a case might be presented for judicial interference. But the very opposite is conclusively shown by the evidence, which is all one way to the effect that a well kept tuberculosis hospital is not a menace to the health of the people living in its vicinity and the presumption is that this hospital will be well kept. . . . Our conclusion is that the suit is groundless in so far as it is sought to be founded on the apprehended injurious character of the proposed hospital."

MARYLAND

Personal.—Dr. John F. Doucher, Baltimore, expects to sail, October 2, from Vancouver for Asia, where he will remain for six months as a member of the commission on Christian education in the missionary field.——Dr. Eli Marshall, Jr., Baltimore, has been made professor of pharmacology in Washington University Medical School, St. Louis.——Dr. Eugene H. Hayward, Baltimore, who went to France early in the war with the University of Maryland Base Hospital Unit and served also with the Army of Occupation in Germany as major, has returned to his home in Baltimore.——John W. Wheeler, who has been in charge of the eye department at U. S. Army General Hospital No. 2, Fort McHenry, Baltimore, has received his discharge and has returned to his home in New York City.

Clinic in Need of Funds.—The government social clinic at Mercy Hospital, Baltimore, established in October of last year, will have to cease functioning if funds to support it do not come from some source. The United States government, through the public health service, is ready to repeat last year's appropriation of $14,200, provided the state furnishes an equal sum, making a total of $28,400 to fight social diseases in Maryland for one year. Dr. Anton G. Rytina, Baltimore, is director of the clinic and with a staff of twelve physicians, a secretary, a woman social service worker and a nurse, he now treats more than 500 men and women in this clinic. He works under the auspices of the state board of health and the United States Public Health Service. Dr. Rytina believes that the state legislature would not hesitate to appropriate the necessary $14,200 to match the national government's appropriation for the state, but declares the fight against these diseases cannot wait until next January, when the legislature convenes. The money is needed at once.

MAINE

Personal.—Dr. Leverett D. Bristol, Augusta, state health commissioner, has been elected dean of the College of Medicine of the University of Tennessee, Memphis, and will assume his duties this month.——Dr. Edwin D. Jaques, South Berwick, has been nominated as medical examiner (coroner) for York County.

MASSACHUSETTS

Personal.—Dr. Leon A. Alley, Rutland, has been made acting superintendent of the State Sanatorium, Rutland, succeeding Dr. Ernest B. Emerson, resigned in order to accept a position in a hospital in Brockton, Mass.

Lowell and Cutter Lectures.—Harvard University announces that Dr. Thomas M. Legge, chief medical inspector of factories in Great Britain, will give a course of Lowell lectures and the Cutter lectures in preventive medicine during the coming year under the auspices of the School of Public Health of Harvard University and the Massachusetts Institute of Technology, and the division of industrial hygiene. Dr. Legge will lecture in Boston, November 18, and ensuing dates on the following subjects:

Twenty years' Experience of the Notification of Industrial Disease; Twelve Years' Experience of Workman's Compensation Act and Industrial Diseases; Medical Supervision in Factories; Industrial Poisons and Their Prevention; Anthrax; Fumes and Gases; Industrial Fatigue; Industry as a Subject for Art and Manufacture under the Medieval Trade Guilds.

MICHIGAN

New Officers.—At the annual meeting of the Wayne County Medical Society held in Detroit, Deorge E. McKean was elected president; Dr. Raymond C. Andries, vice president; Dr. James H. Dempster, secretary, and Dr. William H. Morley, treasurer, all of Detroit.

Government Selects Detroit Sanatorium.—The Detroit Tuberculosis Sanatorium has been selected by the United States Public Health Service as the institution for the treatment of Michigan soldiers and sailors who are suffering from tuberculosis. The institution is at present located at Twelfth Street and Tuxedo Avenue and has accommodation for 150 patients.

New Sanatorium Superintendent.—Dr. Albert H. Garvin, for fourteen years superintendent of the New York State Sanatorium for Incipient Tuberculosis, Ray Brook, and who served for two years during the war on the Red Cross Commission sent to France, has been appointed superintendent of the new municipal tuberculosis sanatorium, which the Detroit Department of Health is constructing at a cost of $1,000,000 on a site of 750 acres located near the village of Northville, 25 miles west of Detroit.

NEW MEXICO

Health Offices Moved.—The offices of the New Mexico Public Health Association, formerly located in the Chamber of Commerce Building, Albuquerque, have been moved to the Wright Building, in the same city. The office will be in charge of the new secretary, Clinton B. Anderson.

Personal.—James P. Kennedy, medical missionary of the Presbyterian board, and in charge of the Presbyterian Navajo Mission Hospital for eleven years, has severed his connection with that work and will enter private practice in New Mexico or Colorado.

NEW YORK

Medical School to Continue.—The Fordham University School of Medicine is to be continued during the next two years in order that medical students previously enrolled in this school may complete their medical training and obtain their degrees. During 1919-1920 subjects included in the junior and senior years will be taught, but during 1920-1921 only the subjects of the senior year will be given.

Educational Campaign in Housing and Industry.—The state reconstruction commission is undertaking an educational propaganda, through the use of motion pictures, by means of which various matters pertaining to housing, health and industry will be explained in picture form. The pictures will be exhibited free in parks and public squares in every section of the state within the next two months and will deal with such problems as the food question, the control of the milk supply, public health, housing, and the development of transportation in rural communities.

Postgraduate Course for Public Health Nurses.—A postgraduate course for public health nursing is to be given in Buffalo for sixteen weeks, beginning September 29, under the auspices of the Buffalo University, Buffalo Chapter of the American Red Cross, department of health, District Nursing Association and department of hospitals and dispensaries. The classes will be limited to thirty and applicants must be registered in New York state or states having equivalent standard. Applications should be made to the University of Buffalo. The expense of the course will be $25.

New York City

Leprosy.—A man, 23 years of age, was found in Manhattan, August 22, suffering with leprosy. He came to the United States from Porto Rico, nine months ago, had first resided in Georgia, and for the last six weeks in New York City.

Men Arrested and Drugs Seized.—Internal Revenue agents, September 4, arrested five men said to belong to a "dope ring," and seized granulated opium and cocain, valued at $50,000. The prisoners were charged with violating the Harrison Narcotic Law and two of them were held in $20,000 bail, another for $7,500 and two for $2,500. The latter two furnished security and were released, while the others were committed pending hearing.

Faculty Changes.—The following faculty changes in the Long Island College Hospital, Brooklyn, are announced: Dr. Emil Goetsch, full-time professor of surgery in Johns Hopkins University, Baltimore, and associate surgeon in Johns Hopkins Hospital, has been appointed professor of surgery at the Long Island College Hospital and head of the surgical department throughout the college, hospital and dispensary. Drs. William B. Brinsmade, William F. Campbell, both of Brooklyn, have been appointed clinical professors of surgery in Long Island College Hospital.

NORTH CAROLINA

Hospital Notes.—A charter has been issued to the Caroline General Hospital, Wilson, with an authorized capital of $50,000. The incorporators are Drs. Kinchin C. Moore, Henry B. Best, Paul P. Lane and Ernest L. Strickland, all of

Wilson. The Bennett Barnes residence has been purchased and on this site will be erected a four-story building which will accommodate forty patients.

Personal.—Dr. Frank M. Register, for the past two years whole-time county health officer of Northampton County, and for fourteen years previously physician in chief to the North Carolina State Farm Prison, has been appointed state epidemiologist, and assumed the duties of the office at Raleigh, September 1.——Dr. Auley McR. Crouch, late state epidemiologist, becomes health officer of New Hanover County with headquarters at Wilmington.

Whole-Time Health Officers.—North Carolina now has fourteen whole-time county health officers, the three recent additions being Halifax, Robeson and Surry counties, which have voted appropriations sufficient to secure the cooperative financial assistance of the state board appropriations. Dr. Wilbur A. McPhaul, Lumberton, recently doing admirable public health work in Robeson County, leaves for work with the Alabama State Board of Health, his place being filled by Dr. Eugene R. Hardin, Clinton, late health officer of Sampson County. Dr. Paul C. Carter of Wake County assumes the duties of the post in Halifax, while the new health officer of Surry County is to be Dr. Lester L. Williams, who for the past year has been engaged in inspection work for the state board of health.

OHIO

Violation of Narcotic Law.—For the second time Dr. John B. Flack, Cincinnati, is said to have been put under arrest on the charge of violating the Harrison Narcotic Law. He is reported to have pleaded guilty and to have been released on a bond of $1,000.

Personal.—Atlee R. Omstead, Major, M. C., U. S. Army, Millersburg, who spent twenty months overseas in the Medical Corps of the British Expeditionary Forces in France and Belgium, has returned and has located in Canton.——Dr. Frank W. Stevenson has succeeded Dr. Lauren N. Lindenberger as receiving physician of the Cincinnati General Hospital.

OREGON

Clinic Organized.—The Baker Clinic was incorporated, August 2, with a capital stock of $50,000 and with the expressed purpose of conducting a general medical practice and surgery. The headquarters of the clinic will be in Baker, and Drs. Clarence E. Barton, Carl G. Patterson and Mr. James H. Nichols are the incorporators.

Personal.—Dr. Spiro F. Sargentich, Portland, who started for Serbia four days after war was declared and for more than two years conducted a campaign against typhus fever and later served two years and a half with the American Expeditionary Forces, has returned to his home.——Earl V. Morrow, Lieut.-Col., M. C., U. S. Army, Portland, returned home, August 4, after four years of service, the earlier part of which he spent as chief surgeon of the American Red Cross in Belgium, afterward he was attached to the Twenty-Ninth British Division and later was commanding officer of the 105th Sanitary Train, A. E. F., and finally chief surgeon of the Third Division.

PENNSYLVANIA

Personal.—Dr. William Estes, South Bethlehem, has been appointed by the state commissioner of health, chief of the genito-urinary dispensary at South Bethlehem.

County Court Powerless.—In the mandamus suit brought by Dr. John C. Bateson, Scranton, against the Bureau of Medical Education and Licensure, of the department of education, for reinstatement as a practitioner after his license had been revoked, the attorney-general has filed an answer to the effect that the Dauphin County Court has no jurisdiction in the matter.

Medical Inspection in Hazelton Schools.—For the first time in the history of Hazelton the city schools which opened for the current term, September 4, with more than 6,000 pupils have the services of a nurse. Hazelton physicians will attend to the medical inspection gratis, each doctor looking after the children of his own practice. The only condition the physicians exacted of the school board was that a nurse be supplied, so Miss Sue Tinner, a returned Red Cross hospital worker, was recently appointed to this post.

Philadelphia

Personal.—Dr. Edwin S. Cooke has been appointed by the state department of health, first assistant of the state genito-urinary dispensary.——Dr. Melvin M. Franklin has been made associate professor of orthopedic surgery in the graduate school of the University of Pennsylvania.

Municipal Hospital Planned for Byberry.—Members of hospital and welfare organizations of the city are planning an educational campaign to arouse public opinion in favor of establishing a municipal tuberculosis hospital on the Byberry farms. Representatives from the bureau of public health and charities, the medical department of the municipal court, home service department of Red Cross, Pennsylvania Society for the Study and Prevention of Tuberculosis, federal board of vocational training, society for organizing charity, Phipps Institute of the University of Pennsylvania, tuberculosis department, Jefferson Hospital, and the state department of health, division of dispensaries, met, September 5, at the state dispensary, 1724 Cherry Street, to discuss plans for furthering the movement.

Joint Management for Women's College and Hospital.—Members of the executive boards of the Women's Medical College and the Women's Hospital, independent institutions, plan a joint meeting to decide on a method for the operation of the two institutions under a joint management. Dr. Alice M. Seabrook, medical superintendent of the hospital, said a union or merger of the two institutions is considered impossible by the officials of both, for although founded by graduates of the medical school, many hospital endowments specify that only women patients shall be admitted, whereas the hospital connected with the college receives patients of both sexes. Another factor in keeping the Women's Hospital and College Hospital separate is that while visiting physicians of the Women's Hospital are all women, physicians of both sexes are on the faculty and staff of the Women's Medical College and the College Hospital.

RHODE ISLAND

Licenses Revoked.—An official report states that at its regular meeting, held August 14, the Rhode Island State Board of Health revoked the licenses of Dr. Albert O. Robbins, Thornton, and Dr. Charles Dansereau, Woonsocket, on the ground that they had recently been convicted of performing criminal abortions.——At a meeting, held July 17, the state board of health of Rhode Island revoked the license of Dr. William Llewellyn Owen on the ground that he was found guilty of violating the Harrison Narcotic Law in the state of New York and was convicted by federal authorities. Dr. Owen's licenses to practice medicine have already been revoked in New York, Pennsylvania, California and Illinois. Dr. Owen was sentenced to serve a term at the federal penitentiary at Atlanta, Ga.

CANADA

Hospital Notes.—The Ontario Military Hospital at Orpington, Kent, England, closed this week and the last 400 patients sailed for Canada. The hospital buildings will probably be sold to the British pension authorities as a home for disabled pensioners; or the London County Council may purchase it as a home for city children in need of fresh-air treatment.

GENERAL

Army Pharmacists Organize.—A World War Veterans Section of the American Pharmaceutical Association was organized at the annual meeting of that association, August 26.

National Colored Medical Society Meeting.—The twenty-first annual meeting of the National Medical Association, an organization of negro physicians, dentists and pharmacists, was held in Newark, N. J., August 26 to 29. Atlanta, Ga., was selected as the next place of meeting, and Dr. John P. Turner, Philadelphia, was elected president.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mount Sinai Hospital, Charity Organization Society, St. John's Guild, and Hebrew Orphan Asylum, New York City, each $1,000 by the will of Emile Roch.

Training School for Feeble-Minded Children, Elwyn, Pa., $10,000 by the will of John F. Parsons.

A bequest for the maintenance of three beds in the Methodist and Pennsylvania hospitals, Philadelphia, by the will of John B. Parsons.

Lenox Hill Hospital, New York City, $6,000 by the will of Mrs. Anna Diehl.

Railway Surgeons to Meet.—The twenty-eighth annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel McAlpin, New York City, October 20, under the presidency of Dr. James S. Hill, Bellows Falls, Vt. A symposium on "The Modern

Treatment of Infected Wounds" will be presented and railway surgeons, attorneys, officials and physicians are invited to be present.

New Tri-State District Officers.—At the annual meeting of the Tri-State District Medical Society of Illinois, Iowa and Wisconsin, held in Rockford, Ill., September 1 to 4, the following officers were elected: president, Dr. Walter B. Helm, Rockford, Ill.; vice presidents, Drs. Elmer B. Cooley, Danville, for Illinois, George V. I. Brown, Milwaukee, for Wisconsin, and John E. O'Keefe, Waterloo, for Iowa, and business manager, Dr. William B. Peck, Freeport, Ill. Waterloo, Iowa, was selected as the next place of meeting.

The Osler Memorial Volume.—A number of inquiries have been received relative to the Osler Memorial Volume. We are informed that while the original intention was a one-volume book of 500 or 600 pages, so many contributions were received that the committee found it necessary to make two volumes, increasing the number of pages to between 1,300 and 1,400. This necessitated more time for publication. It is expected now that the volumes will be ready for distribution about the end of this month. Those who desire these books and who have not yet ordered may send their subscriptions to Dr. Henry Barton Jacobs, 11 Mount Vernon Place, Baltimore.——In explanation of the presentation to Osler on his birthday, July 12, it might be stated that a dummy volume containing such articles as were already in print was used in the presentation ceremony.

Meeting of Safety Congress.—An entire general session and two sectional meetings of the eighth annual Safety Congress of the National Safety Council will be held in Cleveland, October 1 to 4, and ample opportunity will be offered for the discussion of health service in connection with organized accident prevention work. Among the subjects to be taken up in the health service section are: industrial health hazards; the subnormal worker (pathologic); industrial dermatoses, bad teeth and fatigue; the scope of physical examination in industry; the industrial clinic; health education in industry, the coordination of industrial and community health activities; malingering, involving the problem of getting the sick or injured employee back to work; the treatment of burns, and what the war has taught us in surgery. The headquarters of the congress will be at the Hotel Statler.

Southwestern Tuberculosis Conference.—The Southwestern Tuberculosis Conference will be held at the Hotel Virginia, Long Beach, Calif., October 1 to 3, under the auspices of the National Tuberculosis Association. This conference includes the states of Arizona, California, Colorado, Kansas, New Mexico, Oklahoma and Texas, and the purpose of the meeting is to afford the opportunity for an exchange of ideas regarding the various public health and tuberculosis problems encountered in these states and the best way to meet them. The officers of the conference are: president, Dr. Robert A. Peers, Colfax, Calif.; vice presidents, Dr. Jeremiah H. Metzger, Tucson, Ariz.; Dr. Charles C. Browning, Los Angeles; Dr. Gerald B. Webb, Colorado Springs, Colo.; Dr. Samuel J. Crumbine, Topeka, Kan.; Mrs. A. Otero-Warren, Santa Fe, N. M.; Mr. E. K. Gaylord, Oklahoma City, and Mr. J. D. Harper, Dallas, Texas, and secretary, Mrs. E. L. M. Tate-Thompson, Fresno, Calif.

Mississippi Valley Conference on Tuberculosis.—The Mississippi Valley Conference on Tuberculosis will be held at Des Moines, Iowa, September 22 to 24, with headquarters at the Fort Des Moines Hotel. In addition to the clinical programs, and schedules for September 23 and 24, a series of six demonstrations and clinics in early diagnosis of tuberculosis will be given under the auspices of the Iowa Trudeau Society. Leading clinicians from the northern states of the Mississippi Valley will be assisted by Dr. H. R. Landis of the Henry Phipps Institute, who is the representative at the conference of the National Tuberculosis Association. On the last day of the meeting one of the sessions will be devoted to the consideration of a plan for closer coordination of private and public health agencies to be presented by Dr. George Thomas Palmer, assistant director of the Illinois State Department of Health, Springfield, Ill. The luncheon round table will be presided over by Dr. William De Kleine, health officer of Flint, Mich., at which the field of the health officer in the campaign against tuberculosis will be considered.

FOREIGN

Red Cross Aid Against Tuberculosis in France.—Through the agencies of the American Red Cross, the campaign initiated by the French to combat the spread of tuberculosis and which was practically nullified by the war, has been reopened and at present there is a capacity for 1,983 bed patients in hospitals in Paris and for 5,610 bed patients outside of Paris. The total number of beds established by the Red Cross Bureau of Tuberculosis amounted to 24,185. Aid was furnished to the extent of 3,287,417 francs and relief was supplied to the extent of more than three fourths of a million of francs.

Maternal Welfare Work in France.—Maternal welfare work, established in France under the auspices of the American Red Cross, children's bureau, by Dr. Fred L. Adair, Minneapolis, is to continue. A plan of prenatal consultation established by him is also to be continued. In the work in two sections in Paris, about 500 prospective mothers were cared for in the consultations, and also in their homes, and in the hospital social service work, which had been conducted only two months, more than 500 prospective mothers were interviewed and advised how best to meet their new problems of living. An organization has been formed to carry on the medical and social work installed in the hospital. An attempt is being made to form a society of social visitors who will be capable of teaching prospective mothers the proper methods of caring for themselves and of making preparations for childbirth.

Meeting of Swedish Medical League.—For the first time since the beginning of the war, the Almänna svenska Läkareforening held a representative meeting in August and outlined new plans for safeguarding the economic and other material interests of the profession. The league invited members of similar organizations in Denmark and Norway to consult with them in regard to enlarging the scope of the organization. Its efficacy has been hampered in the past by the fact that some 400 physicians in Sweden have not cared to join the league, so it does not represent the entire profession, while in Denmark and Norway, nearly every member of the profession is enrolled in their respective organizations. The Swedish profession has not felt the need for organization so much in the past, but now vital questions in regard to sickness insurance, etc., are confronting them and vigorous efforts are being made to rouse physicians throughout the land to organize for more effectual action. The corresponding Norwegian society has a board of various officers, but the management is placed in the hands of the general secretary, Dr. R. Hansson, who gives his entire time to the work, with an annual salary of 20,000 crowns. He is empowered to consult with other members of the board residing in Christiania, as the chief officers live elsewhere. The Swedish league has a by-law to the effect that the president must be a resident of Stockholm, the headquarters of the society. It publishes a special journal, the *Almänna svenska Läkartidningen.* The president of the league, Professor Lennmalm, has been appointed rector of the Karolinske Institut and on his resignation, Prof. H. Forssner was appointed president. The name of the league was changed to Sverrigs Läkareförbund. The *Ugeskrift for Læger,* which is the organ of the corresponding Danish league, comments that the meeting will undoubtedly make its influence felt in closer relations between Scandinavian medical men in general.

LATIN AMERICA

Prize for Ambidexterity.—The Asociación Escuela de Medicina of Guayaquil, Ecuador, has offered a prize of $100 for the teacher who can present at a public meeting, May 5, 1920, the largest number of scholars trained to use both hands for the ordinary demands of life and especially for handwriting. Competition is restricted to teachers of the province of Guayas.

Yellow Fever.—Major-Gen. William C. Gorgas, formerly Surgeon-General, U. S. Army, who has been investigating the sanitary matters in Central and South America, has, it is reported, offered to assume technical directorship of the sanitation of Guayaquil, Ecuador, provided the money for the work is supplied by the municipality or the republic. ——At the request of the Peruvian authorities, General Gorgas is about to proceed to Piura, about 210 miles from Guayaquil, which is infected with yellow fever. General Gorgas and his party left Guayaquil, Ecuador, for Callao, Peru, September 1.——Dr. M. E. Conner, chairman of the Rockefeller Foundation Commission to Guayaquil, Ecuador, was presented with a gold medal, August 11, in recognition of his services in the campaign against yellow fever.——New cases of yellow fever were reported, September 1, at Corinto, Nicaragua, and Amapala, Honduras.

LONDON LETTER

London, Aug. 13, 1919.

Reconstruction at Guy's Hospital

With the conclusion of the war, reconstruction has been the keynote in much of our public life, and medical organizations are by no means exempt. A new departure at the London Hospital—the appointment of paid whole-time physicians who will devote themselves entirely to hospital work, including research—has been previously recorded in these columns (April 12, p. 1091). At Guy's Hospital a similar scheme is being inaugurated. A committee of the medical school has been for some time considering what changes are necessary to secure the better preparation of medical students for the practice of their profession, a more effective use and coordination of medical skill for the benefit of patients under treatment in the hospital, and constant advances in medical science. The recommendations of the committee have been approved by a meeting of all the teachers in the school, and will come into force next October. Owing to a rebuilding scheme, which has been held up by the war, the hospital is short of beds. As soon as more become available, it is intended to appoint a professor of clinical medicine; and possibly a similar innovation will take place on the surgical side. But it is thought to be a mistake to await this appointment before initiating a new kind of advanced teaching. Accordingly, Dr. Hurst, the present head of the neurologic department, will be given the title of "director of advanced studies in clinical medicine." Beside taking on the duties of full physician, he will still remain head of the neurologic department, but an assistant neurologist will also be appointed. His beds will form a mediconeurologic clinic, half of them being devoted to neurology and half to general medicine. The assistant neurologist and an assistant physician will work with him, each of them taking charge of a quarter of the beds in the clinic, Dr. Hurst looking after the remaining half. Once a week Dr. Hurst and the assistant physician will examine all their medical patients together, and once a week Dr. Hurst and the assistant neurologist will examine their neurologic patients together. There will be clinical demonstrations and lectures on four mornings in the week for six months during the winter from 12 to 1, and on one of these mornings there will be a combined demonstration with the corresponding surgeon or with one of the heads of the special departments. There will be ample opportunity for graduates and others who wish to take up some special line of medical investigation.

There will also be important changes in the other medical and surgical "firms." At present the assistant physicians and assistant surgeons act rather as locum tenentes to the physicians and surgeons than as assistants. The "unit system" which is to be adopted implies the linking together of the two in one firm, each firm having its own beds and its own outpatient department. The head of the unit and his assistant will be associated in teaching and in investigating cases. On the medical side it is hoped that once a week there will be a combined round, when cases of special interest will be discussed. The surgeon and assistant surgeon will operate on the same afternoons, preferably in adjacent theaters, and in special operations they may be able to render each other assistance. The assistant physicians and assistant surgeons will take charge of a quarter of the beds of the unit. There will be a registrar, house officer, clerks and dressers attached to each medical and surgical unit. Closer linking of the wards and laboratories will be brought about by arranging that members of the junior staff shall usually hold two appointments. There will be four medical registrars and four surgical registrars, one attached to each firm. These will be part-time appointments. The registrars will be able to hold demonstratorships in the departments of the medical school, as the anatomic, physiologic, pathologic or bacteriologic departments, or they may hold clinical assistantships in the various special departments. The association of the wards and laboratories will be further facilitated by the creation of eight new part-time posts. The holders of these posts will be called medical or surgical assistants. There will be one attached to each firm. They will have no routine duties in the wards, but they will spend their time carrying out medical or surgical investigations under the supervision of the head of the firm and the head of one of the laboratories. The assistants, like the registrars, may hold other part-time appointments in the hospital or medical school. Further, these new appointments will be open to men from other schools. Graduates who come to Guy's for shorter periods of study, and wish to carry out clinical investigations, will likewise be given the title of "assistant" (unpaid) so as to obtain a status in the wards. When all these posts are filled, there will be, besides the mediconeurologic clinic, three medical firms and four surgical firms, each firm consisting of two members of the staff, a registrar and assistant house officer, and a number of clerks or dressers. The present assistant surgeon's firm will no longer exist as a separate entity. Each firm will be complete in itself, carrying on its own outpatient department in close association with its inpatient department.

Gas Poisoning: A Question of Survivorship

A curious case has been raised in the probate court as to the survivorship of a husband or wife who died of poisoning by illuminating gas. They were both over 80 years of age, lived alone, and were found dead in their bedroom one morning. As the husband had left in his will all his property to his wife, the question of survivorship had to be settled between her executrix and the husband's next of kin. On the day before death she complained that the gas fire in the bedroom kept "popping" and wanted cleaning. The husband was found lying on the floor in front of the gas fire from which gas was escaping. He was partially dressed. Nearby was a pair of pliers. The wife lay on the bed on the side farthest from the gas fire, and on the table by the bedside was a novel and a small paraffin lamp, still burning. The burden of proving that the wife survived lay on her executrix. It was submitted that as the husband was on the floor nearest to the escaping gas, the wife survived. The judge held that there was no evidence that the wife survived, and therefore decided in favor of the husband's next of kin.

Wood Alcohol as a Beverage

No cases of blindness due to methyl alcohol, such as have been described in the United States by Casey Wood and others, have been observed in this country. This has been explained by the fact that methyl alcohol in a refined form, such as Columbia spirits, is not produced here, the methylated spirit produced for commercial use being too nauseous for drinking. However, cases of drinking them are reported from time to time. The Dundee Town Council has recently approached the government with regard to the growing use of wood alcohol as a beverage, and with the proposal that it should be rendered still more nauseous by the addition of chemicals which would make it entirely unfit for human consumption. The experience of Dundee is corroborated by practically every city in Scotland. The increased consumption is probably due to the scarcity of whisky following the war.

Dentistry in the Army

In his presidential address at the annual meeting of the British Dental Association, held in London, Mr. Montagu F. Hopson delivered a scatching indictment of the military authorities. He said that the outbreak of the great war found our forces quite unprepared dentally. There was no organized dental unit, either for home or for field purposes. All the resources of the association were at once placed at the disposal of the government, but expert advice was rejected. Service dental arrangements were mishandled, not to say bungled. Failure to grasp the situation may have been due to ignorance on the part of the chiefs of the army medical department to begin with, but they later displayed a culpable obstinacy which led to a grave wastage of man power and a large amount of unnecessary and easily preventable disease and suffering among the troops in the field and the wounded in our hospitals. The policy of the executive was clear and definite, and was finally vindicated, namely, that with an acknowledged general shortage of dentists even to meet the needs of the civil population, they could most advantageously serve their country in the national emergency in their professional capacity, and that all should be mobilized for service. This obvious fact was only slowly recognized. Dentists commissioned as temporary lieutenants on the general list were appointed in driblets and were employed under the supervision of medical officers possessing no dental knowledge. There was an utter lack of organization. Examples of efficiency furnished by our colonial forces were persistently ignored. In the meanwhile, skilled and highly trained men were being wasted in the ranks, the proffered services of those possessing expert knowledge in the treatment of facial injuries were declined, and dental schools, the nurseries of professional recruits, were depleted. For three whole years the government remained indifferent to the value and importance of the dental surgeon as a national asset. As the war drew to its victorious close some sort of order gradually evolved in army dental arrangements, but there was still lacking that one esential to an efficient organization—an administrator, possessing a dental qualification, and given unhampered authority over the men under his command. Mr. Hopson held that while army dental treatment must be closely linked with the Royal Army Medical Corps, it can never be adequate until a definite dental corps has been established, modeled on the lines adopted by our colonies and certain of our allies. Similar corps must be formed for the navy and the air force.

PARIS LETTER

Paris, Aug. 14, 1919.

The Treatment in Pott's Disease

At a recent meeting of the Societé de chirurgie de Paris, Dr. Théodore Tuffier communicated the results of his attempts to treat Pott's disease by the Albee method. Since 1911 Tuffier has applied this method to eleven patients with Pott's disease, aged from 17 to 59, who had been suffering from the disease for from four months to five years, and who presented a kyphosis involving a variable number of dorsolumbar vertebrae and complicated at times by a cold abscess. The favorable prognosis of this operation is remarkable. On one occasion, the graft broke; nevertheless, the anatomic and therapeutic results were perfect. In another case, the graft was expelled owing to suppuration. In spite of this fact, a solid mass of bone was formed which welded together the spinous processes and immobilized perfectly the spinal column.

As for the more remote therapeutic results, the history of five cases was followed for from one to three years after the operation. Three of these patients are in a very satisfactory condition, both generally and locally. They complain little or not at all of fatigue or pain, and present an absolute immobility of the region operated on. The fifth patient, although immobilized in the region operated on, presented a new focus in the upper portion of the dorsal cord. One patient could be seen only once after the operation; namely, two months later. She was at this time in perfect condition; walked without fatigue and had no pains. Another patient succumbed to pulmonary tuberculosis and to multiple osseous suppurations. Necropsy revealed that the union between the graft and the spinous processes was absolutely perfect and that the spinal column was completely immobilized.

Tuffier also reported that he had recently (in March, 1919) applied with success the Albee method to the treatment of a patient with suboccipital Pott's disease, but that he had varied the technic slightly in that he had immobilized the cervical vertebrae for several days after the operation by means of a Minerva cast. A recent roentgenogram shows the graft in place and the two extremities definitely fixed. The head is immobilized, and only the neck executes the necessary movements of flexion and extension.

The Nineteenth Congress of Urology

The nineteenth congress of the Association française d'urologie will open in Paris at the Faculté de médecine, Oct. 8, 1919. The main question to be discussed at the congress is: traitement des pyélonéphrites non-tuberculeuses chez l'homme (the treatment of nontuberculous pyelonephritis in man).

The Use of Mineral Springs for Soldiers

Dr. Louis Mourier, undersecretary of state for the army medical department, has decided to increase considerably the number of mineral springs at which soldiers (whether in active service or discharged) whose affections, contracted or aggravated by military service, are amenable to thermal treatment may be cared for. Before the war there were only six military hospitals located at thermal springs. These were at Amélie, Barèges, Bourbon-l'Archambault, Bourbonne, Plombières and Vichy. During the war, profiting by the fact that most of the thermal springs had transformed their hotels into temporary hospitals, the army medical department instituted thermal treatment for soldiers in thirty-six of the spas. During 1918, about 20,000 men received treatment. After the war closed it of course became necessary to turn the hotels back to their civilian clientage.

A commission was appointed to decide on a list of springs that seemed necessary in order to meet the needs of at least the majority of medical and surgical cases among the soldiers, both active and discharged, in which indications were such as to make thermal treatment advisable. A recent circular enumerates the twenty stations designated by the commission, and states the necessary formalities that must be complied with in order to secure admission to the stations for treatment. The main requirement is the filling out of a blank setting forth the principal indications for such treatment.

Interallied Conference Relative to the War Mutilated

The third interallied conference for study of questions relative to the war mutilated will be held at Rome, Oct. 12-17, 1919, under the chairmanship of Prof. Riccardo Galeazzi.

An Expression of Gratitude

Marshal Pétain, commander of the armies of the north and northeast, recently addressed an open letter to M. Jean Dupuy, president of the Syndicat de la presse parisienne, in which he expressed gratitude in the name of the French army for the Oeuvre des trains de blessés, a soldiers' welfare society organized by the syndicate. From the beginning of the war this society, which was particularly well organized, devoted itself most actively and generously to the various medical services. Under the most difficult circumstances the personnel of the society gave of their time, money and strength without counting the cost.

The French Red Cross in Lithuania

Mme. Edgar Wisner, a volunteer nurse of the Association des dames françaises (one of the three societies that go to make up the French Red Cross), has offered her services for the organization and direction of a relief expedition to be sent to Lithuania. The sending of this expedition was decided on after the receipt of appeals for assistance from Lithuania, which was completely devastated by the Germans. With the aid of the undersecretary of state for the army medical department, Mme. Wisner is in a position to carry out the project. A stock of provisions, clothing, surgical dressings, etc., has been secured through contributions from the French Red Cross, as well as other war welfare organizations working under the auspices of the undersecretary of state for the army medical department. Mme. Wisner, who has already left France for Lithuania, is assisted by Mlle. Nine Decourtray, also a volunteer nurse.

Death of Dr. Félix Brémond

Dr. Félix Brémond, honorary president of the Syndicat de la presse scientifique, died recently at Lavandou (department of the Var) at the age of 76. Dr. Brémond is the author of several medical works, among which may be mentioned "Les préjugés en médecine" and "Rabelais médecin."

Restrictions Regarding the Use of Thermal Springs

Are bathers at thermal springs under obligations, before commencing treatment, to provide themselves with a circular of instructions issued by the attending physician of the thermal station, as asserted by the superintendent of the thermal establishment of Saint-Christau (department of Basses-Pyrénées)? A court decision has been rendered in the negative which upholds the principle of absolute liberty as regarding the use of thermal and mineral springs, since no administrative regulations have been issued restricting the application of the law of 1860.

The Action of Centrifugal Force on the Human Organism

At a recent meeting of the Academy of Medicine, Professor Broca and Dr. Garsaux gave a report of some experimental studies made on animals subjected to centrifugal force. These studies were carried out with a view of ascertaining the causes of the accident which recently befell the aviator Gilbert. An aviator is supposed to be able to resist twenty times his own weight. At this pressure, there are elements of danger for the human organism. Broca and Garsaux put animals weighing from 10 to 13 kg. in an especially constructed centrifuge. The movements of the centrifuge produced signs of undue pressure on the nerves accompanied by cortical epilepsy and lesions of the cerebellar peduncles. The animals were subjected for the space of five minutes to a force varying from twenty-five to ninety-eight times the force corresponding to their weight. At the last trial of high speed, at the extreme limit, they brought about the quick death of the animal. The animal had resisted a force up to eighty times its own weight. In the trials that terminated in the death of the animal the abdomen was found to be gorged with blood.

From these experiments Broca and Garsaux concluded that, though the violent destruction of the organism is not a cause for anxiety, nevertheless the centrifugal force may give rise to disturbances of the circulation and to lesions of the nerve centers within the brain.

Marriages

Lawrence Chesley Chisholm, Asst. Surg., Lieut. (j. g.), U. S. Navy, Salem, Mass., to Miss Olive R. Conrad of Hagerstown, Md., August 21.

John Hadley Caldwell, Newport, Ky., to Dr. Ida May Westlake of Cincinnati, at Mount Vernon, Ohio, August 26.

Edward Peter Heller, Capt., M. C., U. S. Army, Philadelphia, to Miss Naomi Williams of Catasauqua, Pa., August 27.

Thomas Judson McBee, Morgantown, W. Va., to Miss Norma Mildred Wright of Keyser, W. Va., August 14.

Thomas Barrette Boland, Chicago, to Miss Ethel Johnson, at Milwaukee, August 20.

Raymond William Paul to Miss Emily E. Sheild, both of Richmond, Va., August 6.

Jeremiah A. O'Connor to Miss Katherine Spoeri, both of Chicago, August 30.

Deaths

Joseph Pogue, Edwardsville, Ill.; Pennsylvania Medical College, Philadelphia, 1852; aged 84; who served throughout the Civil War, first as surgeon in chief of Burgess' Sharpshooters with the rank of major, and later as chief of the operating board; one of the organizers of the Madison County Medical Society, its secretary in 1857; and one of the chief promoters on the occasion of its reorganization in 1903; a surgeon of marked ability; died at his home, August 19, from pneumonia.

Charles Campbell Kimball ⊕ Watertown, N. Y.; University of Buffalo, N. Y., 1895; aged 57; for the last four years commissioner of the board of health of Watertown; oculist and aurist to St. Joachim's Hospital and the New York Central system; a specialist on diseases of the eye, ear, nose and throat; died at his home, August 16, from nephritis.

Christian Sihler, Cleveland; University of Michigan, Ann Arbor, 1871; aged 70; formerly professor of histology in the Western Reserve University, Cleveland; one of the founders of Lutheran Hospital, Cleveland, and president of the medical staff until 1910; medical director of the Windsor Hydriatic Institute; died at his home, August 22.

Wilbur Pledge Stubbs ⊕ Baltimore; University of Maryland, Baltimore, 1902; aged 39; school examiner for the Baltimore Health Department; a specialist in pulmonary diseases; a member of the staff of the University Hospital, Baltimore; died in that institution, August 25, from disease of the kidney.

Commodore Perry Coulson, Chelsea, Iowa; State University of Iowa, Iowa City, 1889; aged 58; a member of the Iowa State Medical Society; for one term mayor and health officer of Chelsea, and for several years a member of local school board; died at his home, August 15, from diabetes.

Herbert Granville Leslie ⊕ Amesbury, Mass.; Harvard University Medical School, 1899; aged 48; a specialist on diseases of the ear, nose and throat; died at the Anna Jaques Hospital, Newburyport, Mass., September 1, from peritonitis following an operation for appendicitis.

Thomas R. Hillard, Widnoon, Pa.; University of Illinois, Chicago, 1899; aged 50; who served as captain, M. C., U. S. Army, for two years, was discharged, March 8, 1919, and located in Oak Mount, Pa.; died in that place, June 18, after an operation for appendicitis.

Albert Lane Norris, Cambridge, Mass.; Harvard University Medical School, 1865; aged 80; a member of the Massachusetts Medical Society; assistant surgeon of U. S. Volunteers during the Civil War; died in the Deaconess Hospital, Brookline, Mass., August 29.

John R. Boynton, Chicago; Hahnemann Medical College, Philadelphia, 1880; formerly president of and professor of surgery and clinical surgery in Hering Medical College, Chicago; died in the Wabash Valley Sanitarium, Lafayette, Ind., August 22.

William H. Hubbard, Marion, Ind.; Medical College of Indiana, Indianapolis, 1878; aged 70; from 1879 to 1883 a member of the staff of the Central Indiana Hospital for the Insane, Marion; died at his home, August 23, from cerebral hemorrhage.

Francis Reber Musser ⊕ Oakland, Calif.; University of Pennsylvania, Philadelphia, 1895; aged 59; a member of the Pacific Coast Oto-Ophthalmological Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, August 26.

Robert Laughlin, Steubenville, Ohio; Western Reserve University, Cleveland, 1876; aged 67; a member of the Ohio State Medical Association; a member of the local board of education; died at his home, August 23, from cerebral hemorrhage.

Zebulon Hamilton Shultz ⊕ Masonville, Ky.; Hospital College of Medicine, Louisville, Ky., 1901; aged 52; died at his home, July 14, from the effects of carbolic acid, self-administered, it is believed, with suicidal intent.

Edward Ratch Sisson, New Bedford, Mass.; Berkshire Medical College, Pittsfield, Mass., 1853; Homeopathic Medical College of Pennsylvania, Philadelphia, 1854; aged 90; died at his home, August 27.

John J. Roberts ⊕ Scranton, Pa.; University of Vermont, Burlington, 1885; aged 59; at one time coroner of Lackawanna County; who was operated on, July 28, for intestinal obstruction; died, July 31.

James D. Graham, Dalton, Ga.; Atlanta (Ga.) Medical College, 1868; aged 84; surgeon in the Confederate Service throughout the Civil War; died in a hospital in Atlanta, August 14.

Joseph McCann, Columbus, Ohio; Columbus (Ohio) Medical College, 1879; aged 65; died in the Grant Hospital, Columbus, August 28, from the effects of a carbuncle of the neck.

H. W. A. Prichard, Harrisonburg, La.; Tulane University, New Orleans, 1899; aged 49; died in Natchez, Miss., August 11, from acute gangrenous appendicitis.

William M. Pierson, Morristown, Ind.; Medical College of Indiana, Indianapolis, 1874; aged 69; died at his home, August 16, from chronic interstitial nephritis.

Charles G. Anderson ⊕ Detroit; Detroit College of Medicine, 1893; aged 50; died in Harper Hospital, Detroit, August 19, from hemolytic jaundice.

Charles William Powell, Lowndesboro, Ala.; University of Alabama, Mobile, 1890; aged 53; died at his home, August 6, from tuberculosis of the intestines.

Edward Womack Currie ⊕ Charlesbury, N. C.; North Carolina Medical College, Charlotte, 1907; aged 41; died at his home, June 26, from pneumonia.

Elmer Burton Hadley ⊕ Waterloo, Iowa; Eclectic Medical College of Indiana, Indianapolis, 1905; aged 49; died in Indianapolis, June 4, from uremia.

Horace Clinton Coolman, Hudson, Ohio; Cleveland University of Medicine and Surgery, 1869; aged 70; died at his home, August 15, from carcinoma.

Ralph Raum Boyle, Philadelphia; Jefferson Medical College, 1887; aged 52; died at his home, August 26, from congestion of the brain.

Joel L. Selman, Douglasville, Ga.; Atlanta (Ga.) Medical College, 1879; aged 64; died at his home, August 13, from heart disease.

George Hadden, Alta, Iowa; Minnesota Hospital College, Minneapolis, 1888; aged 75; died in Alta, June 24, from myocarditis.

George Lawrence McDermott, Denver; Rush Medical College, 1897; aged 48; died at his home, August 23, from heart disease.

Christiana A. Cook, San Francisco (license, California, 1876); aged 88; died at her home, August 20.

Louis P. Knoll, Newcastle, Pa.; Baltimore University, 1904; aged 42; died in Buffalo, August 12, from tuberculosis.

John Charles Kerr ⊕ Lieut., M. C., U. S. Army, Jefferson, Pa.; University of Pittsburgh, 1897; aged 48, died Oct. 27, 1918, from bronchopneumonia. In The Journal of March 8, the death of Dr. John Cleon Kerr, Lieut., M. C., U. S. Army, Hazlewood, Pittsburgh, was announced. This was an error. The announcement should have read as above written.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

CASE'S RHEUMATIC SPECIFIC

Another Quack Is Denied the Use of the United States Mails

Jesse A. Case of Brockton, Mass., was the "sole proprietor" of a widely heralded nostrum, "Case's Rheumatic Specific." As part of his advertising paraphernalia, Case invariably printed after his name "F.S.Sc. (Lond.)." These imposing letters, as The Journal readers will remember, stand for "Fellow of the Society of Science, Letters and Arts of London," a serio-comic humbug to which many quacks and "patent medicine" fakers belong. The entrée costs one guinea ($5)!

More than five years ago The Journal exposed "Case's Rheumatic Specific." The A. M. A. Chemical Laboratory analyzed the nostrum and found it to have for its essential drug sodium salicylate. Case made much in his advertising of the claim that his preparation contained "No Salicylic Acid." One of the most imposing testimonials used by Case came from one Dr. Willard H. Morse, who, also, is an "F.S.Sc. (Lond.)." Morse, as our readers remember, is a confirmed testimonial-giver, having furnished "certificates" and "analytical reports" galore, on consumption cures, epilepsy cures, cures for blindness, and what not. Strictly in keeping with the orthodox tenets of mail-order quackery, Case used testimonials from a preacher and a village postmaster.

A few days after The Journal's article on the Case nostrum appeared (it was published Jan. 31, 1914) Case's attention was called to it by a correspondent. In reply Case sent a five-page letter that was a gem of its kind. We quote briefly from it. Spelling as in original:

> "I have read the article and analyzed it thoroughly. I know these people and just the object they have in view. I imagine that this was the result of one of two people, either the Medical Advisary Board, this is a syndicate in New York made up of Ex-Postoffice Inspectors. Whether they resigned or were discharged that of course I do not know nor do I care. They have been after me for three years to pay them $600 a year to supervise my printed matter and advertisements, etc. I have told them plainly that I was fully capable of attending to my own business, that everything I had written or printed was true and that I could substantiate it far stronger than anything I had said. This was either from them or from some physician. . . . I suppose that I have been the prime cause of the loss in money, probably into the millions of dollars, to physicians over the country. I suppose they feel a little hurt about the matter, but of course it makes no difference to me. . . . Now as regards sueing or bringing libel against this Journal, it would be sueing a beggar and catching a louse. . . . This article is worth $10,000 to me. I don't know where I could have gone and got the help that they will give me, for that money."

Case also modified his advertising matter somewhat and in a booklet that he sent out made this cryptic reference to The Journal's exposé:

> "The Medical Journals are interested. The American Journal in their January issue has devoted nearly a page and one-half to me and my Specific."

Now comes the United States Post Office and interferes with Mr. Case's presumably lucrative quackery. In April of this year, citation was issued, calling on Case to show cause why a fraud order should not be issued against him. On June 5 the hearing took place, which was attended by Case and his attorney, Robert O. Harris of Boston. After the government's charges and Case's defense had been heard, the matter was gone over by Judge W. H. Lamar, Solicitor of the Post Office Department, who, in his memorandum to the Postmaster General, recommended that a fraud order be issued. It was issued Aug. 18, 1919. To quote from Judge Lamar's memorandum:

"The scheme is typical of the ordinary mail-order medical fraud scheme. The advertising matter is of a kind that would induce nearly any one suffering pain caused by any form of local trouble to purchase the remedy. This is the purpose and result of the circulation of the advertising matter through the mails. The promoter of the scheme, Jesse A. Case, was formerly a police officer. He served on the police force at Brockton, Massachusetts, for a number of years and while thus employed conceived the idea of getting up the alleged remedy for rheumatism which he calls 'Case's Rheumatic Specific.' He says, among other things, that this so-called specific is not to be compared with any other treatment or medicine for rheumatic diseases; that it is designed to remove the cause—not to treat the effect. An analysis of the constituents of this remedy made by the Department of Agriculture shows that it is made up as follows:

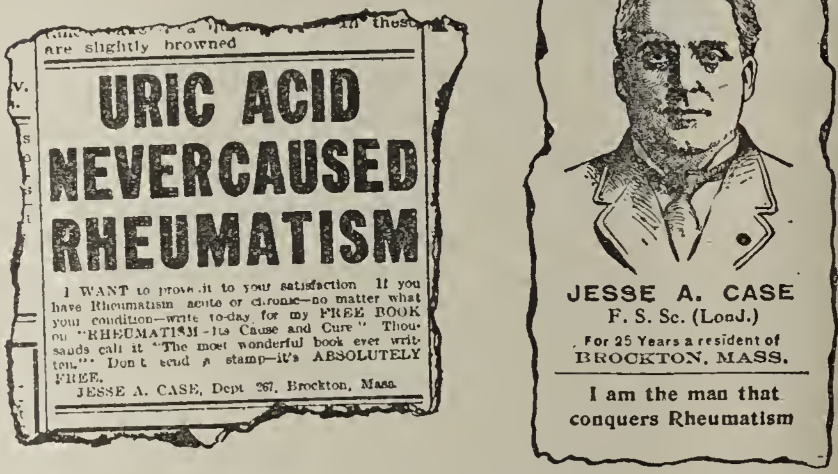
RHEUMATIC PILLS "A"

Ext. Colchicum Root	1	gr.
Sodium salicylate	2	gr.
Potassium acetate	1/10	gr.
Potassium sulphate	1/10	gr.
Calc. Magnesia q. s.		

LIVER TABLETS, NO. 158541 (FULL STRENGTH)

Ext. Cascara	3	gr.
Aloin	3/10	gr.
Resin Scammony	3/10	gr.
Podophyllin	1/3	gr.
Sodium Bicarb.	3/5	gr.
Oleoresin Capsicum	1/50	Min.

The memorandum declares, further, that a careful and extensive report—which contained the analyses just given—had been made for the Post Office Department by Dr. Lyman F. Kebler of the Bureau of Chemistry. Judge Lamar states that Dr. Kebler's analysis of the representations made by Case in exploiting his remedy "points out so clearly the fraud of the scheme that it is deemed pertinent to quote all of the report except the formal parts thereof." As The Journal in its previous article has already covered the fraudulent representations made by Case for his "specific," it is unnecessary to go again into the matter extensively. Judge Lamar, in summing up the matter against Case, said in part:



are slightly browned

URIC ACID NEVER CAUSED RHEUMATISM

I WANT to prove it to your satisfaction. If you have Rheumatism acute or chronic—no matter what your condition—write to-day for my FREE BOOK on "RHEUMATISM—Its Cause and Cure." Thousands call it "The most wonderful book ever written." Don't send a stamp—it's ABSOLUTELY FREE.

JESSE A. CASE, Dept 267, Brockton, Mass.

JESSE A. CASE
F. S. Sc. (Lond.)
For 25 Years a resident of
BROCKTON, MASS.

I am the man that conquers Rheumatism

Case was a liberal purchaser of newspaper space. On the left is a typical advertisement of Case's Rheumatic Specific. On the right: a reproduction of a portion of one of Case's envelopes. He missed few oportunities to feature his title "F.S.Sc. (Lond.)".

"It will thus be seen that practically the whole realm of local inflammatory conditions is covered by the claims of this mail-order vendor for his remedy. It has long since been established as a fact that there are many kinds of affections of this character, each of which may arise from a different cause, and that in order to cure any kind of rheumatism or like ailments, it is necessary first to ascertain its character, and then to prescribe the treatment particularly called for. Case proposes with this remedy to remove any and every cause from which the particular condition being treated may arise. This cannot be done with any one treatment because it is a fact fully demonstrated and authoritatively established that a remedy which will relieve and cure a disease arising from one cause will as a rule in no wise help or cure a disease produced by another and different cause.

"Mr. Case, the respondent herein, is not a physician, and has had little opportunity for study along medical lines.

. . . He knows nothing of the effect of drugs and he is incompetent to prescribe their use. When he sells one form of treatment for all forms of rheumatism, irrespective of the superinducing cause or causes of the trouble, he well knows that it is mere guess-work on his part—a hit or miss chance of recovery, and when he calls such a treatment a 'Specific for Rheumatism,' and solemnly urges its use as a cure for practically all forms of rheumatism he knows that he is not acting in good faith, and his scheme for obtaining money through the mails by such means should be suppressed. This medically unlettered layman poses as an expert in the treatment of rheumatic conditions and has the boldness to display to the public at the head of one of his pamphlets the words, 'Rheumatism, Its Cause, Its Cure, by Jesse A. Case, F.S.Sc. (Lond.).' The representations made by him throughout his entire literature are of a character which have frequently been declared fraudulent by this department. . . . Case describes how he cured himself of a bad case of rheumatism, and this alleged fact was amplified by his direct testimony; but the cross-examination of him shows that he had other troubles, which when removed by treatment other than his own remedy, what he thought was rheumatism gave him no more trouble. The evidence strongly indicates that if he had rheumatism at all it was by no means a serious case. He did have some other serious trouble, as his testimony shows, all of which was treated by physicians and surgeons successfully, after which he regained his health. The postmaster at Brockton, Massachusetts, reports that Case is receiving an average of twenty-eight letters a day in the conduct of this business."

Correspondence

PATHOLOGY OF THE MOUTH IN SCURVY

To the Editor:—I am prompted to write because of the editorial on "Diet in Relation to the Teeth" (The Journal, Aug. 9, 1919, p. 425).

It is true that the dental profession has gone daft on the subject of bacteria as a cause of disease in the mouth. The statement that "they [dentists] seem not to realize that the presence of bacteria in itself never causes disease: we have millions of bacteria in our intestines and still thrive. What harm do the micro-organisms do in the mouth?" is timely. If the dentists were more broadly educated, much time could be saved in the present methods of research. The "powers of resistance" have as much to do with diseases in the mouth as in other parts of the body—indeed, more so in regard to scurvy and kindred diseases of the jaws and alveolar processes, which is my purpose here to show.

The editorial quotes Zilva and Wells (Changes in the Teeth of the Guinea-Pig, Produced by a Scorbutic Diet, *Proc. Roy. Soc.,* London, B **90**:505, 1919), who have made extensive experiments in studying scorbutic animals at the Lister Institute in London. The following are the important points brought out:

> In advanced cases of scurvy, in guinea-pigs and monkeys, the teeth were apparently sound, but useless, since they had been loosened by the gradual absorption of the cement membrane of the alveolar sockets, which had left exposed that position below the neck. As a result, Zilva and Wells state, there must have occurred that periostitic pain, or something analogous, which follows in the case of human patients who are suffering from shrunken alveoli. These teeth also presented, in addition, all the appearances of the changes of senility. . . .
>
> In a scurvy tooth, the condition persists right up to the apex of the root; the change appears to start first in the odontoblastic cells at the top of the pulp, working down toward the apex, followed by distended blood vessels and hemorrhage; then complete fibroid degeneration follows.
>
> If we may believe the new evidence, which deserves a respectful hearing, the teeth are among the parts of the organism first affected by scorbutic causes. Damage may be detected in the teeth before any other symptoms are discovered. For this reason it is not at all unlikely that tooth defects arise owing to faulty diets that are not clearly recognized beforehand.

These points were all discussed and verified by me more than twenty-three years ago. They have all been reiterated over and over in reports of my researches in more than thirty papers, published in different medical and dental journals and in two books from 1886 up to the present time.

Constant research work has been conducted since 1878 on diseases of the alveolar process and teeth resulting from scurvy and lead poisoning, on dogs, cats, guinea-pigs, mice, sheep, cows, horses, monkeys and human material. Cases were obtained at the Cook County morgue and at the Cook County Insane Asylum at Dunning. Animals were salivated with mercury. Material from patients with tuberculosis, other wasting diseases, senility and autotoxic conditions were also examined. This work has all been illustrated, and the progress of the different diseases is comprehensively shown by photomicrographs and halftones.

To appreciate the pathology of the alveolar process, we must first have a clear idea of the anatomy and functioning of the jaws, alveolar process and teeth, since the structures here involved have no analogue in the human body. In some of the lower vertebrates there is a constant succession of teeth throughout life. One set is used for a short time, is shed, and a new set takes its place. As we rise in the scale of evolution, certain animals, including man, possess only two sets. The first is used for the purpose of masticating soft substances, and later when harder and more varied food is required, the first set is shed and a second takes its place which is intended to last as long as life.

When the animal or child is born there are no teeth and hence no alveolar process. While the teeth are developing, the bone or alveolar process builds itself about the teeth to hold them firmly in position. When these teeth are shed to make room for the second or permanent set, the alveolar process absorbs away. When the second set appears, the alveolar process builds itself about these teeth to give them greater strength than the first set. When the second teeth are extracted or lost by disease, the alveolar process again absorbs away. The alveolar process, therefore, is intended only to hold the teeth in position while they are in the jaw. It will be seen that the alveolar process is a transitory structure and is, therefore, very sensitive to a lowered vitality, irritation and disease.

The tooth, so far as disease of the alveolar process is concerned, is a foreign body. The only blood vessels which enter the tooth go direct from the main trunk into the apical foramina to make up and nourish the dental pulp. There are no blood vessels in normal tooth structure. The blood vessels in the alveolar process extend from the neck of the tooth to the end of the root, but reach only the cement of the tooth. The alveolar process, then, is an end-organ—dental pulp.

In disease, then, the tooth can be considered only as a foreign body. The alveolar process being a transitory structure and an end-organ, it is easy for the physician to understand why disease, including anemia, first attacks the alveolar process and why the alveolar process, and not the "teeth," is always first to indicate systemic disturbances.

For more than thirty years I have been able to detect systemic disturbances, such as anemia, kidney and heart lesions, metal and other poisonings, before they were recognized by the patient.

The simplest and most marked illustration of disease of the alveolar process is the symptom of senility. Absorption may begin as early as 30 years of age, and many persons lose all their teeth at 60. Absorption occurs in every mouth over 50 years of age. In my lectures to impress this important point on students I have often made the statement: If man lived long enough and remained in apparently good health, every one would lose his second teeth by absorption of the alveolar process. This might be called normal senile absorption. It is due to autotoxic and other poisons circulating in the blood.

The next most marked illustration of disease and poisons acting on the alveolar process is that of metal poisoning. Patients working in paints, in metal mines, in the arts, etc., frequently become ill. The first symptom of poisoning is developed in the alveolar process. All physicians are familiar with the old method of prescribing mercury, arsenic and other metallic drugs. The system was supposed to have received enough of the drug when "the gums are touched," meaning, of course, when they have become slightly inflamed. The character of the poisoning was indicated by the color of the gums. In lead, the gums became blue; in brass, yellow; in mercury, red, etc. The metals accumulating in the tissues because of the end-organ nature of the structure gave the color to the gums, and also as an irritant caused inflammation.

Perhaps the most interesting symptom of bone absorption is that produced by anemia or some form of heart lesions in which the blood supply of the alveolar process is diminished. Nourishment is cut off and the alveolar process rapidly absorbs away without pain or pus. These people attend to their daily affairs and are not ailing enough to call a physician. The conditions referred to above are all called constitutional causes.

The local causes are all irritants, such as tartar, bad dentistry, excessive use of the tooth brush, tooth picks, etc. These irritants cause the blood to flow into the gums and alveolar process resulting in stasis. Nourishment is cut off and altered metabolism occurs, resulting in bone absorption.

The constitutional and local causes produce what I have called interstitial gingivitis (sometimes the irritation, inflammation and absorption begin at the apex or at another part of the root, but oftener at the gum margin, depending on the cause; hence the name). In their milder forms they have now been explained. There is no pain or soreness attached to this pathologic process. There is simply first absorption of lime salts, after which the fibrous tissue may remain, holding the loose tooth in position for an indefinite period, after which fibroid degeneration takes place and the tooth drops out.

If there is the least soreness, it does not occur until after the lime salts have been removed and the tooth has become loose.

The fibrous tissue may hold the tooth in position for years. The "cement membrane" (peridental), therefore, must be present for the attachment of these fibers to the tooth. The alveolar process, including the fibrous tissue, must first be destroyed, and not the "cement membrane," as stated in the editorial, after which the membrane disappears.

With these simple forms of pathologic conditions of the alveolar process explained, the action of the more severe forms of disease, such as scurvy, on the gums and alveolar process can be better understood.

The constitutional changes due to want of proper diet, altered metabolism, malnutrition, and want of resistance both in the system and in the alveolar process, together with stasis or impoverished blood, as well as poisons (irritants) in the blood, set up a violent inflammation with bone absorption and pain.

My researches do not admit of infection as a cause in any of the conditions cited. The infections, such as actinomycosis, Vincent's angina and trench mouth, which produce the same pathologic condition, are interesting but have no place in this communication.

Eugene S. Talbot, M.D., Chicago.

NEED OF GOVERNMENT ACTION TO CHECK BOTULISM

To the Editor:—I have just read with much interest your timely editorial on "The Relation of Forage Poisoning to Botulism" (The Journal, Aug. 23, 1919, p. 611), in which you refer to my recent contribution on this subject (*Am. J. M. Sc.* **158**:57 [July] 1919). May I venture to make a few comments partly in emphasis of what you have said, and partly additional thereto, hoping thereby to accelerate a movement toward government action, which I deem absolutely essential to the protection of the public health?

You refer to the recovery of one desperately ill patient under the use of the serum furnished by Professor Graham of the University of Illinois. I wish to say that I have never seen a more direct and striking rescue of a patient from an apparently hopeless condition by a single therapeutic agent on clinical trial for the first time. I should like to call attention to one very instructive point in another case (Case VI), in which Dr. Smith observed borborygmus as the first indication of recovery from the intestinal paralysis.

The neutralization of the botulinus toxin by fats cannot be too strongly emphasized, and clearly demands the prompt and energetic use of castor oil or some other laxative fat, for the double purpose of clearing out the ingested toxins, which are largely preformed under saprophytic conditions, and of lowering or destroying the virulence of the toxins by combination with fats. *This must be done quickly,* as intestinal paralysis rapidly supervenes, after which laxatives are, of course, entirely inert.

Another point which cannot be too strongly emphasized is that boiling not only kills the germ but also *destroys the toxin.* Thorough cooking is the most important prophylactic measure against this very widely distributed pathogenic saprophyte.

In this connection I am wondering whether economy of fuel in continental Europe, and the consequent less thorough cooking, which may of course be a matter of taste and habit as well, might not account for the apparently greater prevalence of botulinus outbreaks there. Their frequent and economically serious occurrence in this country among horses and other valuable animals is also suggestive, owing to the absence of cooking in ensilage food. Of course the latter, in the deeper layers of the silo, furnishes typical anaerobic conditions for the growth of this organism. So far as I know, animals are no more susceptible than man to this toxin.

I wish to urge that the machinery of the great American Medical Association be set in motion, in order that it may bring its influence to bear on the proper governmental departments, that there may be provided the greatest degree of protection both by way of prophylaxis and the prompt availability of a curative serum, the efficacy of which has been fully demonstrated experimentally on animals and to a very limited but apparently satisfactory degree on human subjects.

G. W. McCaskey, M.D., Fort Wayne, Ind.

"CONDUCTIVE ANESTHESIA BY INTRASACRAL INJECTION OF PROCAIN"

To the Editor:—In The Journal, July 26, 1919, p. 298, appeared an abstract of an article of mine in the *British Medical Journal,* under the title of "Conductive Anesthesia by the Intrasacral Extradural Injection of Procain." Allow me to point out an inaccuracy in this abstract. I did not say that the method described is a new one. It was attempted nearly twenty years ago by Cathelin, and has been used from time to time since then by different French and German surgeons, with varying degrees of success. It has given best results in the hands of Americans, among others Dr. W. E. Faulkner of Boston, from whom I learned the technic in 1914. My statement was that, so far as I had been able to discover, the method was not in use anywhere in this country (England). I find that I am mistaken in this, and that Mr. Percival Cole has been using it recently at the Cancer Hospital, London.

I should be grateful if you would publish this letter, that I may not appear to claim indirectly a priority which does not belong to me.

Samuel R. Meaker, M.D., M.R.C.S. (Eng.),
Esher, Surrey, England.

The Profession in the War.—We have passed through a time which, thank God, we shall never see again, under a strain which we perhaps did not really appreciate till it was relaxed. Looking back upon it all, we can say, first, that without any doubt whatever the medical work of the army was extraordinarily well done; second, that those at any rate who were connected with hospitals learned more than they ever learned before; and, lastly, that perhaps the greatest lesson of all was that over this wide area and throughout this immense body of men there was a unity of effort and a fellowship of spirit such as we had never before imagined could exist.—Major General Sir Wilmot Herringham, C.B., M.D., *British Medical Journal,* Jan. 4, 1919.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WAR RISK INSURANCE

To the Editor:—Just a few words of disagreement with your indorsement of War Risk Insurance in The Journal, August 23. Yours is the first favorable comment I have read, while the complaints are unceasing.

1. If the bureau were efficiently managed, as it is not, the plan would still be a poor one. It arbitrarily dictates what persons may be beneficiaries, and it does not pay cash.

2. Why advertise low rates on $1,000 of insurance, when they are in fact high rates on the amount of insurance actually given? In the twenty years, if the beneficiary live that long, the government gets back in interest on $1,000 (deducting the payments each month) over 50 per cent. of what it pays out.

3. Now as to naming beneficiaries: My nearest living relative is an aunt. I was told she could not be a beneficiary eight months after I had applied for insurance. I was glad I had stopped my payments five months previously. The three premiums I did pay I charge to bitter experience.

Stuart E. Mandeville, M.D., New York.

Answer.—This letter was referred to the Bureau of War Risk Insurance, which replies:

1. The bureau has repeatedly recommended to Congress that the War Risk Insurance Act be changed so as to enlarge the permitted class of beneficiaries to include uncles, aunts, foster parents, etc. There is at present pending in the House of Representatives (H. R. 8778) a bill to amend and modify the War Risk Insurance Act in this and other particulars. If this bill becomes law, the insured under a United States government policy may elect to have the insurance paid in a lump sum to the beneficiary, or in monthly payments covering a period of not less than thirty-six months.

2. Your correspondent assumes that the government pays no interest on the unpaid instalments of the insurance during the twenty year period. Section 402 of the War Risk Insurance Act provides "That . . . all calculations shall be based upon interest at three and one-half per centum per annum. . . ." As a matter of fact, the bureau pays interest at 3.5 per cent. on all unpaid instalments; $5.75 per month for twenty years amounts to $1,380.

3. As stated above in answer to the first comment, the bureau has no discretion in the matter of the permitted class of beneficiaries. Section 402 of the War Risk Insurance Act provides: "The insurance shall be payable only to a spouse, child, grandchild, parent, brother or sister, and also during total and permanent disability of the injured person, or to any or all of them." The application for insurance in favor of an aunt, was, of course, invalid; and the premiums paid in may be recovered by writing to the Insurance Division, Bureau of War Risk Insurance, setting forth the facts, and giving the full name, rank and organization at time of applying for the insurance, and Army serial number if in the Army.

DEATH BY HANGING

To the Editor:—I am anxious to obtain information: (1) as to what lesion of the spine usually occurs after hanging; (2) as to how soon death ensues.

C. J. Habhegger, M.D., Watertown, Wis.

Answer.—1. The pathologic effects of hanging are partly those of strangulation, to which must be added the effects of the weight or fall of the body. It is possible, therefore, that death may occur without any lesion of the spine whatever, although it is quite common to have injury of the spinal cord or medulla by dislocation of the vertebrae or fracture of the odontoid process of the axis. The findings depend on a number of factors, including length of drop, weight of body, adjustment of noose, etc.

2. If the neck is broken death is immediate; in the majority of instances, however, asphyxiation is the cause of death. This may require anywhere from one minute to a much longer time—heart beats sometimes persisting for from ten to twenty minutes. The mechanism has been classified by Peterson and Haines' textbook of Legal Medicine and Toxicology into three stages: first, quietude, consciousness being possible, lasting from a few seconds to one or one and one-half minutes; second, the stage of respiratory efforts and convulsive movements, with unconsciousness lasting from two to four or five minutes; third, the stage of almost absolute quiescence, varying from a few minutes to as much as fifteen minutes before death finally ensues.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

Colorado: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Idaho: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.

Illinois: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.

Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.

Kansas: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.

Minnesota: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.

Montana: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

New Mexico: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.

New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.

Oklahoma: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

West Virginia: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Wyoming: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

Report of Seventh Examination of the National Board of Medical Examiners

The seventh examination of the National Board of Medical Examiners was held in Philadelphia, June 2-7, 1919. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; chemistry, 75; pathology, 75; bacteriology, 50; materia medica, pharmacology and therapeutics, 75; medicine, 200; surgery, 200; obstetrics and gynecology, 75; hygiene and sanitation, 50; medical jurisprudence, 25. A percentage of 75 was required to pass. Falling below 65 per cent. in two subjects, or below 50 in one subject, constituted a failure.

There were seventy-three applicants who applied for examination. Sixty-five were found to have the essential preliminary and medical qualifications, and fifty-two of these appeared for examination. Of these, fifty-one passed, and one failed. The following colleges were represented:

PASSED

Name	College	Year of Grad.
J. Alison Moore,	University of Penna	1918
Samuel E. Stokes,	University of Penna	1918
Joseph P. Replogle,	University of Penna	1918
Rowland S. Philips,	University of Penna	1918
Royal L. Works,	Rush Medical School	1918
John H. Arnett,	University of Penna	1916
Richard T. Ellison,	University of Penna	1918
Henry B. Conrad,	Johns Hopkins	1916
Vernon W. Spickard,	University of Penna	1918
William P. Creekmur,	University of Penna	1918
Charles A. Behney,	University of Penna	1917
Rodes E. Yager,	Johns Hopkins	1918
J. James Cancelmo,	University of Penna	1917
James K. Stoddard,	Johns Hopkins	1916
Harriet T. Carswell,	Woman's Medical College	1918
Howard P. Sawyer,	Yale Medical	1918
Frederick L. Hartman,	University of Penna	1918
Johan W. K. Kehrer,	University of Utrecht	1913
Wilburt C. Davison,	Johns Hopkins	1917
Alberta Peltz,	University of Penna	1918
LeRoy H. Sloan,	Rush Medical	1918
Malcolm Kemper,	Rush Medical	1918
A. G. C. Schnack,	Johns Hopkins	1915
Robert Shoemaker 3d,	University of Penna	1916
Charles F. Metzger,	University of Pittsburgh	1918
James F. Norton,	College of Phys. and Surgs. Columbia	1918
Kevork N. Bostanian,	College of Phys. and Surgs. Columbia	1916
Merle R. Hoon,	University of Penna	1918
Bynum McW. Works,	University of Texas	1918
Alexander McL. Milligan,	University of Penna	1917
Chapin Carpenter,	University of Penna	1916
J. H. Smith,	University of Penna	1918
Earl F. Henderson,	University of Penna	1918
Arthur C. Dean,	Jefferson Medical School	1917
Louis F. Foster,	University of Penna	1918
Arthur C. Bitter,	University of Penna	1918
James W. Nixon,	University of Penna	1918
David E. Smith,	University of Penna	1918
Daniel C. Reyner,	University of Penna	1918
Leslie O. Ashton,	Harvard Medical	1917
William H. Sprunt,	University of Penna	1918
Albert R. McFarland,	University of Penna	1918
William E. Costolow,	University of Penna	1918
James B. Moloney,	Harvard Medical	1918

William E. McGarvey, University of Buffalo	1918
William P. Kroger, University of Penna	1918
Ernest J. Dewees, University of Penna	1918
Norman H. Taylor, Harvard Medical	1918
William R. Morrison, Indiana Univ. Med. School	1918
Emily P. Bacon, Johns Hopkins	1916
Alexander E. Burke, Georgetown University	1918

FAILED

University of Michigan	1918

AVERAGES OBTAINED *

Candidates by No.	Anatomy; Value, 100	Chemistry; Value, 75	Materia Medica, Pharmacology and Therapeutics; Value, 75	Obstetrics and Gynecology; Value, 75	Hygiene; Value, 50	Medicine; Value, 200	Surgery; Value, 200	Pathology; Value, 75	Bacteriology; Value, 50	Physiology; Value, 75	Medical Jurisprudence; Value, 25	Final Average
1	69	86.6	80.0	74.6	70	80.75	82.75	77.3	80	84.0	80	793.0
2	93	93.3	85.3	82.6	80	92.00	89.25	90.0	89	96.0	80	895.5
3	72	93.3	84.0	80.0	83	78.00	79.75	76.6	82	87.3	92	809.0
4	84	93.3	89.3	85.3	82	82.25	87.75	86.6	84	80.0	80	855.0
5	73	80.0	77.2	64.0	72	75.5	87.75	84.0	76	80.0	84	783.4
6	80	86.6	76.0	86.6	75	77.25	80.5	89.3	77	78.0	80	804.0
7	84	90.6	82.6	75.3	71	72.5	73.75	93 0	75	80.0	60	781.0
8	84	90.6	94.6	80.0	92	83.75	84.5	87.3	80	83.3	76	852.5
9	84	82.6	75.3	82.6	85	72.5	82.00	76.0	75	82.0	80	792.0
11	84	93.3	80.0	94.6	84	91.00	71.5	78.6	75	74.6	80	814.5
12	83	93.3	75.3	89.3	90	87.75	90 00	94 6	80	81.3	76	867.5
13	78	86.6	84.6	93.3	88	84.5	84.75	93.3	92	82.0	88	858.5
14	78	86.6	92.0	82.6	79	82.5	79.5	76.0	77	81.3	76	833.0
15	77	82.6	70.0	77.3	81	84.00	86.25	82.6	73	82.6	64	806.5
17	86	93.3	88.0	93.3	83	92.25	85.00	92.0	78	88.0	72	880.0
18	81	80.0	70.0	93.3	91	87.00	86.5	92.6	85	86.0	68	849.5
19	90	97.3	84.0	97.3	90	89.75	83.00	96.0	80	92.0	80	890.5
20	71	93.3	74.6	80 0	81	81.75	83.75	80.0	75	88.0	64	808.0
21	72	86.6	74.6	82 6	80	83.00	84.5	65.3	80	74.6	68	792.0
22	94	90.6	74.6	94.6	81	75.5	82.5	85.3	80	82.0	68	828.0
23	83	93.3	84.0	76.0	83	77.75	84.5	82.6	79	81.3	76	820.5
24	79	89.3	88.0	90.6	79	83 00	87.25	84.0	85	78 0	80	844.0
25	90	86.6	90.0	85.3	82	68.00	83.00	93.3	70	74.6	76	809.5
26	73	90.6	82.0	80.0	89	80.25	82.25	84.6	67	86.0	80	813.5
27	64	90.6	88.0	80.0	78	73.5	89.75	81.3	75	84.0	76	804.0
28	84	86.6	84.0	88.0	92	82.00	83.75	97.3	80	88.0	76	853.5
29	79	93.3	80.0	86.6	81	84.5	75.5	84.0	90	80 0	68	811.5
31	90	86.6	84.0	80.0	82	84.00	88.4	79.3	85	78.0	76	843.3
32	87	66.6	88.0	77.3	81	86.25	82.9	98.6	98	82.0	76	843.3
33	84	86.6	74.6	70.6	88	88.5	82.00	81.3	83	84.0	76	827.5
34	81	93.3	75.3	84.0	90	85.75	84.5	81.3	70	96.0	80	844.0
35	84	93.3	90.0	77.3	90	86.25	83.5	76.6	95	88.6	80	855.5
36	89	90.6	97.3	80.0	91	88.5	87.4	82.0	78	78.0	84	867.4
39	77	86.6	77.3	77.3	89	86.75	75.75	82.6	74	81.3	88	809.5
40	66	86.6	80.0	88.0	92	87.5	87.5	92.6	78	92.0	84	851.5
41	71	93.3	76.0	73.3	70	81.25	74 00	75.3	64	72.0	80	761.0
42	75	96.0	80.0	68.0	88	85.75	81.75	87.3	76	81.3	76	820.5
43	86	86.6	93.3	82.6	82	84.25	82.00	66.6	82	78.0	88	828.0
44	85	86.6	72.0	77.3	78	77.25	79.00	66.6	80	81.3	80	784.5
45	72	90.6	86.0	77.3	81	71.25	79.5	80.0	74	72.0	80	775.5
46	66	86.6	74.6	80.0	80	75.75	63.25	77.3	58	74.6	80	728.0
47	90	86.6	92.0	80.0	79	90.5	75.00	82.6	83	90.0	80	845 5
48	66	96.0	92.0	53.3	78	81.5	73.00	69.3	88	90 0	84	789 5
49	84	96.0	86.6	80.0	79	85.25	72.5	86.6	86	88.0	76	829.0
50	68	86.6	70.6	82.6	80	84.75	71.5	68 0	70	74.6	80	762.5
51	77	86.6	82.0	77.3	93	81.00	80.5	89.3	84	92.0	84	830 0
52	72	90.6	79.3	77.3	81	90.5	76.25	79 3	62	73.3	80	797.0
53	66	86.6	72.0	77.3	72	76.5	75.25	70.0	75	86.6	84	758 0
54	77	86.6	92.0	74.6	89	76.75	81.5	94 0	88	76.0	100	824.5
55	66	77.3	91.3	81.3	64	84.5	91.5	94.0	84	82.0	80	831.5
56	75	96.0	88.0	80.0	73	87.00	86.75	94.6	86	88.0	92	860.0
57	76	93.3	90.6	86.6	71	87.00	79.25	90.6	91	90.0	88	849.0
General aver. by sub.	70.1	81.1	75.3	74.0	73	75.4	74.5	76.3	72.5	75.5	72	

* The general average of the candidates is based on subject values as rated by the board.

EXAMINATIONS AND TIME ALLOWED

Subject	Kind of Examination	
	Written	Other, and Remarks
Anatomy	3 hours	Oral with prepared spec. 24 min. for each candidate
Chemistry	3 hours	Three hours laboratory in physiologic chemistry
Physiology	3 hours	Laboratory 2 hours
Pathology	3 hours	Laboratory exam., 20 min. each cand.
Bacteriology	2 hours	Laboratory 2 hours
Materia medca, pharmacology and therapeutics	3 hours	Laboratory 2 hours
Medicine	3 hours	Clinical lab., 1 hour each cand.; clinical med., 3 hours
Surgery	3 hours	Lab. op. surg. and applied anatomy, 3 hours; clin. exam., 3 hours
Eye, ear, nose and throat	....	Clinical exam., 30 min. each cand.
Dermatology	....	Clinical exam., 30 min. each cand.
Obstetrics and gynecology	3 hours	
Hygiene	2 hours	
Medical jurisprudence	2 hours	

The examination consisted of written, oral, laboratory and clinical tests. The questions asked were as follows:

ANATOMY

Written Examination.—1. Describe the knee-joint with overlying structures and muscular attachments in immediate vicinity. 2. Describe the peritoneum. 3. Give attachment, action and nerve supply of following muscles: coracobrachialis, pectoralis minor, plantaris, rhomboideus major. 4. Name nasal accessory sinuses and locate openings from each into nasal cavity. 5. In simple fracture of femur in middle third, give anatomic reasons for difficulty in retaining fragments in apposition.

Oral Examination.—This was conducted with the use of specimens of the brain, osseous system and internal organs, and specially prepared dissections demonstrating the gross anatomy of joints, and definite regions of the body; the identification of four specimens of histology under the microscope.

PHYSIOLOGY

Written Examination.—(Answer five questions): 1. Discuss the physiologic function of the pylorus in digestion. 2. Describe the origin and function of secretin. 3. Define periodic breathing, name the types of periodic breathing, discuss the causes of the same. 4. Discuss the propagation of the heart-beat in the mammalian heart. Define auricular fibrillation. 5. Illustrate by graphic tracings the effect on respiration, heart-rate and blood-pressure (a dog being used for demonstration). (*a*) Electrical stimulation of the vagus. (*b*) Intravenous injection of epinephrin (2 c.c. 1:100,000 solution). To what is the change in blood-pressure due? (*c*) Intravenous injection of digitalis (alcohol-free tincture). How does the blood-pressure curve differ from that produced by the intravenous injection of epinephrin? (*d*) Inhalation of amyl nitrite (tracheal cannula). Explain change in blood-pressure curve. 6. Describe in detail the physiology of the xanthine basis.

Laboratory Examination.—Each candidate was examined on tracings of the arterial and venous pulse from normal and abnormal cases, blood pressure readings, and heart sounds.

PHYSIOLOGIC CHEMISTRY

Laboratory Examination.—To each candidate the following specimens were assigned: 1. Four samples of urine. Make a complete qualitative examination (clinical and microscopic) and report results with conclusions. If sugar be found in any specimen determine the amount. 2. Two samples of gastric contents. Test for acids and if free hydrochloric acid be found estimate the amount. 3. Two samples of blood serum. Remove all proteins; prove that this has been done, and after the removal of the proteins ascertain whether or not nonprotein nitrogen exists in the specimens. State clearly in the report the methods employed and the conclusions drawn from these findings.

MATERIA MEDICA AND THERAPEUTICS

Written Examination.—(Answer five questions): 1. Name two organic preparations of arsenic, and give the dosage, mode of administration and indications for the use of each. 2. (*a*) Give the source and physical properties of salicylic acid. (*b*) Give three therapeutic uses of this drug. (*c*) Write a prescription containing a preparation of salicylic acid, with full directions to the patient, and indicate the dose intended. 3. (*a*) In which forms of heart disease should digitalis be used with caution, and why? (*b*) In which types of circulatory disturbance does digitalis exert its best therapeutic effect? 4. Name three drugs classed as antipyretics and explain the antipyretic action of each. 5. Discuss the relative value of iron and arsenic in anemia. 6. (*a*) Discuss the constipating effect of opium. (*b*) Describe the effect of morphin on the respiratory center. (*c*) Explain the analgesic effect of morphin.

PHARMACOLOGY

Practical Examination.—1. Into a lymph sac of one frog inject 1 c.c. of Solution A, into another, 1 c.c. of Solution B. Observe and briefly describe symptoms developing in the following fifteen minutes. Identify action exhibited: identify the drugs or the group to which each belongs. (Solution A was strychnin: B was chloral hydrate: strengths chosen so that symptoms developed in five to eight minutes.) 2. Into the right eye of Rabbit C have been instilled several drops of drug Solution C. Into the right eye of Rabbit D have been instilled several drops of drug Solution D. Note the drug and its action. (Solution C was cocain: D was atropin.) 3. Examine Tracing 1, showing arterial blood pressure and contractions of right ventricle, made with mercury manometer and myocardiograph, respectively. What is the drug and what structures have been acted on to produce these results? (Digitalis.) 4. Examine Tracing 2, showing arterial blood pressure and contractions of right ventricle. What statement can be made concerning the cause of right ventricle? What statement can be made concerning the cause of the fall in blood pressure in each case? To what group of drugs does each belong? Identify them if possible. (Nitroglycerin; chloroform.)

OBSTETRICS AND GYNECOLOGY

Written Examination.—1. Describe the normal mechanism of labor in a face presentation, and outline the treatment: (*a*) When the case is seen early in labor. (*b*) When seen late in labor. 2. Diagnosis, treatment and possible sequelae of hydatidiform mole. 3. What are the causes and describe the diagnostic signs of threatened rupture of the uterus? What is the treatment after rupture has occurred? 4. Describe two varieties of contracted pelvis and the technic of pelvic menstruation. 5. Give in detail the local and general treatment of puerperal sepsis when the patient is seen early. 6. What are the diagnostic signs of an intraligamentous cyst and describe the special technic of an operation for its removal. 7. Describe the symptoms and the nonoperative treatment of subinvolution of the uterus complicated by retrodisplacement.

Oral Tests.—During the written examination, each candidate was required to make demonstrations on the manikin and to explain different obstetric operations.

MEDICINE AND MEDICAL JURISPRUDENCE

Written Examination.—1. (*a*) Describe the Stokes-Adams syndrome, and the mechanism of heart-block. (*b*) Mention the symptoms and physical signs of partial heart-block. (*c*) Treatment of a case of partial heart-block at age 55; with enlargement of the heart, myocardial degeneration, and arteriosclerosis, all of moderate degree; and with symptoms of beginning lack of compensation. 2. A man of 28 years, employed in the manufacture of grinding wheels, presents signs of slight dulness, bronchovesicular respiration, and increased transmission of voice sounds at the right apex of the lung. No râles are heard. Tubercle bacilli are not found in the sputum. (*a*) Discuss the diagnosis, and state what symptoms and other physical signs will, if found to be present, affect the diagnosis. (*b*) Complete a clinical picture by a consistent selection from the symptoms and physical signs mentioned by you in (*a*); then state your diagnosis and outline treatment. 3. A man of 50 years has well-advanced chronic interstitial nephritis; a moderately enlarged, but well-compensated heart, without murmurs; and moderate arteriosclerosis. Systolic blood-pressure, 210; diastolic, 120. (*a*) Outline diet, medicinal treatment, and general regimen—giving your reasons briefly. (*b*) Prognosis as to probable duration and cause of death. 4. A male patient of 30 has had recurrent attacks of indigestion accompanied by constipation and griping abdominal pain. (*a*) On what criteria would you decide whether or not this is a case of chronic appendicitis? (*b*) assume that the diagnosis of chronic appendicitis is the most probable one—discuss briefly the question of operation and the basis on which you would advise surgical operation. 5. (*a*) Define leukemia and discuss the classification of the varieties of this disease. (*b*) Give the blood picture of two varieties of leukemia. (*c*) Discuss the probable course, prognosis and duration of each case presented in (*b*). 6. During an epidemic of acute poliomyelitis you are called to attend a child of 6 years, acutely sick with fever and vomiting. (*a*) Describe the procedure to determine whether this disease exists. (*b*) On what results of such investigation would you establish a positive diagnosis? (*c*) Discuss the treatment of any resulting paralysis by medicinal means, electricity, and physical therapy at different stages of the paralysis. 7. Give the incubation period, and mention three important diagnostic points in each of the following diseases: (*a*) scarlet fever; (*b*) measles; (*c*) smallpox; (*d*) diphtheria; (*e*) typhoid fever. 8. A case of cerebrospinal meningitis is discovered at a mobilization camp. Describe the measures that should be adopted to prevent the spread of the disease. 9. (*a*) State how you would determine that a person is actually dead. (*b*) What conditions simulate death? 10. (*a*) Define an hallucination and a delusion, indicating the differences between the two. (*b*) Give an illustrative example of each.

Clinical Laboratory.—Each candidate was required to describe and diagnose the following: 1. Urine sediments; report findings. 2. stained smears from a group containing: pernicious anemia; acute lymphatic leukemia; splenomyelogenous; lead poisoning; tertian malaria. Diagnose and give reasons for same. One stool washing from a group of three, containing in addition to the usual vegetable debris, meat fiber, etc., the following ova: *Taenia saginata; Ascaris lumbricoides; oxyuris vermicularis; Uncinaria americana; Ascaris lumbricoides; Trichocephalus trichiuris.*

Clinical Examination.—This was held in the wards of the Philadelphia General Hospital, each candidate being assigned a long case for a physical examination, asked for the laboratory or special findings, make his conclusions, and stand a quiz on these. Following this the candidate was assigned to short cases representing some well defined condition, as pleural effusion, enlarged heart, aneurysm, large liver, ascites, etc., to test physical examination methods. The clinical conditions included; aortic insufficiency, splenomegaly, subacute endocarditis, severe anemia; syphilis, double aortic disease, dilated hypertrophy of heart, arteriosclerosis, chronic nephritis mitral insufficiency, chronic interstitial nephritis, hypertrophied heart, lungs, gastric syphilis aneurysm, old tuberculosis, cardiac asthma, myocarditis, acute articular rheumatism, tuberculosis and effusion, essential asthma, cardiorenal, pernicious anemia, carcinoma of stomach, diabetes, hypochondriasis, acute rheumatism, nephritis, auricular fibrillation, ascites, chronic rheumatism, aortic regurgitation, aortic stenosis, mitral regurgitation, enlarged liver, emphysema, aortic and mitral diseases, old bronchitis, thickened pleura.

HYGIENE

Written Examination.—1. Describe a sanitary dairy. 2. Discuss approved methods of ventilating and heating a hospital in a temperate climate. 3. Discuss the selection, construction and administration of a detention camp for the control of bubonic plague. 4. What are the essential factors in providing for the hospital care of contagious diseases —construction, organization and administration? 5. Contrast the insect transmission of typhoid fever and malaria.

SURGERY AND DERMATOLOGY

Written Examination.—(Answer seven questions in surgery and one in dermatology.) 1. Diagnosis, differential diagnosis and treatment of concussion of the brain. 2. Diagnosis, differential diagnosis and treatment of carcinoma of the tongue. 3. Discuss deep cervical suppuration. 4. Discuss the prognosis of gunshot injury of the solid organs of the abdominal cavity and describe the treatment of gunshot wound of the kidney involving the hilum. 5. Discuss the differential diagnosis between an infected gallbladder and chronic gastric ulcer. 6. How is the occurrence of ankylosis after injury to a joint explained and give in detail the surgical methods for restoration of function in confirmed ankylosis of a joint. 7. Discuss the surgical management of a compound, comminuted, infected fracture of the middle third of the humerus. 8. Discuss tetanus.

DERMATOLOGY

9. Give the differential diagnosis (skin only): (*a*) Between smallpox and papular syphilis; (*b*) Between smallpox and chickenpox. 10. Describe: (*a*) vegetable parasitic disease with general distribution. (*b*) one animal parasitic disease with general distribution. (*c*) give differential diagnosis between diseases described in A and B.

SURGICAL PATHOLOGY

During the written examination each candidate was given a laboratory examination in surgical pathology. The specimens were selected from the following: carcinoma of breast, chronic cystic mastitis, fibro-adenoma of breast, acute calculus cholecystitis, colloid goiter, hypertrophy prostate, carcinoma of jaw.

Laboratory Examination in Operative Surgery.—Each candidate was given one operation on the cadaver selected from the following list: trephine; tracheotomy; thoracotomy; appendectomy; lateral intestinal anastomosis; inguinal hernia; suprapubic cystotomy; amputations of arms, forearms, fingers, thigh, leg, and foot; and also a practical examination in regional anatomy.

Clinical Examination.—This was held in the wards of the Philadelphia General Hospital, each candidate was given at least three cases and these were chosen from the following: fracture of head of humerus; fracture of humerus, involving musculospiral nerve; fracture of hip; fracture of tibia and fibula; fracture of femur; supracondylar; leg ulcers; abscess of the neck; cervical adenitis with bilateral sinuses; tuberculosis of hip; destruction of head and neck of femur; tuberculosis of knee; tuberculous glands of neck; gangrene of stump from recent amputation; contraction from infected hand; old curvature of spine; bad union of Pott's fracture; dislocation of radius; dislocation of hip joint following arthritis of hip joint following influenza; osteomyelitis of femur; chronic empyema; epigastric median hernia; operated hernia; mass in scrotum; inguinal hernia; umbilical hernia; carcinoma of stomach; gastric ulcer; appendicitis; arthritis deformans (chronic); monarthritis of knee, gonorrheal; gallbladder disease (cholelithiasis).

PATHOLOGY

Written Examination.—(Answer five questions.) 1. Describe the mode of spontaneous cessation of hemorrhage, indicating the factors involved; what differences in the fate of the escaped blood in a nonfatal hemorrhage into the peritoneal cavity as contrasted with a hemorrhage into the midst of the body tissues. 2. Describe the steps of formation and the gross and minute features of the contents and wall of a frank staphylococcic abscess; indicate what is meant by the "pointing" of an abscess and how accomplished. 3. Name at least three types of "benign" and an equal number of "malignant" neoplasms; what features are concerned in the "malignancy" of a tumor; discuss briefly in what ways and under what circumstances a "benign" tumor may seriously affect the well-being of the life of the host. 4. What structural changes are believed essential to the establishment of "pancreatic diabetes mellitus", what noxious substances are present in the blood underlying diabetic convulsions and coma, and how are they believed to act to induce such phenomena. 5. Describe the gross features of at least one anatomic variety of bronchiectasis; what factors are involved in the causation and development of bronchiectases; what types of respiratory symptoms are they apt to induce; and what serious complications are to be feared from the existence of bronchiectases? 6. Describe grossly and minutely a kidney the seat of a pyelonephrosis, supposing, as frequently, the condition is secondary to a suppuration in the lower urinary tract or vicinity; indicate the paths of the "ascending infection" and how are the pyogenic organisms distributed to and into the kidney and pelvis.

Laboratory Examination.—During the written examination each candidate was given gross specimens and microscopic sections chosen from the following: acute fibrinous pericarditis; chronic fibrinous adhesive pericarditis; anthracosis of lung; several specimens of tuberculosis of lungs; atrophic cirrhosis of the liver; intussusception of small intestine; tuberculous mesenteric lymph nodes; melanotic sarcoma of liver; multilocular glandular cystoma of ovary; aneurysms of aorta; senile and syphilitic arteriosclerosis; lobar pneumonia; sclerotic mitral valvulitis (buttonhole mitral); carcinoma of esophagus; acute fibrinous pleurisy; chronic fibrous pleurisy; hypertrophy of heart; chronic interstitial nephritis; anemic infarct of spleen; scirrhous carcinoma of stomach; uterine fibroid.

Microscopic: bronchopneumonia; miliary tuberculosis of lung; cirrhosis of liver; acute fibrinous pericarditis; scirrhous carcinoma of stomach.

BACTERIOLOGY, IMMUNITY AND MEDICAL ZOOLOGY

Written Examination.—1. (*a*) Briefly discuss, without giving technic, the question of laboratory diagnosis of typhoid fever, especially as to relative value of different methods and suitable period for employment of same. (*b*) Give sources of milk contamination to be considered in the epidemiology of a typhoid fever outbreak. 2. *Plague,* (*a*) Give more important morphologic and cultural characteristics of the plague bacillus. (*b*) Give mode of infection in (1) bubonic plague, (2) pneumonic plague. (*c*) Give laboratory procedures necessitated in the diagnosis of bubonic plague. 3. (*a*) Give the names of bacteria and molds which may be found in a smear made from the throat, and which of these would fail to grow in culture on a Löffler blood serum slant. (*b*) What findings in a smear establish the diagnosis of Vincent's angina? 4. (*a*) What do you understand by (1) antigen, (2) passive immunity, (3) macrophage, (4) immune body, (5) homologous serum? (*b*) Give a general idea of the method of establishment of the diphtheria antitoxin unit. 5. *Tapeworms.* (*a*) Give names and general points of distinction of the four common tapeworms of man. (*b*) Give source of infection for the large human tapeworms. (*c*) Is man the intermediate or definitive host for the cestodes above noted in (*b*)?

Laboratory Examination.—The examiner is provided with tubes, plates, etc., of various standard culture mediums. The condition is examined as to the composition, uses, technic of inoculation and study of same. There are also provided plates of plain agar, blood agar, etc., showing colonies, and the candidate is examined as to his ability to recognize and discuss colony characteristics with the unaided eye and magnifying glass. The candidate is also examined as to interpretation of gas and acid production on fermentation tubes, litmus milk, etc. Various serologic preparations, such as Wassermann or other complement fixation tests, microscopic agglutination, precipitin reactions, etc., are provided and interpretation required of same. Specimens of intestinal parasites and ova of same, together with stained smears of blood preparation, of parasites will be given the candidate for identification.

A British View of the Needs of Medical Education

In a memorandum published late in 1918 Sir George Newman, chief medical officer of the London Board of Education, made the following statement relative to the most essential needs in medical education as revealed by the world war:

"There must be from time to time, and in accordance with the direction and establishment of new medical knowledge or the requirements of the times, reasoned effort to eliminate the unnecessary and the redundant and to concentrate upon the essential things. . . . All through the curriculum we need to impose less on the memory of the student, and seek rather to draw out his mind and faculties, his interest and perception, compelling him to do things for himself with his own hands and his own head, and to observe and experiment, to study intensively rather than extensively, to think and wonder and investigate for himself. This is to educate him and give him independence, to add experience to knowledge and wisdom to experience, and above all to foster the love of learning." Sir George emphasized the following points:

(*a*) Be strong in physiology, anatomy, and pathology—the bed rock of medicine.

(*b*) Have a thorough training in physical signs and clinical examination.

(*c*) Concentrate more on outpatient department, on children's ailments, on subjective symptoms and on anything which will bring the student into personal touch with the beginnings of disease.

(*d*) Pay wider attention to the question of therapeutics, nonmedicinal as well as medicinal.

(*e*) Lay special stress upon preventive medicine, dealing with ordinary as well as infectious diseases. In other words death under fifty must be prevented.

(*f*) Provide for efficient postgraduate teaching.

Book Notices

The Operative Treatment of Chronic Intestinal Stasis. By Sir W. Arbuthnot Lane, Bart, C.B., Consulting Surgeon to Guy's Hospital. Fourth edition. Cloth. Price, $5. Pp. 328, with 133 illustrations. New York: Oxford University Press, 1918.

This edition is simply another impression of the former edition so far as the work done by the author is concerned. The only difference between the two editions is the addition to the present one of a few short chapters by various writers which are intended to lend support to the theory advanced by the author. All of the extravagant claims made in the former edition were thoroughly reviewed at the time, and as there has been no change made in the views of the author and no new evidence offered to support those views, it is unnecessary to repeat what was said concerning them in the former review.

Malaria and Its Treatment in the Line and at the Base. By Capt. A. Cecil Alport, R.A.M.C., M.B., Ch.B., Officer in Charge of Medical Division of the 28th General Hospital, Salonika. Cloth. Price, $6. Pp. 279, with illustrations. New York: William Wood & Co., 1919.

This book is based on personal observations and experiences. It was written under active service conditions when the author had practically no access to the literature. The requirements of the busy practitioner have been kept in view, the language is simple, and there are numerous instructive illustrations. The chapters on the clinical features of malaria and on the treatment of its various forms contain many accurate and detailed clinical histories, and should be of value and interest to physicians in malarial districts. The price seems excessive.

Roentgen Interpretation. A Manual for Students and Practitioners. By George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital, and Howard E. Ruggles, M.D., Roentgenologist to the University of California Hospital. Cloth. Price $2.75. Pp. 211 with 181 illustrations. Philadelphia: Lea & Febiger, 1919.

This book is intended to give the essentials of roentgen interpretation. It is designedly elementary. There is a mere outline of each of the subjects. The descriptive text covers not more than ninety pages, though the subjects include the roentgenography of bones with their many diseases—one half of the book—of the heart, lungs, stomach, bowel, kidney, bladder, in fact, the entire body. One cannot expect finished details in any branch to be included in such a small compass; one must consult larger works or works on special topics. The book, however, abounds in valuable suggestions, helpful even to the expert. And its conservatism and caution are to be most warmly commended. No rash conclusions are drawn from roentgenograms as to gallstones, pulmonary tuberculosis or inflammatory lesions of bone; the numerous possibilities of error are constantly kept in sight. A wise emphasis is placed on the necessity of an understanding of normal anatomy and of pathology before the student or practitioner attempts to interpret roentgenograms. And the same position is taken that the roentgenogram is only one method of diagnosis and is, if properly used, to be linked with others, such as bedside and laboratory examinations. We note very scant reference in the bibliographic lists to other than American or English articles. This is a serious lack, particularly if it implies that French, German and other continental writers have not been freely consulted. The illustrations are, in general, good; some are poor. More lettering, the more frequent use of arrows indicating lesions, and legends that are more descriptive would make the illustrations more helpful—they are for students and untrained physicians, it should be remembered. Several typographic errors attracted our attention. Some incorrect Latin forms have been used, as *pelvices, diverticulae.* And such expressions as "specific stomach," "chronic appendix," are too colloquial to find a place in a book, supposedly written in dignified and correct English.

Social Medicine, Medical Economics and Miscellany

REPORT OF THE PENNSYLVANIA HEALTH INSURANCE COMMISSION

The report of the Health Insurance Commission of Pennsylvania, just issued, is necessarily a limited one. The commission was directed by the act of July 25, 1917, to investigate "the extent, loss and causes of sickness and accidents of employees and their families not covered by the workmen's compensation act; the adequacy of the present methods of treatment and care of such sickness or injury; the adequacy of the present methods of meeting the losses caused by sickness or injury, either through insurance or otherwise; the influence of working conditions on the health of employees, and the methods of sickness prevention with a view to recommending ways and means for the improvement of the health of employees and their protection against sickness and accident," and for all this work the legislature provided the liberal appropriation of $5,000. Naturally, the commission was not able to make any investigation, but confined itself to collecting and arranging material gathered by other agencies. It reports that there are constantly ill in the state more than 385,000 employees, of whom approximately 140,000 are subjects of severe illness and 245,000 less serious. The average loss of working time on account of sickness is at least six days per annum for each employee. Regarding physical fitness, Pennsylvania had the highest percentage of any state in the Union, of men rejected for physical reasons in the draft, 46.67 per cent. of young men examined between the ages of 21 and 31 years being found physically defective. The average for the whole country was 29.11 per cent. Death rates in Pennsylvania are also higher than the average, the infant death rate being particularly high in the large cities. In 1917, the infant death rate for Philadelphia was higher than that of New York, Brooklyn, Boston or Chicago, while Pittsburgh ranked second among the cities of its class. The state as a whole had an infant death rate in 1916 of 114 per thousand, as compared with an infant death rate of 101 per thousand for the registration area.

Regarding financial loss due to sickness, the commission estimated the wage loss to employees at $33,000,000 a year. The losses to employers consist of decreased production and cost of labor turnover. During the influenza epidemic, anthracite coal production in Pennsylvania, the largest coal producing state in the Union, dropped 500,000 tons in a few days. The losses to the community consists of direct money loss and social loss. The state spends more than $6,000,000 each year directly for the treatment of sickness, and $4,000,000 for the maintenance of institutions for the care of defectives. In addition to public institutions, 175 hospitals report that in 1916, 57 per cent. of their patients were treated free. The commission finds that wage earners are not receiving satisfactory medical care. Hospital accommodations in the state average a little more than one-half the recognized minimum of five beds per thousand. Approximately one fourth of those actually disabled by sickness never receive medical care. Insurance protection against sickness was found among only 30 per cent. of employees. The lower the wage group, the least likely the insurance protection. Such insurance as was carried seldom provided proper medical care. Lodges, fraternal societies and trade union funds afford little better protection.

The commission is of the opinion that industry is clearly responsible for a large proportion of the illness among employees; that fully one half of the existing sickness could be eliminated by proper preventive methods; that from 70 to 75 per cent. of the schoolchildren of the state are physically defective, and that most of the defects are or were correctable; and that a large number of communities in the state have no active health work nor adequate appropriations for health activities. Regarding responsibility, the commission holds that this rests on three groups, the community, the industry and the individual, and that at present these groups are meeting the losses for illness in unequal share. The burden on the individual is often disastrous and out of proportion to his individual responsibility or ability to carry it, and some means of a just distribution of this burden should be found. There is in Pennsylvania today, in the opinion of the commission, urgent need for a program that will provide efficient care for employees and their families when ill and preventive measures that will as far as possible prevent illness and increase the health and vigor of the citizens of the state. No definite health insurance measures were recommended by the commission. Instead, it recommended that a new commission be appointed to continue the investigation and to study proposed and existing schemes of health insurance in this and other countries with a view to formulating definite measures. The appropriation of $5,000 for such a commission was, of course, ridiculously inadequate. The problem as shown by the report of the commission would justify the expenditure of any amount of money for a clearer understanding or a solution of the problem.

SCHOOL HYGIENE, CHILD LABOR AND HOUSING IN ITALY

A report on school hygiene, child labor and housing in Italy has just been issued by the Commission for Tuberculosis of the American Red Cross in Italy following eight months' work of investigation carried on with groups of Italians. The fields selected for study were chosen because in them are found the conditions that are the underlying causes not only of tuberculosis but also of other maladies, and because it was realized that a knowledge of what had been accomplished in the great social movements of the country would be indispensable to an intelligent promotion of the activities of the commission.

The objects, in the field of school hygiene, were to promote the physical examination of all schoolchildren, the correction of physical defects, the sanitation of the school environment, the teaching of hygiene, and the establishment of health habits in the school age. The commission enlisted in the work the Italian School Hygiene Association, promising financial support of any worthy project. A comprehensive study of the schools was made and an ideal program formulated. The sympathy of the ministry was secured, propaganda widely disseminated, and arrangements made for the publication of children's textbooks on hygiene, to be used in the schools.

Child labor, it was found, does not constitute a separate social problem in Italy. There is little legislation directed against it, as such; what regulations exist are not enforced. The commission, in its extensive study of conditions, compiled the inadequate available statistics pertaining to child labor, and recommends, as Italy's chief needs: laws to govern agriculture, commerce and homework; improvement in health rules; medical examination; raising of the working age, which is 12 at present; shortening of hours, and strengthening of the inspecting force.

The housing situation is an anomaly. Conditions in larger cities could hardly be more wretched. Age, damp, filth, dark and overcrowding characterize the dwellings. Toilet facilities, baths and means of garbage disposal are urgent necessities to relieve the filth of surroundings and make cleanliness possible. Yet more actual work is being accomplished in Italy in providing better housing than in any other country. Most comprehensive plans of destruction and reconstruction are being put in execution in several cities. The commission urges as the primary and most essential need a campaign of education in habits of personal cleanliness.

The report emphasizes the necessity of laying a foundation for international public health activities.

Medicolegal

Evidence and Instructions in Malpractice Case

(*Dameron v. Ansbro (Calif.), 178 Pac. R. 874*)

The District Court of Appeal of California, Third District, in reversing a judgment that was rendered in favor of the defendant, says that the plaintiff, a physician, sued the defendant for professional services, and for room, board and nurse hire, while the defendant wanted damages for alleged malpractice. The defendant, in a collision with a train, had suffered ten fractures of the legs and arms, and was, at his own request, taken to the plaintiff's hospital. He claimed that when, after nearly ten weeks of otherwise successful treatment, the plaintiff undertook to reduce adhesions in the knees, he negligently rebroke some of the original fractures. But one carefully and impartially reading the voluminous record could hardly resist the conclusion, the court thinks, that the verdict ought to have been for the plaintiff physician. At any rate, the jury should have been instructed, as requested, that he was entitled to recover the reasonable value of the use of the room and of board and nurse hire, regardless of the question whether he used ordinary care and skill in the treatment of the defendant.

Probably the most serious error consisted in giving the jury an instruction which completely ignored the test fixed by the law based on the methods and practice of the school to which the plaintiff belonged, and permitted the jury to apply its own standard of care or that of each individual juror to the treatment accorded the defendant by the plaintiff. It made no difference that other instructions may have presented the correct standard, as that would simply be an instance of an irreconcilable conflict.

As to the nature of the treatment required and the amount of force that might be exercised to break such adhesions as existed in this case, manifestly, only an expert could properly determine and testify. But an instruction proposed was faulty as implying that only an expert could testify as to the amount of force that actually was used and the method of treatment that was actually employed. As to what occurred, of course, the nonexpert was as competent as the expert witness. If there had been no dispute as to the facts it would have been a question solely for the physicians and surgeons. But it was not error to refuse the instruction, there being a conflict as to the facts.

An instruction was requested to the effect that the question of whether the plaintiff was negligent in his treatment of the defendant was to be determined by finding whether or not he possessed and used that degree of skill and learning possessed and used by physicians of the same school practicing in the same or similar localities. Such standard is clearly established by the authorities, and the trial court might well have given that specific instruction, even if it was substantially covered by other instructions that were given, when construed together.

Considerable latitude must be allowed in the choice of facts as the basis of hypothetic questions, and if the question is fair, and understandable by the witness, it is not to be excluded because it does not comprehend all of the important facts in the case; and if objection is made to it because it does not, the objection should specify the additional facts which ought to be included. Declarations of the physician at the time of the treatment are admissible in evidence, and may be included in a hypothetic question; but statements of an assisting physician "to go easy," etc., should be left out, being incompetent.

This court does not understand that the plaintiff was denied any legal right by not being allowed to illustrate his testimony by means of a human skeleton. It is a matter left to the sound discretion of the court. No doubt such object may often be properly used to make more intelligible the testimony of an expert. It falls within the same category as pictures and diagrams.

Evidence that the plaintiff was a member of a county medical association was not admissible for the purpose of showing that the association protected any member in litigation brought against him in a case of the present character.

A rehearing was denied by the Supreme Court of California.

Evidence of Physician's Bill

(Quirk v. Metropolitan St. Ry. Co. (Mo.), 210 S. W. R. 106)

The Kansas City (Mo.) Court of Appeals, in affirming a judgment in favor of the plaintiff for medical attention and other damages suffered by him on account of injury to his son, holds that the trial court did not err in admitting in evidence a written statement, consisting of the physician's bill, obtained from the physician's bookkeeper. The court says that the physician amputated the boy's leg and treated him for several months. The plaintiff went to see the physician to get his bill, but the physician was out of town, the plaintiff got the bill from the physician's bookkeeper, and this was introduced in evidence. This court thinks this statement was admissible as tending to show the amount of the bill. The physician's bill amounted to $192. The physician was out of town at the time of the trial, and the plaintiff was allowed to testify, over the defendant's objections, that the bill was reasonable. The objection to the testimony was that no one but the physician was competent to testify as to the reasonableness of the bill, and that the witness' answer was a conclusion. The court thinks neither objection was sufficient. Of course, other competent witnesses could testify as to the reasonableness of the bill, and there was nothing to show that the witness was not competent to give his conclusion. There was no objection on the ground that it had not been shown that the witness was qualified to testify as to the reasonableness of the bill. There was also nothing in the contention that the physician's bill was barred by the statute of limitations. This court did not find that the point was raised in the lower court, but, aside from that, only the plaintiff could raise that point against the bill, as the bill was not barred unless the plaintiff chose to raise it.

Proper Time for Roentgen-Ray Evidence

(Van Tinder v. Birmingham Railway, Light & Power Co. (Ala.), 80 So. R. 858)

The Supreme Court of Alabama, in affirming a judgment in favor of the defendant in this personal injury case, says that the plaintiff urged that a new trial should be granted because of newly discovered evidence resulting from a roentgen-ray examination of her back showing the nature and character of her injury and its probable cause. But the court does think that this was a good ground for granting a new trial, for one reason, because it is not persuaded that due diligence was shown in obtaining this roentgen-ray examination. The plaintiff relied, among other things, on permanent injuries to her spine, and it was but fair to herself, the defendant, and the court that she should have obtained and produced the best evidence on the subject; and the reasons for resorting to a roentgen-ray examination were as important before as after the trial. It is a matter of common knowledge that in cities the use of the roentgen ray for the discovery and diagnosis of internal injuries and abnormal conditions of the human body is of common occurrence. True, it may incur some trouble and extra expense, but the trouble and expense should be no greater before than after the trial, and the reasons and necessities for them should be as imperative for the original trial as for upsetting or overturning the verdict of a jury after it has passed on the issue to which the examination relates and which was contested on the trial.

Society Proceedings

COMING MEETINGS

American Academy of Medicine, Harrisburg, Pa., Sept. 23.
American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 16-19.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Public Health Assn., New Orleans, Oct. 27-30.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Minnesota State Medical Assn., Minneapolis, Oct. 2-3.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
New Mexico Medical Society, Albuquerque, Oct. 3-4.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Vermont State Medical Society, Burlington, Oct. 9-10.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting, held in Atlantic City, N. J., June 14, 1919

(Concluded from page 787)

Studies on Malaria Control

Dr. C. C. Bass, New Orleans: The frequency of malaria infection without recognized symptoms was compared with the frequency of recognized attacks in an area of great prevalence. A malaria survey was made of 31,459 persons, practically everybody living in an area of 328 square miles in Bolivar County, Miss. Bolivar County is representative of the most heavily infected malaria section of the United States. Of the 31,459 persons included in the malaria survey, 40.30 per cent. gave positive histories. Blood examination of these revealed malaria parasites in 28.96 per cent. There were 59.70 per cent. who gave negative histories. Of these, 15.93 per cent. were found positive on blood examination. History of attacks alone cannot be depended on to indicate the presence of malaria infection. It indicates only 55.09 per cent. of the existing infection.

Metabolism in Leukemia and Cancer During Radium Treatment

Dr. Thomas Ordway, Albany, N. Y.: The application of radium over the enlarged spleen in leukemia exerts a marked influence on the protein metabolism, increasing the protein constituents in the urine, notably total nitrogen, urea, ammonia, and also to a very marked degree, the phosphates. The changes in the nitrogenous metabolism depend on the amount and nature of tissue autolyzed. Changes in the urine, as a result of radiation, are due, in part at least, to the products derived from the autolysis of the abnormal tissue under the influence of the radiation from radium. Only one patient showed systemic reaction because of the radiation, and in this instance the nitrogenous substance in the urine did not show as excessive increase as in leukemia which showed no general symptoms of toxemia.

Significance of Abnormalities in Form of Electrocardiogram

Dr. G. Canby Robinson, St. Louis: Certain abnormalities in the form of the electrocardiogram are recognized as evidence of faulty conduction of the cardiac impulse through the ventricles. These abnormalities consist of a prolongation of the time required to complete the first series of waves, the Q-R-S group of the ventricular part of the electrocardiogram and notching of the main wave of the group. I have seen cases which seem to prove that faulty conduction through the ventricles may depend on what has been termed functional fatigue. In one case, distinct improvement in the ventricular conduction followed slowing of the heart rate, when longer diastolic pauses were present. The rate of recovery of conduction was observed also in this case to become more rapid with improved circulatory efficiency. I believe that the disturbance of intraventricular conduction is the result of the presence of acid metabolites in the ventricular structures, and that sclerosis of the coronary arteries and, perhaps, other lesions causing an insufficient blood supply to the ventricles are responsible for the presence of the acid metabolites, as it has been shown that these accumulate whenever the oxygen supply to muscle is inadequate. This hypothesis renders an anatomic lesion in the subendocardial structures unnecessary to account for the disturbance of the intraventricular conduction, although the effect of acid produced in the muscle on conduction is still open to question.

DISCUSSION

Dr. Henry Sewall, Denver: The toxic origin of cardiac irregularity noted by Dr. Robinson suggests to me phenomena presented by a case I have followed for many years. The patient, a physician and a "tuberculosis cure," suffered a moderately severe attack of typhoid in 1896, at the age of 41. Following this, a "typhoid rib" gave trouble for a year or two, but yielded to curettement. During convalescence, pus and blood were passed with the urine, their origin being traced to the prostate. A rich culture of colon bacilli was made from the pus. The ingestion of hexamethylenamin gave remarkable relief and the abscess gave no trouble, except for occasional exacerbations at widely separated intervals. The succeeding years were marked, however, by much distress in the way of diffuse aching pain, myalgia, headache, nervousness and periodic prostrations with active sore throat in which the streptococcus was the chief offender. As nearly as can be remembered, shortly after recovery from the typhoid, the pulse began to be irregular at times, both in rhythm and in strength. The irregularity finally developed a character marked by a succession of from two to seven rapid beats of rate about 90 per minute, followed by a short pause, the next series being initiated by a beat much stronger than its successors. The irregularity usually subsided under mental excitement, physical exercise or with slight alcoholic stimulation. The pulse when regular ran about 70 per minute. In the spring of 1919, active symptoms led to examination of the prostate, and pus was expressed from it in abundance, the infective organism being the colon bacillus. Great improvement followed periodic massage of the organ. Since this treatment was begun, about four months ago, the pulse rate has been perfectly regular, with a rate of about 68, and the rheumatic symptoms have disappeared completely.

Dr. J. C. Meakins, Montreal: The cases reported by Dr. Robinson are of great practical value in the interpretation of ventricular phases of the electrocardiogram. Such cases are not rare, and all variations may be found of the ventrciular complex, from the slightly abnormal to those showing all the not rare, and all variations may be found of the ventricular interest in these cases, as pointed out by Dr. Robinson, lies in their temporary character, and seems to afford evidence of a more subtle change in the ventricular conducting system than that of gross anatomic damage.

Immunologic Experiments with Streptococci from Influenza

Dr. E. C. Rosenow, Rochester, Minn.: From a study of the effects of intratracheal injection of green-producing streptococci isolated in influenza and the accompanying pneumonia, we have found a strain or strains which possess marked and peculiar virulence. With these, the picture of influenza has been closely simulated in animals. A monovalent serum has been prepared in a horse by the injection of one strain isolated from the blood in a fatal case. The agglutinating power of this serum, type pneumococcus serum, hemolytic streptococcus serum, and normal horse serum, has been tested against numerous strains isolated from the sputum, throat, blood and lung exudate in cases of influenza. Specific agglutinations with the monovalent serum have been obtained in a large number of cases of influenza. The cases studied came from widely separated communities, most of the negative agglutinations occurring when the cultures were made during convalescence. However, this was true in a few instances in the early part of typical attacks. This specific strain, according to this test, tends to disappear promptly during convalescence, and is rarely found in normal throats. Some of these strains, just as has been found to be the case with the streptococcus from poliomyelitis, lose their specific character promptly on cultivation, while others remain susceptible to specific agglutination months after isolation. Most of the specific strains do not ferment inulin and are not bile soluble. The agglutination experiments showed that the green-producing strains of this streptococcus from influenza are immunologically identical, or closely related. Single highly agglutinable strains have been found to absorb the specific agglutinins from the serum for all the strains. Nonagglutinating strains, including Type II pneumococci, remove little or no agglutinin. According to these tests, therefore, it appears that among the green-producing streptococci or diplostreptococci in influenza there is present a strain that has pandemic characteristics.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Diagnosis, New York City

April, 1919, **11**, No. 4

*Case of Human Rabies. J. C. Regan and A. Silkman, New York.—p. 237.
Diagnosis of Arteriosclerosis from an Ocular Standpoint. C. A. Clapp, Baltimore.—p. 257.
Symptoms of Hyperthyroidism Observed in Exhausted Soldiers. W. Johnson, R. A. M. C.—p. 260.

Case of Human Rabies.—Several points of value are emphasized by Regan in the discussion of his case. For instance: The best method of treating bites of suspected rabid animals is by cauterization with nitric acid which by virtue of its power of diffusibility and penetration may destroy the virus in cases in which other chemicals would have no effect. It is especially valuable in the cauterization of bites treated late. It produces little scarring and the resultant wound heals well. It is the caustic that should always be employed. To get the utmost effect the nitric acid must be "fuming." The wound should be cauterized as soon after the bite as possible, even up to the seventy-second hour after the accident. Previous to cauterization the wound should be squeezed to encourage bleeding, and it should be thoroughly washed with mercuric chlorid solution (1:1,000). A wet dressing of this should be applied after the cautery has been used. If the wound is a punctured one and cannot be cauterized properly, it should be laid open with a scalpel to allow proper treatment. A bite should not be sewed up. If sutures have been introduced before the patient appears for treatment they should be removed and cauterization should be performed. The method of preparing the Pasteur vaccine and the scheme and method of administering it, as followed in the health department's antirabic clinics, is briefly outlined. For ordinary bites nothing stronger than a three-day cord is used. For face bites and extensively deep wounds two-day cords are employed. If the patient has been bitten by a positively rabid animal it is a practice to advise him to return for a second series of injections after the expiration of six months. This will avoid those rare instances of death when the particular virus concerned has a prolonged incubation period. In the case of face bites or very extensive wounds the entire course of treatment should be repeated two weeks after the completion of the first. The general hygienic measures used in the treatment of the disease are given. In addition to this, mention has been made of many of the various methods of therapy—medicinal and otherwise—which have been experimentally employed in animals or used in human cases in an endeavor to find a specific. Unfortunately, nothing has as yet proved itself in the least reliable. The routine method of handling dog bite cases in New York City is outlined. Regan points out especially that publicity and the institution of proper federal laws are essential for the eradication of the disease in this country. That this ideal condition is attainable, the experience of other nations has shown. Federal laws should regulate the importation of dogs, the compulsory impounding of all stray animals and the proper supervision of all licensed dogs. Among the important measures comprised in this supervision is the use of a proper muzzle for dogs in all public places under the penalty of destruction of the dog.

Arkansas Medical Society Journal, Little Rock

August, 1919, **16**, No. 3

Prevention, Control and Cure of Tuberculosis as a Problem for United States Government. J. D. Southard, Fort Smith.—p. 59.
Treatment of Long Bone Fractures. W. F. Smith, Little Rock.—p. 65.

Boston Medical and Surgical Journal

Aug. 28, 1919, **181**, No. 9

*Diet in Tuberculosis. I. J. Clarke, Haverhill, Mass.—p. 249.
*Diet in Tuberculosis. R. Morgan, Westfield, Mass.—p. 252.
Community Machinery for Discovery of Tuberculosis. D. B. Armstrong, Framingham, Mass.—p. 255.
Rehabilitation of Tuberculous Soldier. C. E. Perry, Northampton, Mass.—p. 260.
Rehabilitation of Tuberculous Soldier. S. H. Stone, Boston.—p. 264.
*Postinfluenzal Tuberculosis. T. J. Murphy, Boston.—p. 266.
Radiotherapy. F. Bryant, Worcester.—p. 270.

Diet in Tuberculosis.—Clarke's paper consists largely of more or less fixed deductions from the observation of a moderate number of cases of tuberculosis. He gives a number of diet lists in full.

Diet in Tuberculosis.—Morgan believes that there is still a tendency to overfeeding in the treatment of tuberculosis. He feels that lunches should not be served to the tuberculous adult patient, except as a special prescription for an unusual condition. In his experience, serving only three meals per day has given better results, both from the standpoint of the patient and the institution.

Postinfluenzal Tuberculosis.—From an observation of cases and a study of the literature Murphy concludes that epidemics of influenza are not followed by any measurable increase in the incidence of tuberculosis. In people with mild or arrested tuberculosis a higher incidence of influenza is evident than in those with the advanced type. In people with active tuberculosis a certain degree of immunity is produced by the constant presence of a low grade chronic inflammatory process of the respiratory tract, which protects them to some extent against a frank invasion of influenza. Cases of glandular tuberculosis, especially the cervical and tracheobronchial type occurring in children, show a very high incidence of influenza, but very few frank cases of pulmonary tuberculosis follow. Persons in the prime of life, apparently free from physical defects and previous history of illness, are more susceptible to influenza than others.

Canadian Medical Association Journal, Toronto

August, 1919, **9**, No. 8

Contribution of Hospital to Surgery of To-Day. J. Halpenny.—p. 680.
Report on Cinematic Amputations. Based on a Visit to Putti's Military Clinic in Bologna, Italy. J. A. Gunn and W. E. Gallie.—p. 694.
Notes from Service for Wounds of Chest. N. B. Gwyn.—p. 702.
Canadian Doctors and Uncanadian Diseases. J. L. Todd.—p. 709.
Glycosuria in Pregnancy. M. H. V. Cameron.—p. 717.
Vital Statistics; What They Teach. J. W. Bonnier.—p. 723.
Nervous Conditions Associated with Influenza. G. W. Howland.—p. 727.
Death Rate Above Age of Forty. W. H. Hattie.—p. 732.

Florida Medical Association Journal, St. Augustine and Jacksonville

August, 1919, **6**, No. 2

Medical and Surgical Treatment of Senile Cataract. W. H. Adams, Jacksonville.—p. 35.
Midwife Obstetrics. W. W. MacDonell, —Jacksonville.—p. 39.
Seminal Vesiculitis. E. Peters, Miami.—p. 41.
Venereal Disease; Public Understanding and Misunderstandings of Them. H. E. Whitford, Ozona, Fla.—p. 43.
Chronic Dacryocystitis and Its Treatment. A. K. Wilson, Jacksonville.—p. 45.

Georgia Medical Association Journal, Atlanta

July, 1919, **9**, No. 3

What Constitutes a Roentgen-Ray Examination. G. M. Niles, Atlanta.—p. 42.
Empyema: Its Diagnosis and Management. E. Murphy, Augusta.—p. 47.
Medical Inspection of Schools. M. M. McCord, Rome.—p. 50.
Operative Treatment of Retroversion of Uterus. A Review of 185 Operative Cases. G. W. Quillian, Atlanta.—p. 53.

Indiana State Medical Association Journal, Fort Wayne

Aug. 15, 1919, **12**, No. 8

Medical Organization Work. W. H. Stemm, North Vernon, Ind.—p. 205.
Improving Wassermann Test. Ice Box Incubation Latest Step. B. W. Rhamy, Fort Wayne.—p. 207.
Nephritis and Infections of Urinary Tract. C. G. Beall, Ft. Wayne.—p. 209.

Journal of Cancer Research, Baltimore

July, 1919, **4**, No. 3

*Primary Spontaneous Tumors of Testicle and Seminal Vesicle in Mice and Other Animals. XII, Studies in Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.—p. 207.
*Cancer in Hainan, China. N. Bercovitz, China.—p. 229.
Mortality Statistics of Cancer Among Wage Earners: Comparative Incidence of Disease in General Population. L. I. Dublin, New York.—p. 235.
Lipoids in Tumors of Dental Region. K. W. Dewey, Urbana, Ill.—p. 263.
Size of Spleen in Immune Mice. W. H. Woglom, New York.—p. 281.
Multiple Tumors of Mouse Mamma: Are They Independent or Metastatic? A. Fischer, Bergen, Norway.—p. 325.

Primary Spontaneous Tumors of Testicle.—Among 19,000 mice dying natural deaths and examined postmortem, about one half of which were males, twenty-eight instances of primary tumor of the testicle were found by Slye and her associates. Most of these resembled in all essential features the tumors that arise in the testicle of man and other animals, consisting of cells closely resembling the epithelium of the seminiferous tubules, arranged in an alveolar structure. Despite great vascularity and a markedly atypical structure, no remote metastasis was observed, although in one case a series of six contiguous independent nodules was formed, and one case showed bilateral testicular tumors. Two of the growths seemed to be true spindle cell sarcomas, one arising at the site of a wound. Three of the typical "orchidoblastomas" also followed trauma. No evidence could be obtained that any of these tumors had arisen in a teratomatous growth, and no cases of teratoma have been observed. One case of polymorphous cell sarcoma of the seminal vesicle of a mouse is described, apparently the second case of a tumor of this organ reported in a lower animal. Two cases of primary spontaneous tumor of the testicle in dogs are described. With the exception of one sarcoma, all the twenty-eight neoplasms of the mouse testis occurred in the members of a single strain of mice and its hybrid derivatives, thus substantiating the statement that heredity influences the incidence of tumor development in different organs or tissues. This fact also probably explains the absence of any recorded cases of tumor of the testis in mice observed in other laboratories.

Cancer in Hainan, China.—This statistical study of cancer in Hainan made by Bercovitz brings out the fact that cancer in Hainan is as much a disease of the early decades of life as of the later decades. Cancer of the penis and glands of the neck is unusually frequent. Cancer of the exposed surfaces of the body is very common. Cancer of the stomach and of the uterus is infrequent.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, 1919, **13**, No. 4

*Comparison of Influence of Secretin and Antineuritic Vitamin on Pancreatic Secretion and Bile Flow. C. Voegtlin and C. N. Myers, Washington, D. C.—p 301.
*Experimental Irrigation of Subarachnoid Space. L. H. Weed and P. Wegeforth, Baltimore.—p. 317.

*Effect of Subarachnoid Injections of Antiseptics on Central Nervous System. P. Wegeforth and C. R. Essick, Baltimore.—p. 335.
*Benzyl Alcohol: Its Anesthetic Efficiency for Mucous Membranes. T. Sollmann, Cleveland.—p. 355.
*Action of Drugs on Output of Epinephrin from Suprarenals. IV. Strophanthin. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 361.
*Demonstration that Spontaneously Liberated Epinephrin Can Exert an Action on Heart. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 397.

Pancreatic Secretion and Bile Flow.—By employing proper methods Voegtlin and Myers say it is possible to obtain an extract from brewers' yeast which causes an increase in pancreatic secretion and bile flow when this extract is injected intravenously into dogs. Secretin solutions obtained from the duodenum of hogs by the methods described in this paper evidently contained a considerable amount of antineuritic vitamin, as shown by their power in relieving the paralytic symptoms of polyneuritic pigeons. The chemical and physical properties of secretin and vitamin are similar if not identical. Both substances are found in the same fractions.

Irrigation of the Subarachnoid Space.—Weed and Wegeforth record experiments dealing with the irrigation of the meninges by physiologic sodium chlorid solution and by Ringer's solution. The results of washing out of the subarachnoid space by a bland solution, in the presence of an otherwise fatal infection, are presented in detail. The authors found that irrigations of the spinal and cerebral subarachnoid spaces are well tolerated by cats if the irrigating fluid is composed of sodium chlorid, potassium chlorid and calcium chlorid in proper proportions (modified Ringer's solution). If, however, the irrigation is done with isotonic solutions of sodium chlorid alone, various toxic effects become apparent. Many of these animals die during or immediately after the irrigation; if this immediate toxicity is survived, convulsive seizures and acute mania are almost invariable. Recovery from such attacks is frequent. Single irrigation of infected meningeal spaces with modified Ringer's solution has prolonged the life of the animals, as compared with controls. The period of survival in many cases has been doubled as a result of this washing out of the infected meninges. Multiple irrigations have not been attempted.

Effect of Subarachnoid Injections.—The toxicity of certain antiseptics within the meninges was tested by Wegeforth and Essick and the results are recorded in detail. Most of the chemical bodies employed possessed definite toxicity so that unless given in suitable dilution and amount, death of the animal would ensue. With chloramin and flavine, in addition to the initial toxicity, a secondary cause of death in from five to ten days was brought about through direct injury to the central nervous system. With injection of small amounts of a suitable dilution the animals remain apparently normal but all have shown at necropsy pathologic changes in the meninges. The lesion consists of a more or less complete obliteration of the meningeal (subdural and subarachnoid) spaces with serofibrinous exudate; in the more severe cases the nervous system becomes involved in a process of destruction by direct continuity from the meninges. The blocking off of the subarachnoid space was complete in only one case, as demonstrated by the subsequent injection of ink. It was not, however, sufficient for the localization of the infection. The subarachnoid injection of compound solution of cresol and potassium permanganate, in the presence of an otherwise fatal meningeal infection, did not prolong the life of the animal.

Anesthetic Efficiency of Benzyl Alcohol.—Sollmann found that benzyl alcohol is a fairly efficient anesthetic for intact mucous membranes, greatly surpassing procain; ranking about with alypin and betaeucain, and somewhat weaker than holocain or cocain. Its action is not as lasting as that of cocain, and even 1 per cent. solutions produce considerable smarting. Commercial solutions in ampules appear to deteriorate somewhat, so that Sollmann considers it preferable to use freshly made solutions, when possible.

Output of Epinephrin from the Suprarenals.—Stewart and Rogoff have been unable to demonstrate any decided and constant effect of strophanthin on the epinephrin output. Therefore, they believe that statements in the literature that the drug causes a marked augmentation of the output are based on the use of inadequate methods.

Action of Epinephrin on the Heart.—It was demonstrated by Stewart and Rogoff that the epinephrin passing into the blood stream from the suprarenals at the ordinary rate can exert a definite action on the heart. This was clearly shown by the marked effect produced on the cardiac irregularity evoked by strophanthin when the suprarenal blood was temporarily excluded from the circulation or allowed to enter it. Similar observations were made in a case of cardiac irregularity occurring in the absence of strophanthin. It was proved by the artificial administration of epinephrin that the constituent in the suprarenal blood responsible for the observed effects was epinephrin.

Kansas Medical Society Journal, Topeka

August, 1919, **19**, No. 8

Study of 750 Obstetric Cases in Private Practice. E. A. Reeves, Kansas City.—p. 177.
Plea for Earlier Recognition and Elimination of Chronic Infections of Head. E. N. Robertson, Concordia.—p. 180.
Neurasthenia and Associated Psychogenic Disorders. F. A. Carmichael, Osawatomie.—p. 184.

Maine Medical Association Journal, Portland

August, 1919, **10**, No. 1

How to Reduce Mortality Rate in Cancer. W. M. Spear.—p. 7.

Medical Record, New York

Aug. 30, 1919, **96**, No. 9

*Series of Pneumonia Cases Complicated with Emphysema. D. M. Myquist. U. S. Army.—p. 353.
Sticking Points in Development. C. L. Redfield, Chicago.—p. 360.
In Defence of White Operating Room. W. L. Secor, Kerrville-on-the Guadalupe, Texas.—p. 362.
Fatal Case of Aspiration Pneumonia Caused by Ingestion of Zinc Stearate. G. F. Boehme, New York.—p. 364.
Gunshot Fractures. G. E. Wilson, Toronto, Canada.—p. 365.

Pneumonia Complicated with Emphysema.—During an epidemic of influenza, followed by bronchopneumonia, at Camp Hospital No. 12, subcutaneous emphysema of the face, neck and chest wall, and in a few cases of practically the entire body, was noted in thirteen cases. The areas of emphysematous tissue showed no gross change, and the gas which escaped had no odor, but had a tendency to aid combustion. In all cases air was found in the mediastinal tissue, pericardial fat, and in most cases in the interstitial tissue of the lung. Pleurisy was noted in a number of cases, usually of a plastic type. In other cases it was rather gelatinous, especially on intralobar surfaces. One case with empyema complication was found. The lungs usually showed an extensive involvement. A gram-positive bacillus was isolated from the blood in two cases prior to death, and in heart blood and gaseous tissue in four cases at necropsy. The organism was rather large; spores were present at one end of the bacillus. No capsule was demonstrable. It was acid fast. In a few old cultures it was noticed in diplos, but chains were never seen. Culturally it grew in deep stabs, never on the surface, and the more luxuriant growth was always in the bottom of the stab, with formation of gas and breaking up of mediums. In secondary cultures gas appeared after from forty-eight to seventy-two hours. While no definite grouping or classification of the organism is made, the authors feel that its morphologic and cultural characteristics tend to place it in the *B. welchii* group. Its mode of entrance probably was through the respiratory tract, the organisms reaching the consolidated areas of lung.

Modern Hospital, Chicago

August, 1919, **13**, No. 2

Hospital Which Was Built to Endure. J. J. Weber, Boston.—p. 83.
Suggestion for Practical Training of Public Health Nurses. C. E. McCombs, New York.—p. 88.
Speciail Problems of Hospital Administration. H. O. Collins, Winnipeg, Canada.—p. 90.
Winchester Hospital, Winchester, Mass., Meets Special Needs. W. C. Hill, Boston.—p. 92.

Various Forms of Hospital Insurance. L. R. Curtis, Chicago.—p. 97.
Anesthetists on Hospital Staff. I. C. Herb, Chicago.—p. 98.
Children's Dispensary Organized on Basis of Appointments for Patients. E. A. Park, Baltimore.—p. 101.
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Health Problems that Affect Employer and Employee. G. E. Perkins, Boston.—p. 134.
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Modern Medicine, Chicago

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Better Health Through Better Hospitals. C. B. Moulinier, Milwaukee. —p. 281.
Constitutional Foundations of Federal Public Health Functions. F. J. Goodnow, Baltimore.—p. 291.
Proper Relation of Federal and State Governments in Public Health Work. A. J. McLaughlin, Washington, D. C.—p. 296.
Wood Alcohol Poisoning. R. P. Albaugh, Cleveland.—p. 300.
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Medical Service for Employees and Families at Endicott Johnson Corporation. L. D. Fosburg, Endicott, N. Y.—p. 308.
Occupational Diseases Under Workmen's Compensation Laws. C. Hookstadt, Washington, D. C.—p. 311.
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Motion Pictures in Public Health. L. W. Sprague, New York.—p. 330.
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Needless Waste of Man Power. J. P. Munroe. Washington, D. C. —p. 340.
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Nebraska State Medical Journal, Norfolk

August, 1919, **4**, No. 8

Review of Operative Surgery Done in Base Hospital No. 49. A. C. Stokes, Omaha.—p. 227.
Treatment of Syphilis With Mercurialized Human Serum. C. H. Bastron, Lincoln.—p. 230.
Practical Value of Spinal Fluid Examinations. M. G. Wohl, Omaha. —p. 234.
War Psychoneuroses. G. W. Dishong, Omaha.—p. 238.
Difficulties Encountered in Breast Feeding and Treatment. W. O. Colburn, Lincoln.—p. 243.
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New York Medical Journal

Aug. 30, 1919, **110**, No. 9

Removal of Foreign Bodies from Bladder by Natural Route. G. Luys, Paris, France.—p. 353.
Pollens in Hay Fever. W. Scheppegrell, New Orleans.—p. 357.
*Favus in an Adult. C. Wolf, New York.—p. 362.
How to Examine Rectum and Interpret Findings. C. J. Drueck, Chicago.—p. 363.
Influenzal Pneumonia at Camp Greene, N. C. C. P. Brown, Philadelphia and F. W. Palfrey, Boston.—p. 368.
Case of Intraocular Tumor. H. F. Hansell, Philadelphia.—p. 372.
*Juvenile Diabetes. Report of Three Cases. P. Horowitz, New York. —p. 374.
Clinical Notes from France. C. G. Cumston, Geneva, Switzerland.—p. 376.

Favus in an Adult.—In the case cited by Wolf the application of strong antiparasitics in lotion or ointment form has had no effect in destroying the offending parasite. The disease yielded promptly to a single epilating dose of the roentgen ray.

Juvenile Diabetes.—Of the three cases reported by Horowitz the oldest patient was only 3 years of age, and the youngest slightly more than 2 years old. The cases show the value of institutional over home treatment. Two patients were treated in the hospital and improved very much more rapidly than did the patient who was treated at home. In each case there was a definite history of an intestinal toxemia preceding the onset of the disease.

Northwest Medicine, Seattle, Wash.

August, 1919, **18**, No. 7

*Care of New-Born, with Especial Reference to Prematures. E. J. Huenekens, Minneapolis.—p. 149.
Radium. S. W. Mowers, Seattle.—p. 153.
Ear As An Aid in Diagnosis. E. Woods, Ashland, Ore.—p. 157.
Renal Infections. J. D. Windell, Spokane.—p. 160.

Care of New-Born.—Huenekens has collected seventy cases of premature infants coming under his personal observation; of these fifty-eight developed definite signs of rickets. Of the twelve who did not develop rickets, three were under observation too short a time and four were two to three weeks premature, leaving only five definitely premature infants that did not develop rickets. Therefore, fifty-eight out of sixty-three, or 92 per cent., of premature and twin infants were found definitely rachitic. The time of occurrence is of great interest, because rickets usually does not begin before the sixth month. Of thirty-three cases seen for the first time at or before four months, twenty-seven, or 81 per cent., showed evidence of rickets at that time. It is, therefore, evident that in the treatment of the special form of rickets in premature infants the deficiency of calcium must be made up. Based on the experimental work of Schloss. Huenekens has been using tricalcium phosphate and cod liver oil with very good results.

Philippine Journal of Science, Manila

January, 1919, **14**, No. 1

Physiologic Active Constituents of Certain Philippine Medicinal Plants: III. A. H. Wells, Manila.—p. 1.
*Treatment of Human Beriberi with Autolyzed Yeast Extract. N. M. Saleeby, Manila.—p. 11.
Photographic Study of Leprosy. O. E. Denney, Manila.—p. 13.
*Comparative Study of Different Methods of Treatment of Typhoid. P. T. Lantin, Manila.—p. 19.
Validity of Name Discomyces for Genus of Fungi Variously Called Actinomyces, Streptothrix and Nocardia. E. D. Merrill and H. W. Wade, Manila.—p. 55.
Iontha Ida, a New Philippine Noctuid. C. S. Banks, Manila.—p. 71.
Social Bees of Philippine Islands. T. D. A. Cockerell, Manila.—p. 77.
Philippine Bees of Family Nomadidae. T. D. A. Cockerell, Manila. —p. 83.
Osteology of Giant Gallinule of Philippines, Porphyrio Pulverulemtus Temminck. R. W. Shuffeldt, Manila.—p. 87.
New or Rare Philippine Reptiles. E. H. Taylor, Manila.—p. 105.
Iron Fisheries of Abra River. E. H. Taylor. Manila.—p. 127.
Phytophthora Faberi Maubl: The Cause of Coconut Bud Rot in the Philippines. O. A. Reinking, Manila.—p. 131.

Treatment of Human Beriberi with Autolyzed Yeast Extract.—About twenty cases of human beriberi were treated by Saleeby with autolyzed brewers' yeast extract. Adults were given from 150 to 40 c.c. three times a day. Children were given from 2 to 4 c.c. every three hours. Larger doses did not seem to give better results. No sign of poisoning was observed. Only acute and uncomplicated symptoms of beriberi were observed under treatment. Chronic nerve, muscular, or cardiac lesions were actually unaffected. All acute peripheral symptoms of neuritis were affected quickly. Marked results were noted in less than three days and a week's treatment seemed to give full relief in mild acute cases. Treatment was generally followed up for two weeks at least. Infantile beriberi symptoms were relieved with comparative rapidity. Edema yielded quickly, and nutrition improved at once. No special diet was prescribed. Patients were given regular hospital diets in accordance with the state of their digestion. Children receiving the extract continued to nurse at the mother's breast. The effect of the autolyzed yeast extract used is similar to that produced by the hydrolyzed extract of rice polishings; it seemed weaker, however.

Treatment of Typhoid Fever.—The treatment of ninety-eight cases of typhoid was carried out by Lantin under two general groups; namely, (*a*) treatment with foreign protein, which includes sensitized and nonsensitized vaccine, peptone and milk; (*b*) treatment with colloidal preparation, such as colloidal gold. On the basis of his experience, Lantin is inclined to believe that the nonspecific theory with regard to the action of vaccine as used in this investigation seems plausible, but that the exact details of the mechanism of action of each kind of treatment administered is not yet fully understood. However, it was observed that a moderate reaction, following the administration of any of the treatments discussed, produced beneficial effects.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

July, 1919, **24**, No. 2

Roentgen-Ray Examination of Liver, Gall Bladder and Bile Ducts. R. Knox.—p. 37.
Case of Double Shadow Caused by One Stone in Kidney. T. G. Evans.—p. 53.
Ossification of Costal Cartilages. R. W. A. Salmond.—p. 54.
"Cor Pendulum" or "Dropping Heart." H. C. Geuken.—p. 55.
Splenic Calculus. W. Mitchell.—p. 59.
New Goggle for Use in Fluoroscopy. I. S. Trostler.—p. 60.

British Medical Journal, London

Aug. 9, 1919, **2**, No. 3058

*Bacteriology of Chronic Nasal Catarrh and Treatment by Autogenous Vaccines. L. Mackey.—p. 159.
Treatment of Chronic Urethritis: New Instrument for Cauterizing the Lacunae. W. W. Powell.—p. 161.
Ileocecal Valve in Man. A. R. Short.—p. 164.
*Renal Efficiency Tests in Nephritis and Reaction of Urine J. B. Leathes.—p. 165.
Influenza Epidemic in Egyptian Expeditionary Force. J. D. Benjafield.—p. 167.
Goiter. H. J. Boyd.—p. 169.

Autogenous Vaccines in Treatment of Chronic Nasal Catarrh.—The cases on which Mackey's paper is based concerned patients suffering from (1) recurrent acute nasal catarrh, (2) chronic nasal catarrh or (3) chronic postnasal catarrh. Mackey always uses an autogenous vaccine. The vaccines were made from the germ or germs which he believed to be responsible, and always from the primary cultures when these were pure. Mixed vaccines were made when two or more germs grew profusely on the plates, or when, as sometimes happened, a different infection was found in the two nasal passages. The vaccine most frequently used was pneumococcus, either pure or combined with some other germ, and the next on the list was Pfeifler's influenza bacillus; then *M. catarrhalis, Staphylococcus aureus, Streptococcus mucosus, B. mucosus-capsulatus* (Friedländer's), and, last of all, *B. Septus* and *B. coryzae-segmentosus.* The vaccines were made in such strengths that 20 minims represented the maximum dose. Mackey began with 4 or 5 minims and gradually increased the dose, giving twelve doses at intervals of a week. The maximum dose of pneumococcus and streptococcus used was always 150 millions for an adult and for the other germs 300 or 400 millions. In one half the cases the catarrh was cured and the nasal passages were normally sterile. In about one third of the cases the catarrh persisted in a modified degree.

Renal Efficiency Tests in Nephritis.—Leathes states that respiratory activity can effect the reaction of the urine in a very marked degree as is shown by experiments in which the subject voluntarily increased the depth of his breathing for an hour or even half an hour at times when the reaction of the urine was otherwise certainly acid, for instance, in the late afternoon, or still more in the middle of the night. On every occasion in Leathes' experiments the results indicated a higher percentage of CO_2 in the lungs during sleep, and therefore give support to the hypothesis that the morning alkaline tide is related to variation in the activity of the respiratory center. The experiments are being continued.

China Medical Journal, Shanghai

July, 1919, **33**, No. 4

Investigation of Epidemic Meningitis in Hongkong. P. K. Olitsky.—p. 309. To be Continued.
Epidemic of Cerebrospinal Meningitis at Chengtu (Szechwan). H. J. Dubreuil.—p. 321.
Multiple Enchondromas of Extremities. A. I. Ludlow.—p. 323.
Vital Statistics Based on Histories of 4,000 Chinese Families. W. K. Lennox.—p. 325.
Auricular Flutter; Report of Case. G. T. Tootell.—p. 346.
Intensive Primary Ether Anesthesia. O. T. Logan.—p. 347.
Congenital Malformations of Anus. J. M. Gaston.—p. 349.
Two Cases of Imperforate Anus. J. C. McCracken.—p. 353.
Chinese General Hospital in France. E. J. Stuckey.—p. 355.

Indian Medical Gazette, Calcutta

July, 1919, **54**, No. 6

Sand Fly Fever and Its Relationship to Dengue. J. W. D. Megaw.—p. 241.
Civil Surgeon at Headquarters in Upper Burma. J. Entrican.—p. 247.
Schistosomiasis in India. R. B. Seymour.—p. 253.
Influence of Abdominal Lesions on Respiratory System. D. J. Harries.—p. 253.
Calculus of Prostate. R. L. Spittel.—p. 255.
Specific Fever or Syphilitic Septicemia. D. McCay.—p. 260.

Japan Medical World, Tokyo

July 27, 1919, No. 292.

Experimental Study of Life History of Sparganum Mansoni Cobbold. T. Okumura.

August 3, 1919, No. 294

*Subordinate Causes of Pulmonary Hemorrhage. Yoshikawa.
*Urinary Analysis of Pregnant and Parturient Women. Mizutani.
Identification and Treatment of Uncinaria. Irisawa.

Subordinate Causes of Pulmonary Hemorrhage.—From clinical observation Yoshikawa concludes that the following factors play an important part in the production of pulmonary hemorrhage: (1) Habitual drinking or blood relationship to a habitual drinker are very apt to be a part of the history in a case of pulmonary hemorrhage and it often is very severe; (2) a tall person suffers oftener from pulmonary hemorrhage than a short person; (3) the breast circumference does not influence the symptom; (4) the anesthetic thorax often produces the symptom; and also diffuse hardness produces a severe pulmonary hemorrhage; (5) males from 15 to 25 years of age and females from 25 to 35 years of age are especially prone to have pulmonary hemorrhage.

Results of Urinary Analysis of Pregnant and Parturient Women.—The author analyzed the urine of 100 women after parturition and of seventy-one pregnant women and found that albuminuria occurs after parturition in 84 per cent. Primiparas produced about 9 per cent. more cases of albuminuria than multiparas. Serious cases of albuminuria occur twice as often in primiparas as in multiparas. Serious cases of albuminuria are met with oftener among younger persons; they decrease in number as the age advances; 16 per cent. of the postparturient women had casts. The primiparas had casts twice as often as the multiparas. In 68 per cent. of cases of albuminuria at parturition the condition disappears on the second day, while in 85 per cent. it disappears within six days. Albuminuria that is associated with casts is more persistent than when no casts are present; 43 per cent. of these patients were unimproved on the sixth day. The percentage of improvement in postparturient albuminuria is antiproportional to the concentration of albumin at the time of the parturition. The multipara improves better than the primipara. Sugar was demonstrated in 3 per cent. of the parturient cases; in 5.6 per cent. of the postparturient cases sugar was present. A positive indican reaction was demonstrated in 13.3 per cent. of the parturient and 15.7 per cent. of the postparturient cases. A higher percentage of positive indican reactions was obtained in primiparas than in multiparas. A positive reaction was obtained in 18 per cent. of the parturients and 7 per cent. of the postparturients. Epithelioid cells were demonstrated in 96 per cent. of the parturients and 98 per cent. of the postparturients. Leukocytes were demonstrated in 92 per cent. of the parturients and 96 per cent. of the postparturients. Erythrocytes were demonstrated in 12 per cent. of the parturients and 8.5 per cent. of the postparturients.

Journal of Laryngology, Rhinology and Otology, London

August, 1919, **34**, No. 8

Scientific Relics of Morell MacKenzie. I. Moore.—p. 278.
Spasm at Entrance to Esophagus. A. B. Kelly.—p. 285.
Clinical Type of Dysphagia. D. R. Paterson.—p. 289.
Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 291.

Lancet, London

Aug. 9, 1919, **2**, No. 5006

- *Normal Vital Capacity in Man and Its Relation to Size of Body. G. Dreyer.—p. 227.
- *Etiology of Influenza. G. E. Beaumont.—p. 234.
- Sanatorium Treatment and Military Service: An Analysis of Forty-Seven Cases. E. E. Prest.—p. 240.
- *Incidence of Tuberculosis Among Asylum Patients. F. A. Elkins and H. H. Thomson.—p. 242.
- Primary Toxic Effect of Neosalvarsan. K. Petren.—p. 244.
- Treatment of Sciatica by Radiant Heat and Static Waves. J. J. Grace.—p. 245.
- *Intravenous Injections of Antimony Tartrate (Tartar Emetic) in Bilharziasis. F. E. Taylor.—p. 246.

Normal Vital Capacity in Man.—The results of Dreyer's investigations enabled him to establish definite relationships between vital capacity and body surface, body weight, stem length and chest measurement, and to show that vital capacity is not a simple function of height, as Hutchinson claimed. Vital capacity is a function of weight. Dreyer illustrates his investigations by many mathematical calculations.

Etiology of Influenza.—Examination by Beaumont of material obtained from patients suffering from influenza showed the presence of a mycotic organism. Beaumont suggests that it is possible that influenza is a mycosis, not necessarily in all cases a bronchomycosis, but perhaps in some an enteromycosis. Although the results obtained do not justify an assertion that influenza is a mycotic infection, the author states that they appear to demonstrate the fact that such an organism is present during the disease, and afford a means of unifying the seemingly discordant results that have been obtained by other workers.

Tuberculosis in Asylum Patients.—A study of the incidence of tuberculosis among asylum patients was made by Elkins and Thomson. They found that the mentally abnormal person is, generally speaking, more liable to develop tuberculosis than the individual who is mentally normal. This liability is primarily due to predisposition dependent on the mental condition. The determining factor is the spread of tuberculosis among the asylum patients in contact infection. Contact infection among the mentally abnormal is frequently due to infected excreta. In view of the extreme susceptibility on the part of asylum patients to develop tuberculosis the authors hold that it is essential that increased efforts should be made to provide such conditions of asylum life as will tend to counteract such susceptibility.

Antimony Tartrate in Bilharziasis.—Ten cases of vesical bilharziasis were treated by Taylor by Christopherson's method which consists in giving a course of injections of tartar emetic on alternate days for a period of from fifteen to thirty days, commencing with 0.5 grain dissolved in 6 c.c. of distilled water, and increasing by 0.5 grain up to 2 grains until a total of 30 grains has been injected.

Medical Journal of Australia, Sydney

March 29, 1919, **1**, No. 13

- *Useful Support for Operations on Kidney. H. B. Devine.—p. 251.
- Bilharziasis. N. H. Fairley.—p. 251. To be Continued
- Jaenne D'Arc as a Pathologic Study. C. MacLaurin.—p. 255.

Useful Support for Operations on Kidney.—Devine uses a kidney rest made of copper and fashioned on a mould from the concavity of a medium sized man in acute lateral flexion.

July 19, 1919, **2**, No. 3

- Intravenous Serum Therapy in Influenza. F. T. Grey.—p. 47.

July 26, 1919, **2**, No. 4

- *Puerperal Infection: Its Relations to Polypoid Decidual Endometritis. A. J. Nyulasy.—p. 61.
- Vaccine Treatment of Febris Enterica. S. J. Cantor.—p. 63.
- Results of Nerve Suture. P. G. Dane.—p. 65.
- Influenza: Its Early Treatment. H. V. D. Baret.—p. 67.

Puerperal Infection: Its Relations to Polypoid Decidual Endometritis.—Nyulasy is convinced that the great majority of cases of serious puerperal infection, fundamentally associated with the interior of the uterus, are due to polypoid decidual endometritis, with or without adherent placenta. The involved decidua may take the form of polypoid or of papillomatous outgrowths especially over the placental site or it may merely be thickened and uneven, the particular type depending apparently on the extent and distribution of the interstitial fibrous tissue. The disease may or may not lead to abortion, the most pronounced cases being met with after full time labor. It is a frequent cause of adherent placenta. The great outstanding feature of the disease from a clinical standpoint is the singular liability of the diseased decidua to become infected and thus, perhaps, to lead to septicemia, thrombophlebitis, or other fatal effect. The microscope practically always gives evidence of this infection of the diseased decidua. The indications for treatment are clear; the diseased membrane should be removed promptly and thoroughly.

National Medical Journal of China, Shanghai

June, 1919, **5**, No. 2

- Medical Conditions in Japan. W. L. Teh.—p. 91.
- Is There Any Quantitative Relationship Between Antigen Dose and Antibody Production? E. T. H. Tsen.—p. 94.
- Fatal Case of Tetanus. J. W. H. Chun.—p. 102.
- Chinese Medical Schools and State Examinations. K. C. Wong. —p. 106.
- Prevention of Influenza and Pneumonia by Maintenance of Uniform Room Temperature. S. L. Burton.—p. 112.

Quarterly Journal of Medicine, Oxford

July, 1919, **12**, No. 48

- *Study of Case of Diabetes Mellitus Treated by Allen Method. R. Fitz and A. V. Bock.—p. 307.
- *Lymphocytosis in Soldiers. J. B. McDougall.—p. 317.
- *Respiratory Metabolism in Case of Prolonged Undernutrition J. Joffe, E. P. Poulton and J. H. Ryffel.—p. 334.
- *Investigation into Effects of War Nephritis on Kidney Function; Methods for Estimating Efficiency of Kidneys. H. MacLean and O. L. V. de Wesselow.—p. 347.
- *An Investigation on Fatal Cases of Pernicious Malaria Caused by Plasmodium Falciparum in Macedonia. L. S. Dudgeon and C. Clarke. —p. 374.
- Clinical Appearance of Bilharziasis in Australian Troops, and Significance of Symptoms Noted. N. H. Fairley.—p. 391.
- *Patches of Deep Pigmentation of Oral Mucous Membrane Not Connected with Addison's Disease. F. P. Weber.—p. 404.
- *Heart Block and Bradycardia Following Influenza. E. A. Cockayne. —p. 409.

Diabetes Mellitus Treated According to Allen's Method.—Fitz and Bock report observations on a case of diabetes mellitus so treated. At entrance to hospital the patient had a blood sugar concentration of 0.58 per cent. and an acidosis sufficient to lower his alveolar CO_2 tension to 20 mm. During the first twenty-four hours in the hospital he excreted 116 gm. of glucose and 6.98 gm. of ammonia nitrogen. These facts show that the patient was critically ill. On the third day of a carbohydrate free diet the patient's urine showed $D = N$ ratio of approximately $3.65 = 1$, and afforded additional evidence that the case was one of maximum severity. The patient was treated according to the method proposed by Allen, and illustrates its value in a favorable case. A seven days' fast was necessary to render the patient's urine free from sugar. At the end of this period the blood sugar had fallen to 0.17 per cent., the alveolar CO_2 tension had risen to 44.8 mm., the ammonia nitrogen excretion had fallen to 1.37 gm., and the patient's condition was much improved. After the urine was sugar free, the carbohydrate tolerance was tested by a systematic daily increase in a pure a carbohydrate diet as was possible to be obtained in the form of green vegetables. The patient tolerated 150 gm. of carbohydrate by this method without becoming glycosuric. During this time the blood sugar fell to normal and was not found materially increased on the last day of the test, when repeated bleedings were made to determine the degree of postabsorptive hyperglycemia. During the period of carbohydrate feeding, the alveolar CO_2 tension remained high, and the ammonia nitrogen excretion dropped to about 0.30 gm. in twenty-four hours, showing that all acidosis had disappeared. The carbohydrate sparing effect on protein metabolism was demonstrated. The nitrogen excretion dropped from about 19 gm. in twenty-four hours on the last day of the fast, to about 7.5 gm. when protein intake was low. As the vegetable protein intake increased considerably the urinary nitrogen increased somewhat. After thirty-three days observation the patient was discharged from hospital in good condition with normal blood sugar concentration, with trivial acidosis, and approximately in nitrogen equilibrium on a mixed diet within his tolerance, yet ample for his bodily needs.

Lymphocytosis in Soldiers.—A continued clinical and hematologic examination of 438 soldiers, including controls, was made by McDougall; altogether 515 total white cell counts and 607 differential counts were done. Lymphocytosis during the apyrexial periods and polymorphonuclear leukocytosis during the pyrexial periods was the condition found in the regularly relapsing type of trench fever. Cases of regularly relapsing trench fever and of the influenzal type may merge gradually into the irregularly relapsing form. In the irregularly relapsing type there is no such definite fluctuation in the cells as is found in the regularly relapsing type. The existence of sustained lymphocytosis in the presence of a temperature swinging between 98 and 100 F., with symptoms of pain in the head, back and legs, especially in the shins, may be taken as typical of this form of trench fever. A normal differential blood count, in the absence of fever and subjective symptoms, McDougall holds may be regarded as proof of the absence of trench fever infections. A certain proportion of cases of irregularly relapsing trench fever show an excess of large mononuclear cells. These cases are accompanied by very intense shin pains. The influenzal type of trench fever is the mildest form of the disease. The total white cell count in the enteric type is moderately high. In addition, polymorphonuclear leukocytosis is present during the fever. These points serve as useful guides in the differential diagnosis from enteric infections. The vast majority of cases of D. A. H. following trench fever show lymphocytosis, but this is present before the onset of the D. A. H. Temporary accelerations of the pulse rate when the patient is at rest in bed, and especially when he is afebrile, are evidence of a predisposition on the part of the heart for involvement in a more permanent instability. Trench fever can be separated from malaria and influenza by repeated blood examinations.

Respiratory Metabolism in Prolonged Undernutrition.—Poulton and Ryffel claim that the resting metabolism is considerably diminished in prolonged underfeeding, in fact, it may be as low as in complete starvation. The metabolism, measured in the erect position, in a state of muscular relaxation is also diminished. The pulse is slow. In prolonged underfeeding there is no increased efficiency during muscular work, as measured by the rate of increase in the respiratory exchange at different rates of walking. The heat output during muscular exercise is influenced by the deep and surface temperature of the body.

Effects of War Nephritis on Kidney Function.—The investigation on nephritic cases reported on by MacLean and De Wesselow disclosed that the presence of albumin in the urine or the extent of the albuminuria is of little value as an index to the gravity of the case, for it is well known that the more serious cases may show but traces of albuminuria. In general, the amount of protein in the urine in subacute and chronic cases is probably of more importance in indicating the predominating type of disease present than in furnishing information as to the gravity of the renal condition. In the early stages of an acute attack of nephritis the blood urea content furnishes the best indication of the state of the kidney. If this is normal, it may be taken for granted that the damage to the kidney is not sufficient to interfere with its normal function of excreting nitrogenous products. If, on the other hand, the blood urea figure is high, the most valuable information as to the progress of the disease is obtained by occasional estimations of blood urea. If the urea tends to get less, the prognosis is good; if it gets persistently higher, the outlook is correspondingly bad. In severe chronic interstitial conditions the same state of affairs is present. In many subacute and chronic conditions the kidney is not sufficiently damaged to cause an increase in blood urea, and so no information is to be obtained by this test. In such cases other means must be employed, and the authors found that the capacity of the kidneys to concentrate urea in the urine, under conditions described, affords, very helpful information. If after receiving 15 gm. of urea by mouth, the patient excretes urine containing about 2 per cent. of urea, it is safe to conclude that the kidney is at least fairly efficient. If the urine concentration is low, it is in the great majority of cases an indication that the kidney is inefficient. Finally, the authors regard it as most important to emphasize that, whatever the result of the various functional tests may be, no prognosis should be given without first carefully examining the state of the cardiovascular system.

Fatal Cases of Pernicious Malaria with Massing of Plasmodia in Cerebral Capillaries.—Twenty-one patients dying in coma showed massing of numerous malarial parasites in the cerebral capillaries. Every patient was energetically treated with quinin either by the intramuscular or intravenous routes, usually both, from the time of first coming under medical observation. The onset of such cerebral symptoms as drowsiness, mild delirium, apathy, restlessness, was noted as gradual in twelve. Of the remainder, nine, when first seen, were already deeply comatose, and no other history was available. In these Dudgeon and Clarke venture to assume it is at least probable that the onset of coma was sudden or that it deepened rapidly. Usually, the notes indicate a gradual progression from mild to deep coma. In twelve cases from the onset of the first important cerebral symptom, the end was fatal in twenty-four hours or less. The most rapid termination was six hours (one case) and the longest duration sixty hours (two cases). The temperature, where such record exists, was raised invariably from 100 to 105 F. The capillaries, and in the most severe cases the arterioles, were engorged with numerous infected red blood cells which showed the well known tendency to collect at the periphery of the vessels, free parasites, melanin particles, prominent and detached endothelial cells. Various phases of development were represented, "dot" forms, fine rings, segmenting forms, but crescents were not seen. All gradations of blocking up to complete thrombosis with agglutination of and altered staining reactions of the corpuscles were exemplified. Small hemorrhages around the smaller blood vessels were seen in six cases. In one instance the rupture of vessels had allowed the discharge of parasites into the tissues. In most instances examined the rupture of the cerebral capillaries or capillaries in other viscera had not led to the discharge of parasites into the tissues. Abundant infected red cells were seen filling the vessels or tightly packed toward the vessel walls, while absence of infected red cells in the hemorrhagic zone was the rule, not the exception. Pigment, varying in amount, was present in the lining endothelial cells, in detached phagocytes and free in the lumen. Nerve cell degeneration was observed in eleven cases, as shown by cells of abnormal size and shape, loss of Nissl granules, eccentricity and distortion of nucleus to its complete disappearance. The spinal cord in one case showed advanced cell degeneration of the anterior corneal cells with the typical vascular changes and complete blocking of vessels. This patient had developed paraplegic symptoms before death. Local accumulations were found most often in the spleen, marrow, heart and pancreas; less frequently in the intestines, lungs and suprarenals; occasionally in the liver, kidney and thyroid. Fatty and other degenerations of the cardiac muscle, acute tubal "nephritis," vascular changes in the suprarenals, terminating in tissue necrosis and all varieties of pulmonary congestion and hemorrhage were recorded.

Pigmentation of Oral Mucous Membrane.—Weber calls attention to a certain group of cases in which pigmentation, not connected with Addison's disease, occurs in the mucous membrane of the mouth. The pigmentation is in the form of blackish spots and patches on the mucous membrane of the lips or cheeks and sometimes of other parts of the mouth. It is associated with pigmentation of the skin of the face, especially about the mouth and possibly (in one or two cases) of other parts of the body. It occurs in persons of dark complexion, perhaps especially in Roumanian Jews and in certain races, such as Lascars. It is of unknown causation and seems in some cases to be of "physiologic" or, perhaps, atavistic origin. It may be analogous to the black patches often present in the oral mucous membrane of dogs and other animals. It appears to be allied to simple pigment nevi of the skin, on the one hand, and to freckles (ephelides, lentigines) on the other hand. Weber suggests the possibility that a similar kind of pigmentation may be connected in some indirect way causally with pernicious anemia.

Heart Block and Bradycardia Following Influenza.—In cases of simple influenza, and in many cases with pulmonary complications, bradycardia was extremely common during the epidemic of 1918 and 1919, in which many hundreds of cases were admitted to the Royal Navy Hospital, Haslar. In the majority of cases, after the temperature had become normal, the pulse rate quickly fell below 60 and remained between 50 and 60 for a variable number of days. In more extreme cases a pulse rate of from 36 to 48 was noted. Cockayne took notes of 132 cases in which the pulse fell below 50. Polygrams were taken in fifty-five cases; in nineteen the bradycardia was due to a condition of partial heart block. In some of the remaining cases heart block may have been present, but was not proved. The cases of heart block are divided into sinus block, prolongation of the *a.-v.* interval, 2 : 1 and 3 : 1 heart block. No case of complete heart block was met. The points brought out by these cases are that the majority of cases occurred in young men and that all had pneumonia. The pneumonia in most of them was very mild, and in none really severe. All the patients were kept in bed until some days after heart block had disappeared, and when they were examined a month or six weeks later only one complained of any cardiac symptoms (precordial pain and giddiness). None showed any undue irritability of the heart.

Annales de Médecine, Paris

June, 1919, **6**, No. 2

*Malarial Pleurisy and Peritonitis. V. Cordier.—p. 89.
*Undulating Fever with Tuberculosis. R. Burnand.—p. 110.
*Mountain Sickness and Hygiene in Aviation. G. Ferry.—p. 124.
*Immunizing Power of Serum of Diphtheria Bacilli Carriers. P. P. Lévy and J. de Léobardy.—p. 138.
Total Section of Spinal Cord from Contusion. G. Roussy, M. D'Oelsnitz and L. Cornil.—p. 150.

Malarial Pleurisy and Peritonitis.—Cordier is inclined to accept a direct action by the malaria parasite on the peritoneal and pleural serous membranes. Cases of malarial mammitis have been published recently, confirming the possibility of a direct action by the parasite on the tissues. He describes four cases typical of the pleural and peritoneal reactions. It may be acute in both pleura and peritoneum, with double effusion developing within a few hours, the intensity of the abdominal phenomena suggesting peritonitis from perforation. The pleurisy disappears without leaving sequelae. In another group there may be a peritoneal reaction without effusion but entailing meteorism, hiccough, vomiting and symptoms suggesting perisplenitis or gallbladder complication. In another group the pleura seems to bear the brunt of the attack; two of the cases described presented this in a pure form. The effusion abounded in reds with almost pure mononucleosis, and eosinophilia not above 8 per cent. He never succeeded in demonstrating the malaria parasites in the effusions.

Undulating Fever in Tuberculosis.—Burnand warns that the only way to keep an instructive record of the temperature in the tuberculous is to record it at least four times a day, at 8, 2, 6 and 9 and join together the figures for the different months in a single curve. By doing this in hundreds of cases at the Leysin sanatorium, he discovered a special wavelike course in seventy-two cases, and a similar course of the temperature within physiologic range in ten patients. Study of his cases seems to show that this undulating type of temperature corresponds to a peculiarly tenacious form of the infection, with insufficiency of the defensive processes and a diffuse, septicemic toxic type of the bacillary lesions. In thirty-nine cases the charts showed a rise and fall from 38, 30 or 40 C. to nearly or quite 36 C. in two-day periods as a rule, and all except one of these patients died in from three to fifteen months. The undulating temperature within the so-called physiologic range corresponded to a much more benign infection, but likewise diffuse, hard to locate without means of clinical investigation, and particularly tenacious and chronic. Tuberculin offers the best prospects in treatment in the milder forms of this undulant temperature course.

Hygiene of Aviation.—Ferry exclaims that aviation brings us surprise after surprise. His own supervision of aviators during the war has revealed many unexpected pathologic phenomena, especially the changes in the kidneys, their sluggish functioning, and the resulting autointoxication. The men complained of general and nervous asthenia, irritability, nightmares, etc., and sometimes of pain in the lumbar region. One officer had certain symptoms of Bright's disease, with dizziness, on the ground and sometimes on a flight when he was fatigued or had indigestion. Restriction to milk for four or five days and 0.5 gm. of theobromin twice a day the first week generally corrected conditions in such cases except when there were symptoms of weak heart. In this case the prolonged asthenia seemed to be due to suprarenal insufficiency, and it yielded to epinephrin under which also the often concomitant bradycardia disappeared likewise. Personal experiences in a pneumatic chamber with low atmospheric pressure confirmed the injury of the kidneys, and the necessity for care in the diet to ward off further damage. Protection against the cold should include the exposed part of the face; it should be protected with a salve or cream.

The Immunizing Power of the Serum of Diphtheria Bacilli Carriers.—Lévy and de Léobardy have now a record of eight carriers whose serum has immunizing power. Two of them had never exhibited any clinical reaction to the infection.

Archives des Maladies de l'App. Digestif, Parìs

March, 1919, **10**, No. 2

*Pseudomalignant Disease of the Stomach. G. Lion.—p. 65.
Endoscopic Description of Rectocolitis. R. Bensaude.—p. 104.
*Simple and Rapid Test for Acids of Gastric Juice. M. E. Binet and G. Verpy.—p. 112.
*Mega-esophagus. L. Bard.—p. **116**.

False Cancers of the Stomach.—Lion refers to the tumors found in the stomach at operation and so extensive that their removal seems out of the question, and yet these patients with supposedly inoperable cancer keep on living and finally seem to throw off the disease. He describes a striking case of the kind in a man of 30 who had been having stomach disturbances for ten months with finally signs of stenosis of the pylorus. The operation showed a tumor at the pylorus extending to the lesser curvature and surrounded by hypertrophied glands so numerous and some at such a distance that any operation seemed hopeless, although the tumor was movable its entire extent. The tumor was left unmolested after the gastro-enterostomy, and the man rapidly regained his health. He had refused the proposed treatment as for syphilis, and he lived in good health for twelve years when he succumbed to intercurrent disease. The stomach was found small but with no tumor nor scars nor pronounced thickening of the walls. The pylorus was retracted, but the gastro-enterostomy opening was perfect, and the glands were of normal size. In a second case the man of 57 with an actual, inoperable gastric cancer survived for four years and seven months after the palliative gastro-enterostomy. Reexamination of 76 other cases of palliative gastro-enterostomy for inoperable cancer showed that one patient survived for fourteen years; 4 for nine; 2 for eight; 3 for seven; 6 for six; 9 for five; 13 for four, and 38 for three years. In 5 of these cases the malignant nature of the tumor was established beyond question, and these survived from three to five years. In one other case of actual cancer, the patient survived the gastro-enterostomy for two years and four months. Lion discusses the various affections that may be mistaken for cancer, especially ulcer, syphilis and tuberculosis. Even with the stomach open before him, the surgeon may be unable to tell certain inflammatory from malignant lesions. In case of doubt, histologic examination of a gland is advisable. Lion's experience with 200 cases of unmistakable cancer, on the other hand, demonstrates the great corroborative value of the chemical stomach findings. Syphilis simulates gastric cancer most often; the benefit from treatment is the touchstone. But in one case described there was associated gastric cancer and syphilis, and the umbilicus also ulcerated. Under specific treatment this healed and the tumor in the stomach melted away, but when a complete cure seemed impending, the incipient cancer made its presence felt.

Determination of Acids in Gastric Juice.—Binet and Verpy describe a technic which is based on Gaultier's simplification of Robin's modification of Töpfer's method. They commend the simplicity and the rapidity of the technic. It shows by three changes of tint in the one specimen of gastric juice in the single tube the content in the gastric juice of the hydrochloric acid, of the acids of fermentation, and of the total acidity. This is accomplished by adding a 0.548 per cent. solution of soda (137 c.c. of normal sodium hydroxid with water to 1 liter). The tube of 1.5 cm. caliber is graduated in tenths of cubic centimeters to a height of 15 c.c. above the first mark, which represents a capacity of 5 c.c. Two other reagents are required: a 2 per cent. alcoholic solution of phenolphthalein, and Töpfer's reagent, which is a 0.5 per cent. alcoholic solution of dimethylamidoazobenzol. The filtered gastric juice is poured into the tube to the 5 c.c. mark; then one drop of the phenolphthalein solution and one drop of the Töpfer. If there is free hydrochloric acid present, the fluid turns a cherry red. Then with a dropper the titrated solution of soda is added, agitating at each drop, until the fluid turns the color of mandarin orange juice. This indicates saturation of the HCl and the figure marked on the tube represents the weight of free HCl in a liter of gastric juice. The soda solution is added further, drop by drop, until the tint veers to a distinct yellow. The figure representing the free HCl is then subtracted from the figure reached now by the fluid, and the difference represents the acids of fermentation present. The soda solution is then added further, drop by drop, until the tint turns slightly pinkish. The mark then reached represents the total acidity. By substracting from this figure the sum of the two other figures, we get the figure for the HCl in organic combinations. Comparative tests with this technic have confirmed its reliability, and it is in constant use in Loeper's service.

Mega-Esophagus.—Bard here reports two cases of abnormally large esophagus which confirmed his previous publications on mega-esophagus, and especially the peculiar shape assumed by the sagging lower end, which is seen to curve off toward the left in the roentgenogram. All these patients found spontaneously that they could swallow better standing up, and also that a deep inspiration aided in the passage of the swallowed food into the stomach by the traction from the diaphragm.

Archives des Maladies du Cœur, etc., Paris

May, 1919, **12**, No. 5

*Extrasystole from Wound of Nerves in Neck. J. Heitz.—p. 193.
*Strophanthin and Coupled Rhythm. D. Simici.—p. 207.
Extrasystoly under Strophanthin. C. Laubry and M. Leconte.—p. 211.
*Nervous Complications in Leukemia. J. Tapie and A. Cassar.—p. 218.

Extrasystole from Nervous Lesion.—In the case described by Heitz, the war wound had injured vessels and nerves in the left side of the neck. Extrasystoles were numerous and there was dyspnea on effort, with paralysis of the vocal cord.

Strophthanthin and Coupled Rhythm.—Simici relates that the coupled rhythm with pseudobradycardia developed after intravenous injections of strophanthin in a man of 48. Such cases testify to a cumulative action by strophanthin, similar to what has been observed with digitalis. The best means to combat arrhythmia of this kind is with epinephrin. Almost simultaneously Routier in France, Houssay in Argentina and Danielopolu in Roumania called attention to the efficacy of epinephrin in arresting heart block. In the case reported, the coupled rhythm and the bradycardia of the radial pulse completely subsided after the third subcutaneous injection of epinephrin, 1.5 mg. fractioned, in twenty-four hours.

Myeloid Leukemia with Hemiplegia or Herpes Zoster.—Tapie and Cassar add two cases to the list of those in which nervous affections developed as complications of leukemia. They took the form of cerebral hemorrhage, convulsions, facial paralysis, or symptoms from pressure on nerves by lymphomas, etc., and in their own cases, occipitofacial herpes zoster in the man of 57, and complete hemiplegia in the other, younger man, with rapidly fatal leukemia.

Archives de Médecine et de Pharm. Militaires, Paris

February, 1919, **71**, No. 2

Gangrenous Infections of War Wounds of Limbs. G. Lardennois and J. Baumel.—p. 129.
Healing of War Wounds under Vincent's Boric Acid-Hypochlorite Powder. P. Latouche.—p. 189; Longuet.—p. 205.
Dysenteric States in the Macedonian Campaign. E. Job and Dumas.—p. 209.
Technic for Emetin Treatment in Dysentery. Lecomte.—p. 253

Bulletin de l'Académie de Médecine, Paris

July 22, 1919, **82**, No. 28

Medico-Surgical Relations between France and America. Tuffier.—p. 60.
Surgical Treatment of Acute Appendicitis. Jalaguier.—p. 65.
*Effects on Organism of Centrifugal Force. A. Broca and Garsaux.—p. 75.
*Spinal Anesthesia. G. Le Filliatre.—p. 77.
Trench Foot (3,600 cas de froidures des pieds). R. Mercier.—p. 80.
*Focal Auscultation. O. Peyret.—p. 83..

Effects on the Organism of Centrifugal Force.—Broca and Garsaux found in a fatal case that death had occurred from anemia of the brain, lungs and heart muscle, aided perhaps by pressure on the solar plexus, and yet the abdomen was nearer the revolving axis. As long as the heart continues to receive blood, it sends it into the abdominal vessels. Experimental research on dogs confirmed the necropsy findings in this case, and emphasized the probable advantages of aviators' wearing an abdominal band.

Spinal Anesthesia.—Le Filliatre reviews his experience with 194 cases at Paris in which he applied spinal anesthesia by what he calls *barbotage arachnoïdien* (described in these columns, Sept. 14, 1918, p. 932). The results were perfect, he says, and as soon as the patients were returned to their bed they felt so well that some asked for their correspondence or wanted to smoke. In the Macedonian campaign he operated with it on 800 wounded too badly injured to be evacuated, and notwithstanding their malaria and losses of blood the results surpassed all anticipations. In another series of 1,700 severely wounded, coming directly from the Chemin des Dames battles, the mortality was scarcely 0.5 per cent. In civilian practice, surgery of the abdomen, thorax, head and neck is rendered not only easier but more certain with this method of anesthesia. It is free from postoperative surprises; the patient is not intoxicated with general anesthesia; the physiologic functioning of the red corpuscles, the kidneys and the liver is unimpaired, and the recuperation after the operation proceeds more smoothly and more rapidly. The anesthesia of the head, arms, chest and abdomen was absolute in every instance, and persisted from three quarters of an hour to an hour or more for the head and neck, to two hours and more for the legs. There never was any vomiting, headache or paralysis, and the slow return of sensibility (about eight hours) renders morphin unnecessary. The only by-effects observed were in about 2 per cent. a very slight disturbance in respiration, with small pulse and slight pallor, never lasting more than five or ten minutes at most, and never alarming.

Focal Auscultation.—Peyret recalls that sound waves are reflected back from an obstacle like light waves, the angle of reflection equal to the angle of incidence. Hence in certain conditions they converge toward the same spot. At certain points, therefore, several waves meet, and the sound therefore is louder at these points, or foci as he calls them. If, for example, a round table is percussed, the point of greatest resonance will be at the center, which is the focus where the sound waves meet. He gives diagrams showing the application of these principles in auscultation of the chest, calling attention to the points where the sound waves converge, and the lines along which there is most convergence, explaining the physical and geometrical laws governing the findings. The ear at the one focal point can hear the percussion sounds from different regions, even from the two apices. The findings are exceptionally instructive under these conditions with incipient pulmonary tuberculosis, as he has determined in examining thousands of tuberculosis suspects in the army. The method is likewise instructive for the heart, abdomen and limbs.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 20, 1919, **43**, No. 21

*Primary Splenomegaly. G. Lemaire.—p. 599.
*Azotemia in Acute Infections. P. Merklen and C. Kudelski.—p. 604.

Primary Splenomegaly.—Lemaire relates that no germs could be cultivated from the blood in the case of primary splenomegaly reported, fatal in five months, but monkeys inoculated with scraps from the spleen developed a similar febrile and fatal disease, with the same changes in the blood, anemia, leukopeny and mononucleosis.

Azotemia in Acute Infections.—Merklen and Kudelski admit that although progressive acute azotemia is a grave sign in acute infectious diseases, the converse is not necessarily true. The subsidence of the azotemia is not always a sign of approaching recovery. The oliguria may be a factor in the azotemia in acute infectious diseases but the principal factor is the exaggerated disassimilation, and this is the side on which danger lies. A single determination of the degree of azotemia is not instructive, but if the curve keeps high or rises, the prognosis grows graver.

Journal de Médecine de Bordeaux

July 10, 1919, **90**, No. 13

*War Neuroses in Serbians. D. A. Hesnard.—p. 259.
*Serologic Tests in Dysentery. E. Duhot and R. Damade.—p. 265.
Intensive Treatment of Syphilis. H. S. Morin.—p. 268
*Unilateral Mydriasis. Cabannes.—p. 270.

War Neuroses.—Hesnard comments on the extraordinary number of cases of functional motor disturbances in the legs among the soldiers in the Serbian army. Among 500 cases of functional nervous disturbances in his service in Serbia, 115 were of this type of incoordination and tremor in the legs. This tremulous astasia-abasia amounted to actual paraplegia in some cases. Combined physiotherapy and psychotherapy proved successful finally in every case.

Serodiagnosis of Dysentery.—Duhot and Damade call attention to the specific nature of the sensitizer with dysentery serum, the Shiga serum responding only to Shiga antigens and not to Flexner. There may be cosensitizers, but the action is much more pronounced with the specific antigen. Tests with serum from forty-eight nondysentery subjects were constantly negative.

Unilateral Mydriasis.—Cabannes explains that mydriasis may be the result of paralysis of the sphincter or it may be from the inertness of the retina. These two conditions can be differentiated with unilateral mydriasis by the fact that the pupil of the nonmydriatic eye contracts in a bright light if the eye in mydriasis has good perception of light. The crossed reflex contracts the pupil of the other eye. When there is no miosis on direct exposure to a bright light, then there is no crossed reflex and this demonstrates that vision is lost in the eye in mydriasis.

Paris Médical

July 19, 1919, **9**, No. 29

*Measuring the Blood. Javal and Boyet.—p. 45.
*Beriberi in Spain and Portugal. F. F. Martinez.—p. 54.
*Pseudarthrosis of the Hip. B. de Laborie.—p. 57.
Auto-Observation of Spermatic Cyst. Le Duigou.—p. 58.

Measuring the Mass of the Blood.—Javal and Boyet review the different methods in vogue for estimating the mass of the blood, its variations, distribution, and the ratio between the plasma and the corpuscles. Nearly ten pages are devoted to this study of the subject, and they affirm in conclusion that the same blood treated with the same solution of a neutral salt gives always the same bulk of corpuscles after centrifugation. The procedures which do not involve sedimentation seem to be more exact. In health, the corpuscles in human blood form nearly half of the total volume of the blood. The refractometer is particularly useful in hydremia for a series of examinations of the blood in the same patient.

Beriberi in Spain.—Reviewed when published elsewhere (June 8, 1918, p. 1803).

Pseudarthrosis of the Hip.—De Laborie has found it possible to detect pseudarthrosis of the hip after fracture by raying the reclining patients, the feet together, and again with the pathologic thigh in forcible abduction but the tube and conditions exactly the same otherwise. The roentgenograms then will show either that the proportions between the parts of the upper end of the femur have remained the same and the head has simply revolved in its cavity; or else the head has scarcely moved while the relations between the other parts have altered. He calls this the abduction sign, and has found it a reliable means to reveal the pseudarthrosis.

July 26, 1919, **9**, No. 30

Fatigue, Especially in Aviators. M. Sisteron.—p. 61.
Hydrotherapy. R. Ledent.—p. 65.
*Diagnostic Importance of Chemistry of the Stomach. L. Pron.—p. 70.
Transfusion of Blood in Shock. R. Ducastaing.—p. 73.

Gastric Chemistry.—Pron does not attach much importance to the stomach chemistry after a test meal, but he regards the analysis of the contents of the fasting stomach in the morning as of primordial importance. Nothing else in this line approaches it in pathologic significance. Continuous hypersecretion, acid catarrh, is common, and any person having regularly in his fasting stomach up to 200 c.c. of a highly acid fluid must be regarded as seriously affected, even although there may be no symptoms from it at the time. Among 388 patients with a splashing sound in the fasting stomach, he found hydrochloric acid in 247 and liquid acid without free acid in seventy-three. The lack of concordance between such findings and the subjective condition is a daily source of error. Because the nervous system happens to become less sensitive, so that the patient suffers less or gains in weight, is no reason for assuming that the stomach conditions have returned to normal or that the trouble is merely "nervous."

Presse Médicale, Paris

July 17, 1919, **27**, No. 40

*Pneumography Applied to Cardiography. C. Laubry and A. Mougeot. —p. 393.
*Treatment of Hallux Valgus. E. Juvara.—p. 395.
*Diuresis in Treatment of High Blood Pressure. Carron de la Carrière. —p. 397.
Technic for Combined Tcatment of Syphilis. L. Bory.—p. 399.

Pneumography Applied to Cardiography.—Laubry and Mougeot have been applying to the study of the heart an adaptation of the pneumatic cuff, and they here describe the findings in research of this kind. Comparison of large numbers has shown among other things that the periodic modifications of the amplitude of the pulse, the reflection of the variations in the differential pressure, are often influenced by the respiration but frequently in an opposite direction. He explains this in detail, emphasizing the numerous factors involved and the polymorphism of the variations in the respiratory amplitude.

Hallux Valgus.—Juvara reiterates that in order to correct hallux valgus it is necessary to shorten the overlong metatarsal bone. When this is of proper length, the other bones slip back into their normal place. He cuts a slanting wedge-shaped piece, with a broad tip, out of the metatarsal bone, and drives in a nail to hold the slanting stumps together after throwing a ligature around them. The exuberant capsule is cut down to normal proportions, and as the toe resumes its normal shape the ligaments are no longer stretched unduly. He has operated with this technic in five cases with perfect results. He worked out this technic on the cadaver when he was called on to operate in a case in which two operations by other methods had failed to relieve.

Spa Treatment of High Blood Pressure.—De la Carrière expatiates on the advantages in appropriate cases of physiologically stimulating urinary functioning by systematic ingestion of a weak mineral water. This form of physiotherapy may benefit the entire system by washing out retained chlorids and other toxins, and thus arresting any toxic spasm of arteries and relieving the heart. When the high blood pressure is of functional origin, spa treatment may do wonders. With organic high pressure, fine results may also be attained, if the permeability of the kidneys is retained. This can be most readily ascertained by the test of induced diuresis, or experimental polyuria, that is, the test elimination of urine during the two hours after drinking a given amount of water, fasting, and reclining. A considerably larger proportion of night urine is also instructive. When these tests give negative findings, spa treatment may help materially and serious clinical symptoms may melt away. Another useful test is by comparing the output of urine with the differential blood pressure. Dividing the figure representing the total twenty-four hour urine (in liters) by the figure representing the differential arterial pressure (in cubic centimeters by the Pachon oscillometer), the quotient represents the daily output of urine per cubic centimeter of differential pressure. In normal conditions this quotient is 0.25 or above; with sclerosis it is 0.20 or below, and organic mischief is certain.

July 24, 1919, **27**, No. 41

Influenza and Surgery. J. L. Faure.—p. 405.
*Hour-Glass Stomach. V. Pauchet.—p. 405.
Influenzal Noma. G. Portmann.—p. 407.

Hour-Glass Stomach.—Pauchet has operated in twenty-one cases of hour-glass stomach. The best results were obtained with extensive resection; in two cases he had to do a second operation as the first had been too conservative. Regional or spinal anesthesia was exclusively used. Five types of complications were observed, stenosis of the duodenum accompanying the bilocular constriction; ulceration with the latter involving the abdominal wall, liver or pancreas; cancerous degeneration; perigastric abscess; a fistula into the colon corresponding to the constricted point; volvulus of the pylorus portion closing the lumen of the mediogastric orifice completely, and acute obstruction of the mediogastric orifice. The bilocular deformity is the result of the healing of a gastric ulcer or, more often, of a callous ulcer in full evolution. Treatment as for syphilis may be tried, if the general health is good, but if there has been much loss of flesh, it is better not to wait for this. Persons with chronic ulcer generally lead an ordinary life, and are merely considered to be dyspeptic, nervous or neurasthenic.

Progrès Médical, Paris

July 5, 1919, **34**, No. 27

Some Toxic-Infectious Psychoses. J. Galtier.—p. 261.
Spa Treatment of Heart Disease. A. Mougeot.—p. 262.
Administration of Alkalines in Stomach Disease. E. Binet.—p. 265.
Roentgen Rays and Dry Heat in Relation to Immunity. A. Bernard.—p. 266.

July 12, 1919, **34**, No. 28

*The Oculocardiac Reflex in Mumps. J. Margarot.—p. 271.
Induced Pneumothorax. J. Bertier.—p. 272.
Spa Treatment of Gynecologic Affections. Macrez.—p. 276.
Solution of Sugar plus Lactic Acid in Local Treatment of Septic Wounds. B. Gheza.—p. 278.

The Oculocardiac Reflex in Mumps.—Margarot discovered that the oculocardiac reflex was exaggerated in eight ninths of about forty-five cases of mumps in soldiers. In several the heart beat slowed up at once by from twelve to twenty-eight beats and by the next day or two the pulse was much slower, declining from 100 to 52 in one case with orchitis, and from 120 to 68 in a case with tonsillitis. The blood pressure also declined to correspond. These and other data presented seem to demonstrate that vagotony is habitual in mumps. Sympatheticotony was exceptionally observed, and only when the pancreas was involved in the mumps. It corresponded then to the set of sympathetic phenomena noted with acute inflammations of the pancreas.

Revue Médicale de la Suisse Romande, Geneva

May, 1919, **39**, No. 5

*Lethargic Encephalitis. A. Cramer.—p. 197; A. Répond.—p. 249.
History of the Société vaudoise de Médecine from 1829 to Date. A. Guisan.—p. 211. Com'd in No. 4, p. 149.
*Pathogenesis of Round Ulcer in Stomach and Duodenum. M. Bourcart.—p. 223.

Lethargic Encephalitis.—Cramer reports three cases of this disease, the first encountered at Geneva, and all developing early this year in previously healthy adults. Two of the patients recovered, but one still presents considerable haziness in his mental processes, and the other still has attacks of nystagmus and there is insomnia. Répond reports a case of recovery after nearly two months in the hospital during which iodid treatment was pushed.

Pathogenesis of Gastric and Duodenal Ulcer.—Bourcart has been seeking for features common to all patients with a tendency to round ulcer in stomach or duodenum, and has found that they are all characterized by more or less sagging viscera and flabby muscles. Whatever the primal cause, the result is a loss of normal abdominal balance, and the circulation of the nerves suffer. Vagotony or sympatheticotony is generally present. The lower part of the chest scarcely shares at all in the breathing movements, and he shows with nine illustrations how the ptosis, the faulty attitude and the shallow breathing combine to hamper the circulation still further. Treatment should aim to improve the respiration and circulation in the trunk, by deep breathing expanding the lower ribs, drawing up the abdominal muscles, erect and reclining, and massage of the abdomen by the physician to restore the viscera to place and maintain them there, and vibratory massage below the liver to stimulate the circulation through it, supplemented by physical exercise and proper diet. His experience with treatment based on the above premises has given excellent results. The tendency to hematemesis subsided, the ulcers healed, and the pain and gastric functioning showed great improvement. All the digestive secretions show great improvement as the static condition of the abdomen returns to normal. "With a liver that breathes right," he adds, "the stomach does not bleed."

Gazzetta degli Ospedali e delle Cliniche, Milan

June 22, 1919, **40**, No. 50

*Pellagra. A. Zilocchi.—p. 510.

Pellagra.—Zilocchi is chief of an insane asylum in a pellagra zone in Italy, and he has made a special study of the disease in this region and of adjoining regions where it does not prevail. His conclusions from his research sustain the general view that pellagra is the result of a too one-sided diet, not supplying enough calories, while the fact that it is usually poorly cooked favors gastro-intestinal derangement. The lack of proper nourishment in time induces a constitutional substandard condition, and the vegetative system suffers with all that this implies for the nervous and digestive systems and the skin. There is also secondary action from retained toxic waste.

June 26, 1919, **40**, No. 51

*Azotemia in Infectious Jaundice. L. Dozzi.—p. 520.

July 3, 1919, **40**, No. 53

Displacement of Heart. G. Binetti.—p. 531.

Nitrogen Metabolism in Infectious Jaundice.—Dozzi recalls that slight azotemia is almost constant in infectious jaundice, but in the mild cases it gradually disappears. In the severer cases, with restricted or suppressed diuresis, the azotemia grows more and more pronounced, and may induce symptoms of actual uremia, miosis, Cheyne-Stokes rhythm, etc. Instead of devoting all our attention to the jaundice in this disease, we must realize that the kidneys are involved and other tissues, and that it is not merely a disease of the liver. It is a general infectious disease, with multiple and extensive involvement. The treatment benefits by this conception. It is important to refrain from nitrogenous substances during the entire period when the tissues are finding it so hard to eliminate the nitrogen liberated by the tissues. It is important, further, to give albuminoids freely during convalescence to aid in the processes of repair, to replace the living substance destroyed by the disease.

Riforma Medica, Naples

July 5, 1919, **35**, No. 27

*Vaccination against Tuberculosis. E. Maragliano.—p. 542.
Induced Pneumothorax in Treatment of Tuberculosis. Id.—p. 545.
*Nitrogen Metabolism. Id.—p. 545.
Uremia and Mercuric Chlorid Poisoning. Id.—p. 546.
*Blood Diseases. Id.—p. 546.
Endocrine Physiopathology. Id.—p. 547.
*Desiccated Proteus X Antigen for Diagnosis of Typhus. E. Signorelli.—p. 549.

Vaccination Against Tuberculosis.—Maragliano here brings down to date his report on the vaccination of children and others against tuberculosis, which he has been advocating for twenty-five years, as repeatedly mentioned in these columns. He aims to produce a minute focus by subcutaneous injection of dead tubercle bacilli, theorizing that in this focus antigens will be produced and that they will pass into the circulation from this focus, thus slowly and progressively inducing the production in the body of immunizing materials. His clinical and biologic tests have demonstrated that this production of antibodies does actually occur. Research now under way with Sivori's modification of the fixation reaction test has shown an appreciable reaction in healthy persons in two weeks after the vaccination: First the antigens show up more and more while the antibodies are scanty; then the antibodies become more and more evident by the end of one and two months, and they become very pronounced by the end of the third month. Then the antibodies show an ascending curve while the antigen curve keeps low. By the end of the fourth month the two curves run parallel for two months and then the antigen curve descends strikingly while the antibody curve persists nearly the same in its later course. The same results were obtained in monkeys and cows as in man, and five monkeys thus vaccinated were injected at the fifth month with one-tenth mg. of living bacilli, and all survived. Four died of the five controls, within five months. All these findings harmonize with those obtained by study of the agglutinating and opsonic power after the vaccination. The findings were likewise positive in infants born from women that had been vaccinated in this way during the pregnancy. Similar response to the tests were obtained by Levi at Parma; he determined the presence of antigens and antibodies in the blood of mother and fetus, in the placenta and in the milk.

The vaccination was applied to 3,702 members of families with tuberculosis between 1907 and 1914. The later history of 1,893 is known to date, 1915; of this number 1,819 were living and sixty-three had died from other than tuberculous processes and only eleven had died from tuberculosis. All those vaccinated in 1907 were found to be in good health to date. In twenty-six among the earliest vaccinated recently reexamined by a naval medical officer, all were in robust health, while the deviation of complement test revealed persistence of immune principles with predominance of antibodies. A number of persons have been vaccinated elsewhere and in other countries but Maragliano does not include these in his statistics. No inconveniences from the vaccination were ever observed, but the question whether the persons vaccinated might have escaped tuberculosis without this extraneous aid can be answered only by application of the method on a larger scale. At present, man can defend himself against tuberculosis only by acquiring a specific resistance against the bacillus which, notwithstanding all the measures of social prophylaxis, is bound to get to him. In this, Maragliano declares that his research, that is, Italy, has led the way.

Desiccated Bacteria for Biologic Tests.—Signorelli has in his institute has demonstrated that the nitrogen waste in the blood and the proportion of its various elements may fluctuate within wide limits from conditions in nitrogen metabolism altogether independent of the kidneys.

Blood Diseases.—Maragliano comments on the new field for research opened by Ghedini's method of studying blood diseases by examination of a scrap of bone marrow obtained by biopsy. Ghedini has also succeeded in producing hyperglobulia in animals.

Desiccated Bacteria for Biologic Tests.—Signorelli has applied to *Protcus X 19* the method of making durable antigens devised by Micheli and Satta. It has proved very effectual, and he commends this technic in high terms. The suspension of the bacteria is desiccated in a vacuum, as he explains in detail. The diagnosticum can be made from any bacteria of the agglutinating type, and all seem to work well. He describes its application in twenty cases of typhus, from the fifth to the twenty-seventh day of the disease, with comparative tests with fresh cultures of *Protcus X*. In one case agglutination occurred at 1/10,000 with the desiccated and 1/6,000 with the fresh culture; in other cases the desiccated was two and four times as sensitive.

Rivista di Clinica Pediatrica, Florence

May, 1919, **17**, No. 5

Mortality of Infants in Infants' Asylums. A. Malagodi.—p. 225.
*Vitiligo Mask with Inherited Syphilis. C. Vignolo-Lutati.—p. 238.
Recent Literature on Vitamins. G. Guidi.—p. 243.

Vitiligo Mask with Inherited Syphilis.—Lutati reports two cases in which children of 7 and 11 presented vitiligo of the face alone, with some asymmetry of the face. The parents of both were syphilitic. The vitiligo had begun to develop three and five years before, and at date of writing formed as it were an actual mask over the face. The Wassermann reaction was positive only in one of the children, but both showed other stigmata of syphilis.

Rivista Critica di Clinica Medica, Florence

May 17, 1919, **20**, No. 20

*Peripheral Paralysis of the Fifth Nerve. P. Pennato.—p. 229.
Modern Treatment of Bronchial Asthma. E. Riccioli.—p. 238.—Conc'n.

Peripheral Paralysis of the Fifth Nerve.—Pennato reports two cases. In the first the left seventh as well as the fifth nerve was paralyzed, but horizontal deviation of the jaw was the only manifestation of the involvement of the fifth. The man had old syphilis and recent malaria. In the second case the paralysis affected the right fifth, sixth and seventh nerves, and the deviation of the jaw to the right was also horizontal, not oblique.

Amazonas Medico, Manáos

January-March, 1919, **2**, No. 5

Rabies in Amazonas. A. da Matta.—p. 5.
*Color in Vital Statistics. J. Miranda Leão.—p. 11.
Influenza in Amazonas. A. da Matta.—p. 14; J. Miranda Leão.—p. 24; T. Beltrão.—p. 36.
*Intestinal Parasites. J. M. Leão.—p. 37.
Nematodes. A. da Matta.—p. 40.
Vaccination with "Cow Pox." J. M. Leão.—p. 48.
*Association of Leishman Bodies and Fusospirillar Infection. A. da Matta.—p. 50.

Racial Color in Vital Statistics.—Leão emphasizes the necessity for specifying in vital statistics the color of the skin, so that whites, Indians, negroes and mulattoes can be classed separately and the pathology of each class better studied.

Intestinal Parasites.—Leão says that the perverted appetite which impels certain persons to eat dirt and other unsuitable substances is the effect of the anemia resulting from the blood-sucking action of certain helminths, plus the toxic action from their secretions and products. This perverted appetite or *picácia* of these *papa-terras*, as they are called, is instructive evidence of the presence of trichocephalus or hookworm. In addition to the usual means recommended for treatment, he advises an infusion of the leaves of a plant, the *pipi* or *mucuracaá*, (*Pctiveria alliácea*) which, he says, expels tenia, round worm, hookworm and the oxyuris, and reduces the number of the ova of the trichocephalus. The washed fresh leaves are crushed and a tablespoonful of the juice is taken fasting, followed by a glass of water and, two hours later, a purgative. Children are given 5 drops of the juice for each year, in a little water followed by a little more water, and two hours later half a tablespoonful of castor oil. The dose is repeated every second day, for four or more times. Santonin is not effectual for any helminths except ascarides, he adds. The last meal the day before should be merely tea or coffee with milk and *bolachas*.

Leishman Bodies Plus Fusospirillar Infection.—In da Matta's case, in the long chronic lesions on foot and leg of superficial leishmaniosis, fusospirillar bacteria of the Vincent type were found in the ulcerating parts of the sores.

Revista Médica del Rosario

July, 1919, **9**, No. 3

*Radium Therapy. E. Jonquiéres.—p. 189.
*Influenzal Psychoses. C. Alvarez and T. Fracassi.—p. 197.
*Symmetrical Gangrene. E. F. Solari.—p. 211.
Transvesical Prostatectomy under Local Anesthesia. M. A. Llanos.—p. 220.

Radium Therapy.—Jonquiéres reviews his extensive experience with radium therapy for almost all kinds of skin lesions and tumors, emphasizing in conclusion that radium should not be regarded as the last resort but should be considered among the earliest measures to be applied. He says that the indications for it are well defined, and that it is the preferable treatment for many medical affections. He adds that as radium respects the organ of vision, it has been used to advantage for epitheliomas of the lid, etc., without interfering with vision. But with ulcerating neoplasms and recurrences requiring new, long and numerous exposures, the eyeball becomes atrophied, with complete loss of vision. When an epithelioma of the mouth heals under radium, there is no disfigurement as after resection. Only vegetating cancers in the mouth, he adds, are amenable to radium. The ulcerating, infiltrating cancers are extremely rebellious, and he always advises their surgical removal to begin with; this does not have to be very mutilating, as the application of radium to the surgical wound satisfactorily completes the treatment. With epithelioma of the skin, the global destructive action of the radium for one or two hours in all may be preferable, but in all other forms the exposures should be prolonged for twelve, twenty-four or thirty-six hours, every two or four weeks, till the cure is complete. Sarcomas yield to radium the more readily the nearer they are to the embryonal type. It is important to strike hard, as sarcomas become generalized so readily. With chronic eczema and horny growth of hands and feet, he has obtained under radium most gratifying results, far surpassing those obtainable by any other measure. He has had cases of ferocious vulvar and scrotal pruritus subside under the third global irradiation (without filter) of a few minutes' duration, and the cure was complete for months. Any recurrence yields promptly to the same. The basal cell, pavement cell, and cylindric cell cancers are most amenable to radium therapy, the lymph glands not being involved early. The spindle cell and nevi cancers promptly extend to the lymph glands, and are sometimes refractory to radium. With any ulcerative cancer on mucous membrane, it is almost hopeless to apply radium therapy in the overwhelming majority of cases.

Influenzal Psychoses.—Five cases are described. The influenza had not been severe and the psychoses subsided in these cases in less than three or four months.

Symmetrical Gangrene.—In Solari's case the fingers dropped off of both hands and the gangrene of the legs extended from the toes up on the thighs. The patient was a farmer of 40 with no history or signs of syphilis or malaria, and he did not drink or smoke. Chilliness in the feet was the first symptom; then there were pains. These symptoms appeared at times during seven months, with intermissions of three or four weeks. Then the symptoms became more severe and the hands were involved. The eleventh month the extensive and progressive dry gangrene developed in hand and legs, with patches on the brow and ears. As a last resort treatment as for syphilis was pushed but no benefit was apparent, and the man died the thirteenth month.

Revista de Medicina y Cirugía Practicas, Madrid

April, 1919, **123**, Nos. 1549-1551

Iron and Arsenic Useful in Hysteria. R. Del Valle y Aldabalde. —p. 5.
Nephritis of Malarial Origin with Peptonuria. J. C. Castellvi.—p. 77.
Operative Treatment of Purulent Pleurisy. J. Blanc y Fortacín. —p. 91.

Siglo Médico, Madrid

June 21, 1919, **66**, No. 3419

*Obesity and Oxaluria. T. Morato and G. Villanueva.—p. 493.
Surgical Treatment of Strabismus. B. Castresana.—p. 495. Cont'n.
Autonomy of Universities. S. Ramon y Cajal.—p. 505.

Obesity and Oxaluria.—Morato and Villanueva declare that under thyroid treatment in the case described not only the obesity but also the oxaluria showed a marked change for the better. The previously healthy woman of 59 had begun to grow obese at the time of the menopause, and other signs and symptoms developed suggesting thyroid insufficiency. Under thyroid treatment the obesity and other symptoms retrogressed and along with them the oxaluria.

Hospitalstidende, Copenhagen

July 16, 1919, **62**, No. 29

*Chordoma Growing into the Pharynx. J. F. Møller.—p. 849.

Malignant Chordoma.—Møller removed a supposed fibromyxoma from the nasopharynx of a boy of 16, but the tumor returned and proved to be a malignant chordoma involving the pharynx. This was successfully removed, and the youth is still in good health a year later.

Nordiskt Medicinskt Arkiv, Stockholm

October 18, 1918, **51**, Internal Medicine Section No. **1**

*Arrested Development of Ectoderm. J. Strandberg.—p. 1.
*Recurring Puerperal Polyneuritis. M. Valberg.—p. 13.
Decrease in Eosinophils with Serum Sickness. E. Kylin.—p. **35**.
*Clinical Significance of Tube Casts. R. v. Jaksch.—p. 43.
*History of Syphilis in India. J. Charpentier.—p. 47.
*Death under Roentgen Treatment of Exophthalmic Goiter. K. Secher. —p. 63.
*Extrapyramidal Pseudosclerosis. G. Söderbergh.—p. 71.
Cerebellar Tremor. G. Söderbergh.—p. 97.

Arrested Development of Ectoderm.—Strandberg describes in detail a case of various malformations from arrested development, including entire absence of teeth and atrophy of the skin which has scanty pigment and no sweat glands or hair. The man is a factory owner of 39, otherwise healthy except for a nasal affection resembling ozena. This was pronounced also in three of five analogous cases Strandberg has found on record. He notes the analogy also between the case here described and the normal development of the ectoderm in whales.

Recurring Puerperal Polyneuritis.—In the case reported by Valberg the woman of 34 had had the toxic polyneuritis return at each of her three childbirths, without a trace of it in the interim. Paresis of accommodation was a special symptom, along with the paralysis of all the limbs. These symptoms developed five weeks, three weeks or eleven days after the delivery, and they subsided completely in ten or eight months. The woman was otherwise healthy, and there was absolutely nothing to suggest exogenous toxic action. He has been able to find only seven similar cases in the literature, and only one of them is beyond question; in two the polyneuritis developed during the pregnancy. In the others, only the arms were involved. Valberg's own case was far the severest of all. He calls attention in particular to the similarity of the clinical picture in each attack; either the special nerves involved are constitutionally inferior or exceptionally susceptible to the neuritis-producing toxin.

The Clinical Significance of Tube Casts.—Von Jaksch reiterates that the appearance of large numbers of cylindroids is a characteristic sign of disturbance in the circulation in the kidneys. With acute disturbance, as from occlusion of the renal artery by an embolus, the long and extremely narrow hyaline casts stretch across several fields of the microscope, and are beset with dense clusters of red corpuscles. Ribbon-like casts or cylindroids of this kind seem to be pathognomonic of an acute disturbance in the circulation.

History of Syphilis in India.—Charpentier is instructor in Sanskrit at the University of Upsala, and he calls attention to some hitherto overlooked data in Sanskrit literature which throw light on the history of syphilis.

Fatality Under Roentgen Treatment of Exophthalmic Goiter.—Secher reports the case of a previously healthy woman of 39, who had developed exophthalmic goiter in the course of a year. He gave eight roentgen exposures in two days, each a one-half Sabouraud-Noiré dose, with a 2 mm. filter, exposing three fields on the thyroid gland and one on the thymus. The condition became aggravated even during the roentgen treatment, and the condition grew rapidly worse till death the fifth day. He reviews the three cases on record in which roentgen exposures of simple goiter were followed by symptoms of exophthalmic goiter. In Rieder's and Verning's cases the aggravation proved speedily fatal, as in the case here described.

Extrapyramidal Pseudosclerosis.—Söderbergh reports a case of Wilson's pseudosclerosis in a boy of 14½. The movements in nearly all the muscles are strikingly slow and stiff, but the hypertonus differs from that with pyramidal lesions.

Norsk Magazin for Lægevidenskaben, Christiania

August, 1919, **80**, No. 8

*Orthostatic Tachycardia. S. K. Mørdre.—p. 801.
*Brain Abscess of Nasal Origin. K. Haugseth.—p. 822.
*Ether or Thymus Death? T. Cappelen.—p. 826.
*The Antibodies with Allergy. A. de Besche.—p. 830.
*Inheritance of Tendency to Twins. K. Bonnevie.—p. 847.

Orthostatic Tachycardia.—Mørdre discusses the pathogenesis of orthostatic tachycardia and the action on it and on dermographism of atropin and of epinephrin and of mechanical influences. The main factors in orthostatic tachycardia seem to be an instability of the vegetative nervous system, an orthostatic enteroptosis, and an orthostatic drop in the blood pressure. The findings in thirty-five cases are compared. The pronounced degrees of orthostatic tachycardia were associated with sympatheticotony in six of his eleven cases. A neurotic tendency was frequent in this group. One of the men in this group had urticaria and phenomena suggesting vagotony, and yet he gave a pronounced response to epinephrin. Such cases testify to the close connection between the vagus and the sympathetic systems. Dermographism does not parallel the orthostatic tachycardia.

Brain Abscess of Nasal Origin.—Haugseth trephined through the temple region when the girl of 14 developed symptoms of a brain abscess following acute frontal sinusitis after influenza. As the rear wall of the sinus was found apparently intact, he refrained from puncturing here, and made the trephining opening through the sound tissue in the temple region. The opening discharged secretions for about five weeks but complete recovery ensued by the end of the sixth week, when the girl left the hospital. She was in perfect health when seen four months later.

Ether or Thymus Death?—Cappelen found that the thymus extended far down in the thorax in the man of 20 who died from respiratory paralysis after scopolamin-pantopon-ether general anesthesia for an operation for a tendon sheath phlegmon on the left middle finger. He never roused from the anesthetic, and stopped breathing, but the heart action kept good during four hours of artificial respiration. Then signs of pulmonary edema developed, and death occurred five hours after the close of the anesthesia. The passage of air was free throughout. The thymus measured 8 by 3 by 3 cm. and weighed 35 gm. and Cappelen regards this persisting thymus as the explanation of the fatality. The doses of the anesthetics had been injection of ⅓ mg. of the scopolamin and 2 cg. of the pantopon, and about 100 gm. of ether (Norwegian) had been used.

The Antibodies with Constitutional Hypersensitiveness, Asthma, Hay-Fever, etc.—De Besche has continued the researches and experiments of which a summary was given in these columns, June 8, 1918, p. 1804, with editorial comment, p. 1765. His present research deals with bronchial asthma and hay-fever. In 14 cases the asthma was brought on by the smell or touch of the skin of a horse, in 3 by cats, and in one each by dogs and cows. He found that the blood of these persons contained specific precipitins for the albumin of the animal in question or the solution of albumin inducing the reaction. The responses were not always positive, varying at different times. They were negative in 2 cases directly after the attack of asthma had been elicited. This is interesting in connection with the disappearance of all symptoms in one case after a shocklike condition brought on by injection of horse serum. There were no further signs or symptoms of the asthma for three or four months thereafter, even when in close association with horses. This harmonizes with the findings in experimental anaphylaxis, especially as the condition can be passively transferred to others. He presents other data, including Walker's findings, which seem to sustain his assumption that there is a production of specific antibodies in these hypersusceptible persons, and that these antibodies are mainly cellular, but occasionally they can be found in the blood in large amounts. The anaphylactic reaction-body may circulate in the blood, and the anaphylactic tendency can be passively transferred to guinea-pigs by injection of this blood serum. Instances are known of hereditary transmission of horse asthma. Some anomaly in the resorption or in the metabolism of albumin seems to be the cause of the disturbances. A large quantity of antibody and a small amount of antigen may cause the death of the animal with experimental anaphylaxis, as likewise a small quantity of antibody and a large quantity of the antigen.

Twins in Certain Families.—Bonnevie here presents the second official communication from the Christiania University Institute for Research in Heredity. A genealogical chart is given through nine generations of a family, covering 150 years and 5,000 members, with 1,300 married couples. One branch of the family had twin or triplet births in 7.7 per cent. of the total 1,151 childbirths, while no twins were known in the 2,266 births in the other branch of the family. Eight of the twin-birth mothers bore twins or triplets more than once, and the families with twins were somewhat larger than the average. The mothers of the twins with one ovum were generally younger women, but 80 per cent. of the twins were of the two ovum type. In the entire chart there is not an instance of twin birth in which the inherited tendency to twin births can be excluded on either side. The tendency to two-ovum twins behaves like a recessive character. The twins themselves did not seem to breed twins more than the other members of the family.

Ugeskrift for Læger, Copenhagen

July 10, 1919, **81**, No. 28

Influenza in Navy Hospital. H. Rasmussen and H. Rud.—p. 1133.

July 17, 1919, **81**, No. 29

*Roentgen Treatment of Exophthalmic Goiter. S. Nordentoft.—p. 1169.
Influenza at Thorshavn. K. Bierring.—p. 1176.
Public Health in Germany at Close of War. A. H. Hoff.—p. 1181.

Roentgen Treatment of Exophthalmic Goiter.—Nordentoft has another series of fifty to add to his fifty cases of exophthalmic goiter given roentgen treatment. His conclusions are practically the same as from his first series (reviewed in these columns, Nov. 16, 1918, p. 1702). The later and the continued results in his first series have been equally favorable. The details of some specially striking cases are given, including one in a man of 33 two of whose cousins and a sister also had exophthalmic goiter. His symptoms suggested that the thymus and vagus were mainly involved (subjective heart symptoms with moderate pulse, sweats, thirst and dizziness with extreme exophthalmos). The symptoms subsided under exposures of the thymus and part of the thyroid and later of the thymus alone. There were only eight men in his total 100 cases, and they were mostly of this thymus type. He regards small roentgen doses as only irritating, while a single large dose has a destructive action from the first. If there is any risk with roentgen treatment of exophthalmic goiter it is with repeated small doses. Prudence requres a full dose applied at one sitting. Referring to operative treatment of exophthalmic goiter, he mentions the fatal outcome in fourteen of the seventy-six operative cases at the Rigshospital. In conclusion he urges the advantages of change of scene and other measures to combat the instability of the nervous system common with exophthalmic goiter.

July 24, 1919, **81**, No. 30

*The Vestibular Jaw Reflex. S. H. Mygind.—p. 1205.
The Influenza Epidemic at Copenhagen. O. S. Rasmussen.—p. 1210.
*Camphorated Oil for Neuritis and Sciatica. A. S. Jensen.—p. 1216.

Vestibular Jaw Reflex.—Mygind has been applying rotation tests to newly born infants, and noted among others a peculiar distortion of the mouth accompanying the nystagmus as he describes and interprets.

Camphorated Oil in Sciatica.—Jensen relates that the pain subsided completely in the course of ten or twelve days in all of his thirteen cases of sciatica treated by injection of 3 or 4 c.c. of camphorated oil in the limb involved. He has found this measure useful also in neuritis, the pains all subsiding within five or six days.

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SOME OF THE THINGS THAT ORTHOPEDIC SURGERY HAS DONE FOR THE WAR

AND THAT THE WAR HAS DONE FOR ORTHOPEDIC SURGERY *

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Today few of us would agree with Hippocrates, who said that "war is the only proper school for the surgeon." Nevertheless, wars, as a rule, have furthered the progress of the healing art. All branches of medical science have been benefited. The original work of Larrey during the Napoleonic wars was great. He was the first to amputate successfully at the hip. He established first aid and was the first to use ambulances. Esmarch described, during the Franco-Prussian War, the subject of wound excision, practically the débridement of today. The Boer War showed us the benefits of mass antityphoid inoculation; while the advances made in the prevention and care of yellow fever by Reed, Carroll and Gorgas are the result of the Spanish-American War.

It is premature for any one to predict what changes in medicine due to the recent great war will in the future be recognized as progress. Nevertheless, we can say with little fear of contradiction (*a*) that the Carrel-Dakin principle of wound sterilization has come to stay, and (*b*) that orthopedic surgery, as a specialty, has fully justified its *raison d'être* and is here to stay.

Orthopedic surgery has scored a great victory. This section is not only joining in the world-wide paean of jubilation over the definite and final success of Democracy over Autocracy, of Right over Might, but also it is justly celebrating the triumphs of orthopedic principles and practice over the deformity and crippledom which threatened to blast the lives of our fellow citizens.

That this is so is due to the small but stalwart band of allied orthopedic surgeons who existed in 1914 and who were under the spiritual leadership of that Foch of orthopedic surgery, Sir Robert Jones, of England; we Americans were ably led by our own beloved Brackett of Boston.

Difficulties had to be encountered: difficulties not only due to the paucity in number of this body and its ignorance of military ways and means, but also due to a general lack of appreciation of the importance of principles long known to orthopedic surgeons. One cannot be an orthopedic surgeon without being able to think "orthopedically." The expression "orthopedic thinking" is no misnomer. Thus, it came that, at the outset, there were too few who had been trained to treat and prevent potential deformities; there were too many who treated the injury well, but who had not been trained to think of future function.

The difficulties were unavoidable, and in the vast number of cases due to honest misunderstanding. They had all been overcome on the historic 11th of November—on which date American orthopedic surgery, like the American army, was just "getting its gait."

When orthopedic surgery doffs her military garb and contemplates her features in the mirror of events, she will find that changes have occurred. She is now grown up; her field of endeavor is enlarged. In the decade preceding the great war, she had already reached advanced, awkward adolescence; and even then, she ministered increasingly to the adult cripple and his problems. From now on, she will find herself facing the cripple problem in its entirety and she will have to join with municipality, state and Union in order to solve it properly. Leadership lies before her in the care not only of the child cripple, but also of the industrial cripple; not only of the actual cripple, but also of the potential cripple.

In 1914, the orthopedic surgeons of England were noted more for quality than quantity, and it was necessary for us to send over a large group of Americans for purposes of temporary relief. This and other factors due to the war have brought about a unique, cordial relationship which promises to be of mutual advantage in the future.

A flood of orthopedic literature in the form of textbooks, monographs and articles has appeared. Some of it will have only historical value, whereas the experiences recorded in a considerable part of it will always remain as living guidance for peace time work. The task still remains for some one to separate the kernel from the chaff.

Standardization was attempted and achieved in many orthopedic fields. In this country, the standardization of splints is perhaps the most noteworthy example, while in England operative methods and postoperative care were perhaps most successfully standardized.

Many new types of splint and many new methods of cure have been found efficient. Most of them are the products of the fight against that *bête noire*, infection. Fortunately, we have less occasion to meet this enemy in civilian life, and fortunately the terms débridement, primary suture, secondary suture, guillotine, will occupy a minor, though necessary, place in our applicable stock of expressions.

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* Chairman's address, read before the Section on Orthopedic Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

If the war had lasted longer, we might have had solved and standardized for us the vexatious foot problem. The very multiplicity of solutions for this problem argues here, as elsewhere in medicine, that the real answer has not yet been found. It would appear that the anterior heel described a long time ago by Ansel G. Cook has found all but universal favor in certain disorders, and its originator ought to get the credit for it.

Fractures were to a great extent put under the care of the orthopedic surgeon in American overseas hospitals. For this reason, there existed a remarkably small percentage of preventable deformity in the cases which reached this side of the Atlantic. There is no doubt that in future civilian practice, the orthopedic surgeon will be called on to treat in a greater degree than ever the fractured bone.

The psychology of the wounded soldier still under military control is different from that of the ordinary civilian patient, and perhaps also varies from that of the injured industrial employee. If so, the experiment of the curative workshop as applied to civilians will be followed with interest. If a success here, it will certainly put the Zander room on the scrap heap.

It would appear that electricity, in the form of the Bristow coil, is again seeking admittance to the ranks of our armamentarium. If we readmit electricity, let us make sure that it plays no pernicious pranks such as it did before we discarded it, as we thought at the time, forever.

A number of schools in military orthopedic surgery, more or less efficient, ground out, in the course of a few months, a considerable quantity of young "war" orthopedic surgeons. Many of these were stationed in positions in which clinical advantages were great. Of these confrères, many will, no doubt, wish to remain in the orthopedic field. To these, I would say, "Welcome." But I would add to this welcome, a little whispered advice. This advice would be: "You have seen much of war orthopedic surgery; it is doubtful if you have seen it all; but even if you had, you would not by virtue of that fact be fitted for civilian orthopedic surgery. It is quite different. Go to Boston! Go to New York! There is no better place for you in this wide world. And stay there long; long enough to master what you will see and hear and think about while there."

It was almost providential, as a result of peace time efforts, that we were well prepared to take charge of two important types of cases. I refer to the bone graft and the tendon operation. The principles of the former were well understood and were applied whenever needed. In numberless cases of peripheral nerve injury have tendon transplantation and tendon fixation operations yielded definite, well anticipated results. It may be safely said that for every case demonstrably improved by operations on nerve tissue, there have been ten bettered by some form of tendon operation. At this point, we must not forget to mention the knowledge which we were able to apply in paralytic cases in the prevention of deformity and the prevention of muscle stretching, which knowledge was gained from the study of the thousands of cases of infantile paralysis in the decade preceding the war. Little did any of us think that these afflicted children were helping to solve the paralysis problem of their big brothers.

While many changes have taken place and many new devices and methods have been originated by the war, nevertheless, the orthopedic surgery of the war was founded on the true and trusted principles discovered and laid down during peace time by thinking orthopedic surgeons in their laboratories and their clinics.

And now, one by one, we again turn to these havens of peaceful endeavor, leaving behind us the confusion, glamour, trappings and horror of war.

Nearly to a man did we orthopedic surgeons join in this war. We are glad we were in it; glad that we carried on. We are also glad to leave it. We feel that we have given much; but we have also learned much.

CONSERVATION OF VISION, AND BETTER OPHTHALMIC PRACTICE *

CASSIUS D. WESCOTT, M.D.

CHICAGO

[The chairman, after discussing various measures relating to the Section on Ophthalmology, proceeded:]

Much has been done by our special committee, and by individual members of the section, to spread the gospel of conservation of vision; but we must do more. The problem of the protection of the baby's eyes is fairly well in hand, though much remains to be done in some states. But the experience of the selective draft has called attention to defective vision in young adults, which was to say the least surprising. My own experience on an advisory board impressed me with the enormous number of cases of rejection for myopia, uncorrected, or very imperfectly, corrected. In talking with the men about their eyes, I found that the neglect was due to their own ignorance and that of their parents, or to the fact that they had been imposed on by opticians who had sold them glasses without advising them to seek medical advice. In the present state of our knowledge, it should be unlawful for any one not a trained ophthalmologist to undertake the correction of myopia in a child or a young adult. I doubt very much if any legislation which we might initiate would reach the optician or the optometrist, but I wish they might at least be apprised of the harm they are doing by depriving people of proper care.

In my talks with prescribing opticians, I have held that they should never prescribe lenses which did not give the patient normal vision with each eye, and that they should not attempt to fit children. But the observance of these rules would not enable them to avoid sinning, for as we all know, there are many cases of incipient cataract, glaucoma and other serious conditions in which normal vision is possible, to say nothing of myopia and myopic astigmatism. Obviously the remedy is to educate the people.

The question is how best to do it, and what can we, as an association, do that we are not already doing? I think we should provide for more pamphlets and more public lectures, and do more as individuals and keep everlastingly at it. At the risk of seeming egotistic, I am going to tell you what I have tried to do

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* Chairman's address, read before the Section on Ophthalmology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

myself. I practiced general medicine for ten years, and have never been able to get away from the human side, even in a practice limited to ophthalmology. The correction of an error of refraction involves a consideration of the patient's general health as revealed by the anamnesis, or suggested by the external examination and the use of the ophthalmoscope. I find myself discussing with younger patients the choice of an occupation with reference to the condition of the eyes, and the general health; with older people the importance of regular and frequent general examinations in order to keep well, and retain full efficiency. I advise all patients to have the eyes looked over once a year at least, and a complete examination, with the use of a mydriatic, every two years, or oftener, as indicated. In answering the questions of intelligent patients and informing the ignorant, I have found the pamphlets of our conservation series a great help and hand them out daily in my office. I have taken particular pains to supply the teachers and mothers of families with these admirable helps. I find that some of the pamphlets have passed through many hands, and I am frequently asked for more. I have given a number of public lectures, and in my talks to nurses and medical students for over twenty-five years have tried to make a missionary of conservation of each one of my hearers. I have grown more or less hopeless in regard to the matter of annual school examinations by the teachers, introduced and so strongly advocated and made so simple by Dr. Allport. It has never been done effectively in Chicago, and I often see children who have been in our public schools for years without a visual examination until increasing myopia made a front seat a necessity. The visual examinations which are made now are made by school nurses and school physicians only on complaint of the teacher. When all our politicians have completely lined their pockets with gold, we hope to have several things done which are now neglected.

The American Board for Ophthalmic Examinations was organized because of the obvious need of some systematized and standardized training for those who are to practice ophthalmology. You are all familiar with the good work it has done and is doing. As individuals we should encourage as many as possible to take the examinations of this board. The qualified should be recognized and honored by the certificate of the board: those who are unfit should be made aware of their shortcomings, and encouraged to qualify themselves by further study and training. In this connection I would like to quote from a paper by Dr. Edward Jackson:[1]

> An organization like this could arrange to give, just before its annual meeting, a week of intensive training on the microscopic diagnosis of intra-ocular tumors, under three or four of its members who have given special attention to ocular pathology. Or, to make the best use of the time with the least strain of any one set of powers, this might be combined with a similar course on experimental optics, or the minute anatomy of the eye with reference to operations on the anterior segment, or the location of foreign bodies. Such courses should be put on a basis of fees that would compensate the instructors, and provide the necessary material or equipment. Similar courses could be arranged by local ophthalmologic societies for the benefit of their own members, and to suit their convenience.
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> Finally, it would help to remove the greatest defects in training for ophthalmic practice, it would emphasize the importance of fundamental training, if the American Board of Ophthalmic Examinations would divide its examinations into two parts. It could give to students who have been out of the medical school one year or more an examination on ocular anatomy, the physiology of vision, geometric, experimental and physiologic optics, and ocular pathology. Two or more years later it could give the examination in ophthalmoscopy and other branches of clinical diagnosis, clinical examination of patients, therapeutics and operative technic. Something of this kind is needed to prevent the essential preliminary work from being neglected, and to prevent such neglect from impairing the value of all training in the so-called practical branches.

These are admirable suggestions, and I wish they might be seriously considered by the section. We should certainly do all we can individually and collectively to discourage and discountenance short cuts to ophthalmic practice. I am often asked to teach men refraction or recommend schools where it can be learned in a few weeks. I invariably tell these men that it cannot be done and beg them to devote at least a year to preparation, explaining that the ability to do a good refraction is only one of the obligations assumed by the physician who would essay it. Some of my most grateful patients are among those who have learned during an examination for glasses that they were not so well as they thought they were, and that the ophthalmoscope is a great aid in general diagnosis.

I think we should also do something toward the standardization of undergraduate ophthalmic teaching. Iritis is still being treated with boric acid and argyrol; acute glaucoma with atropin, and sufferers from chronic glaucoma are being told that they must wait until they are quite blind before the cataract can be removed. The more I know about ophthalmology the more interesting the eye becomes in relation to general diagnosis, and the more convinced am I that physicians generally are not taking advantage of their opportunities. I am also sure that it is not their fault—entirely. They haven't been taught. Several men who served on local boards in and near Chicago during the draft were not able to follow the simple directions given them for taking the vision. But the need has been so well and so recently brought out by Dr. Woods, Dr. Jackson and General Munson and by the Council of British Ophthalmologists that I am sure I need say no more. I feel quite confident that the Council on Medical Education will be glad to consider suggestions from this section on undergraduate medical teaching in ophthalmology, and I hope I may be asked to appoint a special committee to study and report on this subject.

I think it would also be well for us to consider and give our endorsement to a compensation table. The present methods of estimating compensation for ocular injury are very unsatisfactory and incomplete, and to some seem unnecessarily complicated. I would be glad to appoint a committee to study this question with a view to preparing something which may be presented as authoritative to the legislative bodies and compensation boards.

In conclusion, I cannot resist the temptation to express what I know you all feel, our very great pride in the work of members of this section in the service of our country. We are glad to see many of them back from service, and with us today, and thank heaven that they could go.

22 East Washington Street.

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[1] Jackson, Edward: Defects in Education for Ophthalmic Practice, Tr. Am. Acad. Ophth. & Otolaryng., 1917, p. 144.

AN EXPERIMENTAL STUDY OF THE EFFECTS OF DUODENECTOMY

A PRELIMINARY REPORT *

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AND
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The scope of this investigation of the effect of duodenectomy in dogs is twofold: (1) to determine whether the duodenum is absolutely necessary to life, and (2) to determine its rôle in the functioning of the gastro-intestinal canal.

From a practical surgical standpoint, duodenectomy is probably of very little consequence, although several partial resections have been performed satisfactorily. From the physiologic point of view, however, the operation is significant. The duodenum occupies a very important anatomic and physiologic position just distal to the stomach, and is seemingly intimately associated with the physiology of that organ, with special reference to its mechanism for emptying. The liver and pancreas discharge their secretions into the duodenum, which bears some relation to the manner in which these organs functionate. In addition to this, the duodenum itself elaborates a secretion and contains glands (Brunners) which are found only in this part of the body. It is thus possible that the duodenum is of importance in the general physiology of the organism and plays a necessary part in the function of the gastro-intestinal tract and in digestion. It seems logical, therefore, to believe that the removal of the duodenum will produce noticeable effects, and that the compensation of the body to its removal will make possible an evaluation of its real importance.

PREVIOUS EXPERIMENTATION

The first experiments recorded in the literature of the removal of the duodenum were made for the primary purpose of attempting to determine the relative part the duodenum and pancreas play in the production of experimental diabetes, and not for the purpose of determining the function of the duodenum. The results of the experiments of this group of early investigators, Pflüger,[1] Ehrmann,[2] Lauwens,[3] Minkowski,[4] Cimoroni,[5] Tiberti,[6] Rosenberg[7] and Bickel[8] may be grouped under definite headings. All the experiments were performed on dogs, with the exception of Pflüger's; some of his were done on frogs. The method of removing the duodenum varied. In no instance was a complete, normal reconstruction made. The continuity of the gastro-intestinal tract was maintained either by a gastro-enterostomy (Lauwens, Minkowski, Cimoroni, Tiberti, Rosenberg, Bickel) or by an end-to-end anastomosis of the jejunum to the pyloric end of the stomach (Ehrmann, Tiberti). The bile and pancreatic secretions were taken care of by:

1. Ligation and complete occlusion of both ducts (Ehrmann).
2. Cholecystenterostomy and ligation of the pancreatic ducts (Minkowski, Tiberti, Rosenberg).
3. Biliary fistula and ligation of the pancreatic ducts (Cimoroni, Tiberti).
4. Biliary and pancreatic fistulas (Lauwens, Bickel).
5. Transplantation of both ducts into the stomach (Ehrmann, Lauwens).

The results of these investigations were not very satisfactory. In most instances the animal died shortly after the operation; in only a few instances did it recover from the immediate effects of the operation. Two of the animals lived two weeks (Lauwens), one three weeks (Rosenberg), two four weeks (Minkowski), and one four and one-half weeks (Bickel). The final results of some of these experiments are incomplete.

Gaultier[9] studied the effect of injury to the duodenal mucosa in animals, and Zak[10] reported observations on the effect of caustics on the duodenum in man.

Matthews[11] studied the effect of various types of experimental operations on the duodenum. The duodenum was not actually removed in his experiments. Stassoff,[12] in a research on the effect of the removal of various portions of the gastro-intestinal tract, also removed the duodenum. None of his animals in which the duodenum was completely removed survived. He was able to keep one animal alive in which the portion of the duodenum distal to the entrance of the bile duct was resected.

Since the early investigators of duodenectomy were mainly interested in the relation of the duodenum to pancreatic diabetes, their data on the function of the duodenum and the effect of its removal are not complete. Most of the animals died shortly after operation, and in instances in which the animal survived the method was subjected to the criticism that not all the duodenal mucosa was removed.

It should be noted that experiments dealing with the short circuiting of any particular portion of the gastro-intestinal tract do not parallel those in which the same portion has been surgically removed. For that reason the experiments of Matthews should be classed with those on intestinal obstruction and not of duodenectomy.

Since our investigation was started, three articles on the subject have been published. L. R. and C. A. Dragstedt, McClintock and Chase[13] studied the effect of duodenectomy in two series of dogs. In the first

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* From the Division of Experimental Surgery and Pathology, Mayo Clinic.

* Read before the Section on Pathology and Physiology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Pflüger, E.: Untersuchungen über den Pankreasdiabetes, Arch. f. d. ges. Physiol. **118**: 267-320, 1907; Durch neue Experimente gestützte Bemerkungen zu den jüngsten Arbeiten über den Duodenaldiabetes des Hundes, Arch. f. d. ges. Physiol. **123**: 323-328, 1908; Ueber die durch Resection des Duodenums bedingten Glykosurien, Arch. f. d. ges. Physiol. **124**: 1-28, 1908.

[2] Ehrmann, R.: Ueber den Einfluss der Ausschaltung des Zwölffingerdarms auf die Zuckerausscheidung und über seine Beziehung zum experimentellen Pankreasdiabetes, Arch. f. d. ges. Physiol. **119**: 295-296, 1907.

[3] Lauwens, R.: Exstirpation des Duodenums betreffender Brief an den Herausgeber, Arch. f. d. ges. Physiol. **120**: 623-625, 1907.

[4] Minkowski, O.: Die Totalexstirpation des Duodenums, Arch. f. exper. Path. u. Pharmakol. **68**: 271-288, 1908; Deutsch. med. Wchnschr. **34**: 45, 1908.

[5] Cimoroni, A.: Sugli effetti della resezione totale del duodeno, Sperimentale **62**: 523-534, 1908.

[6] Tiberti, N.: Interno alla estirpazione totale del duodeno, Sperimentale **62**: 479-495, 1908.

[7] Rosenberg, S.: Zur Frage des Duodenaldiabetes, Arch. f. d. ges. Physiol. **121**: 358-362, 1908.

[8] Bickel, A.: Beobachtungen an Hunden mit exstirpiertem Duodenum, Berl. klin. Wchnschr. **46**: 1201-1202 (June 28) 1909.

[9] Gaultier, R., quoted by Pflüger (Footnote 1).

[10] Zak, E.: Glykosurie bei Verätzungen des Duodenums, Wien. klin. Wchnschr. **21**: 82-83 (Jan. 16) 1908.

[11] Matthews, S. A.: One of the Functions of the Duodenum, J. A. M. A. **55**: 293-295 (July 23) 1910.

[12] Stassoff, B.: Experimentelle Untersuchungen über die kompensatorischen Vorgänge bei Darmresektionen, Beitr. z. klin. Chir. **89**: 527-589 (Feb.) 1914.

[13] Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. T., and Chase, C. S.: Extirpation of the Duodenum, Am. J. Physiol. **46**: 584-590 (Aug.) 1918.

series a two stage operation was performed, and in the second series a one stage operation. In the first series one animal lived twelve days, and in the second, one animal lived three months. None of the duodenectomized animals, however, appeared to keep in good condition.

Grey[14] removed the duodenum in three stages, leaving an interval of several weeks between each stage. One of his dogs survived all three operations (complete removal of the duodenum), and remained in perfect health for eight and one-half months.

Moorhead and Landes[15] also used a three stage operation for the removal of the duodenum. They were able to remove the entire duodenum and to demonstrate that dogs are able to live in perfect health after such a procedure.

Dragstedt and his collaborators clearly showed that a dog can survive duodenectomy, but their work is open to the same objections as that of many of the earlier workers, namely: The duodenectomy was complicated by a loss of pancreatic, and, in some instances, of biliary function. As they suggest, this probably was the cause of the failure of their animals to maintain health. The results of Grey, one of whose animals lived the longest after duodenectomy, and of Moorhead and Landes, prove that duodenectomy is compatible with life and perfect health in the dog for relatively short periods.

TECHNIC

In the first experiments we attempted a two stage operation for the removal of the duodenum. However, as it was our intention to make extensive studies of the gastro-intestinal tract and the various organs after duodenectomy, it was soon seen that by the time the second stage of the operation was performed the many adhesions would greatly complicate our studies. We attempted to devise a one stage operation by combining the two stage operation in one. We had a few successes by this method. One animal survived forty-one days, but in this case the pancreatic ducts were ligated.

On account of these unfavorable results a new method was developed, and two points were accomplished: (1) The duodenectomy could be performed quickly, and (2) all the other involved organs, such as the bile duct, both pancreatic ducts, the pancreas and the alimentary tract, were restored to correspond as nearly as possible to the normal state. Briefly described, the operation consists of four steps:

1. The dissection of the duodenojejunal fold, the mesoduodenum and the lesser omentum; and the ligation of the blood vessels supplying the upper jejunum and duodenum.
2. The separation of the pancreas from the duodenum and the isolation of the major pancreatic duct and the common bile duct, together with the minor pancreatic duct.
3. The removal of the entire duodenum, with a portion of the proximal jejunum and the distal pyloric portion of the stomach.
4. The implantation of the bile duct and the minor and major pancreatic ducts into the jejunum.

The technic described was developed on the dog, and, with slight modifications, it was found to be adaptable to several other species. The operation could usually be performed on the dog within from one and one-quarter to one and one-half hours, never longer than two hours. Several of the animals died as a result of the operative procedures before we had developed our technic. Others died from the results of intercurrent disease. After our technic was fully developed, however, practically all the animals lived.

RESULTS

Our results on dogs fully corroborate those of the more recent investigators. The animals quickly recovered from the operation and, with a few exceptions, have remained in excellent health. Their general condition has been good; their weight usually has increased or remained stationary. A few of the animals steadily lost weight and strength after the operation. At necropsy, or at exploratory operation on these animals, a dilated common bile duct and marked infection of the entire biliary tract were usually found. Evidently the transplantation of the ducts did not restore a condition sufficiently normal to prevent infection.

Examination of the blood to determine the cell count, hemoglobin, carbon dioxid combining power and hydrogen ion concentration did not reveal anything abnormal.

Examination of the gastro-intestinal tract by the roentgen ray, employing a standard barium meal, showed only slight deviation from the normal. In some instances, the barium left the stomach sooner than in the normal dog, probably because of the loss of the pyloric sphincter. At other times, it seemed that the emptying of the stomach was slightly delayed and that the course of the meal was a little slower, but in each instance this delay was not any greater than in some of the normal animals. In general, however, no difference was noted in the passage of the barium meal in the duodenectomized and in the normal dogs. Roentgenograms of the gastro-intestinal tract appeared normal. Future studies may show some effect of duodenectomy on the mechanics of digestion, but at present none have been noted.

REMOVAL IN OTHER ANIMALS

Up to this time all experimental duodenectomies, with the exception of a few on the frog, had been done on the dog. At the suggestion of C. H. Mayo, we attempted to determine the effect of the operation on other species, particularly on the herbivorous and omnivorous animals.

The duodenum was removed from the cat. The operation is easily performed on this species. It is necessary to transplant only one pancreatic duct, that which enters in conjunction with the common bile duct, as the other duct is quite small.

The goat was selected as a suitable type of herbivorous animal. The operation is difficult in this species. The duodenum is long; the length of intestine removed measured about 90 cm. As the pancreatic duct empties directly into the common bile duct, it is necessary to transplant only the latter. The thin walls of the jejunum make the anastomosis quite difficult.

The hog was selected as an omnivorous type of animal. The removal of the duodenum is very difficult in this species. As the bile and pancreatic ducts empty separately, two transplantations must be made. For expediency and in order to remove all the duodenum, as in operating on the dog, it was found best to section at the duodenojejunal juncture, invert the end of the jejunum, and unite the jejunum slightly more distally to the end of the stomach.

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[14] Grey, E. G.: Demonstration of a Duodenectomized Dog, Bull. Johns Hopkins Hosp. **29**: 152 (June) 1918; Duodenectomy: Its Effect On the Life of an Animal; Transplantation of the Pancreatic Duct, Surg., Gynec. and Obst. **28**: 36-42 (Jan.) 1919.

[15] Moorhead, J. J., and Landes, H. E.: Duodenectomy, **J. A. M. A.** **72**: 1127-1129 (April 19) 1919.

The duodenum was also removed from the monkey (*Rhesus*), its anatomy being similar to that of man. It is necessary to transplant only one duct in this species, since the minor pancreatic duct can be ignored.

We now have ten dogs, one goat and one hog from which the duodenum has been removed. One of the ten dogs was operated on six months ago. All the animals, with the exception of one dog, are in good condition.

SUMMARY

The investigation was undertaken for the purpose of determining the effects of the removal of the duodenum. A one stage operation for the removal of the duodenum was developed. The duodenum was removed from the dog, cat, hog, goat and monkey. Careful studies on the dog did not reveal any noticeable changes following the duodenectomy. The animals remained in good condition. Examination of the blood showed it to be normal with regard to cell counts, hemoglobin, carbon dioxid combining power and hydrogen ion concentration. The roentgen ray showed the course of a standard barium meal to be practically the same as in a normal dog. Experiments on the other species have been too recent to allow conclusions to be drawn, but it would seem that the removal of the duodenum in the hog is as innocuous as its removal in the dog. No data have been secured to show that the duodenum is of great importance in any of the species used. Future studies with particular reference to gastric secretion, etc., may give more positive results.

ABSTRACT OF DISCUSSION

Dr. W. M. L. Coplin, Philadelphia: Has the sugar metabolism been affected?

Dr. Francis Carter Wood, New York: What was the time required for such an operation?

Dr. Frank C. Mann, Rochester, Minn.: I have studied the evidence with regard to glycosuria in a very elementary way. In the animals I examined the sugar matabolism seemed to be normal. We made no tests, but the increase in weight and the good general condition seemed to indicate that there was no change. The operation is easily performed on the cat; it can be done in an hour, but cats have not nine lives from a surgical standpoint. They are the very poorest animals on which to do experiments. The operation can be done in one hour and a half on the dog. It takes longer when done on the goat and hog.

Cost of Blindness $31,000,000 Yearly.—It is estimated that the total annual expense of the blind to the country approximates $31,000,000. There are 70,000 blind persons in the United States. Of this number 41,000 are absolutely dependent on others for support. Apart from the economic loss caused by the removal of productive workers from the wage-earning class, there is added a financial burden in direct interest of the blind. A large item is the maintenance of special schools for blind children. It takes far more to educate the blind than the normal child. Including the expense of institutions, library facilities, home teaching, the amount soon approaches millions. Considering every phase of the question of costs, it is estimated that the total annual expense of the blind to the country approximates $31,000,000. Fifteen million dollars can be saved annually by the united efforts of education to avoid the many accidental cases of blindness in the industries by the prevention of lost vision caused by babies' sore eyes, measles, ulcers of the eyes, scarlet fever, trachoma, occupational diseases, wood alcohol poisoning, excessive use of alcohol and tobacco and uncorrected visual defects.

CLINICAL TYPES OF OCCUPATIONAL DISEASES

STUDY OF METHODS FOR THEIR PREVENTION *

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More and more, physicians are beginning to appreciate a marked change in the spirit of the times. It has long been recognized that this is an era of great industrial development, but up to the present time only a relatively small number of physicians have discerned the far-reaching influence which industrial development is beginning to exercise on general medicine, surgery and preventive medicine. It requires no special gift of prophecy to foretell the time in the near future when many physicians, who, during the last few years, were wont to look on industrial hygiene and the study of occupational diseases with good-natured indulgence, or with more than a little of a certain air of condescension, will very seriously have to consider the readjustment of their practice to fit in with the needs of industrial medicine. Whether as a result of health insurance, or through a desire on the part of employers to comply with the insistent demand of the working people for effective protection of their health, it may be stated with assurance that industrial hygiene, industrial surgery and industrial medicine are bound to emerge clearly into view as most important special branches of modern medicine.

In its efforts to prevent occupational disease, the Division of Industrial Hygiene of the New York City department of health, as organized up to Jan. 1, 1919, received complaints from individuals and from labor organizations, and requests for advice and counsel from employers. These complaints and the requests for assistance time and again led to many investigations which brought us face to face with conditions of great interest, and showed that there exist in factories thousands of cases of illness which are either ignored or unsuspected. The sources of danger to the lives and health of workers from various chemical poisons and dusts, and from exposure to other hazards, can only briefly be illustrated here by the citation of several interesting experiences.

CARBON MONOXID POISONING

It came as a great surprise to those of us who are interested in this work to find nearly every winter, when windows and doors were closed — these being practically the only means of ventilation in many establishments—that a relatively large number of employees would simultaneously become ill from time to time, presenting a clinical condition which became fairly familiar with repetition. A typical instance was one relating to a factory situated on the three topmost floors of a twelve story factory building, given over to the manufacture of men's clothing. Of 125 employees, seventy-three became suddenly ill at about 2 o'clock one afternoon, and were seized with nausea and vomiting. Practically all of them complained of headache, dizziness and general weakness, which was particularly marked in the legs. A number were overcome, and several ambulances were called from nearby hospitals. Three employees were removed to hospitals, and a number of others were sent home under escort. Practically all recovered within a few hours, but in two cases symptoms of marked general weakness persisted for several days.

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* Read before the Section on Pathology and Physiology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

At this time, stories were current about the work of spies in impregnating the cloth used for manufacturing soldiers' uniforms with various poisonous substances. As the result, however, of several similar experiences in previous winter seasons, we felt reasonably certain that the condition was due to the improper removal of various gases of combustion, particularly carbon monoxid, and to their escape into the workroom. On investigation, in this particular instance, we found that our theory was apparently correct, but that the gas entered the working establishment from an unusual source. The rear doors of the three upper floors which communicated with a hallway that led to the roof had been left open by an employee, and a shift in the direction of the wind caused the chimney gases to be driven in considerable concentration down through a stairwell into the corridors, and then into the workrooms. When later we analyzed the facts in the case, we found that the employees who were affected were those who were at work near the rear of the shops where the doors were open.

What is more important from the standpoint of industrial medicine is this: We have found on a number of occasions during the past winter seasons that in connection with gas flames used for pressing-irons, or where furnaces were in operation, or, in fact, wherever incomplete combustion of gas or coke occurred, a clinical condition of a similar character frequently developed among large groups of employees. Altogether, about 220 cases of acute carbon monoxid poisoning, similar to the seventy-three cases referred to above, which were traced to the incomplete combustion of a variety of gases or fuel substances containing carbonaceous material, and in which acute symptoms followed exposure to these gases, came to our notice. Although, in several instances, careful examinations of the blood were made, we were not able to demonstrate the presence of carbon monoxid, but in the light of Prof. Yandell Henderson's investigations, showing that carbon monoxid in combination with the hemoglobin is readily given up in the presence of pure air, this can be readily understood.

Our examination of a number of men who were exposed to furnace gases and, particularly, a number of investigations which were conducted with reference to complaints made by persons employed in garages, have led us to believe that in industrial communities there are many persons who are affected with headache, marked anemia, general weakness and gastric symptoms whose condition is due in large measure to continued exposure to small amounts of carbon monoxid gas resulting from incomplete combustion. Numerous cases were called to our attention in which the private physician, having failed to ascertain the nature of the industrial environment in which a patient was employed, was apparently very much at sea to explain the cause of these symptoms.

The therapeutic agent of greatest value in the elimination of this source of complaint, which, we have reason to feel, affects many thousand persons in an industrial community like New York, is the application of simple sanitary engineering principles. It is necessary to remove noxious gases by the installation of exhaust or suction fans and by devices which can be made an integral part of furnaces, of gas irons or of engines which generate fumes.

The rapidly increasing use of electricity as a source of heat in connection with furnaces and various mechanical processes will also, in large measure, reduce the danger of poisoning from this source. In passing, it should be stated that the industrial physician must work in close association with the sanitary engineer, and particularly with those who have made a specialty of installing systems of artificial ventilation.

APPARENT CARBON DIOXID POISONING

Three cases of poisoning of an unusual character came to our notice through the office of the coroner about a year ago. A freighter, which had carried a cargo of molasses, was moored in an inlet in New York, and had unloaded its cargo. The men used the inlet water to flush out the hold of the vessel to remove the molasses that had adhered to the walls and the bottom. This inlet water was very heavily polluted, and after the flushing had been carried on for a considerable period of time, one of the crew began to descend into the hold, but was overcome while still on the ladder, and fell to the bottom. A companion immediately attempted to go to his assistance. He too was instantly overcome and likewise fell. A third man, who made a similar attempt, was also affected and fell violently to the bottom, sustaining injuries to the skull which confused the subsequent clinical condition. Several men, who were lowered with ropes, brought the three who had fallen out of the hold. Two recovered promptly, but the third man, who had sustained a severe injury to the skull, rapidly became comatose and died in a short time. At necropsy, a depressed skull fracture was found; it was questionable to what degree the fracture was the factor operative in bringing about the fatal termination. The blood was found to be of an extremely dark color, fluid, and had a very distinct sweetish odor. The lungs were engorged. While it was difficult to say in this case that the man had died of carbon dioxid poisoning, it appeared from the nature of the cargo, and from the manner in which the gases that were generated in the hold following the flushing with inlet water had acted on the three men, that we were dealing in this instance with carbon dioxid gas which had been generated as a product of fermentation, and which had caused an acute intoxication that was responsible for the fall of the deceased. These three instances are of special interest merely because they are examples of the variety of forms of poisoning which may be encountered in industry, and which rarely come to the notice of public health authorities except in the event of a fatal termination. This is due to the fact that there is unfortunately not sufficient team-play between the clinicians in private or hospital practice and the public health officers interested in industrial hygiene.

ANTHRAX

We have had an average of eleven cases of anthrax reported in New York City since 1915. While the source of infection in a small number of cases cannot be explained, the majority of them occurred in persons employed in the handling of hides, and more particularly among brush makers. From investigations which we have conducted in 102 brush making establishments, we found that because of practical difficulties alleged to exist, the sterilization of imported bristles, particularly those intended for use in making shaving brushes, was and is virtually, entirely neglected. The wonder is that we have not had more cases of anthrax.

One gains the impression from the study of conditions in Wilmington, Del., where an enormous quantity of hides is handled, and from other places where anthrax is likely to occur, that many employees have infections of varying degrees of severity which are diagnosed as erysipelas or ordinary infections, and which are principally characterized by extensive cellulitis. So many of these cases are found among workers in the brush-making industry and among those employed in the handling of hides, and occasionally among longshoremen, that one cannot but come to suspect that a relatively mild anthrax infection may be of far more frequent occurrence than we have hitherto believed, and that although we have regarded this as a disease which is almost invariably fatal, there may be mild as well as severe anthrax infections which are not properly identified and which are the result of industrial exposure. At all events, this is a subject the study of which would be extremely profitable. Practically all of the patients with anthrax seen in the city of New York during the last four years, in which the progress of the clinical condition was not rapidly fatal, have been treated by excision of the malignant pustule, and in a number of instances the Eichhorn serum has been administered, apparently with good results. Of the forty-four cases reported in the last four years in the city of New York, twenty-five terminated fatally.

CHEMICAL POISONING

Even to one who has an intimate knowledge of the industrial life of a community, it is a frequent if not constant source of surprise to learn of the multitude of unusual trades and industries which are conducted in many small establishments scattered through a big city. One little suspects that a number of chemical poisons which seem to interest only remotely the student of industrial medicine may be a potent agent for harm in a given community. A chemical agent which may seem to affect only two or three persons working in a small establishment must never be judged unimportant until one considers the total number of such establishments which may be handling the same chemical substances in various parts of the country.

For example, our experience and that of others have indicated that arsenical poisoning from the manufacture, trade use, or handling of various arsenic salts must be more frequent in New York City than many would suspect. The possibilities for poisoning from the fumes of arseniuretted hydrogen exist in steel and iron mills, as well as in a number of other industries in New York City, as elsewhere.

Hydrofluoric acid is a source of danger among those who are engaged in etching designs on glassware; it produces varying degrees of irritation and ulceration of the mucous membranes and of the skin. It, too, may be frequently encountered in a large industrial community.

With the great impetus which the war has given to the manufacture of dyestuffs in this country, anilin poisoning and other related forms of chemical poisoning are to be looked for as a frequent cause of disease.

The use of mercury in the manufacture of thermometers and other scientific instruments, and in the manufacture of felt hats, is a far more frequent cause of mercurial "shakes" or tremors, cutaneous and mucous membrane ulcers, gastro-intestinal and nervous system disturbances, and early degeneration of the arteriorenal system than has been suspected.

The pathologic effects of lead in a multitude of trades have been harped on so often and so much as to have lost interest for the general practitioner; yet everywhere, in industrial centers, it continues to exist as a serious menace to the health of many. Judging from the number of reports of chemical poisoning in industry which private physicians and hospitals submit to health authorities and to medical journals as well, one would derive the impression that the types of industrial disease here briefly referred to, as well as many others which the limit of time does not permit one to enumerate, are almost nonexistent.

I may only mention, in passing, the patients suffering from poisoning resulting from trinitrotoluene and other explosives, among a number who returned disabled to New York during the war period, to indicate further the great range and variety of occupational diseases that one may encounter in a large city.

OTHER FORMS OF INDUSTRIAL DISEASE

Caisson disease occurs in scores if not hundreds of cases each year, in connection with the construction of tunnels and the excavation and construction of foundations for so-called skyscrapers in New York as elsewhere.

A fertile field for study of the peculiar and almost specific effects of stone dust was suggested by the reports made by the New York branch of the Granite Cutters International Association of America, showing that in one year, of 210 deaths occurring among members of this local branch, 50 per cent. were due to tuberculosis. How many other men, who died of pneumonia, were made particularly susceptible to the disease by the inhalation of sharp mineral dust could not be determined.

LEAD POISONING AMONG PRINTERS

One hundred and twenty-five printers were studied with a partciular view to discovering the presence of symptoms indicating lead poisoning. An interesting feature of this investigation was the fact that by special arrangement with the president of a local printers' union, the examinations were conducted at union headquarters. Because our clinical data are not complete in all cases, only 109 cases have been included in this preliminary report. A few of the more striking facts elicited in the course of this examination will be presented. A more extended account, comparing the frequency of lead poisoning as found in 402 painters, with its frequency in these 109 printers, will be presented in the future. Twenty-six of the 109 compositors gave a history of cough of long duration; nine gave a history of recent bloody expectoration; thirteen were suffering from night sweats; nineteen had lost a considerable amount of weight or strength, and also had pains in the chest of varying degrees of severity; twelve gave a history of pneumonia; fifteen, a history of pleurisy; eight were subject to attacks of bronchial asthma, and twelve had chronic bronchitis. A family history of tuberculosis was obtained in nineteen cases in which the diagnosis of tuberculosis was made. Seventeen per cent. of these printers gave signs of arrested or active pulmonary tuberculosis. Further study is needed in order to arrive at a final conclusion with reference to the total incidence of pulmonary tuberculosis in this group. Respiratory diseases were common among these men; the total number of such diseases being thirty-nine, or 35 per cent.

Muscular pains, which are characteristic in those who are exposed to lead, were fairly conspicuous. Thirty of those examined had a decided backache. Considering that these men were all compositors employed at linotype machines and seated in a constrained position during the work, this apparently selective action on the muscles of the back is readily comprehensible.

Forty-two gave a history of obstinate constipation; twenty-two had very marked abdominal pains at irregular intervals; in fifteen of these twenty-two cases, the pains were described as being fairly frequent and severe; in five others the abdominal colic was so severe and so frequent as to cause marked suffering; seven suffered from frequently recurring attacks of diarrhea; nineteen gave a history of a distinct metallic taste in the mouth; twenty gave a history of marked pains and weakness in the arms; forty-two complained of marked pains or weakness in the legs; in eighteen, both the arms and the legs were affected in this way. It is remarkable that in not a single instance was a lead line observed among these printers; only one had a marked deposit of tartar near the margin of the gums. Forty-one of the 109 examined were compelled to wear glasses for ocular defects; in all, eighty-one were found to have defective vision. This marked prevalence of visual defects is quite in accord with the experience of those who have studied the ocular condition of printers. It is quite evident that special study and provisions with respect to lighting is essential in this industry.

In the examination of thousands of working people it has been our experience that the teeth, in a majority, were in a very defective condition. Among these printers, however, it was extremely interesting to note that only seventeen had very defective teeth, indicating, apparently, a degree of attention to the care of the teeth which is quite unusual among those employed in industry, by and large, and seemingly accounting, in large measure, for the absence of the lead line.

Twenty-six of these compositors had defective hearing. This relatively large percentage of cases of defective hearing is worthy of further study with respect to its possible relation to excessive noise from printing presses, etc. Ten had evidence of chronic endocarditis. In addition, there were six cases which showed myocardial affections. In eighteen there was distinct evidence of arteriosclerosis.

No cases of paralysis were found, but, as already indicated, a number of the printers showed very definite weakness in the arms and legs. Thirty-eight had marked tremors. The association of a positive Wassermann test with lead poisoning, which has been suggested by several observers, we were not able to verify in a study of over 400 painters, which I have reported elsewhere; nor could it be corroborated in the study under discussion. Only four of these printers had a positive Wassermann test. In thirty cases we found a marked degree of anemia. Out of a total of ninety-five cases in which the blood was examined, stippling was found in but a single instance. Four persons showed a fairly marked trace of albumin in the urine; one had casts. So much for an enumeration of miscellaneous findings.

Incidence of Lead Poisoning.—Very strong traces of lead were found in the urine in twenty-two cases; in nineteen cases a moderate trace was found, and in nine a very faint trace; in seventeen a suspicious reaction for lead was obtained, and twenty-two were negative. Altogether, eighty-nine of the printers were tested; the remainder of those examined failed to bring specimens of urine. This test, in accordaance with our previous experience, seems to be a very reliable one. In association with the other clinical symptoms, it has been extremely helpful in our determination as to whether an individual was suffering from active lead poisoning, or, whether plumbism was latent, the lead apparently being held in precipitation in the tissues and capable of being dissolved and absorbed as a result of metabolic disturbances, thus causing active manifestations of lead poisoning. In classifying the cases of lead poisoning among printers, we found that twenty-six of them had a number of clinical symptoms characteristic of lead poisoning, together with heavy traces of lead in the urine. Twenty-three others had one or more of the characteristic symptoms of lead poisoning, though not as marked as in the preceding cases, and this group too had evidence of lead in the urine. Two were cases which presented doubtful symptoms. In other words, forty-nine out of 109 compositors, or, roughly, 45 per cent., were suffering from lead poisoning. While in times past there has seemed to be a tendency to focus attention almost exclusively on lead poisoning in the discussion of occupational diseases, it still remains a fact, considering the great variety of industries in which lead is employed, that lead poisoning is a serious problem, as previously stated.

To our great amazement, we found among the union men whom we examined in the course of this study, and who are a well paid and unusually intelligent group, that very few of those who presented serious defects were aware of the existence of these defects. Practically all of them had been examined by physicians at different times for the treatment of various ailments, but the physician's view had been invariably limited to the consideration of the particular complaint which brought the patient to seek his care.

This experience, like so many others of a similar character, confirms one in the belief that there are very many thousands of persons in the city of New York, and in other industrial communities, who are suffering from physical defects or diseases of a more or less serious character, who have no intimation of the state of their health, and who, when they consult their physicians, are studied from a most narrow point of view. This would seem to indicate that we should make a strenuous effort to educate people at large to submit at frequent and regular intervals to thorough medical examination, so that abnormal physical conditions may be discovered in their incipiency in order that timely efforts may be made to correct such abnormalities.

INDUSTRIAL DISEASE AND HYGIENE IN THE MEDICAL CURRICULUM

Practically all the medical schools have thus far failed to include in their curriculum the study of industrial hygiene and of occupational diseases. In future years, these institutions will richly merit the reproaches of their graduates because of their blindness in failing to recognize the signs of the times, and the needs of the nearly 40,000,000 persons who are employed in industry in this country. The medical schools of Harvard and the University of Pennsylvania are conspicuous among the very few institutions which devote some measure of attention to the study.

Early this year I was privileged to give what was probably the first formal lecture on industrial hygiene and occupational diseases, to the graduating class of College of Physicians and Surgeons, Columbia University, being required, however, to condense a review of the subject into a one hour lecture. During the past three years, New York University and Bellevue Medical College has given a relatively liberal course on industrial hygiene under the writer's auspices, to its students. Aside from the instances cited, and with possibly one or two other exceptions, so far as I know, all of the prominent medical colleges seem to be oblivious to the existence of industrial hygiene and industrial medicine. The medical clinics which are connected with universities for teaching purposes should utilize to better advantage than they now do, the wealth of clinical material which is available for the study of occupational diseases. Unfortunately, they have thus far virtually neglected this field. The hospitals in this country, with one or two notable exceptions, have likewise neglected the opportunity to study occupational diseases. Is it any wonder then, in view of the fact that the chief institutions of medical learning have failed to appreciate the significance of the occupational factors which influence the development of many diseases, that the private physician's work should reflect this general state of indifference or ignorance?

INSUFFICIENT INFORMATION OF PRIVATE PRACTITIONERS

In connection with the work of the New York Department of Health in the field of industrial hygiene during the period of four years, from the time I organized the work until I was required to relinquish it, a most active campaign had been conducted through various agencies to stimulate, persuade and, if need be, to compel hospitals, dispensaries and private physicians to report cases of occupational diseases which came to their notice. Notwithstanding all these efforts, the total number of cases reported by all the physicians, and by all the hospitals and dispensaries in the city of New York during that time, was virtually negligible. This deficiency was traceable in large part to the lack of proper medical education, and also to the lack of enthusiastic, intelligent and capable medical leadership in this field in New York City. A great opportunity for the study of occupational diseases presents itself to physicians who are employed by various industrial corporations and in connection with whose work a variety of health hazards exist. Already, a number of medical men have won distinction and enriched the literature of industrial hygiene and occupational disease study by their sincere and intelligent efforts in this new field of medicine. On the other hand, the great majority who accept employment as factory physicians are content to conduct what are essentially merely dispensaries for the purpose of rendering emergency service in cases of accidents; too often this work is done exclusively for the purpose of protecting the interests of their employers so far as claims for compensation may be concerned. They fail to see that they have an opportunity to be of most valuable service not only to their employers, but to the employees as well, and to play the part of pathfinders in this new field of medicine. Unfortunately, they view their "jobs" too often as pot-boilers, and are rarely alive to the rich opportunities which their relation to the factory and its workers affords them. The accompanying table shows the number of cases of occupational diseases reported in New York City, by hospitals and dispensaries, by private physicians and by the Public Service Commission, respectively.

FOUR YEARS' RECORD OF OCCUPATIONAL DISEASES

	Reported by Hospitals, Etc. Cases	By Physicians Cases	Public Service Commission Cases
1915	5	6	0
1916	53	13	0
1917	42	49	39*
1918	32	12	107*
Total	132	80	146

* Caisson disease.

The table shows that in spite of four years of intensive effort to bring home to physicians and institutions which care for the sick in New York City an appreciation of the importance of reporting all cases of occupational disease, we obtained a total number of 212 reports during the four years, from both sources. In connection with the excavation and construction of tunnels for the extension of the city's subway system, the physicians employed by the Public Service Commission reported, during 1917 and 1918, 146 moderately severe cases of caisson disease. Mild cases of caisson disease occurred which escaped detection or which were not reported. Excluding the cases reported by the Public Service Commission, it must be obvious that only an absurdly small fraction of the grave occupational diseases occurring among the several hundred thousand workers in our city are correctly diagnosed and recorded through the formal reports of institutions and private physicians.

OPPORTUNITIES OF HEALTH OFFICERS

The various federal, state and municipal health bureaus have opportunities for helpful research and educational activities in the development of proper supervision of the health of factory workers for the purpose of detecting and preventing diseases which are directly or indirectly due to industry. The officers of the U. S. Public Health Service and of the Department of Labor have made substantial and valuable contributions to industrial hygienic studies and to the study of occupational diseases. Schereschewsky, Alice Hamilton and others have done conspicuous service in this field.

The cooperation of the various agencies which are interested in industrial hygiene, with manufacturers' associations and with labor unions, needs greatly to be developed. Hospital and dispensary staffs and private physicians need to be brought to a keener appreciation of the great service which they can perform to society, as well as to medical science, by training and equipping themselves to recognize those diseases which are the direct and specific sequelae of occupation, and also the great number of diseases in which occupational factors play a more or less significant part. Not only will they thus add to the store of medical knowledge, improve the efficiency of industry and preserve the health of working people, but they will also serve to reduce the enormous casualties from preventable diseases suffered annually by workers in industry, and lay the foundation for constructive, sane and helpful legislation. In only a few instances have state or municipal health officers included the subject of industrial hygiene and the prevention of occupational diseases in their health programs. They have failed up to the present to perceive how closely related industrial hygienic work is to the prevention of tuberculosis, pneumonia and the degenerative diseases.

Here and there, with very few exceptions, the state labor departments have given nominal and usually inadequate attention to industrial hygiene and the prevention of occupational diseases. All too frequently, when labor and health departments in any given community divide responsibility for this work, the effectiveness of their efforts has been marred by petty jealousies and conflicts as to authority. The state and local health officers are offered great opportunities in this new field of preventive medicine, not only because they enjoy the right of access to factories, but also because, in addition to conducting research as to influences affecting the health of workers, they have the power to enact and enforce laws to create proper sanitary conditions in the industrial environment, and to prevent diseases directly or indirectly due to occupation.

The labor unions, one would judge, would be keenly alert to the value of conserving the most precious asset of working people, namely, health. The earning capacity and the general welfare of the worker and of his family are so largely dependent on the maintenance of good health that one would quite logically expect intelligent labor groups to be the most ardent supporters of public officials who are charged with the responsibility of conserving the health of workers. Unfortunately, labor representatives in this country, generally speaking, have not manifested an understanding of the vital significance of health conservation to the welfare of the worker.

During a period of four years recently ended, I was fortunate in obtaining the support of a number of intelligent labor leaders in the city of New York, in furthering a program for effective work in the field of industrial hygiene. Through the cooperation of certain progressive labor leaders, the four central or chief labor organizations of the city, together with more than 100 subordinate labor unions, were organized by me to constitute the Labor Sanitation Conference, serving as a vigilance committee. It was through the efforts of this labor sanitation conference that the $20,000 originally allowed for industrial hygiene work, in 1915, was increased by an additional appropriation of $63,000 per annum.

Taking the country by and large, there is little evidence that labor organizations have even begun to appreciate that the campaign for the protection of the health of those in industry is quite as vital to their interests as better wages and shorter hours, to the procurement of which they have thus far limited practically all their efforts.

FUTURE DEVELOPMENT OF EFFORTS

In the hasty sketch which has been offered, I consciously and deliberately have attempted to picture the subject of industrial hygiene and occupational diseases as a practically undeveloped field of preventive medicine, still in a crude and formative state. The allusions to the shortcomings of medical colleges, of hospitals and dispensaries, of industrial and general practitioners and of health officers and others, so far as concerns their lack of sympathy and support of an aggressive campaign to develop industrial hygiene and the prevention of vocational diseases, was also deliberate. The health, vitality and well-being of millions of workers, as also the stability and welfare of their families, and of the nation as a whole, depend on the recognition by the medical profession of the significance of industrial hygiene as a part of preventive medicine. The emphasis which I desire to place on the inadequacy and faults of the present system of medical education, and of the methods for safeguarding the health of working people, is not intended as ungenerous criticism of the agencies already existing, which are concerned in the formulation and execution of a well developed program looking to this end. These criticisms are offered in the hope that in a measure they will help to hasten the day when state and city officials who are jointly responsible for the protection of the health of workers will lay aside their petty personal differences and jealousies to devote themselves exclusively to the solemn and serious duty of guarding the public health.

Expert, socially minded, conscientious and efficient health officials are urgently needed for the proper development of this type of work. They must come to feel secure in their tenure of office, as a result of the support of a public educated to appreciate the overwhelming importance of the conservation of human life. There must be team work among the state, municipal and federal officers. Nor should political considerations be permitted to dwarf the size of appropriations for work necessary to prevent the occurrence of occupational as well as of other preventable diseases. A nation that is rich enough in times of peace to expend enormous sums for improvements of rivers, harbors and postoffices, which have little justification except as sops to local pride and local interest, and, further, a nation which gives millions annually for the conservation of cattle and hogs, and which is ready, if need be, to expend millions daily for the purposes of war, should be brought as soon as possible to appreciate the transcendent importance of expenditures to conserve human life and human happiness, which are so dependent on health.

Although there have been recent signs that those interested in the development of industrial hygiene are coming into more intimate relations with each other, as testified to by the interlocking and improvement of the work done in this field by the U. S. Public Health Service and the U. S. Department of Labor, there exists still a most urgent need of a partnership of the latter two departments with the respective state and city officials responsible for the supervision of conditions in industry. At present there is too often overlapping, duplication, and even conflict between various agencies who subdivide part of this work among themselves. There is also a lack of authoritative leadership. At times one agency repeats the work already completed by some one else, without knowing that it is subjecting employers and employees to needless trouble and interruption from work. A clearing house for official workers in industrial hygiene is most urgently needed. The U. S. Public Health Service would seem to be the logical leader to serve as clearing house, guide, and bureau of information, in the absence of a national department of health. It must be manifest, from what has already been said, that the future development of industrial hygiene and medicine hinges also on a reform of the curriculum of the respective medical schools, on the sympathy and willingness of private physicians and hospitals to aid in protecting the public welfare by equipping themselves for the recognition of occupational diseases, and by bringing to light cases coming to their attention, in order to show their relative frequency and importance as a cause of morbidity and mortality.

Employers must be instructed and advised so that they will come to prize the watchful supervision of their employees by physicians quite as much as they value the frequent inspection of their machinery by the competent engineer. It must be shown that industrial hygiene not only serves as a humane work conducive to better relations, but also adds immeasurably to the efficient operation of a factory or other industrial establishment. Workers must be taught to value the preservation of their health as a precious asset from the standpoint of earning power, and also from the point of view that good health is the best and most necessary form of insurance which they can provide for their families against dependency and want.

ABSTRACT OF DISCUSSION

Dr. Frederics Lee, New York: One matter of which Dr. Harris has spoken has interested me especially. He has mentioned two instances of poisoning by poisonous gases, one where a number of workers were more or less overcome by carbon monoxid, and the other where workers were overcome by carbon dioxid. This brings out one of the important factors which needs to be developed in the study of fatigue and that is the question of ventilation. I wish to cite an instance which has been brought forward, but not yet published, by Dr. Vernon of Oxford. Dr. Vernon investigated certain operations in the tinplate industry and found that the health of the workers varied inversely with the temperature of the outside air: the output of August was 10 per cent. less than the output of January. The highest output occurred in January, when the temperature was lowest. The lowest output occurred in August when the temperature was highest. He found at the same time that this seasonal variation was largely overcome by proper ventilation of the workrooms.

Muscular Tonus in Relation to Fatigue.—In subjects doing relatively strenuous work during the day, or where long hours were being spent in work, there was usually a decrease in the tonus in the evening as compared with the morning condition. This was more pronounced when the subject was losing rest (sleep). After lost rest the morning tonus was lower and the average tonus for the day was less than on days following a good night's sleep. Evidence was thus obtained of cumulative fatigue effects. Sleep at night or during the day was usually followed by a considerable increase in tonus. Strenuous work of short duration was usually followed by an immediate decrease in tonus. Psychic influences (excitement) seemed occasionally to produce an increase in tonus, although fatigue-producing conditions were recorded in the history. In subjects doing relatively light work and obtaining plenty of sleep the tonus varied during the day, the evening tonus being frequently greater than that observed in the morning.—*Pub. Health Rep.* **34**:1622 (July 25) 1919.

THE INFLUENZA EPIDEMIC AND ITS AFTER-EFFECTS IN THE CITY OF BUFFALO

A DETAILED SURVEY *

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Epidemic influenza struck Buffalo with the suddenness of a cyclone. During September, 1918, we had thirty-three cases. October 1, the disease manifested its presence with twenty-one reported cases, and, by October 14, we had the highest number reported in one day, namely, 1,886 cases, with forty-eight deaths from influenza, seven from pneumonia and seven from bronchopneumonia, making a total of sixty-two deaths in one day. This was the peak in the number of reported cases for a single day; after it a gradual decline became perceptible. The highest number of deaths occurred, October 19, with eighty-five from influenza, eighteen from pneumonia and nine from bronchopneumonia, or a total of 112 deaths for a single day. The total number of cases for October was 23,544; in November and December there were 1,846 and 2,975 cases, respectively, making a total of 29,398 cases from September to December inclusive, with a total of 2,561 deaths for the same period from influenza, pneumonia and bronchopneumonia.

TABLE 1.—SUMMARY OF CASES AND DEATHS IN BUFFALO

	No. of Cases			Deaths			
Date Reported	Influenza	Pneumonia	Broncho-pneumonia	Influenza	Pneumonia	Broncho-pneumonia	Total Deaths
September, 1918	33	...	...	5	31	23	59
October	23.544	...	...	1,416	283	196	1,895
November	1,846	...	...	271	60	32	363
December	2,975	...	...	151	52	41	244
Total	28,398	...	...	1,843	426	292	2,561
1919							
January	4,053	140	109	249	58	81	388
February	813	57	62	97	48	46	191
March	187	45	49	19	43	35	97
Total for preceding seven months	33,451 242 220	242	220	2,208	575	454	3,237
Grand total	33,813						

January showed a considerable increase, with 4,053 cases of influenza, 140 of pneumonia and 109 of bronchopneumonia. There were 249 deaths from influenza, fifty-eight from pneumonia and eighty-one from bronchopneumonia, making a total of 388 deaths. In February the number of cases declined to 813, and in March they came down to 187.

SEPARATION OF INFLUENZA AND PNEUMONIA

Buffalo, in common with other cities, suffered for the want of physicians and nurses when the influenza epidemic struck us in October. Physicians were so overwhelmed with work that it was a physical impossibility to see most of the patients more than once. For this reason, physicians often failed to differentiate between influenza and pneumonia, but reported all cases as influenza. It was only the severest or fatal case which received more careful attention and diagnostic accuracy; hence our early reports were complete only in our mortality statistics, and it was not until the crest of the epidemic wave had passed that anything like accuracy in morbidity statistics was possible.

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* Read before the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

MEASURES EMPLOYED

Verification of Statistics.—Much has been said and written about the inaccuracy of morbidity statistics relative to influenza. When Buffalo found itself in the throes of the disease, the mayor of the city, on the advice of the acting health commissioner, issued a proclamation closing all theaters, moving picture shows, churches, Sunday schools, public schools, parochial schools, private schools, saloons and dance halls, prohibiting, in fact, all indoor gatherings. This proclamation was in force exactly three weeks to the day.

Fortunately, a street car strike occurred during practically the same period. I am satisfied that the drastic proclamation and the street car strike were responsible more than any other measures for the comparatively low morbidity in Buffalo, that being less than 7 per cent.

Organization of Schoolteachers.—By closing the schools, over 2,000 teachers in public schools became idle. Here was an opportunity which I immediately made use of by organizing them and making a house-to-house canvass of the entire city by districts.

With 2,000 teachers at my command I was enabled to accomplish much which otherwise would have remained an impossibility. First, I was enabled to check up the reported cases. As a result of this comparison I found that fully 95 per cent. of all the cases were reported, the remaining 5 per cent. being practically those in which the patients were only slightly ill, therefore deeming it unnecessary to call a physician, or those in which, for some reason or other, it had been impossible to obtain a physician. Second, patients who were seriously ill and unable to obtain a physician were immediately sent to the hospital, in some instances entire families being cared for by sending the sick member to the hospital and the contacts to a temporary isolation hospital. Third, I was enabled to do a great deal of social service by providing food, fuel or other necessities wherever required.

Hospital Facilities.—During the early part of October, a large high school building in the center of the city was quickly converted into a temporary hospital. Another building was used as an isolation hospital for contacts, and a third as a convalescent hospital for such patients as had recovered from the disease but who were unable to return home, or who had no home and were unable to work; or for the many others who were without means and therefore unable to pay for board and lodging. Each one of these three classes was quite large, and the service performed was of the utmost value.

Red Cross Motor Corps.—No report of the influenza epidemic would be complete without special mention of the ambulance service which was organized by the girls' motor corps of the Buffalo chapter of the Red Cross. These young ladies not only drove ambulances, but many their private cars, from long before dawn until far into the night, answering calls, carrying the patients on stretchers from the homes into the ambulances, and again into the hospital, often putting them to bed.

A noteworthy incident is that, as far as is known, not a single motor corps girl contracted the disease.

INFLUENZA AND ITS SEQUELAE

Duration of the Disease.—Our influenza was like a prairie fire—short and drastic. Every influenza patient was either convalescent or dead within five days from the onset of the attack.

Sequelae.—A characteristic of the acute infectious maladies is their proneness to leave certain after-effects, and while the particular conditions liable to follow the principal maladies are generally known, much remains unknown, particularly as regards the determining factors, individual susceptibility and the extent to which each after-effect may be anticipated in a given epidemic visitation.

Influenza is one of the most serious of the infectious diseases, and is capable of exerting its fury on many of the vital systems of the body, so that a wide range of after-effects may be observed. Notwithstanding, it is noteworthy that exact knowledge and data concerning all that pertains to these sequelae are wanting. Writers speak of tuberculosis and bronchial affections, nervous affections, serious affections of the eye and ear, a disposition to awaken latent maladies and create a predisposition to others as among the sequelae, but they do not furnish information as to the ratio of these sequelae to the whole, or of the particular influences that determine them, all of which can have a practical bearing, both in prevention and in general treatment.

The epidemic of 1889 and 1890 showed that the greatest number of deaths did not occur in association with the attack itself, but rather in the following two years, the explanation being that the malady left undermining conditions, weaknesses and lessened resistance, thus rendering the individual vulnerable to subsequent ailments proving fatal.

From this it would appear that the general condition in which the individual is left immediately following the attack is of much importance, the subsequent element of time permitting valuable reconstructive treatment.

THE SURVEY

With the fact in mind that probably no investigation of the numerical relations between the malady and its sequelae had ever been made, and that the findings of the epidemic of 1889 and 1890 showed time to be an important asset in postinfluenzal conditions, I determined to institute a survey of the recent epidemic in Buffalo to ascertain the percentage of sequelae, and, incidentally, to gather such other data as appeared pertinent, and, finally, to secure reconstructive treatment where indicated.

Dr. Herman M. Biggs,[1] health commissioner of the state of New York, said:

> In the last great epidemic of 1890, 1891 and 1892, the greatest mortality occurred in 1891, the second year, although all three of these years showed a larger death rate from the acute respiratory diseases in New York City than had been experienced before for many years. It is not possible to assess even approximately the extent of the loss which influenza has brought and will bring to the country. On the sickness and the death rate we find its malign influence. The present indications would seem to show quite clearly that the deaths from influenza and its complications in the United States during the present year will probably exceed 300,000.

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[1] Biggs, Herman M.: Review of Reviews, January, 1919.

The *Survey* of Feb. 22, 1919, contains the following:

> The Metropolitan Life Insurance Company made a study of its experience among industrial policies following the epidemic of 1889. The results show that the greatest number of deaths from pneumonia and all causes did not fall in the epidemic year, but in the years following—most heavily from 1891 to 1893; in other words, that the patient who survived the Flu was weakened and was carried off by some subsequent illness.

Immediately after the pandemic subsided, I endeavored to determine these conditions in Buffalo by an actual investigation. If we had as a result of influenza a larger number of our people suffering from tuberculosis, heart troubles or other organic diseases, we should by so locating them immediately learn whether they were being cared for by their own physicians and at a time when treatment might be most effective, and if, for any reason, they were not receiving proper attention, we could assist in securing whatever medical or other aid was needed.

With that object in view, I had follow-up cards printed containing the names and addresses of every influenza victim since October 1. I directed the physicians, nurses and inspectors who are regularly employed in the various bureaus of the department of health to take a certain number of cards with them on their daily inspections and attend to this additional work. After about six weeks of effort, only approximately 8,000 such calls had been made, and it became apparent that this method would take too long, and that, if the information relative to influenza victims was to be of any service, it must be had within a shorter time.

I therefore appealed to the mayor and to the city council for a sufficient appropriation to employ extra help and make the investigation immediately. This authority was granted. The field work was done by extra inspectors appointed for the purpose, and paid for by the emergency appropriation. They were given the cards containing the names and addresses of the patients, and instructed to obtain answers to all the questions contained thereon.

These printed cards, used by the canvassers for their field investigations in obtaining an after-influenza record, contained the following:

> Name of patient. Address. Number in family. Was father ill? Was mother ill? What other members were ill (giving names and ages)? Are all patients fully recovered? If not recovered, give particulars. Any deaths (give names)? Name of attending physician. Does family need: (1) medical or nursing care; (2) relief or other assistance? Housing. Number of rooms. Sanitation. Special remarks.

This covered the information required for the crude field work. The details were accomplished through subsequent visits by medical inspectors from the department, or by telephone communication with the attending physician.

The city was divided into districts, and an inspector was assigned to ascertain from each person in his own words whether his recovery had been "complete," or, if not, to what his impairment was due, as learned from his attending physician. Those reported as recovered and again performing their usual occupations were immediately classified as such. All patients whose conditions could be considered as properly associated and worthy of scrutiny as to their nature and ultimate possibilities were referred and made subjects of direct communication with the attending physician; if no physician had been in attendance, a physician from the health department was detailed to investigate. Thus, a complete survey was made of all who had had the disease, and, when recovery was not complete, further investigation was pursued in those cases in which it was deemed proper.

The difficulties attending such work are not slight. Individuals are frequently not responsive and resent interference, so that much tact is essential.

The field work occupied a period of approximately two months, but the cards were compiled daily, and cases requiring medical or other aid received immediate attention. In Table 2 are shown the extent and the results of the survey.

TABLE 2.—RESULTS OF THE SURVEY

Total cases of influenza and pneumonia reported from Oct. 1, 1918, to March 31, 1919		33,880
Number of calls made by physicians, nurses and inspectors (without expense) of the department of health	8,000	
Number of calls made by extra canvassers and inspectors	17,699	
Total calls		*25,699
Total deaths from influenza (October to March, inclusive)	2,248	
Deaths from pneumonia	528	
Deaths from bronchopneumonia	403	
Total deaths from these three causes (October to March, inclusive)		3,179
Recovered		28,663
Not located (changed residence)		1,290
Patients not fully recovered		748
Total cases		33,880

* These 25,699 calls covered the 33,880 cases, some families having more than one case.

The character and the number of the sequelae occurring in 748 cases, as disclosed by this survey, are shown in Table 3.

TABLE 3.—CLASSIFICATION OF THE SEQUELAE

Respiratory system	220
General diseases (rheumatism, weakness, etc.)	206
Special senses (ear 51, eye 26, nose and throat 23)	100
Circulatory system	46
Nervous system	46
Urinary system	23
Subsequent infections	19
Alimentary system	14
Miscellaneous (unclassified, pains, etc.)	74
Total sequelae	748
Referred to superintendent of poor for immediate assistance	20
Referred to health centers	15
Referred to bureau of sanitation	9
Referred to school examiners	1
Total referred cases	45

An analysis of the 220 patients reported to have some form of trouble pertaining to the respiratory system was then made by medical inspectors of the department, and led to the information given in Table 4.

TABLE 4.—ANALYSIS OF RESPIRATORY SEQUELAE

Coughs (recovered since original report)	99	
Coughs (improving)	43	
		—142
Tuberculosis:		
Cases reported prior to epidemic	11	
Suspected tuberculosis (still under observation by attending physician)	8	
New cases of tuberculosis (several in families with a tuberculous record)	8	
Suspected tuberculosis (after continued observation and repeated examinations pronounced nontuberculous)	1	
		— 28
"Colds" recovered		13
"Lung Trouble" recovered		12
Miscellaneous (bronchitis, pleurisy, empyema, asthma, etc., recovered)		21
Deaths (from various causes, one being tuberculosis)		4
		220

A further analysis of the 206 cases classified under "general diseases (rheumatism, weakness, etc.)," disclosed that 128 of these patients had recovered and seventy-eight were improving. The subsequent reports on the remaining complications are given in Table 5, showing the final record of recovery and improvement.

TABLE 5.—RECOVERY AND IMPROVEMENT AS REVEALED BY FURTHER INVESTIGATION

Ear:		
Recovered	38	
Improving	13	
		— 51
Eye:		
Recovered	21	
Improving	5	
		— 26
Nose and throat:		
Recovered	19	
Improving	4	
		— 23
		100
Circulatory system:		
Recovered	27	
Improving and under physician's care	19	
		46
Nervous system:		
Recovered	30	
Improving	16	
		46
Urinary system:		
Recovered	18	
Improving	5	
		23
Subsequent infections:		
Recovered	11	
Improving	8	
		19
Alimentary system:		
Recovered	12	
Improving	2	
		14
Miscellaneous (unclassified, pains, etc.):		
Recovered	51	
Improving	23	
		74

SUMMARY

1. A final, detailed analysis, carried out as far as possible to the present time, is exceedingly gratifying, showing that out of 748 cases found on the first examination to have some form of sequelae, 501 patients have since recovered, and 216 are reported as improving. The nature of the reports indicate that practically all of the 216 will, in the near future, likewise be discharged as recovered.

The four deaths reported since the primary investigation may or may not have been due to influenza sequelae. The question is debatable both ways, as no one can say that in the natural course of events the patients would not have died even if they never had had influenza. Only one death out of the four was caused by tuberculosis, and the history of this case was such that, although not a reported case prior to the influenza epidemic, there is a strong probability, according to the history given, that the patient was already suffering from tuberculosis before he contracted influenza.

This brings us down to what, by many health authorities, is considered the most important definite knowledge for practical purposes, that pertaining to the twenty-seven cases of tuberculosis. Out of this number eleven were already on our records as reported cases of tuberculosis before the influenza epidemic began, and must therefore be eliminated from the number which could possibly be charged to influenza.

Eight cases still classed as suspected tuberculosis are under present observation, with no definite diagnosis.

This leaves only eight cases reported since the epidemic of tuberculosis among patients who had influenza, and several of these were in families with a tuberculous record.

2. This survey definitely established the entire after-influenza situation in Buffalo.

3. With more than 2,000 public school teachers at our command for a house-to-house canvass, we established the fact during the influenza epidemic that practically all influenza cases in the city of Buffalo were reported.

4. So far as is known, no other city in the country made a similar canvass during the epidemic, or a similar after-influenza survey.

5. Every possible care was exercised to make both the canvass and the survey as accurate as possible. Both were made by dependable persons. We cross-checked the records. Reexaminations and subsequent visits were made until the status of every case was definitely decided.

6. The fact that only twenty persons who had had influenza required immediate assistance from the superintendent of the poor speaks well for the residents of Buffalo.

7. It is shown that the number of sequelae are relatively smaller than anticipated and that their character was generally not as severe as indicated in many statements issued.

8. The first important observation is the small number of sequelae. As stated, with a malady of such capacity, a greater number would be anticipated.

9. In contradistinction to observations relative to previous epidemics, I do not anticipate any serious results among the persons who had influenza in Buffalo and recovered. Our mortality appears associated and not deferred.

10. While our mortality rate from influenza and pneumonia was large, our morbidity rate was relatively small, being less than 7 per cent.

11. One fact is definitely established, and that is that we have nothing to fear from tuberculosis as a sequela to influenza in Buffalo. I do not consider eight cases with a definite diagnosis of tuberculosis more than we would ordinarily look for among 33,830 individuals.

12. I believe the same may be said of the other cases classed as "improving." This number also is not larger than that which would ordinarily be expected with some organic trouble among so large a number of individuals.

13. The salient features presented by this survey show:

(*a*) The small number of sequel relative to the whole number of influenza cases.

(*b*) Their character, at variance, in general, with the type of sequel and consequences as recorded by most writers.

(*c*) The high percentage of recovery after a period of several months, and the nondevelopment of any considerable number of intercurrent affections, which are apprehended and most prone to develop.

(*d*) The frequent sequel of mild eye, ear and throat affections—100 cases in 748, or about one in seven; and the high percentage of recoveries without permanent after-results.

(*e*) The demonstration, by results, of the value of early and vigorous preventive measures, such as publicity regarding the necessity for personal and general hygiene; the closing of schools, churches, theaters, saloons, and, in fact, prohibition of every public assemblage or gathering of more than ten persons; the wearing of masks; the use of prophylactic vaccines; the organized facilities and provision for hospital care and treatment; the care and isolation of contacts, and the care of convalescents in suitable convalescent homes or hospitals, and at public expense when necessary.

(*f*) Few cases of sequel affecting the alimentary system (the affections which occurred being of the stomach, and not intestinal).

14. Credit for this showing properly belongs to the Buffalo Department of Health, backed by the mayor and council, for their prompt, aggressive, vigorous and unrelenting measures, instituted at the beginning and maintained throughout the course of the influenza epidemic.

ABSTRACT OF DISCUSSION

Dr. A. Leo Franklin, Cumberland, Md.: I wish to ask Dr. Gram whether we understood him correctly that out of the total of 28,000 recovered patients, examinations were actually made on approximately 748?

Dr. Franklin C. Gram, Buffalo: No. Every case that was reported was examined. The cases of recovery were immediately eliminated, leaving only 748 for special investigation.

Dr. Franklin: In other words, it was estimated that no examination was made of those that recovered completely.

Dr. Gram: That is the effect of it.

Dr. Franklin: If that is the case, I fear that we might possibly go astray if we were to assume from the comparatively limited number of patients who were reexamined, that they were not affected in one way or another by the after-effects of influenza. The experiment made in Buffalo would have been much more valuable if it had been possible to take several thousand of these apparently recovered patients and apply a careful medical examination to ascertain whether there were any after-effects. In Boston, an examination of that kind indicated there were decided after-effects. Similar studies have been made in other cities which seem to give the same results. Similar discoveries are being reported by medical practitioners. There is nothing at the present time that we need to be so careful of as these after-effects of influenza. After the epidemic of 1889 there was a continued high mortality, and it was not until approximately five years afterward that the general mortality of such cities as Philadelphia, New York, Chicago and Boston got back to the normal. Whether this is due to influenza, no one is in a position to say, but I believe we ought to be exceedingly careful at this time not to draw any conclusion not warranted by the facts, and furthermore, it is necessary, in my opinion, to make an exceedingly intensive study in certain communities to determine whether influenza is leaving these after-effects or not.

Dr. E. B. Freilich, Chicago: In October, 1918, at the height of the influenza epidemic in Chicago, the physicians and nurses in the eight dispensaries comprising the field department of the Chicago Municipal Tuberculosis Sanitarium were directed by the commissioner of health to discontinue the regular tuberculosis work and take care of the nontuberculous as well as the patients registered with the dispensaries. We were impressed with the fact that of about 3,500 patients registered at our dispensary, only thirteen were referred to us with influenza. This observation was corroborated by the dispensary physicians in the other districts and as a result a survey was ordered of these cases. Out of 8,500 patients treated, we had fifty-one patients who were registered with the dispensaries; an incidence of about 0.6 per cent. In the Cook County Hospital and in Oak Forest, where advanced cases of tuberculosis are treated, eighty-five cases of influenza were found among 1,551 persons; an incidence of 5.4 per cent. Based on these observations, we concluded that individuals with active tuberculosis had a diminished susceptibility to the influenza infection. On the other hand, in the past six months we have observed in our dispensary clinics, almost daily, moderately advanced and advanced cases of tuberculosis with a history dating back to an influenza attack in the past year. We concluded from our clinical observation at the dispensaries that individuals with latent tuberculosis may have their conditions aggravated by the influenza infection. The attendance at our dispensary clinics has increased largely due to the influenza epidemic on account of respiratory complications following in the wake of the epidemic and on account of the active campaign now being carried on against tuberculosis in our city.

Dr. B. R. Wakeman, Hornell, N. Y.: In Hornell, a city of 15,000 people, 2,896 cases of influenza were reported during the epidemic of October and November, 1918. Early in January we made a postinfluenza survey. Out of this number 700 persons had not fully recovered. Nearly 400 were examined in the clinic by the superintendent of the county tuberculosis hospital, an expert diagnostician. Forty persons were found to have tuberculosis. From January 1 to October 1, 1918, only two cases of tuberculosis had been reported to the health officer. The postinfluenza survey had so stimulated the interest of the community that over fifty cases of tuberculosis have been reported since October 1, 1918. The epidemic possibly may not have reactivated all of these cases of tuberculosis, and this increase may have been due, to a slight extent, to the campaign of publicity. Nevertheless, my personal opinion is that influenza in our locality has materially increased our cases of tuberculosis.

Sir Arthur Newsholme, London, England: Influenza was the reason for much critical newspaper publicity of public health possibilities both in England and in America. One has to realize the importance of public health authorities in facing this bane. In England it was stated that we could get no farther unless we had a minister of health and placed in his hands the machinery for handling influenza! We remain almost helpless in the prevention of acute respiratory diseases in contrast with our control over such diseases as typhus, enteric fever, diphtheria and also tuberculosis. We may hope that with the extensive pathologic and epidemiologic investigations now being pursued, we shall in a few years be able to place these acute respiratory infections on our list of preventable diseases, but we have no immediate hope of this being realized. I was interested in what was said about the relation between tuberculosis and influenza. So far as our national statistics in England are concerned, every years showing an excessive death rate from influenza, has been followed by a year in which the death rate from tuberculosis has been excessive. Many deaths from tuberculosis are undoubtedly hastened during an epidemic of influenza. I was interested in the statement that influenza has been actively present since 1889. Has this been so? Is the recent outbreak the same influenza that we have had each year, or is it another influenza? Do we at intervals from some unknown source obtain a more virulent influenza, or is it an old influenza, which has become more virulent under conditions of which we are at present totally ignorant? That is the problem. It may be one or the other, but the rapidity with which the more virulent influenza spread right through the civilized world under war conditions no doubt facilitated by the immense increase in facilities for conveyance, is one of the most striking things in the medical history of the world. It seems to me that unless medical science is able to prevent ordinary catarrhs and to prevent them from becoming something more serious, it is unlikely that we shall be able to control influenza epidemics.

Dr. Victor C. Vaughan, Ann Arbor, Mich.: As Sir Arthur has said, it is still a question whether endemic and virulent influenza are one and the same thing, varying only in degree of virulence. I am collecting data bearing on this matter and I have one or two things that apparently bear strongly in one direction. In many camps in this country in March and April, 1918, we had typical influenza. It came suddenly, lasted for a few days, and disappeared as quickly as it came. Such an epidemic at Camp Forrest was ably studied and reported at the time by Major Soper. At another camp at

Hattiesburg, Miss., there was in April a division of troops numbering about 26,000. An epidemic of mild influenza struck this camp in April, 1918, and within ten days there were about 2,000 cases. This included not only those who were sent to the hospitals but also those who were cared for in barracks. This was the only division that remained in this country without change of station from April until the fall of 1918. During the summer this camp received 20,000 recruits. In October, 1918, the virulent form of influenza struck this camp. It confined itself almost exclusively to the recruits of the summer and scarcely touched the men who had lived through the epidemic of April. Not only the 2,000 who had the disease in April but the 24,000 who apparently were not affected escaped the fall epidemic. It appears from this that the mild influenza of April gave a marked degree of immunity against the virulent form in October. There is another observation which points the same way. Looking over the statistics of the fall epidemic in cities in the United States we find that certain cities had a low death rate, while others had a relatively high death rate. Among those cities which had a low death rate we will mention Atlanta, Ga.; Kansas City, Mo.; Detroit, Mich., and Columbus, Ohio. Going to the spring records of these cities we find that in all of them in March and April of 1918 there was an unusually high death rate from pneumonia and undoubtedly in these cities at that time there was a relatively mild epidemic of influenza. In this way I am inclined to account for the relatively low death rate in these cities in the fall of 1918. I make no claim that this and other instances of a similar kind prove that the mild and virulent forms of influenza are manifestations of the same disease, but I do hold that the evidence points that way. I want to call attention to the fact that sanitation, as we ordinarily understand it, had no influence on the prevalence or the death rate from influenza.

Dr. Wilfred H. Kellogg, San Francisco: I want to call attention to a very significant fact, which is, that the mortality statistics for the last five years show a very rapid increase in deaths ascribed to influenza. I first noticed in the figures for California that for every succeeding year during this period the reported mortality from influenza has increased. The reported deaths from influenza have jumped to almost double for each year for a period of five years and I observe that this is true also of the reports of the United States Census Bureau for the registration area. Now, this suggestion: That our influenza epidemic was not due to the importation of a virulent strain from Europe but was due to an increase in virulence which was simultaneous throughout the world.

Dr. H. D. Wood, Providence, R. I.: It may not be generally known that during the summer of 1917 there was a streptococcic sore throat going throughout the army. We had it in the West Virginia camps, and they were sent from there into Ohio, Maryland, Virginia and elsewhere. There was no influenza, no respiratory conditions, except the spitting of blood, but the hemolytic streptococcic sore throat spread throughout the United States.

Dr. L. I. Dublin, New York: We have been for some time engaged in analyzing the returns concerning our company, and it may be of some interest to give you knowledge concerning the preliminary finding. They will point, I think, very significantly to some conclusions. In the first place, we find in regard to this disease, from the mortality returns, that the heaviest instances of the disease are localized, the death rate experience. This experience includes some twelve millions concerning whom we know a great deal. We find from the curve that these increases in mortality rates from the epidemic of influenza and pneumonia are localized in the ages 15 to 50, getting at their height at the ages 25 to 29. That is true not only for the industrial, but the intermediate and the ordinary groups which represent millions of policyholders, affecting one, the same in all three groups, but varying somewhat in the height of the curve. Then, we find a very marked difference in the sexes, 25 or 30 per cent. in favor of the females. Then, there is a marked difference in races. The colored people show a very much lower mortality rate at these same age periods than do the white people. Of course, the curve was the same; the peak was between 25 and 29. There are certain age periods where the effect was virtually negligible, at the age of 50, but at the height of the curve, from 15 to 50, the rate was conspicuously lower for the colored than for the white race. There is also a localized incidence, highest for the males, for the white males, and also localized at from 15 to 50 years of age. Finally, the highest instances are observed along the Atlantic seaboard; that as we go inward, into the interior, we find a lessening of virulence as indicated by the death rate, being lowest as we approach the Pacific coast, with one exception, and that we do not understand. That is San Francisco. It is quite possible, however, that in that city we are concerned with a double infection, that is, one coming from the East and being of a small caliber, and the other coming by way of the Panama Canal, or perhaps from Asia, because the period of highest incidence in San Francisco as in a few other places on that coast, where the figures are available, was the highest curve, and several weeks in advance of interior points. It is, therefore, quite possible that the infection was brought in in two different ways.

Dr. Charles J. Hastings, Toronto: Soon after the declaration of the war that we have just passed through there was a very valuable and significant pamphlet published and circulated broadcast throughout the country, entitled "Know Your Enemy." I think that we had better recognize the importance of this and acknowledge the fact as promptly as possible, that we do not know our enemy in the pandemic we have just passed through. Various organisms have been found present, and numerous strains of each, and there have been cases where they have all three been present and where one only has been present. So that we are not justified in saying that any one of them is the cause of the disease. This being the case, we must assume that we do not know what is the cause of this disease. It may possibly have been a malignant form of the mild influenza of former years. I am sorry to learn that there are yet a few who have some faith in vaccines, and who claim to have had wonderful results from their use. That there is a tremendous amount of virtue in vaccines cannot be doubted, but how can we claim to have a valuable vaccine when we do not know what we are preparing it for? Until we know the organisms that cause the disease, we cannot hope to have an efficient vaccine. We must recognize the fact that vaccine is along the right line. We hope that a vaccine will be perfected and will have the desired results, but do not let us continue to claim that we have an efficient vaccine at present, which I am satisfied we have not.

Dr. Franklin C. Gram, Buffalo: It would be impossible to cover the many points alluded to, but I want to refer to the one that Dr. Frankel presented. We had to eliminate, for the present survey, all those who were found to be recovered and who had returned to their work. A survey of this kind is extremely difficult to make, even at best. When you go to a home, and they tell you that the patient has recovered and has returned to work, it is a difficult problem to follow that case up, as most people resent interference; this is aggravated when you have about 33,000 cases to deal with; for that reason we confined our efforts principally to those who had some form of sequel. The present mortality has been alluded to as being increasing, but in Buffalo it is down to normal. Of course, it is impossible to say what the future will produce.

Effect of Hunger on Moral Qualities of Germans.—A rather important factor is the effect of hunger on the moral qualities. The entire population is suffering from the effects of the food situation. I have been able to observe this among my assistants at the university. Their efficiency, both mental and physical, has decreased. Their mood is one of deep depression, lack of inclination to work, and lack of energy. In the case of many persons, especially among the lower classes, there is observable an inordinate longing for amusement, a phenomenon which we have in former times been able to observe in history during periods of plagues and pestilence. People saw death before their very eyes.—Dr. Max Rubner.

THE FAILURE OF SURGERY ON THE EXTRAHEPATIC BILIARY PASSAGES

AN ANATOMICOCLINICAL CONSIDERATION *

MOSES BEHREND, M.D.
PHILADELPHIA

Before considering the anatomy of the structures in the region of the foramen of Winslow, it may be profitable to study the relation of the peritoneal bands and adhesions found in this region to the gallbladder, ducts and blood vessels to the surrounding organs and hollow viscera. It is a matter of some importance to decide whether these folds which extend from the gallbladder to the hollow viscera and the great omentum are really inflammatory in character, or whether they are simply developmental embryonal structures. The differentiation is important at operation. Adhesions usually are of denser texture, they are not so easily separated, and usually in themselves they are devoid of blood vessels which require ligation. The bleeding which occurs after adhesions have been separated is usually due to the raw surfaces left. If these bands continue as part of the lesser omentum, one can readily see distinct blood vessels coursing through the fine network of peritoneal tissue, which require ligation after their severance. While it is true that many bands seen at operation are undoubtedly newly formed adhesions due to a previous inflammatory process, there are about 20 per cent. of cases in which the bands are embryologic structures. Flint and others have ascribed them to the rotation of the cecum from its hepatic position. This view is supported by the fact that these bands of peritoneum have been repeatedly found in the fetus and in infants, in whom the opportunity for an inflammatory lesion to be the cause is practically unknown.

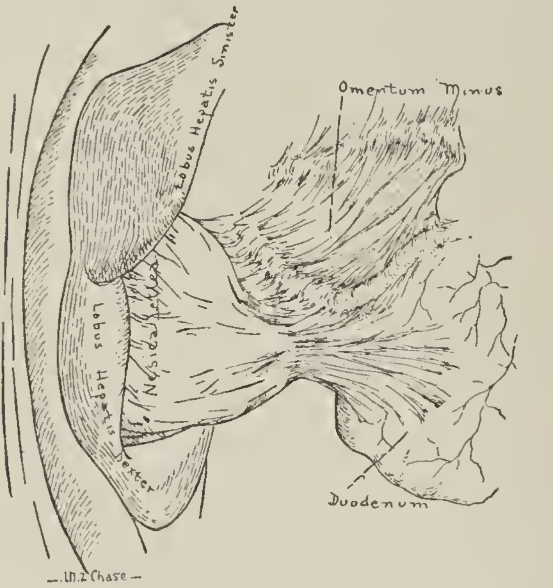

Fig. 2.—Peritoneal band from gallbladder to duodenum and lesser peritoneum; not an inflammatory adhesion.

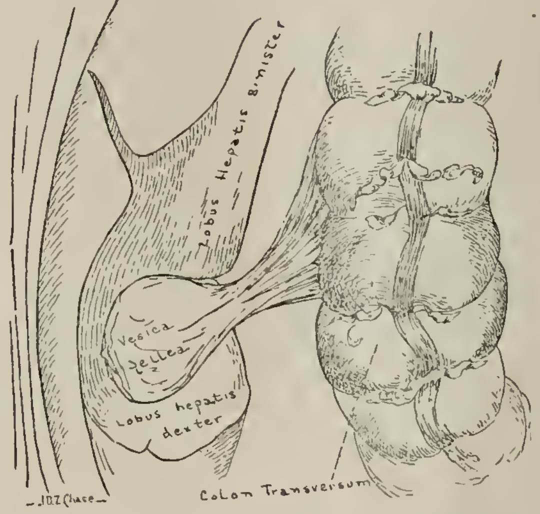

Fig. 3.—Peritoneal band from gallbladder to transverse colon; not an inflammatory adhesion.

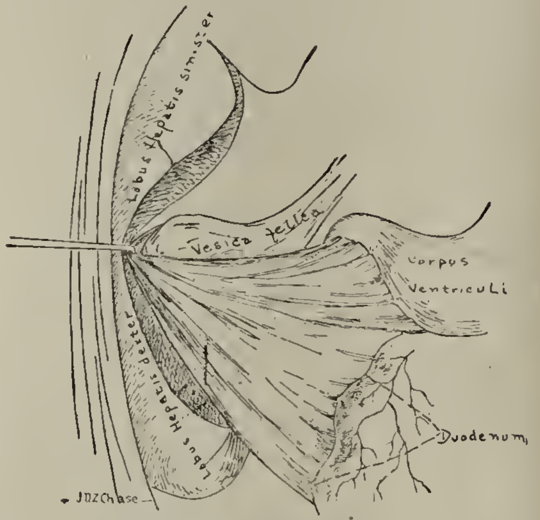

Fig. 5.—Large fan-shaped peritoneal band from gallbladder to stomach and duodenum. Note how the gallbladder is covered.

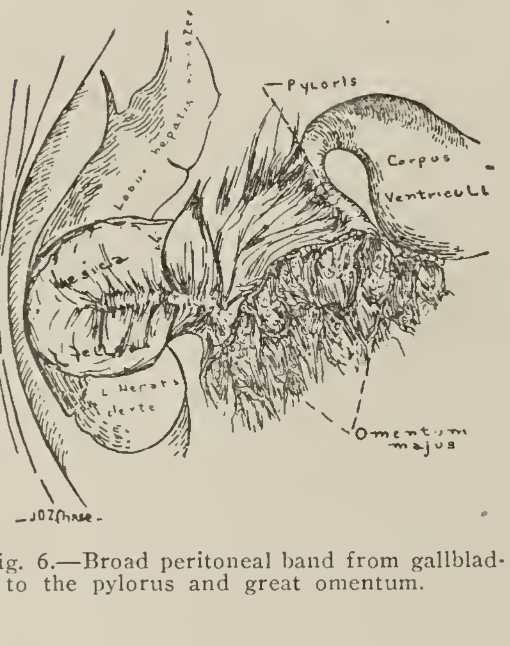

Fig. 6.—Broad peritoneal band from gallbladder to the pylorus and great omentum.

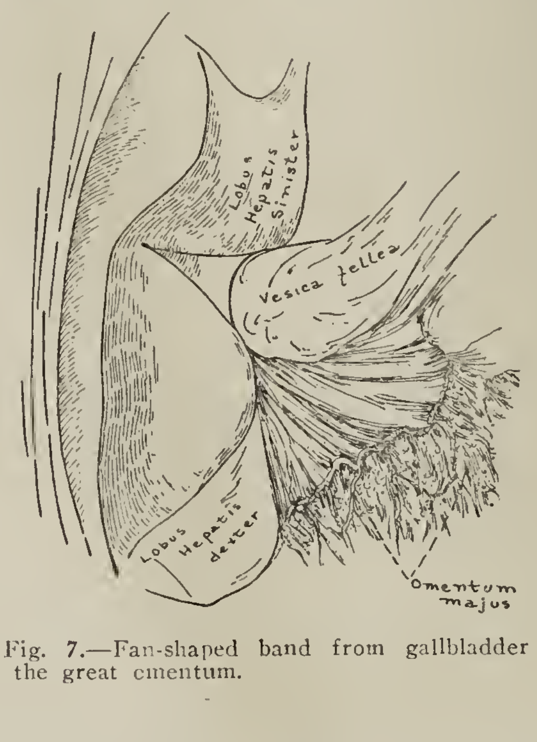

Fig. 7.—Fan-shaped band from gallbladder to the great omentum.

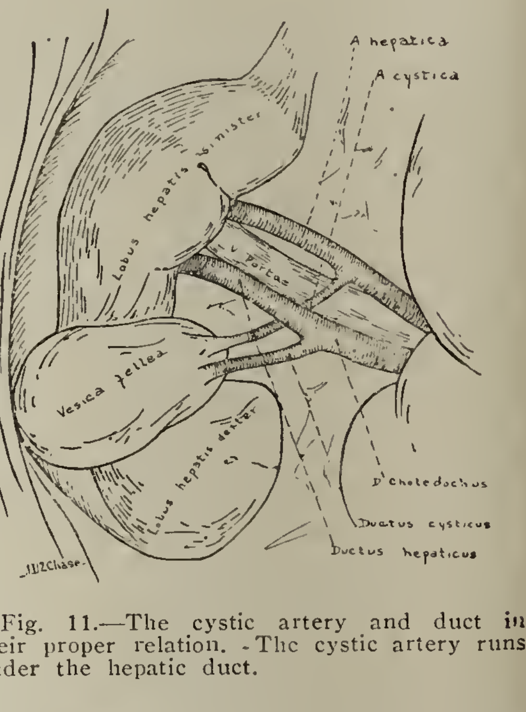

Fig. 11.—The cystic artery and duct in their proper relation. The cystic artery runs under the hepatic duct.

There are advocates on both sides of the question. Such men as C. H. Mayo and J. M. Flint[1] consider these bands to be developmental in character, while Deaver and Coffee adhere to the other view. I agree with Mayo and Flint that these bands are not all inflammatory. I have reached this conclusion after a careful study clinically and in the laboratory. At operation we speak of these bands as adhesions. Symptomatically these peritoneal bands may give rise to the same pathologic condition as that produced by true adhesions. The treatment will necessarily be the same; the bands must be divided, the organs made more

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* Read before the Philadelphia County Medical Society, May 28, 1919.

* Owing to lack of space, this article is abbreviated in The Journal by the omission of several illustrations. The complete article appears in the author's reprints.

[1] Flint, J. M.: Johns Hopkins Hosp. Bull. 23: 302-311 (Oct.) 1912.

mobile; the organ which is to be reached can then be readily treated according to the indications.

In Figures 1 to 8, for instance, it would be impossible to perform a cholecystectomy unless these bands have been first divided. This is especially true of Figure 5, in which the entire gallbladder was hidden from view. It is important that the fine blood vessels in these folds of peritoneum be ligated. It will also be noted that these bands are a continuation of the gastrohepatic omentum in many instances, as shown in Figures 1, 2, 4, 6 and 8, supporting rather strongly the advocates under Flint and his school that these bands are fundamentally developmental.

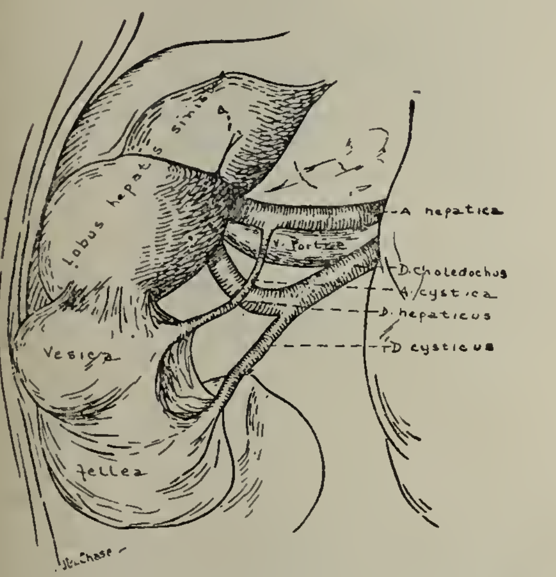

Fig. 12.—Gallbladder is pendulous, attached to the liver by a peritoneal band. Medial insertion of the cystic duct, which is rather long. The cystic artery is also long.

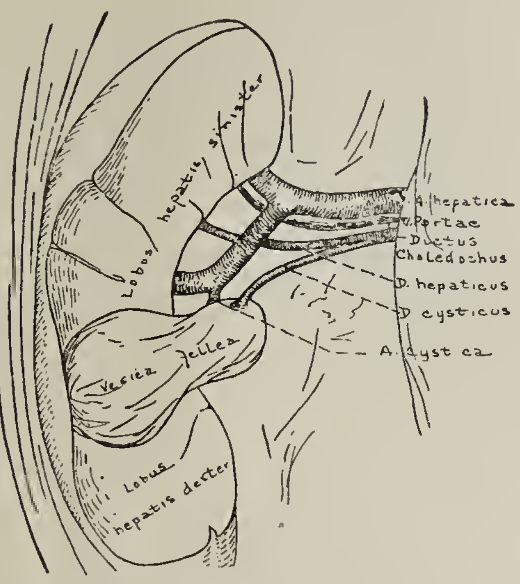

Fig. 13.—The caliber of the hepatic duct is small, the cystic is the same size, and inserts into the common duct close to duodenum. The hepatic artery is large; the cystic artery is very short.

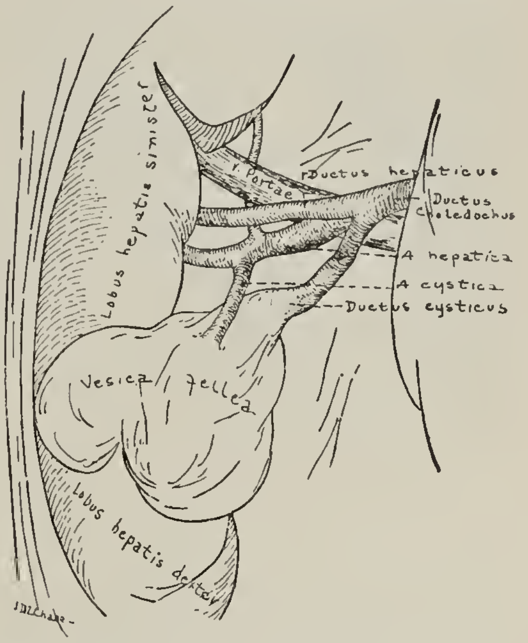

Fig. 14.—The hepatic duct is between the portal vein and the hepatic artery. The hepatic artery is in close relation to the cystic duct, which is inserted close to the duodenum.

The foregoing has a direct bearing on the subject under discussion, because as soon as these bands illustrated by the drawings are severed, they separate into two layers, thereby disclosing the structures above the foramen of Winslow.

The reports from various sources of the failures following operations on the gallbladder and its ducts may be directly due to the ligation of the cystic duct and cystic artery within the covering of the peritoneum. It is more particularly in those cases in which the common duct has been encroached on that a study of the anatomy of the ducts and blood vessels, and their variations, assist us very materially.

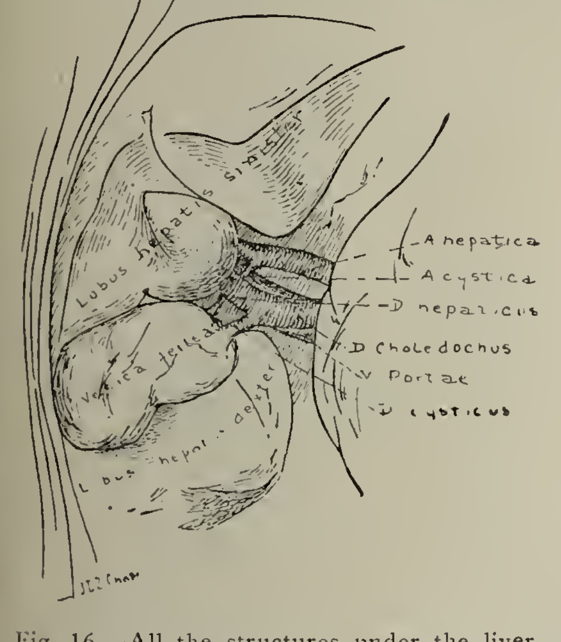

Fig. 16.—All the structures under the liver. A very short cystic duct, medial insertion. The cystic artery under the hepatic duct. A very difficult case in which to perform a cholecystectomy.

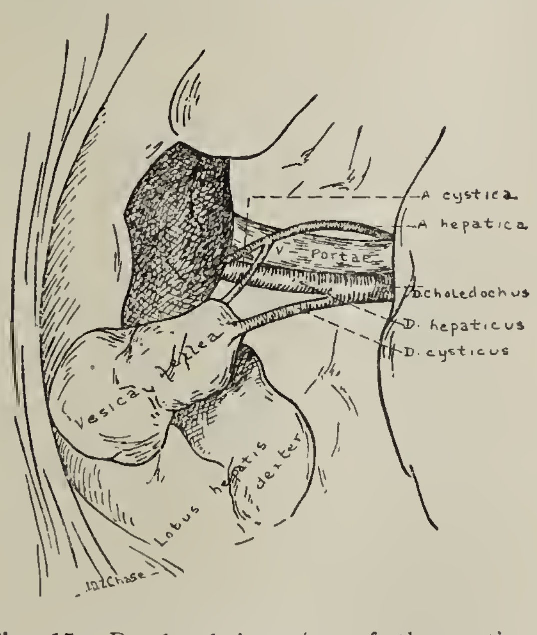

Fig. 17.—Duodenal insertion of the cystic duct. Caliber of hepatic artery small; cystic artery the same size.

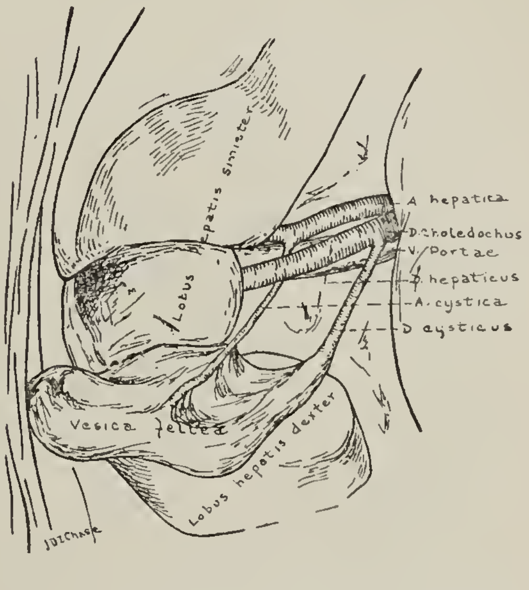

Fig. 19.—Cystic duct, measuring 3 inches in length, is inserted close to the duodenum. The cystic artery is very long; it runs under the hepatic duct. Practically no common duct.

Eliot[2] has reported twenty-three cases in which the common duct was encroached on, twenty-one of which followed a cholecystectomy. About forty-five operations have been performed for the reconstruction of the common duct.

REASONS FOR FAILURE

The reasons for these failures and many that have not been reported are: (1) variations in the ducts; (2) variations in the blood vessels, and (3) poor technic at operation.

1. *Variations of the Ducts.*—The cystic duct was inserted medially in 72 per cent. of the subjects examined. This may be considered the so-called normal type (Figs. 9 and 10).

(*a*) A long cystic duct was medially inserted (Fig. 12). Improper ligation of the cystic duct may lead to the formation of a pseudo gallbladder.

(*b*) The very small caliber of the hepatic duct and the duodenal insertion of the cystic duct which runs parallel to the hepatic duct may be noted. The caliber of the hepatic duct is the same as that of the cystic duct, a very unusual type (Fig. 13).

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[2] Eliot, E., Jr.: Surg., Gynec. & Obst. **26**: 81-102 (Jan.) 1918.

(*c*) There was a very short cystic duct of large caliber and in close relation to the hepatic artery. The ducts and blood vessels were of large caliber (Fig. 15).

(*d*) Another source of considerable difficulty is the deep situation of all structures under the liver. All the structures are short; note how the right lobe of the liver hides the hepatic and cystic ducts (Fig. 16).

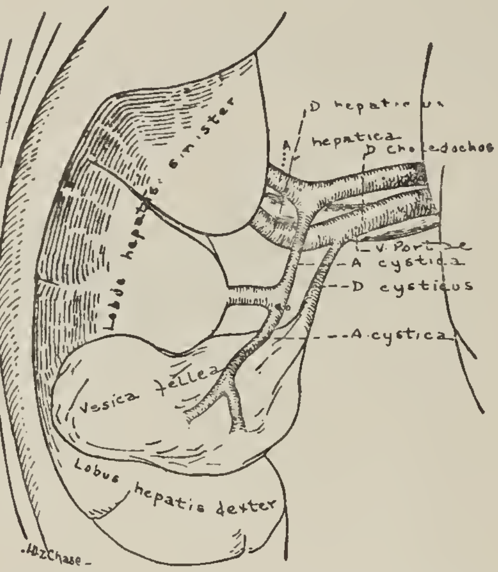

Fig. 20.—Note the transverse branch coming from the hepatic artery and the close relation of cystic duct to this branch.

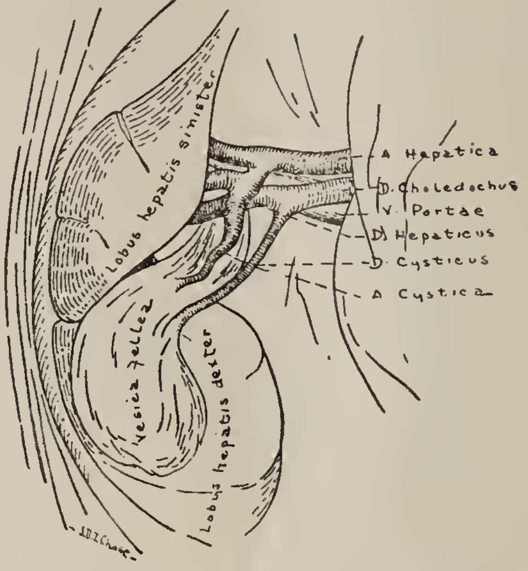

Fig. 21.—Transverse branch from the hepatic artery. Compare this with Figure 20.

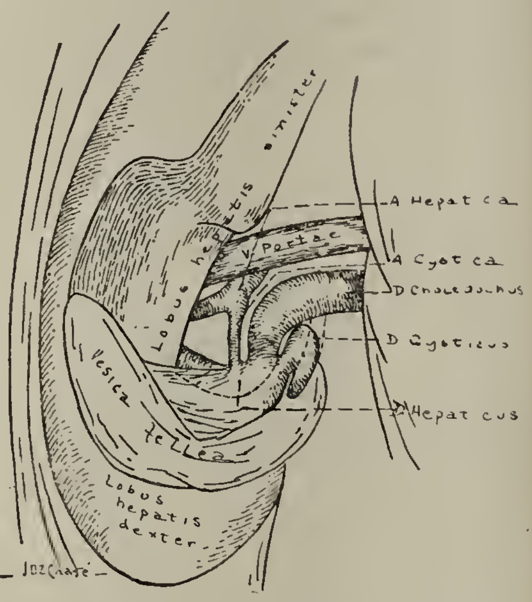

Fig. 22.—S-shaped outline of the common duct and hepatic duct. Cystic duct is in close relation to the hepatic duct. The hepatic duct could easily be ligated while doing a cholecystectomy. It runs under the gallbladder; cystic artery in close relation to the hepatic duct. Cystic duct tortuous.

(*e*) There was an exceedingly long cystic duct measuring 3 or 4 inches in length, and inserted near the duodenum and revealing very little of the common duct. In these cases if the cystic duct is not traced to its insertion and ligated, a condition of pseudo gallbladder will result. Eisendrath[3] and Floerchein report two cases, and the former mentions one other in which this occurred. I had one occur after a cholecystectomy in which the pseudo gallbladder was as large as the original gallbladder removed at a previous operation. While this particular pseudo gallbladder had distinct walls, there was no lining of mucous membrane. The inner wall was stained an indelible green. On account of continued jaundice and symptoms of Charcot fever, an anastomosis was made between the pseudo gallbladder and the duodenum (Fig. 19). This type constitutes 24 per cent. of variations.

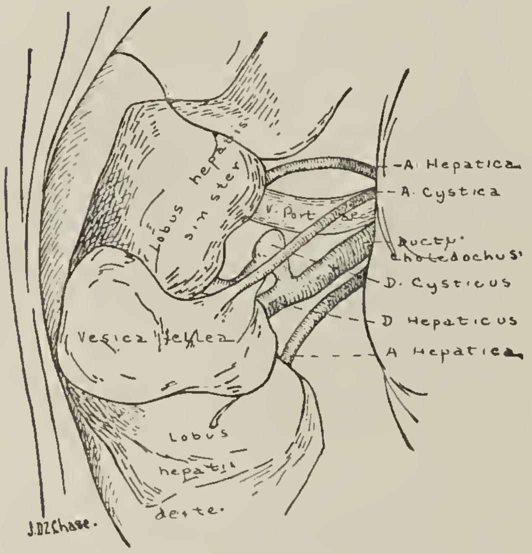

Fig. 23.—The only instance of double hepatic artery coming from different trunks. Tortuous cystic duct inserted on the superior aspect of the common duct. Hepatic duct short. Cystic artery runs over the cystic duct.

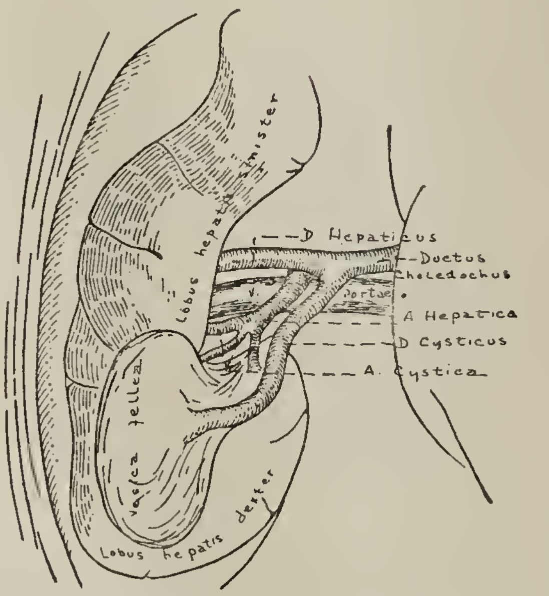

Fig. 24.—Unusual relation of the hepatic and common ducts. The cystic duct is inserted close to the duodenum. Cystic duct large in caliber, unusually long. Two cystic arteries.

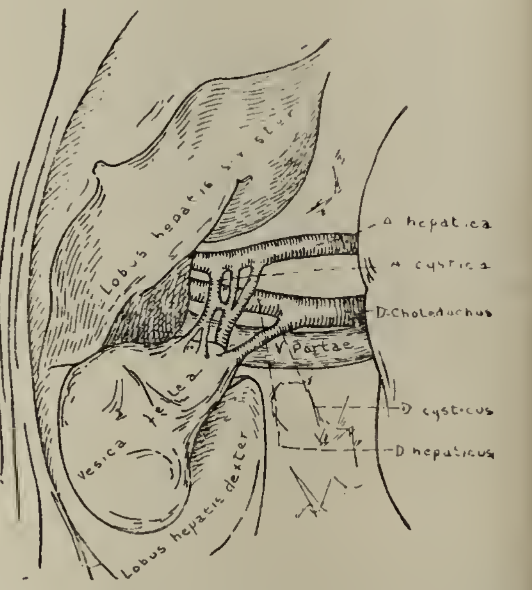

Fig. 26.—Cystic artery branched and anastomosis of the several branches. Portal vein below. Medial insertion of the cystic duct into the common duct, which lies between the hepatic artery and the portal vein.

(*f*) Peculiarities in the shape of the ducts constitute another source of variation from normal. In Figure 22 the hepatic duct is S-shaped and in close relation to the cystic duct, which is rather twisted on itself. The hepatic duct here could easily be ligated.

(*g*) The cystic duct is inserted on the superior surface of the common duct. The cystic duct is twisted; the cystic artery runs over the cystic duct (Fig. 23).

(*h*) There is an unusual relation of the hepatic duct. It is above and covers the hepatic artery. The cystic duct is of large caliber and will naturally be longer on account of its insertion (Figs. 24 and 25).

(*i*) There is a very short hepatic duct, the cystic duct inserted into the common duct close to the liver (Fig. 27).

2. *Variations in the Blood Vessels.*—On account of variations that occur in the distribution of the vessels, the surgeon may often cut across an anomalous vessel or one whose course has been changed, and in his eagerness to stop hemorrhage may injure the common duct.

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[3] Eisendrath, D. N.: Recurrence After Operations on Biliary Passages, J. A. M. A. **69**: 1752 (Nov. 24) 1917.

(*a*) The cystic artery runs above the hepatic duct in 51 per cent. of specimens examined (Figs. 9 and 10).

(*b*) The cystic artery may run below the hepatic duct. This occurs in 27 per cent. (Figs. 13 and 15).

(*c*) When the hepatic duct and portal vein lie on either side of the hepatic and common ducts, there is danger of injury to these structures (Fig. 14).

(*d*) The cystic artery may be lateral instead of medial. This occurred in only one instance. The cystic artery was of unusual length (Fig. 18).

(*e*) Transverse branches of the hepatic artery may occur above or below the hepatic duct (Figs. 20 and 21). When they occur below the hepatic duct the arteries may be injured, and in our desire to control hemorrhage the common or hepatic duct may be traumatized.

(*f*) The hepatic artery may be double, coming from different branches. This was found in one specimen (Fig. 23).

(*g*) The cystic artery may be branched, and these branches may anastomose with each other. This often gives rise to considerable bleeding after the cystic artery has been considered ligated (Figs. 24, 25, 26, 27 and 28). This occurs in about 16 per cent.

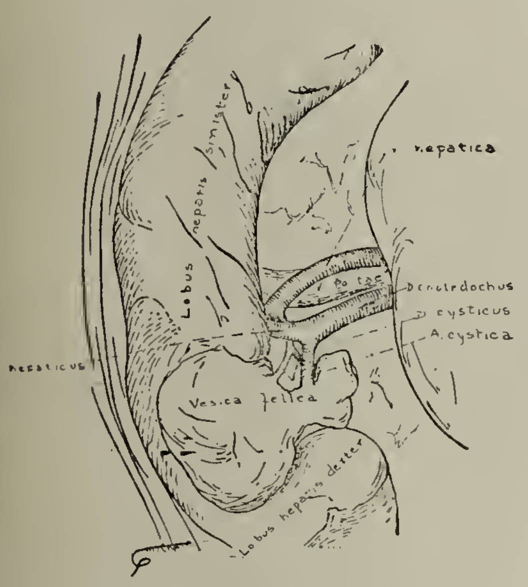

Fig. 27.—Very short hepatic duct, cystic artery double, one branch runninig under the cystic duct.

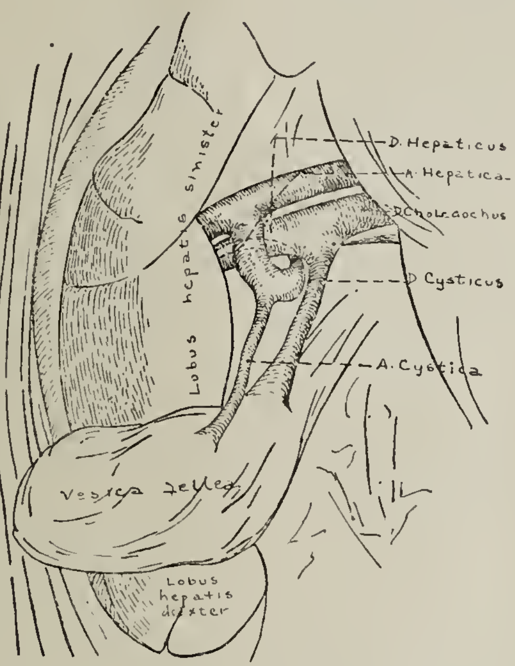

Fig. 29.—Remarkable size of hepatic artery; its tortuous course and its relation to the cystic duct, where it could easily be tied during a cholecystectomy.

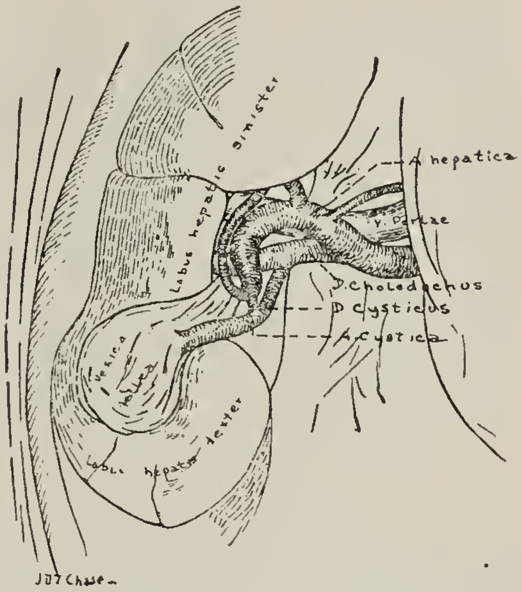

Fig. 31.—Note the course, size, tortuosity and branches of the hepatic artery. A very unusual type. Cystic artery is inserted directly into the cystic duct. The hepatic artery covers almost completely the hepatic and common duct.

(*h*) The hepatic artery may be tortuous and in close relation to the ducts. It may even cover the ducts, making all sorts of fantastic figures. When this occurs, the cystic duct is in close relation to it and the artery may be injured and even fatal hemorrhage may result (Figs. 29, 30 and 31). When operating on the common duct, it is important to locate it by means of a hypodermic syringe. It often happens that blood is drawn into the syringe instead of bile. It is easily understood how this can be done if one refers to the drawings, especially Figure 31. It is important not to tie the hepatic artery, as this is practically the sole supply of arterial blood to the liver. It is possible that some deaths may result from this accident:

Recently a boy, aged 10 years, was admitted to the Mount Sinai Hospital with the history that a wagon had run over his upper abdomen. He had signs of internal hemorrhage. After a careful search for the source of bleeding, the hepatic artery was found severed. The child was transfused with blood at the time of the operation. He lived two weeks following the operation, but there was a gradual loss of weight, death finally resulting from inanition. We were unable to obtain a postmortem.

3. *Injuries to the Common Duct from Poor Technic.*—The points to observe are the proper placing of the sponges with retraction of the sponges by means of Deaver retractors, so that the gastrocolic and the gastrohepatic omenta can be made taut. Next in importance is the use of the left hand, which grasps the liver and gallbladder, bringing into plain view the structures around the foramen of Winslow. When these points are strictly adhered to, any operation on the gallbladder and its passages can be performed with comparative ease. When a cholecystectomy is performed, the right free border of the gastrohepatic omentum is incised and the cystic duct is isolated and ligated close to the common duct, while the cystic artery is ligated close to the gallbladder. This is a general rule that ought to be observed in performing all cholecystectomies if one wishes to avoid complications. A careful study of the drawings will show that if the artery is ligated close to the gallbladder and the cystic duct is ligated close to the common duct there will be less necessity for secondary operations on the biliary passages.

Finally, when one considers that out of sixty-two specimens examined 33 per cent. of variations of the blood vessels and ducts were found, it behooves the surgeon to study the individual case more closely than he has done in the past.[4]

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[4] In addition to the references already given, the following may be found of interest:
Eisendrath, D. N., and Dunlavy, H. C.: Surg., Gynec. & Obst. **26**: 110-112 (Jan.) 1918.
Erdmann, J. F.: Ann. Surg. **67**: 273-277 (Mar.) 1918.
Schachner, A.: Ann. Surg. **64**: 419 (Oct.) 1916.
Werelius, A.: Cholecystectomy, J. A. M. A. **68**: 1545 (May 26) 1917.
Eisendrath, D. N.: Biliary Surgery, J. A. M. A. **71**: 864 (Sept. 14) 1918.
Fowler, W. F.: Surg., Gynec. & Obst. **27**: 387 (Oct.) 1918.
Behrend, M.: Ann. Surg. **68**: 32 (July) 1918.

Child Welfare.—The distinct need for standardizing child-welfare laws is shown by the diversity among the states in child legislation. This variation in standards evidences a lack of clear thinking. A board of children's guardians is needed in every state. Minnesota has adopted a children's code which is a model for all other states in the methods used and the results obtained in legislation.—*School Life,* **2**:2 (May 16), 1919.

CRITICAL PERIODS IN DISEASE TREATED BY BLOOD TRANSFUSION *

EDWARD E. LINDEMAN, M.D.†
NEW YORK

The blood is the highway for the carrying on of traffic on which animal life, from practically the lowest to the highest form, is dependent. It is a very complex tissue, many of the mysteries and intricacies of which are only now being revealed and reduced to the exactness of chemical science. Further research will unfold more, but there will ever remain that realm of darkness, unfathomable by intellect and research, but nevertheless existent.

For this reason, when the facts in the case cannot be reduced to chemical or biologic terms, a certain amount of empiricism in therapeutics must prevail. Empiric therapy will always offer ground for doubt, contention and debate about which reasonable, thinking men may differ. But even in the presence of empiric therapy an unbiased mind and keen clinical observer will obtain much that is of value from blood transfusion in many critical periods in disease.

In order to use effectively the instrumentalities available, it is essential to have a broad, comprehensive grasp of the subject. It may be worth while to call attention briefly to some of the substances in the blood aside from the formed elements with their oxygen-carrying powers and immunologic properties, namely: serum proteins; cholesterin; lecithin; fats; salts; sugars; fibrin ferments; amino acids; elements for synthesis into tissues; products of decomposition, oxidation and hydration; organ extracts; internal secretions; hormones; antibodies; bactericidal substances, etc.

It is apparent that the course of study in blood therapy should be directed, first, to an understanding of the normal blood, and then to a determination, as far as possible, of any excess or deficiency under pathologic conditions. It is not unreasonable to conclude that blood transplantation, in part or in toto, may favorably influence the course of many diseases other than hemorrhage and anemia, in which the indications are not so apparent, and that possibilities are opened for modifying the blood of a donor to meet specific needs in a given case.

REPORT OF CASES

Case 1.—A woman, aged 50, referred by Dr. W. A. Bastedo, had a constant but moderate fever. There were no heart murmurs excepting those of low pitch and rumbling character such as one frequently finds associated with impaired heart musculature. The systolic blood pressure was 102; the diastolic 66. The pulse was irregular and intermittent, varying from 90 to 116. There was multiple joint involvement associated with tenderness and swelling. This condition had existed for a period of five months, and seemed to simulate a form of rheumatic fever.

When I first saw the patient she had a psychosis with frequent attacks of wild delirium and great pain. There was an exaggerated and coarse tremor of the muscles about the joints involved, with considerable rigidity. She was unable to take any nourishment. I agreed with Dr. Bastedo in the opinion that she suffered from a toxic psychosis of infectious origin aggravated by inanition and was soon destined to reach the point of exhaustion. It seemed to all of us associated with the patient that the case was a hopeless one.

The red blood count was 4,000,000 and the hemoglobin 80 per cent. Naturally, anything that would check the infection and reduce the toxicity would be indicated. All measures having failed, we resorted to blood transfusion.

She received in all, four transfusions of blood of between 700 and 800 c.c. at two, three and five day intervals. After the first transfusion there was no apparent change excepting for its quieting influence. After the second transfusion the patient began to take nourishment, and her delirium was less. After the third transfusion, her delirium became increasingly less; she was able to take more nourishment, and her temperature began to fall, accompanied by a slower pulse rate, but one still intermittent. The pain, swelling of joints and tremors were markedly reduced. After the fourth transfusion, the heart sounds assumed a normal quality, the rumbling noises had disappeared, the pulse still remained occasionally intermittent, the psychosis and delirium subsided, her mind was clear, the pain and tremor of the joints were practically gone, and the temperature was normal. The patient was able to consume 2,500 calories a day. Her convalescence was uninterrupted. Some months later, however, she suffered a relapse, I understand, but to a very much milder degree.

I believe that repeated transfusions controlled the infection and reduced the toxicity. In support of this contention I have had a number of cases of infection in which transfusion quieted the patient, reduced the toxicity and overcame the bacteremia, with ultimate recovery of the patient. Whatever else may have occurred I will leave to your own analysis to supply.

I do not regard the fulminating, vicious types of infections, such as occur in the puerperium, or the acute variety in which death occurs within a few days, as favorable types for treatment, for these conditions become fatal before the treatment becomes operative.

The results obtained in malignant endocarditis with *Streptococcus viridans* bacteremia are not encouraging. One's efforts are almost invariably defeated by the lodgment of emboli in the brain, lungs, liver, kidneys, spleen, etc., which ultimately result in the death of the patient.

In long-standing cases of sepsis, even with bacteremia, the patient will frequently arrive at the point at which he has just enough protection to prevent further advance of the infection temporarily. The organism and the host then seem to exist side by side with indifference to each other until one or two conditions will prevail. The host will either overcome the organism, or the organism will advance further so as ultimately to overcome the host. During the stage of indifference, there may be very little or a moderate or a severe grade of anemia, malaise, debility, sapremia and poor nutrition, with absence or poor development of granulations about the infected area. This may be regarded as a critical period in the disease of the patient, and all measures should be directed toward increasing the patient's resistance. Blood transfusion will frequently offer an excellent field for application in these conditions. Infection is controlled, sapremia is reduced, and granulations are stimulated. The patients I have treated in cases that might be included in this group are too numerous to mention. For illustration it may suffice to mention nine cases of sepsis following mastoiditis with operation. In five, positive blood cultures of *Streptococcus hemolyticus* were obtained with five recoveries. In four, the blood cultures were negative in spite of the existence of a very severe sepsis elsewhere secondary to the mastoiditis. In three of these cases the patients recovered. In the one case in which death occurred, a brain abscess existed, which it is believed was present long before the patient received any transfusions.

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* Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

† Dr. Lindeman was accidentally drowned at Atlantic City, June 12, while bathing.

Case 2.—In a boy, aged 11, who had double mastoiditis with involvement of the sinus and jugular thrombosis, the sinus was exposed and the clot removed from the jugular. This clot was found to extend also into the innominate vein, but could not be removed. There was a double septic pneumonia, a right septic pleurisy, osteomyelitis of the head of the left femur, and a positive blood culture of *Streptococcus hem•lyticus,* with many colonies to each plate. After ten weeks of treatment this boy became well, excepting for the condition in the femur, which ultimately healed with joint fixation.

PERNICIOUS ANEMIA

The most typical feature in pernicious anemia to me is the variable and capricious course.

The clinical picture differs much according to the stage and specific seats of pathologic invasion. The variability is so great that doubt of accuracy of diagnosis is frequently felt. Most of the cases in my experience, however, of the atypical forms, have proved later to be pernicious anemia of Addison.

Because of the capricious course in this disease, one must be ever guarded in the presentation of any form of therapy, lest one attribute to it virtues which rightfully belong to the natural course of the disease itself. While one sees a favorable change occur in some cases spontaneously, only too frequently does death occur while the favorable moment for improvement is awaited. The number of cases of long course are relatively fewer. Hence, in the treatment of this disease, the skill of the physician and the patience of the family of the invalid may be taxed to the limit.

The story of this disease is too long even to touch on in the time allotted. Suffice it to say that when a patient has arrived at a critical period in pernicious anemia, there is no other therapeutic measure that has the power and efficacy of blood transfusion of unmodified blood in large amounts in robbing the disease of its terrors. Remissions may be provoked. When remissions cannot be provoked promptly, the patient bears the disease better and will be the better able to await the favorable moment for improvement with a prolongation of life.

TROPICAL SPRUE

Tropical sprue is a disease occurring principally in certain areas in the West Indies, Central and South America and northern parts of Africa, where it is found endemic.

There is present a stomatitis; a rough, furrowed and fissured tongue, which may later atrophy, and a severe gastro-intestinal disturbance and diarrhea, which may last from ten to twenty years. There is considerable emaciation and intolerance to iron, meat and other foods. The terminal stage is very frequently accompanied by a severe grade of anemia of the secondary type. Some of the anemias may approach a pernicious type.

Case 3.—A typical case referred to me was in a man, aged 54, who had frequent attacks of stomatitis and a furrowed and an atrophic tongue. He had had a persistent diarrhea for twelve years, with from four to seven stools daily of the consistency of purée of peas. The patient had been treated by able clinicians, both in Cuba and in the United States. He was placed on a variety of rigid diets and treated by the usual methods employed in this disease. In spite of this, his illness became increasingly worse.

I saw this patient for the first time in October, 1917. He presented a picture of pallor, extreme weakness and emaciation, with very poor appetite and an intolerance for almost any kind of food. The patient, an educated man, had a full realization of the nature of his disease, which was endemic in the country in which he resided. Having exhausted all measures then known for the relief of his ailment, he was unwilling to make further effort. His red blood count was 1,800,000; hemoglobin, 30 per cent.; white blood count, 7,000, and polymorphonucleares, 76 per cent. There was no macrocytosis, and there were no nucleated red cells. He was persuaded to try blood transfusion. He received three transfusions of 1,200 c.c. each, at weekly intervals. The diarrhea promptly ceased, his appetite improved at once, he was able to tolerate all varieties of food, he gained weight daily, and he has been well ever since.

Something more than the mere improvement in the anemia was responsible for the arrest in the disease. The diarrhea so characteristic of the disease exists long before the anemia develops.

I have had four other cases of this disease, with apparent recovery in every case.

Case 4.—One case occurred in a man in whom the disease existed for a period of about eighteen months. The red blood count was 3,500,000; hemoglobin, 65 per cent.; white blood count, 8,000, and polymorphonucleares, 75 per cent. There was no macrocytosis and there were no nucleated red cells. He received two transfusions of 1,300 c.c. each at an interval of a week. All symptoms of the disease promptly disappeared, and he has remained well ever since.

It is therefore unlikely that the mere improvement of the anemia is responsible for the cure of the disease. Something else has been introduced by blood transfusion which is a corrective for the condition. All of these patients have returned to their homes and are useful citizens in the country in which they reside.

GAS POISONING

Gas poisoning may be regarded in a measure as an anemia, so far as the oxygen-carrying power of the blood is reduced.

Case 5.—To show what can be done with this condition, it may be worth while to cite a case in a girl, aged 18, who, in January, 1915, was exposed to illuminating gas while asleep in her room, from midnight until 6 a. m. A gas pipe had exploded and the gas had escaped through a small hole in the floor of the room in which she slept. The window and the door of the room were closed. I saw this girl thirty-six hours after her exposure. She was then in deep coma, and there was a general rigidity, more on the right side than on the left, with no response to reflexes except the corneal reflex. One thousand four hundred c.c. of blood were removed, and 1,100 c.c. were transfused. The performance was repeated thirty-six hours later. She then began to show gradual signs of improvement. The rigidity grew less; she began to take nourishment when spoon-fed; reflexes returned and were exaggerated, with ankle and patella clonus. Consciousness, however, was not regained until the eleventh day after her exposure. After that her improvement was uninterrupted, and within two months she recovered completely, with no paralysis or mental disturbance. A severe acne vulgaris, which had existed for several years, cleared up after her transfusion.

I have had a similar experience with a case of tuberculosis, in which a severe acne vulgaris was present for twelve years. The acne cleared up miraculously after three transfusions; only the pitting and scarring of the skin from previous abscesses remained.

In five other cases of gas poisoning, all of the patients but one recovered.

NEPHRITIS

In nephritis, one may encounter a critical period in which blood transfusion may prove helpful. Following is a case in point:

Case 6.—A woman, aged 32, suffered with subacute parenchymatous nephritis during the course of her pregnancy. The urine boiled almost solid with albumin. Many epithelial and white blood cells were found in the urine. The systolic blood pressure was 190; the diastolic, 120. The red blood count was 2,000,000; hemoglobin, 30 per cent. There was a marked pallor and a puffiness of the face, and edema of the extremities She received 1,350 c.c. of blood. Within one week after the transfusion there was no evidence of a nephritis. Casts and albumin were absent, the edema subsided, and all symptoms disappeared. She has been well ever since. The blood pressure was not taken after the transfusion.

Case 7.—I have had a similar result in the same type of nephritis in a patient, aged 45, without the existence of pregnancy. The red blood count was 3,200,000, and the hemoglobin 60 per cent. Recovery occurred promptly after the transfusion, with the disappearance of all symptoms and the absence of albumin in the urine. The woman has been well ever since.

These were cases of primary kidney disease in which the anemia was secondary. It is unlikely that the anemia was responsible for the nephritis. In many extreme grades of anemia there is frequently no impairment of the kidneys. In other cases there is a diminution in the functional activity, with only very slight traces of albumin in the urine. The functional activity, when impaired, improves with improvement in the blood condition.

Case 8.—Another case that may be worth mentioning was of a man, aged 24, suffering with an acute nephritis, the cause of which was unknown. The systolic blood pressure was 190; the diastolic, 112. He had a retention of 210 mg. of nonprotein nitrogen per hundred c.c. The alkalin reserve was 22 per cent. Delirium and acidosis were present. There was a complete suppression of urine for four days. On the fourth day I removed 2,000 c.c. of blood. During the period of removal he was given 500 c.c. of sodium bicarbonate solution in order that he might not be overwhelmed by his acidosis. At the end of the bleeding his pressure fell very perceptibly, and transfusion was then begun. He received 1,200 c.c. of blood. I estimated that the patient was detoxicated 40 per cent. by the procedure. Sixteen hours after the transfusion he passed 560 c.c. of urine, which boiled solid with albumin. The clinical condition, however, was unchanged. He died several days later.

LEPROSY

Case 9.—Blood transfusion was tried in a case of leprosy in a woman, aged 24, suffering with the disease for a period of four years. During this time the disease was active, with areas of anesthesia and thickening of nerve trunks, extreme nervousness, hysteria, poor appetite, lack of ambition, and a mental agony. The patient longed for death. She received in the course of a year six blood transfusions of 1,200 c.c. each. During the past six months the disease apparently has been arrested. Areas of anesthesia are almost gone, the nervousness has subsided, and she no longer talks of death; in fact, she is showing considerable interest in life. Her physicians from Central America, who have recently seen her for the first time since she received her treatment, were greatly impressed with her remarkable improvement and the apparent arrest of her disease.

In another case under treatment at North Brother's Island, the patient has received two transfusions with considerable improvement in his condition. Reports of these cases will be published in full detail later.

ALEUKEMIC LEUKEMIA

Case 10.—A critical period in a case of aleukemic leukemia occurred in a boy, aged 4. I saw this boy for the first time in February, 1916. He was then in urgent dyspnea, and was thrashing about in bed restlessly. The skin was greenish yellow; the lips, blanched. There was a general glandular and marked liver enlargement. The child became unconscious during my examination. Time was not allowable for making blood tests or hemoglobin estimations. The smears showed a picture of aleukemic leukemia. Preparations for a blood transfusion were complete in fifteen minutes. By this time the child was in deep coma, and was rapidly approaching a state of exhaustion. Five hundred c.c. of blood were transfused through the external jugular vein from the mother. Five minutes after the transfusion there was a return of consciousness. Twenty minutes later, as I was about to leave the home, this child, who had just been within a few minutes of death from disease, sat up in bed and laughingly threw me a kiss good-by. He made a remarkable recovery. However, ten weeks later, the disease recurred, followd later by hemorrhage and death.

ANEMIA AND SEPSIS

Case 11.—A case of anemia and sepsis occurred in a baby, aged 3 weeks, in October, 1916. The instrumental delivery of the child was very difficult, and the head was traumatized. A hematoma of the scalp, reaching the size of an orange, developed. The hematoma became infected and ruptured spontaneously. The temperature was 103, the pulse was too rapid to count. The red blood count was 2,000,000, and hemoglobin 26 per cent. One hundred and seventy-five c.c. of blood were transfused from the father through the external jugular vein. The vein offered a little difficulty for the insertion of the cannula, and by the time transfusion had started, breathing had ceased. The child was revived by the transfusion; the temperature promptly fell, and the infant has been well ever since, with normal development.

Case 12.—A case of a different type occurred in a boy, aged 4, who had been operated on for the removal of the tonsils. There was considerable bleeding at the time of the operation. During the week following, though no more bleeding occurred, the child grew increasingly paler. He became very restless, occasionally vomiting, and was unable to take food. Skin petechiae were scattered over the trunk and extremities; there was no blood in the stools.

I received an urgent call in this case at 4 p. m., one week after the operation, and was on my way at 4:30 p. m. in a race against death, up hill and down dale and around mountain sides, for a distance of 60 miles. I arrived at 7 p. m., and found the little patient comatose, restless, and in urgent dyspnea, with extreme pallor. He was placed on the operating table immediately, and 500 c.c. of blood were transfused from the mother through the external jugular vein. Consciousness and color at once returned. The restlessness and dyspnea, however, had not diminished to a degree commensurate with the therapeutic procedure. If this child suffered from hemorrhage alone, the dyspnea and restlessness should have entirely disappeared. On further examination, the child's breath revealed the presence of acetone. Sodium bicarbonate was administered during the night, followed by a complete recovery the next day. The boy has been well ever since.

HEMORRHAGE

In cases of hemorrhage, blood transfusion is specific, no matter how extreme the hemorrhage, provided some life is still present. After an experience I am about to relate I am prepared to say that there is no condition so grave, from hemorrhage alone, that a patient cannot be revived by blood transfusion.

Case 13.—A man, aged 54, who used alcohol to moderate excess, was operated on, after several attacks of gastric pain and vomiting of blood, for gastric ulcer, in January, 1919. The ulcer was excised, and a gastro-enterostomy was performed. The course, for a period of ten days after the operation, was uneventful. Between the tenth and sixteenth days after the operation, the patient had daily attacks of weakness, after which he vomited bright red blood. During this time his stools were dark and tarry. I saw this patient for the first time at 11 p. m. on the sixteenth day after his operation. He was very pale and weak; the pulse was 120, and the blood pressure very low. There was no increase in respiration and no dyspnea. I obtained a specimen of blood from the patient in order to make the necessary hemolytic tests. As I left his room he called me back to inform me of a sudden attack of weakness. Realizing the gravity of an attack of hemorrhage at this stage, I returned within two hours with a suitable donor. Everything was in readiness for a transfusion.

During my absence the patient became increasingly weaker, and on my arrival he was unconscious, with marked dyspnea and in shock. His respirations soon became paralytic in type, the head was thrown back. The respirations then became fewer and fewer until they were mere occasional gasps. The attending physician could feel no pulse. A tourniquet was placed on the patient's arm, but the veins did not distend. It was necessary then to make a small incision, exposing the medium basilic vein. Not a single capillary bled at the site of incision. There was no blood in the medium basilic vein; it presented itself, when exposed, as though it were a nerve trunk, and it looked like a piece of flat white tape.

By this time the patient stopped breathing, and no heart sounds were audible with the stethoscope. It requires but a few seconds to deliver blood by the syringe-cannula system, but even these few seconds were too precious to lose, and cold saline, which was the only thing at hand, was pumped into the vessels by my assistant until blood transfusion was started. Sixty c.c. of saline were introduced in the interim. After the patient received 200 c.c. of blood, he took an inspiratory gasp, followed by a paralytic expiration. When he had received 400 c.c., he was breathing more regularly; a flicker of pulse was perceptible. When he had received 600 c.c., there was a decided improvement in the pulse and an increasing depth of respiration. He opened his eyes and stared, but was not conscious. When he had received 800 c.c., he became startled, as though suddenly awakened out of a sound sleep, and wanted to know what all the fuss was about. The transfusion was stopped when the patient had received 1,200 c.c. The pulse and respiration were then quite satisfactory. He was then fully conscious, and breathing normally.

It may be worth while to note that when he became conscious he had no realization of his close proximity to death, and if he had reached the brink of the great unknown there was no spiritual or psychic evidence of it.

It is impossible to describe to any audience the extreme and dramatic clinical condition. I have never seen it before or since, and I expect never to see it again, namely, in the presence of all evidence of death from hemorrhage, revival was yet possible by blood transfusion. I believe the possibility for revival was a matter of a very few seconds, a second, or even a fraction of a second. I therefore contend that there is no condition so extreme from hemorrhage alone, if the heart still beats or is in a state of fibrillation, that revival is necessarily impossible with blood transfusion.

At the time the blood was obtained for hemolytic tests, there was a complete absence of fibrin in the specimen. The reason for the patient's bleeding then became quite obvious. The diminution or absence of fibrin occurs occasionally in cirrhosis of the liver. The liver in this patient was small. In all probability a degree of cirrhosis existed. I have learned by experience that when the fibrin content of the blood is diminished or absent, there is great liability to recurrence of hemorrhage, even after transfusion, and this emergency was therefore anticipated. Six days later the patient again had a severe hemorrhage, and bright red blood was vomited. He was transfused at 4 p. m. At twelve o'clock that night he again had a hemorrhage, and at 2 a. m. he was transfused, after which an exploratory operation was performed. Bright red blood was found in the stomach, with a few small shreds of fibrin. The stomach and duodenum were thoroughly explored, and the intestine examined. No evidence of a bleeding point was obtained. The mucosa of the stomach generally was somewhat thickened and boggy, but otherwise normal. The patient was transfused immediately after the operation. He made an uneventful recovery and has been perfectly well ever since.

The statements herein contained are facts without exaggeration. They are used to call and direct attention to the use of blood transfusion in critical periods in many diseases, even when a severe form of anemia is absent. A great many more cases could be cited, but I trust enough has been said to stimulate an interest.

565 Park Avenue.

IODIN TINCTURES, WATER SOLUBLE *

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Proprietary preparations of iodin have been on the market for many years and advertised to physicians as superior to the official preparations—tincture of iodin and Lugol's solution (Liquor Iodi Comp., U. S. P.). The superiority claimed for these proprietary preparations is based on the allegation that the potassium iodid in the official preparations causes a local irritant action which is avoided in the proprietary preparations. The allegations seem improbable—certainly the local irritant action of potassium iodid must be regarded as negligible, as compared with that of hydriodic acid contained in the proprietary preparations. Rather, it was surmised that any difference in local irritation following the use of the proprietary preparations was due to the fact that the iodin content in these preparations was insufficient to produce the irritation or, on the other hand, sufficient to have only a slight, if any, therapeutic effect.

The manufacturers do not seem to have published, and presumably do not possess, any comparative data on the degree of irritation produced by their preparations, as compared with the official tincture of iodin after this has been diluted so as to reduce its iodin content to that of the proprietary preparations. It was therefore decided to determine this point by applying various iodin preparations of an equal iodin content to the skin and also by extending the experiments in other directions. In these experiments two widely advertised proprietary preparations—Burnham's Soluble Iodin[1] and Sharpe and Dohme's Surgodine[2]—were included.

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* From the Department of Pharmacology of the Western Reserve University School of Medicine.

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[1] Examination in the A. M. A. Chemical Laboratory indicated Burnham's Soluble Iodin to be a solution of iodin in alcohol made miscible with water by the presence of some iodid and containing approximately 3 gm. of free iodin and 2 gm. of combined iodin in 100 c.c. (J. A. M. A. **50:** 1055 [March 28] 1908).

[2] The A. M. A. Chemical Laboratory reported that Surgodine was an alcoholic liquid containing 2.51 gm. of free iodin and 1.78 gm. of combined iodin, probably present chiefly as hydrogen iodid, in 100 c.c. (J. A. M. A. **70:** 257 [Jan. 26] 1918).

Since these, however, are more or less secret in composition, I have devised a nonsecret preparation of the same character by the use of hydrogen iodid (hydriodic acid). The details of this preparation will be published in a pharmaceutical journal. Before use, each of these preparations was reduced by the addition of alcohol to a free iodin content of 2.2 per cent. (2.2 gm. in 100 c.c.).

COMPOSITION OF IODIN PREPARATIONS USED*

Nature of Preparation	Free Iodin	Percentage of Combined Iodin (Including HI)	Acidity as of HI.
Alcoholic solution	2.2	0.4	0.2
U. S. P. tincture (KI)	2.2	1.6	0.07
Alcohol with HI (author's formula)	2.2	0.7	0.6
Burnham's Soluble Iodine	2.2	2.7	1.4
Surgodine	2.2	1.2	0.8

* The numbers represent grams per hundred c.c. of preparation. Before use, each preparation was reduced with alcohol to a content of 2.2 per cent. of free iodin.

The accompanying table shows the composition of the solutions used, the total iodin being the same, the principal difference being in the acidity, which ranges from a minimum of 0.07 per cent. in the U. S. P. tincture (containing potassium iodid) to a maximum of 1.4 per cent. in Surgodine. The special preparation which I devised is intermediate and contains 0.6 per cent. The total combined iodin (including potassium iodid or hydrogen iodid) ranges from 0.4 per cent. in the alcohol solution to 2.7 per cent. in the Burnham preparation.

EFFECTS ON THE SKIN

The solutions were painted on the skin of the inner surface of the forearm, each solution covering an area of from 15 to 20 mm. diameter; each application was allowed to dry before the next was added.

The results did not show any significant or constant differences. The actual results indicated that Burnham's preparation was the more irritant, and the U. S. P. tincture (reduced to the same iodin percentage) was the less irritant, but the differences were so small that they could easily be accidental.

In a preliminary test with three applications, no material difference could be detected between the different solutions.

In a second series, a measured quantity of solution was applied to two spots in three courses. The first course consisted of five applications at intervals of five minutes, and then a pause of thirty-five minutes. At the end of this time, the skin of all the areas was slightly tender. The second course consisted of five applications during sixteen minutes, and then a fifty-five minute interval. There was now considerable tenderness, alike for all the areas. The third course comprised five applications during fifteen minutes. Forty minutes after the last application, all the areas were equally sore. The depth of the stains ran in decreasing order from Burnham's (most) through Surgodine, hydrogen iodid, U. S. P. tincture, and alcoholic (least); but the differences were not great.

After removing the excess of iodin with alcohol, the reddening and edema at this time appeared as follows: Burnham's most, distinct papular edema and reddening; then the alcoholic; then the others, which were about alike.

On the following morning, the order of irritation was as follows: most, both Burnham's areas; next, one of the alcoholic areas; next, one of the hydrogen iodid areas; next, Surgodine; least, U. S. P.

PRECIPITATION OF ALBUMIN

Irritation is often due to precipitation of proteins, and this probably applies to the irritant action of iodin. Therefore an investigation was made to determine whether there exist significant differences in this respect between the several iodin preparations.

Each of the diluted iodin preparations (2.2 per cent. iodin) was diluted with 10 volumes of water, to avoid precipitation of protein by the alcohol, and the diluted solution added to an equal volume of a 10 per cent. solution of natural egg-white in physiologic sodium chlorid solution.

The simple tincture, that with hydrogen iodid, Burnham's preparation, and Surgodine, produced an apparently identical coagulum. The U. S. P. tincture (diluted in the same way) produced only a turbidity; this also when the quantity of the iodin solution was doubled. Next morning, the albumin was coagulated as with the others. The reaction to litmus remained neutral.

The restraining action of the potassium iodid is limited, for the addition of an equal quantity of the potassium iodid tincture to the hydriodic acid tincture does not prevent immediate coagulation (1 volume potassium iodid tincture, 1 volume hydrogen iodid tincture, 10 volumes of water).

It is evident, therefore, that the potassium iodid of the official tincture has a restraining effect on the coagulation of protein. This would tend to make it less irritant than the other preparations. It is conceivable that this may be disadvantageous in skin protection, in which the fixative action is probably desirable. In this case, however, there is no object in using a water-miscible preparation, and the simple alcoholic solution of iodin would be fully as good as any of the others.

CAPILLARITY AND SPREADING

Dilute tinctures of iodin, when placed on the skin or on parchment, tend to distribute themselves so that the solution becomes most concentrated at the periphery (as in the accompanying illustration). In this manner, the periphery of an application on the skin may be blistered when the center is scarcely affected. If this property were more marked in one specimen than another, this would be equivalent to greater irritation. The illustration shows that this uneven distribution runs in the order: U. S. P. (potassium iodid tincture), most; Burnham's soluble iodin; hydrogen iodid tincture; Surgodine; alcoholic tincture (containing no potassium iodid), least.

The differences are in favor of the simple alcoholic tincture (which was formerly official) and adverse to the tincture containing potassium iodid (which is now official); but they do not impress me as of great importance, since they are even less marked on the skin.

I tried also to demonstrate differences in capillarity by the spreading or rise through filter paper; but the variations were insignificant.

CONCLUSIONS

The presence of potassium iodid in the official tincture of iodin does not seem to render this preparation more irritant. On the contrary, it is somewhat less irritant to the skin, and much less precipitant to proteins, than the simple alcoholic tincture, or the secret and nonsecret "miscible tinctures." The more even spreading and the more rapid coagulation of protein render the simple alcoholic solution of iodin probably the best for the "disinfection" of the skin; while the delayed protein precipitation by the U. S. P. tincture would probably render this somewhat superior for the disinfection of open wounds. The secret and nonsecret "water-soluble tinctures" do not appear to have any material advantages.

REACTIONS FOLLOWING THE ADMINISTRATION OF ARSPHENAMIN

REPORT OF REACTION IN A SERIES OF TWENTY-FIVE THOUSAND INJECTIONS *

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So much publicity has been given some isolated instances of serious reactions following the intravenous administration of arsphenamin that it seems worth while to tabulate the number and type of reactions seen in the course of a large number of injections of the drug, together with an attempt at classification of these reactions, more particularly with reference to their causes. At Camp Travis, Texas, we have given well over 25,000 injections of arsphenamin and have attempted to keep a record of reactions as they occurred. In classifying and reporting this series it is pointed out that reactions following the administration of arsphenamin are not so well understood that every case will automatically fall into any well defined group, eitherby virtue of certain classical symptoms orbecause of established etiology; nor can all reactions be avoided by the observation of certain fixed rules of technic: there are too many factors involved. Reactions necessarily have their origin in drug toxicity, technical errors, or in causes relative to the patient himself. Many reactions are undoubtedly due to drug toxicity, but there seems to be a deplorable tendency on the part of some to condemn the drug without sufficient consideration of other possible etiologic factors, particularly those relating to technic.

Just what constitutes a correct technic varies widely in the opinion of equally eminent authorities; but certain essentials have been established as the result of clinical observation and animal experimentation. Thus, most clinicians report fewer reactions when using dilute solutions, and we are informed that in animals[1] "a dose of arsphenamin which is well borne when given slowly for fifteen minutes will be surely fatal when injected in one minute in concentrated solution."

Ehrlich,[2] as early as 1911, pointed out the advantage of using dilute solutions. Just what dilution is best is an open question, varying, according to the opinions of different men, from 0.1 gm. to 3 or 4 c.c. up to 0.1 gm. to 50 c.c. of fluid; but most will agree that reactions are more frequent when using a concentration greater than 0.1 gm. to 15 c.c. Pollitzer[3] states that 0.1 gm. to 20 c.c. will yield approximately a normal solution and should cause less disturbance in the blood stream. Salt solution as a diluent has been shown to be not necessary; but freshly distilled sterile water is considered essential, although there are those who believe that ordinary tap water will give just as good results. Wechselmann,[4] in the early days of arsphenamin, laid great stress on water impurities as a source of reactions. Certainly the source of any water not freshly distilled and sterilized will have some bearing on results. Danysz[5] believes that reactions are due to a precipitation of arsphenamin base in the blood stream owing to the carbonic acid present; various factors, such as the rate of injection, alkalinity and the salt solution, as well as the amount of acid in the blood, having a definite relation to the number and severity of reactions seen. He recommends small initial injections to vaccinate against reactions by increasing the amount of organic bases in the blood. Small preliminary injections may prevent some reactions; but at the same time we must consider the possibility of producing a resistant strain of spirochete, thus defeating the object of all therapy. Again, by such methods, much valuable time will be lost, particularly in dark field positive cases with negative Wassermann reactions. Herxheimer reactions can hardly be explained by Danysz's theory; such reactions have in my experience developed after small injections of the drug. Since oxidation products of arsphenamin are quite toxic, it is wise to inspect each ampule for possible air leaks and to use the solution as soon after it is prepared as possible. Chemically pure sodium hydroxid is necessary as chemical impurities have been demonstrated to produce reactions. Incomplete neutralization of arsphenamin has probably accounted for more avoidable reactions than any other one factor.

Schamberg, Kolmer and Raiziss[6] state that acid solutions of arsphenamin are from 50 to 60 per cent. more toxic than the alkaline. Again, one should observe carefully the rules laid down by manufacturers regarding the preparation of their particular brand of arsphenamin; in dissolving the arsenobenzol brand, one may with safety use hot water; but with salvarsan (Metz) cold or at best luke warm water should be used. To prevent undissolved particles from entering the circulation, the solution should always be filtered before it is used.

As to the selection of the brand of drug to be used, we recognize that different brands of arsphenamin vary considerably in toxicity, and that different lots of the same brand vary to such an extent that methods of standardization are necesary before the drug is released for therapeutic use. The Public Health Service prescribes that manufacturers shall test each lot for arsenic content and toxicity. It is required that the arsenic content be not less than 29.5 per cent. nor more than 31.6 per cent. For the toxicity tests, five albino rats, non-pregnant, weighing from 100 to 150 gms., are injected with a 2 per cent. solution of the neutralized drug in doses of not less than 80 mg. per kilogram of body weight. It is required that 60 per cent. of the animals survive at least forty-eight hours. If more than one of the rats die, the tests are repeated and the total number counted in the result. Special rules regarding the care and feeding of animals are issued. Manufacturers' results are checked by the Hygienic Laboratory of the United States Public Health Service, thus assuring the profession a comparatively nontoxic product. In addition to these tests, manufacturers in this country supply a few ampules from each lot to some clinic, where a further check is made on the product for its human toxicity. Varia-

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* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Circular letter C-263, Surgeon-General's Office.

[2] Ehrlich, P.: München. med. Wchnschr. **37**: 1963 (Jan.) 1911.

[3] Pollitzer, S.: J. Cutan. Dis. **34**: 633 (Sept.) 1917.

[4] Wechselmann, W.: Deutsch. med. Wchnschr. **37**: 481 (March 16) 1911.

[5] Danysz, J.: Ann. d. l'Inst. Pasteur **31**: 114, 1917; abst. J. A. M. A. **71**: 596 (Aug. 17) 1918.

[6] Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: J. Cutan. Dis. **35**: 286 (May-June) 1917.

tions in toxicity are, however, still possible, and as a matter of fact are still encountered, presumably because one brand or some particular lot of the same brand of arsphenamin may pass toxicity tests much higher than prescribed by the federal authorities. The two American manufacturers,[7] whose products were used in this series state that their brand is being tolerated in much greater dosages than that prescribed in the official tests. Thus, one might expect that any brand of arsphenamin would be comparatively safe; and yet there may be an excess number of minor reactions with one, because it just managed to pass the government toxicity requirements. Of these 25,000 injections, about 15,000 were of the arsenobenzol brand and about 10,000 were of the salvarsan brand. The arsenobenzol brand has made the better record of the two preparations. With the first lots of the salvarsan brand, reactions occurred twice as frequently as with the arsenobenzol brand. With the last few thousand injections, little difference in the two brands could be noted. It is noteworthy that the last 1,000 injections were given with only three reactions of any moment.

But with the best of technic and with a drug that is comparatively nontoxic, reactions will be encountered that have their origin in the patient himself. Reactions necessarily bear some relation to the relative functional integrity of the various organs; incompetent renal, hepatic, pulmonary, digestive, etc., functions account for many reactions that would otherwise be lacking. Also the temperament of the individual has some bearing on the frequency of reactions; what is a terrible ordeal to one individual is only an incident to another. Again, the status of the syphilitic infection itself has something to do with the incidence of reactions. Goubeau[8] attributes most febrile reactions to the disease itself, such reactions being noted most frequently in the florid secondary stage of the disease. Berman[9] believes that most reactions are due either to acidity of the drug or an increased protein, especially globulin, in certain active syphilitic infections. Our own experience has been in support of such a theory. It seems reasonable that some reactions are due at least in part to the destruction of enormous numbers of spirochetes, liberating the protein of their bodies into the blood stream with the production of an anaphylactic type reaction. It has been our experience also that patients with elevated temperatures or with demonstrable pathology of almost any kind will not tolerate arsphenamin well. We have seen a few cases with aggravation of syphilitic pathology due to the administration of arsphenamin.

TECHNIC

Since so many reactions are properly ascribed to technic, a brief outline of the technic used in our work is in order before the report of reactions encountered is presented.

1. The usual preparation of the patient is ordered.
2. A general physical examination precedes the beginning of treatment, and a urinalysis is made before the injection of either arsphenamin or mercury as a routine measure.
3. Instruments, glassware, etc., are sterilized by boiling.
4. Ampules are floated in alcohol to detect those not intact.
5. Ampules are opened and the drug dissolved in sterile distilled water, hot water being used only with the arsenobenzol brand.
6. The solution is neutralized with 15 per cent. sodium hydroxid to complete precipitation and clearing, after which a few drops in excess are added.
7. The solution is filtered and then diluted by running sterile distilled water through the filter until each 0.1 gm. of the drug is contained in 20 c.c. of fluid, the temperature of the solution being approximately that of the blood stream. Finally the solution is tested with litmus for alkalinity.
8. The solution is then placed in graduated glass cylinders hung about 3 feet above the level of the table, and supplied with tubing leading to a needle connection.
9. With the patient reclining, the bend of the elbow is cleansed with alcohol or painted with iodin, a small piece of gauze being placed just below the site selected for the injection. An assistant grasps the patient's arm just above the elbow, the patient closing his fist to distend the veins.
10. The check valve on the tubing is released, the operator pinching off the flow of the solution with the thumb and index finger of the left hand. The needle is held in the right hand, being introduced first through the skin and then into the vein.
11. On obtaining a flow of blood on the gauze, the assistant releases the arm, the patient opens his fist, and connection is made with the solution. Dosage is estimated at the rate of 0.1 gm. to each 30 pounds of body weight, and the requisite amount of the standard solution allowed to flow into the vein. The tubing is then disconnected from the needle, which is withdrawn after allowing a few drops of blood to wash it out, and a gauze compression is made over the site of the injection until all bleeding has stopped.
12. Following the injection, patients rest in the ward for an hour and a half, after which they are returned to their organizations, excepting those patients with infectious lesions who are kept in the hospital until all lesions have healed.

REACTIONS

We may include in the group of reactions due to technical errors those that developed in men that either disregarded instructions regarding preparation or were injected without preparation in special instances, as in early primary lesions in which the diagnosis had been made by the dark field method. Of the latter, eight of approximately 150 vomited within an hour after receiving a full therapeutic dose of the drug. Nothing further was noted except nausea preliminary to emptying the stomach, and later injections were without reaction, including twenty-five cases in which injections were given on each of three successive days after the method of Pollitzer.[3] The rest of our series of primary lesions (dark field positive), numbering 350 all told, were given the usual preparation the night before, and four of them were nauseated and emptied their stomachs. About eighty men in all stages of the infection who had had no preparation developed more or less severe reactions referable to the gastro-intestinal tract. From questioning patients at random I am convinced that at least every fourth one failed to carry out his instructions regarding preparation for one reason or another and still had no reaction. Cold solutions, I am sure, counted for three successive reactions with a moderate chill. On one occasion, the still being out of order, we used tap water, and five of forty men injected complained of shortness of breath, were flushed, and after a period varying from fifteen minutes to an hour, vomited and complained of intestinal cramps. Gonder's[10] observation that small amounts of calcium and magnesium in water increased the frequency of reactions is of interest in connection with these cases when we find that there is a comparatively high content of these two elements in the water supply at Camp Travis. Three cases of rather severe thrombophlebitis were seen that may have been due to the local implantation of infection, or more likely, I believe, the result of an infiltration of the drug between the coats of the vessel. The inflammatory process was an ascending one beginning at the site of injection and extending up the arm. These patients complained of pain and tenderness along the course of the swollen, inflamed and thrombosed vein, accompanied by an aggravated aching pain located rather vaguely at the shoulder. A moderate febrile reaction was noted, persisting over a period varying from ten to twenty days. Cold applications and splinting gave the most relief in these cases; all of the patients made uneventful recoveries, a hardened, sclerotic vein, however, persisting. On one occasion, when a new lot of salvarsan (Metz) was used, thirty-five severe reactions developed in thirty-five patients injected. Each had a severe chill from forty minutes to an hour after injection, the chill in some cases lasting as long as two hours. During reaction from the chill the patients vomited repeatedly, and a febrile reaction developed that in five cases persisted for three days. Nausea and vomiting persisted in one case for forty-eight hours. Intestinal cramps and diarrhea were present in twenty cases. Marked prostration lasting from twenty-four hours to a week followed in all cases. An albuminuria developed in thirty cases, in three of which numerous red blood cells and coarsely granular casts were also noted. All urines were clear ten days after treatment. No marked increase in blood pressure was noted. On the third and fourth day there appeared a herpetic eruption involving the lips, buccal mucosa, lobes of the ears, perianal region and penis in most of the cases. A polymorphonuclear leukocystosis was noted in every case, reaching its height during the second and third day and then gradually subsiding. The count was usually from 12,000 to 15,000, but in three cases it went as high as 50,000. These three cases showed two per cent. eosinophils and were the ones in which there occurred the most severe reactions. Slight fragility of red blood cells was noted in the more pronounced cases. All patients were entirely recovered and back on duty within two weeks, and have since taken arsphenamin without reaction. Later in the day we gave several tubes from another lot of the same product without reaction. This led us to believe that we were dealing with a particularly toxic lot of arsphenamin, and further administration of the lot was stopped.

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[7] Personal communications to the author.

[8] Goubeau: Paris méd. **8**: 97 (Feb. 2) 1918.

[9] Berman, Louis: The Nitritoid Crises After Arsphenamin Injections, Arch. Int. Med. **22**: 217 (Aug.) 1918.

[10] Gonder, R.: Arch. f. Schiffs- u. Tropen-Hyg. **16**: 37, 1912.

On inquiry we found that the lot in question had passed the required toxicity tests at 80 mg. per kilogram of body weight, and that the lot had passed clinical tests before being released. We then decided to try out the lot further and gave 100 tubes without any save one or two very mild vasomotor type reactions, proving conclusively that the cause of these reactions lay in faulty technic rather than in the drug itself. The technic used was the standard technic as outlined, and the same that has been used before and since with the best of results. The sodium hydroxid (Merck) was freshly prepared, and the same solution was used subsequently without any trouble. The one source of trouble seems to have been in the water; that used was some of the first from a new still, and had stood in a new tank for about four hours before we used it. Just why this water gave such a serious lot of reactions I am not prepared to state, unless they were due to bacterial or chemical contamination, the result of standing in the new metal tank. Emory[11] was able to demonstrate that reactions occurred more frequently when traces of lead and mercury were added to the water. Yakimoff[12] referred to the effects of water contamination by endotoxins of *Bacillus coli* and *B. pyocyaneus* in the same manner. Water from the same source has been subjected to chemical and bacteriologic tests with negative results, but this work was done after the tank had been drained and filled again so that the results obtained have been of value to us only in showing that the water supply is now what it should be. I have reported my notes on these cases in considerable detail because they illustrate how easily one may lay the blame for reactions unjustly on the brand of drug that he happens to be using. I am convinced that a good proportion of cases reported in the late literature as true toxic drug reactions were in reality due to errors in technic, or to causes relative to the patient himself.

It is difficult to place properly those reactions due to the drug itself. One must first eliminate every other source, and that is often quite difficult. We daily have patients speak of peculiar odors, tastes and sensations during administration of the drug. Such phenomena seem to be due to the drug itself. Innumerable instances of this kind have been noted and have rarely been followed by toxic manifestations of any kind. Two patients complained of severe pain radiating over the distribution of the dental nerves, one requiring an opiate. Vasomotor reactions with flushing of the face, dyspnea, cough and precordial pain we have seen in but 120 isolated instances, and in nearly all of these, with recourse to epinephrin and a few minutes' wait, we were able to finish the injection without further trouble. Schamberg, Kolmer and Raiziss[6] believe that these early reactions are due to traces of an unknown impurity which they call substance X. We were not able to demonstrate consistently any excess of reactions of this type with any particular lot of the drug. In one case a generalized subcutaneous edema with lowered blood pressure persisted thirty-six hours in spite of epinephrin. A generalized urticarial eruption developed in two cases. A mild generalized dermatitis developed after eight weekly injections, persisted for three weeks, and then the patient made an uneventful recovery. A generalized pruritus developed an hour after the administration of a single therapeutic dose, and persisted for ten hours. A chill, followed by a fever and usually vomiting and diarrhea, was noted in twenty isolated instances.

Of particular interest to me has been a group of about forty cases in which reactions developed that could be shown to be due to an aggravation of a nonsyphilitic pathologic condition. For instance, several men who had a few bronchial râles at the preliminary examination developed a moderate chill, cough, and generally a rather severe aggravation of mild bronchitis. One of the patients, recently an influenza victim, developed bronchopneumonia in the same manner. Patients with yellow sclera developed a marked icterus in only three of many similar cases. There were two with an aggravation of previously noted urinary findings following the cautious exhibition of the drug. Most patients with evident mild chronic interstitial nephritis tolerated the drug well. Contrary to what we expected, no unfavorable results were noted in five proved cases of pulmonary tuberculosis. In another case of the same kind, arsphenamin could not be given, because with each injection there would be an exacerbation of pulmonary symptoms. Generally we noted that men with elevated temperatures, except those due to the syphilitic infection itself, did not tolerate the drug well. Fischer,[13] in 1915, in an analysis of published deaths from arsphenamin, stated the belief that most of the deaths were due to some unsuspected disease, and that all the evidence at hand exonerated the drug of most of the mishaps credited to it. While we find it difficult to dismiss the subject so easily, still it seems reasonable to believe that some of the reactions attributed to drug idiosyncrasy have in reality been due to some unsuspected pathologic condition.

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[11] Emery, E.: Bull. Soc. franç. de dermat. et de syph. **24**: 37, 1913.
[12] Yakimoff, quoted in Abhandlungen über Salvarsan, **13**, 1912.

We have had two cases with early reactions in which we were forced to the conclusion that a drug idiosyncrasy existed. In one case an alarming train of symptoms developed after each injection of the drug. About three hours after receiving arsphenamin this patient developed a chill, vomited, and was quite prostrated. His heart action became weak and irregular. His symptoms persisted from forty-eight to seventy-two hours, even with comparatively small doses of the drug. Epinephrin did not seem to be of any use. Finally, a mild dermatitis appeared on the forearms, and further injections were temporarily discontinued. After a period of about four months, following the suggestion of Stokes,[14] a preliminary hypodermic injection of 1/50 grain of atrophin sulphate was given and 0.3 gm. of arsphenamin injected without any reaction whatever. Unfortunately this man was released, and further data on the case are not available. In the case of the other patient, with practically identical symptoms, but milder, we were able to administer arsphenamin, by giving 0.1 gm. as a preliminary injection, and following that with the rest of the injection in an hour. We have found it to be advantageous to inject the drug very slowly in these cases. The method of preliminary small injections suggested itself in connection with Danysz's[5] recommendation that all first injections of the drug be small ones to vaccinate against future reactions. Of delayed reactions we have seen six examples. These patients had no trouble until the third or fourth day after injection, when they developed a train of symptoms differing but little from those seen earlier. The onset was more gradual, as was convalescence, and prostration seemed greater than with the usual type of reaction. These reactions usually occurred after the patient had had two or more injections of the drug. We have noted a second reaction of the same type in two patients. This, coupled with the fact that delayed reactions are comparatively infrequent, has led me to believe that such reactions occur as the result of individual peculiarity, or an unsuspected pathologic condition.

Of Herxheimer reactions we have seen only a few. One man with mucous patches developed a severe glossitis following the injection of 0.4 gm. of the drug. Two showed marked aggravation of throat ulceration following the 0.3 gm. preliminary dose recommended by the War Department. In another case, mucous patches became confluent, and with extension of the larynx produced a complete aphonia which persisted for several weeks. It is my opinion that Herxheimer reactions are the result of the stimulating activity of nonsterilizing doses of arsphenamin, and that they may be avoided by full therapeutic dosage.

There have been two fatalities that may be ascribed in any way to antisyphilitic treatment in this series. Approximately 3,000 patients have been treated, some for a short time on account of transfer of station, and others over considerable periods. In one case, after two 0.4 gm. injections four days apart, the patient developed an acute dilatation of the stomach, death occurring on the ninth day. Necropsy revealed nothing of interest except that arsenic could not be found in any of the viscera. This patient had taken arsphenamin before without reaction according to his statement, and so, since this was only one of a group of 165 injected the same day, we feel that this case must represent one of an unsuspected underlying pathologic condition or one of drug idiosyncrasy. The other case was that of a soldier much overweight, but otherwise as far as we were able to determine, quite normal. He received 0.6 gm. of arsphenamin, and after a seven day interval another of the same size. He also received two injections of 1 grain each of mercuric salicylate. According to routine, the urine was examined before each injection of arsphenamin, and found normal. On the third day following his last injection of arsphenamin, he reported to his regimental surgeon for mercury. At that time he stated that he felt quite well except for some local tenderness in the buttock following the previous injection of mercury. The urine was not examined. He was given 1 grain of mercury, and the next morning was found unconscious in bed. A catheterized specimen of urine which revealed almost a solid coagulum of albumin, was loaded with blood and granular casts. He died the same day and at necropsy we found an acute diffuse hemorrhagic nephritis. Thus we may again point out the necessity of routine examination of urine before each injection of either arsphenamin or mercury.

Owing to the fact that most of our patients are handled on the ambulatory plan, reporting from organizations by appointment, receiving their treatment, waiting an hour and a half, and then returning to their commands, necessarily there have been some reactions that we have not seen; but since regimental surgeons were instructed to send all such patients to the hospital as soon as they were seen, we feel that any that did so occur were of minor importance.

While my classification of these cases may not meet the approval of all, and many of my opinions and statements are open to just criticism, yet I feel that the total picture presented is worthy of consideration in that it tends to strengthen the growing conviction that arsphenamin as marketed today is a comparatively safe product.

Since this article was written, the toxicity requirements for arsphenamin have been raised to 100 gm. per kilogram of body weight.

500 Pittsburgh Life Bldg.

ABSTRACT OF DISCUSSION

Dr. William Allen Pusey, Chicago: I want to express my great appreciation of the very admirable character of Dr. Guy's paper. It seems to me that it is the sort of paper that does a great deal of good. There is only one thing in which I would criticize it, and that is his tendency to give a clean bill of health to the drug when anything happens to the patient. It is surprising when you have good arsphenamin how carelessly you can use it and have no trouble. When you remember how it is being given all over the country with any sort of technic it is a remarkable tribute to arsphenamin. And yet, when a man like Dr. Guy who uses a technic which is beyond criticism, has some trouble, the suggestion immediately is that there was something wrong with the lime content of the water. You can give arsphenamin in an acid solution and in some cases the patient will have no reaction, literally no reaction, and yet they come and tell us that if any accident happens, it is because we have not used a chemically pure hydroxid solution or the patient has got a little lead from the glass or something of that sort. You have given him 4 or 5 grains of arsenic and yet they tell us he has died from an infinitesimal dose of lead.

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[13] Fischer, B.: Deutsch. med. Wchnschr. **41**: 965 (Aug. 12) 1915; abstr. J. A. M. A. **65**: 1147 (Sept. 25) 1915.

[14] Stokes, J. H.: Atropin and Induced Antianaphylaxis, J. A. M. A. **72**: 241 (Jan. 25) 1919.

Dr. Harold N. Cole, Cleveland: I would like to report two cases of dermatitis exfoliativa following the use of arsphenamin. In one case, the dermatitis developed after the last injection of a series of six given about two weeks apart. The other patient who had had six injections of the arsenobenzol brand of arsphenamin developed the exfoliative dermatitis about three days after the last injection. In both cases there was a high temperature, reaching to 104 F., and in the case of the male the temperature has persisted after all evidence of dermatitis has gone. In the female it had been present for about two weeks when I last saw her. There were no symptoms from the kidneys in either case, except a slight degree of albuminuria.

Dr. Henry Michelson, Minneapolis: I wish to supplement Dr. Cole's case. We had a patient in Dr. Sweitzer's service who developed an exfoliative dermatitis three days after the third treatment with the arsenobenzol brand of arsphenamin. We made a blood culture and found *Streptococcus viridans* and, therefore, thought that, instead of the injection, was the cause of the dermatitis.

Dr. Fred Wise, New York: I am sorry that I cannot give any definite figures, but after administering the arsphenamin in the Vanderbilt clinic in thousands of cases we have not seen one case of dermatitis resulting from its use.

Dr. William H. Guy, Pittsburgh: Dr. Pusey's remarks are certainly quite apropos, but he is not quite just in his criticism. When one meets with thirty-five reactions in thirty-five patients injected, and later uses 100 tubes of the same lot without reaction, proof positive of faulty technic or materials is at hand. I have attempted to be fair in all of my statements, and while I would not have you think that arsphenamin is fool proof, yet I do believe that this report amply supports my opinion that arsphenamin as marketed today is a comparatively safe product.

ARTERIOVENOUS ANEURYSM

REPAIR BY FREE VESSEL TRANSPLANTATION *

STERLING BUNNELL, M.D.
SAN FRANCISCO

The report which follows is one of an operation for arteriovenous aneurysm of the femoral artery at the junction with the profunda artery. In the operation, a free transplantation of vein was made.

REPORT OF CASE

History.—A private in the San Francisco base hospital in France four weeks previously had been shot by a machine gun bullet, which entered the right thigh, passed through the femoral artery and vein, then through the right pubic bone, through the bladder, and on out through the left buttock. For a few weeks the urine escaped through the left buttock, and then the fistula closed.

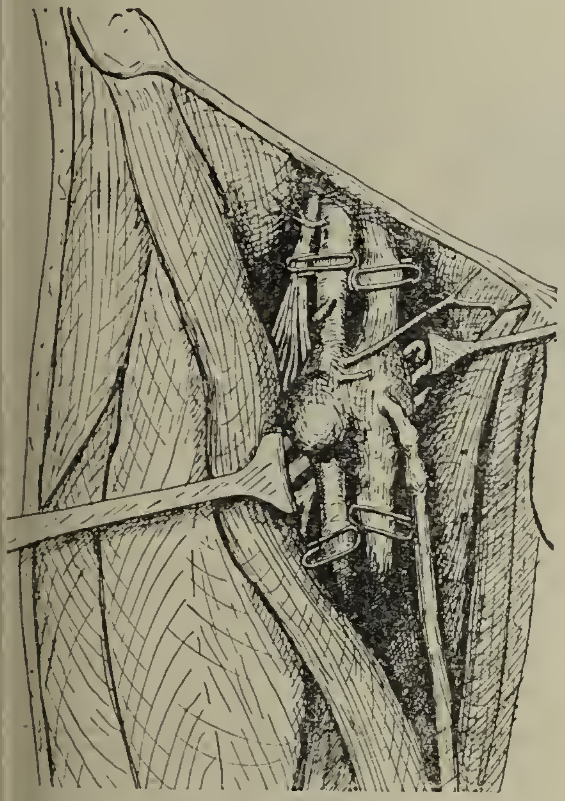

Fig. 1.—Condition of aneurysm as found. Profunda artery and vein enter sac posteriorly.

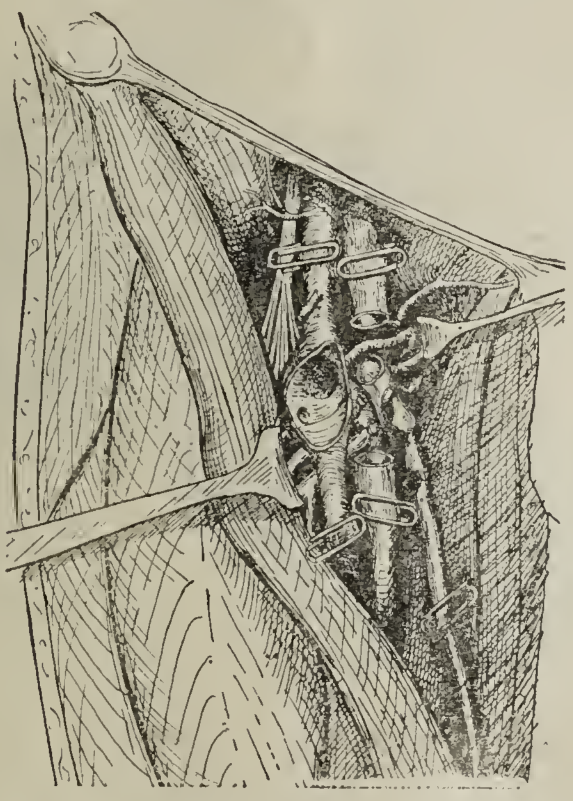

Fig. 2.—Condition of vessels confronting for repair. Through the opening in the femoral artery can be seen the mouth of the profunda artery. The cut ends of the internal saphenous, profunda and femoral veins can be seen.

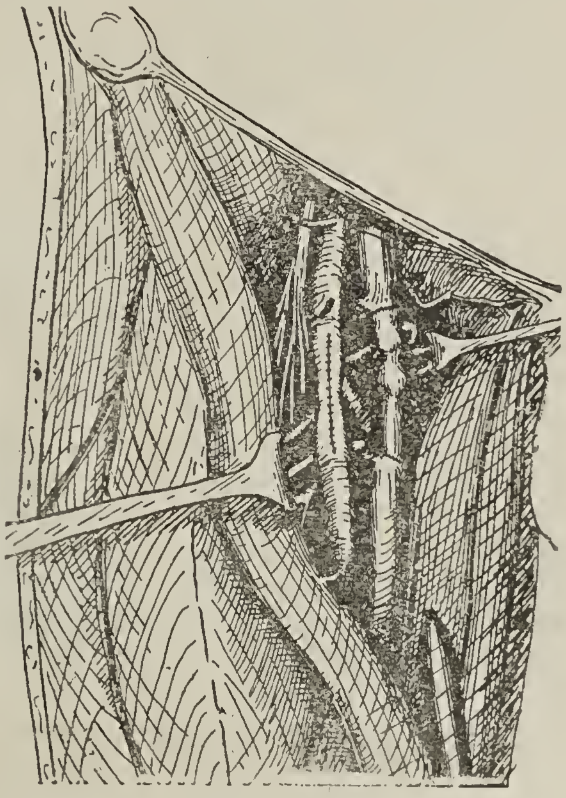

Fig. 3.—Completion of vessel suture, showing graft of internal saphenous vein with two valves into gap in femoral vein; lumen of femoral veins narrowed by suture for end to end suture with graft; lateral suture of femoral artery, and ligation of profunda vein.

Examination.—There was a red, expansile pulsating swelling 4 by 2½ inches, with considerable ecchymosis extending widely over the thigh. Pain was complained of. There was a strong thrill over the swelling, which was transmitted for several inches up the vein. A very loud and characteristic bruit could be heard, not only over the tumor, but also over the iliac vein, the abdominal vena cava, and even in the back over the thoracic part of the vena cava. It sounded like the puffing of a locomotive, and its distribution showed that the aneurysm was arteriovenous in type. There was, in the leg, no distention of the surface veins with transmission of the bruit and venous pulse, distally, as it was later found that there were two valves in the upper end of the internal saphenous vein, as shown in the graft in Figure 3. The color and warmth of the leg, when it was at rest, were normal; but there was no pulsation in the dorsalis pedis or posterior tibial arteries.

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* Owing to lack of space, this article has been abbreviated for publication in The Journal by omission of a review of the subject with comments. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

Prognosis.—From the large size of the aneurysm, a spontaneous cure could not be hoped for. The prognosis in such a case is bad. Though the disappearance of arteriovenous bruits in the external iliac and femoral veins has been reported, a spontaneous cure of arteriovenous aneurysm is rare, and not to be expected. A simple arterial aneurysm is much more likely to undergo spontaneous cure than is an arteriovenous one.

The dangers were: increase of size; pressure symptoms, such as occlusion of the vein and collateral vessels, with resulting gangrene; embolism; sudden and fatal hemorrhage, and inflammatory changes.

In an arteriovenous aneurysm, these complications, though always impending, are a little less likely to occur than in arterial aneurysms, because of the opening into the vein. The proximal vein furnishes an open exit for the arterial stream and also acts as a safety valve, protecting the sac to some extent from the poundings of the pulse wave.

In cases of arteriovenous aneurysms, nutritional changes eventually set in, and the circulation of the limb is not able to increase sufficiently when called on for work. There is a tendency to cyanosis, coldness, lymphedema and pain in the limb.

It is more dangerous to ligate the femoral artery above the profunda than below it. A ligation of the femoral artery below the profunda will usually, in a young man, not result in gangrene. If the femoral artery and the profunda are both ligated, gangrene of the leg is practically certain. It was necessary, therefore, in operating in the present case, to plan some plastic work on the vessel rather than ligations.

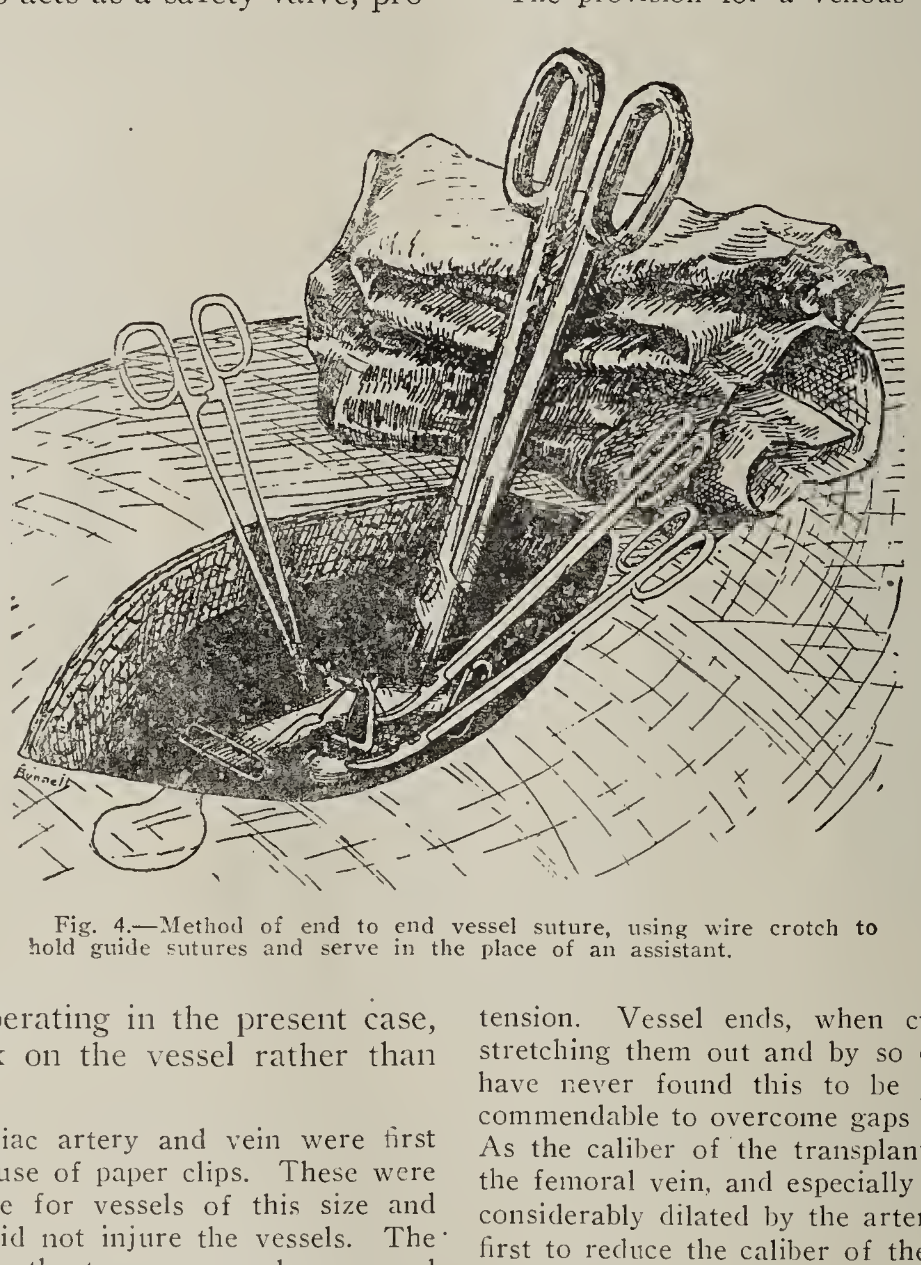

Fig. 4.—Method of end to end vessel suture, using wire crotch to hold guide sutures and serve in the place of an assistant.

Operation.—The external iliac artery and vein were first exposed and occluded by the use of paper clips. These were found to be entirely adequate for vessels of this size and gave a gentle pressure that did not injure the vessels. The femoral artery and vein below the tumor were also exposed and occluded by clips. The intermediate vessels, including the aneurysm, were then dissected out. Scar tissue of the bullet tract enveloped the aneurysm. There was a general fusiform swelling, an inch in diameter, of the femoral artery and vein. A saccule projected from the antero-external surface of the artery, and an opening 1 cm. in diameter joined the artery and vein (Fig. 1). In the course of the dissection several holes soon developed in the front wall of the aneurysm, which was of poor consistency; and it was necessary to keep a thumb on these holes to prevent copious hemorrhage. The vessel had been clamped above and below, but the blood would gush from the profunda artery and vein that came up directly beneath the aneurysm. As the thumb, which was preventing the hemorrhage, was held directly over the profunda vessels, the dissection and the clamping off of these vessels was impossible. This furnished a predicament which was difficult. Pressure on the abdominal aorta would stop the flow from the profunda artery, but not that from the profunda vein. It was necessary to excise the aneurysmal part of the femoral vein and to tie each of the six venous tributaries that came into the aneurysm.

In the femoral artery, the opening into the saccule and that into the vein were trimmed with scissors into one opening. The mouth of the profunda artery, as it emerged from the posterior part of the femoral artery, could be seen directly beneath the hole that was trimmed out in the femoral artery. Figure 2 shows the condition of the vessels at this stage. With No. 16 Kirby needles and No. 0-9 black silk, a lateral suture of the artery was made. This left only a slight constriction of the lumen of the artery, so that at this point the diameter was a little over half the normal. Suture, rather than ligature, is indicated, even if but one-third the lumen is retained. In this case, a transverse suture line was impossible, as the vessels could not be stretched longitudinally. On releasing the clamps on the artery (the distal one first), the blood stream was reestablished.

The provision for a venous return for the leg next confronted us. In this case, the profundus and internal saphenous veins were cut, and there was a gap of 1½ inches in the femoral vein, so that if ligated, gangrene would be the probable result. When a main artery is ligated, it has been found best to ligate also the accompanying vein. This gives a balanced circulation and less chance of gangrene. Conversely, when the artery alone is patent, it is necessary to reestablish also a venous return. Joseph Blake gives as an indication for amputation, in the case of a fractured femur, the occlusion of both femoral and internal saphenous veins.

A segment of 2 inches of the internal saphenous vein was excised and transplanted as a free graft between the ends of the femoral vein. The length was made ample to avoid tension. Vessel ends, when cut, retract. I have read of stretching them out and by so doing overcoming gaps, but I have never found this to be possible. Nor does it seem commendable to overcome gaps in vessels by flexion of joints. As the caliber of the transplant was much less than that of the femoral vein, and especially as the femoral vein had been considerably dilated by the arterial pressure, it was necessary first to reduce the caliber of the ends of the femoral vein by suturing half way across the lumen of each. Then, end to end unions, with the graft, were made (Fig. 3).

I believe it desirable to deviate, in suturing vessels, from the orthodox method, as laid down by Carrel, in not smearing the tissues with petrolatum. Petrolatum is objectionable in that it provokes the formation of serum in wounds, tends to prevent tissue surfaces from healing together and encourages infection. Instead of using petrolatum as a preventive measure against the clotting of blood, I use a 1 per cent. solution of sodium citrate, washing the vessels and keeping the field wet with it. I am confident of the merit of this deviation in technic, as with it I had uniform success in making free transplantations of vessel segments in dogs.

A mechanical aid, which greatly facilitates the delicate work of suturing vessels, is the small wire crotch, as shown in Figure 4. The guide sutures are held closely and steadily by it, so that the sewing is made easy. The hands of the assistant are not in the way, and the part to be sutured is free from the influence of their tremor. The crotch is held stationary and in a vertical position by the heavy clamp, which rests on the field, and the guide sutures are transferred from one crotch to the other as the suturing progresses. There is thus presented in turn, for suture, each of the three sides of the triangle. I prefer my original form of crotch,[1] though various adaptations of the principle have been published since my description of it.

Postoperative Result.—At the completion of the operation, the leg was somewhat cyanotic from the long time that the vessels were clamped. A pulse could be felt in the femoral artery distal to the part repaired.

In an hour the cyanosis cleared, and from then on the temperature, color and appearance of the two legs were equal. The thrill and bruit were gone, and did not reappear. The pulse could not, at first, be felt in the dorsalis pedis. This was evidently because the pulse wave was interrupted by the narrowing of the caliber of the artery at the suture line, as in a week the artery, having had time to dilate at its narrowed caliber, the pulse in the dorsalis pedis made its appearance and remained present. There were no subjective symptoms. In three weeks the patient was allowed to get up and go about, and his leg gave him no trouble. In a letter from him written May 5, 1919, five months later, he stated that since his operation he had had no circulatory trouble in his leg; that he had a complete absence of such symptoms in the leg as cramps, coldness, weakness, heavy feeling or pain, and that he was able to feel the pulse in the dorsalis pedis and posterior tibial arteries as well as in his normal foot. As an additional test of the circulation of the leg, an open wound, which he had through the dorsum of his foot, healed soon after the operation.

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[1] Bunnell, Sterling: An Aid to Vessel Suturing, Surg., Gynec. & Obst. **10**: 312 (Feb.) 1910.

BOTULISM FROM CANNED ASPARAGUS [*]

CHARLES THOM
RUTH B. EDMONDSON
AND
L. T. GILTNER
WASHINGTON, D. C.

Sickness and even death from the ingestion of spoiled food are repeatedly mentioned in the literature. Much of the information offered however is vague. The identification of the actual type of decomposition responsible for these cases has been usually incomplete. Such reports leave hope neither for relief from the suffering of the individual nor of proper safeguards against further poisoning. Recently the work of Dickson[1] followed closely by the report of Nevin[2] led to the identification of *Bacillus botulinus* as one cause of poisoning cases occurring in America. Botulism has been regarded as rare, apparently because the cases that occurred went unrecognized. The discussion in the literature, although presumably adequate, failed to identify the poisoning cases which actually occurred. A considerable series of such cases in man and domestic animals have been described by Dickson,[1] Dickson and Burke,[3] Burke,[4] Buckley and Shippen,[5] Shippen,[6] Graham, Brueckner and Pontius,[7] and Graham and Brueckner.[8] The toxicity occurrence and conditions of growth of *B. botulinus* are thus becoming better defined.

The study of actual material involved in such cases may be expected to furnish means for the detection and elimination of danger from such foodstuffs. In January, 1919, four persons died in Boise, Idaho, as a result of eating asparagus that was taken from the jars and served cold in a salad. A portion of this salad, three jars of asparagus canned in the same pack as that used in the salad, and the cap of one of the two jars whose contents were incorporated in the salad were secured by W. T. McCall, state club leader of Idaho, and forwarded for investigation to his chief, O. H. Benson, States Relations Service, Department of Agriculture, Washington, D. C. These were given to the Microbiologic Laboratory of the Bureau of Chemistry for study. Clinical reports of three of these cases follow:

REPORT OF CASES

CASES 1 and 2 (Report of Dr. S. M. Forney).—About noon of Jan. 8, 1919, I was called to see two colored people, a man and a woman. From the woman I learned: That morning both she and her husband awoke feeling normal. A few hours later he began to feel a choking sensation in his throat; his voice became husky and he had a feeling of weakness (paralysis) beginning in the feet and creeping upward. At the time I called (2 p. m.) he was unable to talk; but he could understand and answer by shaking his head. He had no pain; breathing was labored, pulse rapid. The wife was beginning with the same symptoms, but these were not as yet so marked. She complained of a choking sensation and swelling in her throat but was able to tell what they had eaten the night before, nothing since, etc. They were ordered to the hospital. Before the ambulance arrived the husband died and the wife died on the road to the hospital, apparently choked to death. There were seven negroes at the meal. Five ate asparagus, four of whom died within thirty-six hours. The fifth escaped though he ate heavily of asparagus. I saw only the husband and wife mentioned, but the others died as these did.

I afterward learned that the asparagus, which we suspected at the time, was home-canned, cold-pack method with single sterilization, and that at the time it was opened one woman remarked that it smelled spoiled. The host answered: "It can't be. I canned it myself."

CASE 3 (Report of Dr. H. M. Holverson).—In the case of C. H., she with a party ate of canned asparagus at 4:30 p. m., Jan. 7, 1919. It was noticed at the time of eating that the asparagus did not taste just right. No symptoms were noted until 9 o'clock of the following morning, when she first noted a sensation as though the tongue were swollen. She was not at all alarmed until 12 o'clock, when she heard that two others of the party were severely sick; then I was called.

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[*] Detailed results of the pathologic work will be published later by Dr. Giltner.

[*] From the Microbiological Laboratory, Bureau of Chemistry, U. S. Dept. of Agriculture, Washington, D. C.

[1] Dickson, E. C.: Botulism, an Experimental Study: A Preliminary Report, J. A. M. A. **65**: 492 (Aug. 7) 1915; Botulism: the Danger of Poisoning from Vegetables Canned by the Cold-Pack Method, ibid. **69**: 966 (Sept. 22) 1917. Botulism, a Clinical and Experimental Study, Monographs of Rockefeller Institute for Medical Research, 1918, No. 8.

[2] Nevin, Mary: A Study of Cheese Causing Three Fatal Cases of Botulism, read in abstract before Conference of Am. Pub. Health A., Sept. 8, 1915, Rochester, N. Y.

[3] Dickson, E. C., and Burke, Georgana S.: Botulism: A Method of Isolating Bacillus Botulinus from Infected Materials, J. A. M. A. **71**: 518 (Aug. 17) 1918.

[4] Burke, Georgana S.: Effect of Heat on the Spores of Bacillus Botulinus, J. A. M. A. **72**: 88-92 (Jan. 11) 1919.

[5] Buckley, J. S., and Shippen, L. P.: Preliminary Report on the Relation of Anaerobic Organisms to Forage Poisoning, J. Am. Vet. Med. A. **50**: 809-816 (1917).

[6] Shippen, L. P.: Toxin Formation by a Variety of B. Botulinus when Cultivated Aerobically under Various Conditions, Arch. Int. Med. **23**: 346-361 (March) 1919.

[7] Graham, R.; Brueckner, A. L., and Pontius, R. L.: Studies in Forage Poisoning, VI, Bull. 208, Kentucky Agric. Exper. Station.

[8] Graham, R., and Brueckner, A. L.: Studies in Forage Poisoning: The Relation of B. Botulinus to Forage Poisoning or Cerebrospinal Meningitis in Horses. J. Bacteriol. **4**: 1, 1919.

At the first call at 12 o'clock I found considerable paralysis of the glossopharyngeal nerve. The articulation was distinct, although it was an effort for her to talk. There was no disturbance of the vision except that objects appeared to move to the left side. She could walk but veered to the left for the reason, as given by her, that the objects for which she started seemed to move over to the left and she followed the objects. There was no pain. She had a settled conviction that she would not live. There was no distress of mind about her own condition. Her only worry seemed to be that her husband, who was present at the dinner party, might be taken sick on his car, he being a Pullman porter. I immediately placed her on drop doses of gelsemium. For about an hour there seemed to be some improvement.

At 3:30 p. m. the paralysis had progressed to such an extent that there was drooping of the eyelids and a feeling of slight numbness with tension of the right arm. All the muscles were involved, showing complete involvement of the right brachial plexus. Speech was much more labored, articulation distinctly thickened. Swallowing had become difficult, the gait had become distinctly swaying in character. The mind was clear; there was no distress mentally or physically.

At 5 o'clock the hypoglossal nerve had become affected; swallowing of liquids or solids was impossible. There was a continual flexing of the right hand and beating of the arm on the arm of the rocker in which she was sitting to relieve the feeling of deadness, as she described it, in the arm. The speech was very much thickened and required great effort, although she could deliver a full sentence at a time.

At 8 p. m. there was complete paralysis of the tongue. The paralysis of the muscles of the throat and face had progressed to such an extent that she could only whisper a word at a time. At this time there seemed to be a beginning of paralysis of the pneumogastric nerve. Breathing began to be labored, heart action was slow, being at this time about 50. The eyes could only be partly opened and that only by an effort of throwing back the head.

At 10 o'clock she ceased all efforts at speaking; the respirations were slow and labored, twelve per minute. The pulse was 40. From this point all respirations became slower with a sort of gasping sigh until 1:30 a. m., when death took place (Jan. 9, 1919).

There was no pain at any time, and the paralysis of the muscles of respiration did not give any distress in breathing, although it was labored. The patient's mind was clear at all times until she lapsed into unconsciousness, about 10 o'clock.

PREPARATION AND CONDITION OF THE ASPARAGUS

The following information as to the preparation of the asparagus was obtained from the daughter of the dead woman who had canned it. This daughter was not present at the fatal meal. The asparagus was washed thoroughly, cut into lengths, and allowed to stand overnight before processing. Most of the jars examined by Mr. McCall and others showed evidence of poor sealing; some were actively leaking. All of the lids had been previously used and the rubbers were of an unsatisfactory grade.

Examination of the three jars of asparagus and the cap submitted to this laboratory showed the contents of two of the jars slightly turbid, with the asparagus tips partially broken but without changes definitely attributable to spoilage. The cap of the third jar was badly swollen, showing that there had been considerable pressure, but there was no spurting of the liquid on opening. The contents were dark-green, much disintegrated and had a most offensive odor like that of butyric acid, which should have warned the consumer that the material was spoiled. Dried material which had leaked about the seal made the odor evident before the lid was removed. This odor would be commonly regarded as putrefactive. The small sample of salad had this odor along with others of decomposition. The separate cap from one of the jars whose contents made part of the salad gave this odor to a very offensive degree.

Even the casual examiner of this material could not have failed to detect its spoiled condition. The information obtained shows that one of the persons who made the salad remarked on its peculiar taste. Yet the asparagus was used and eaten, contrary to the opinion of Weinzirl[9] that food which is offensive or putrid is automatically discarded as unfit for human consumption.

The danger of even tasting a suspected foodstuff is clearly pointed out by Dickson's report[10] of the death of a woman after tasting 2 teaspoonfuls of canned corn as taken from the jar.

ORGANISMS ISOLATED

Microscopic examination of the salad, asparagus juice and washings from the extra cap in sterile water revealed among other organisms a large terminal-spored bacillus measuring from 0.6 to 0.9 micron by 2 to 6 microns resembling *Bacillus botulinus.* This organism has proved to be a strain of *B. botulinus,* and will be designated for convenience the "Boise strain." It was isolated from the foregoing materials in pure culture by inoculating small quantities (1 loop to 1 c.c.) of heated (80 C. for ten minutes) and unheated material into sheep's brain medium made as described by Burke.[4] Growth with the characteristic butyric acid odor was obtained after twenty-four hours' incubation at from 24 to 26 C. under anaerobic conditions. Shake cultures were then made in a series of deep glucose agar tubes, dilutions being made with a platinum loop. After colonies developing gas appeared, the tubes were filed about an inch below selected colonies, the agar cylinder was pushed free from the broken edge, the surface seared with a platinum needle, and the colonies were fished and transferred to sheep's brain broth and a special glucose beef infusion[11] broth, reaction 0.5 alkaline to phenolphthalein. There was some difficulty in adjusting the reaction exactly to 0.5 alkaline, owing to changes in the sugar during sterilization. After sterilization it was often found to be as highly acid as 1.5. To overcome this, sterile alkali was added aseptically after sterilization in the autoclave.

The bacilli as cultivated in the brain medium are large, from 0.5 to 0.6 micron by 2 to 6 microns, the average length being 3 microns. They have slightly rounded ends and occur singly or in pairs end to end. In glucose beef infusion there is a tendency to form short chains. Terminal spores are formed readily (within forty-eight hours) in the brain medium, but are delayed in the glucose beef infusion to about the third week. Good sporulation takes place in plain milk, but is somewhat delayed. The spores are wider than the vegetative cell, thus bulging it slightly, giving the characteristic club shape to the bacilli. Free spores are somewhat oval and measure from 0.9 to 1 micron by 1 to 1.3 microns.

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9. Weinzirl, John: The Bacteriology of Canned Goods, J. M. Res. **39**: 349-413, 1919.

10. Dickson, E. C.: Monograph 8, Rockefeller Institute for Medical Research, 1918, p. 24.

11. Van Ermengem, E.: Der Bacillus botulinus und der Botulismus, Kolle, W., and von Wassermann, A.: Handbuch der pathogenen Mikroorganismen, Jena, Ed. 2, **4**: 1909, 1912.

The bacilli are actively motile, having from four to eight peritrichic flagella[12] which were easily stained by the use of van Ermengem's[13] method. This stain also revealed the presence of a capsule, a fact not mentioned in the literature. The bacilli stain readily and evenly by the usual stains and are gram-positive. The organism is a strict anaerobe, but will grow in mixed culture with aerobic organisms, such as the white Sarcina (van Ermengem[11]) with yeast (Shippen[6]) and in our own experiments with *B. coli.*

Surface colonies on glucose agar in an atmosphere of hydrogen are small, being from 3 to 5 mm. in diameter, round to ameboid with nucleated center, whitish, slightly raised and glistening. Under low power the center is less finely granular than the remainder of the colony. Deep colonies are round to lenticular. The plates are often overspread with a fine cloudlike growth with an arborescent edge. Colonies develop slowly in from six to seven days at 25 C.; but at 37 C. there is good formation within three days. The organism grows best and produces its toxin at 37 C. contrary to the findings of van Ermengem with respect to his strain, but in harmony with other workers in this laboratory with cultures of the Nevin strain.

CHARACTERISTICS OF THE ORGANISM

The cultural characteristics in ordinary differential mediums are as follows: In plain and wort-agar-shake cultures there is very slight growth, but there is vigorous growth with gas formation in glucose agar; slight turbidity, afterward clearing up in plain standard broth and wort broth, with gas formation in the latter; glucose, lactose and sucrose broth are fermented, but with gas formation only in glucose; no reduction of nitrates; production of indol in tryptophan broth; no visible growth on potato; and gelatin is readily liquefied. The reactions in plain and litmus milk are interesting in view of those obtained by van Ermengem. He reports no change in milk. In our experiments there was a fine coagulum, peptonization beginning at about the fifth day and being completed at the thirteenth. Litmus milk showed a slight reddening, afterward decolorization and peptonization. There was no visible growth in either Uschinsky's or Raulin's solutions. The bacilli were grown in a 1 per cent. sugar yeast water medium for fermentation tests. The sugars were tested for acidity by adding a few drops of sterile litmus solution to each tube. There was slight acidity, but no gas in xylose, galectose, mannite, maltose, inulin, trehalose, rhamnose and glycerin. There was no gas and no acidity in dulcite.

The bacilli grow best in a medium that is slightly alkaline (0.5 alkaline has been the reaction of the mediums in our experiments), although it did grow and produce toxin in brain medium with a reaction of +2 to phenolphthalein and in plain glucose broth with an acidity of 2.0. Shippen[6] reported growth and toxin production in a sugar-free medium with an acidity of 3, and according to Dickson[1] a reaction of + 3.2 does not entirely inhibit production. The sheep's brain broth and a cooked meat medium[14] used in our experiment have usually been covered with a layer of neutral oil. However, the oil is not necessary, as good growth and toxin production was obtained without it by deep inoculation into the mass of finely divided animal tissue. Ordinary development also takes place in the closed arm of a fermentation tube without the oil stratum.

More than 200 laboratory animals have been used in testing the toxicity of this strain. Unfiltered and filtered broth cultures were fed (put directly into the throat by syringe) or injected subcutaneously, intraveneously or intraperitoneally into guinea-pigs, rabbits, white mice and rats. The majority of animals used, however, were guinea-pigs. In most of the experiments the minimum lethal dose of the toxin used for a 350 to 400 gm. guinea-pig was 0.001 c.c. of a filtered glucose beef infusion culture incubated six days at 37 C. The minimum lethal dose was determined by intraperitoneal injections of the guinea-pigs. The virulence of the toxin produced varies somewhat with the same medium. One culture incubated at room temperature (26 to 28 C.) for one month produced a toxin whose minimum lethal dose was 0.005 c.c. Another culture incubated at room temperature (35 C.) for twenty-eight days produced a toxin with a minimum lethal dose of 0.0001 c.c. This was the most powerful toxin obtained.

The experimental animals were watched carefully for symptoms, and postmortem examinations were made. Control animals were also carefully watched. The onset of the symptoms of poisoning began as early as from six to eight hours after injection in cases in which the dosage was excessive. With minute doses, symptoms appeared much later, in some cases from eighteen to twenty-four hours after injection and even as late as thirty-six hours afterward. They were briefly as follows: a general weakness followed by partial paralysis of either or both posterior and anterior extremities, dilatation of the pupils, dyspnea, laryngopharyngeal paralysis with loss of voice, inability to swallow, ptyalism and nervousness. Before death ensues, the animal lies flat on the abdomen with the head resting on the floor of the cage and all four extremities outstretched.

Necropsies disclosed few definite lesions. There was a general hyperemia of the internal organs as well as of the brain and meninges. In some cases hemorrhages have been noted in the lungs and in the abdominal cavity. In two cattle there were cardiac and intestinal hemorrhages. The formation of gas takes place after death very quickly in the stomachs of the animals. In several instances the stomach was ruptured.

Histologic sections by one of us (Giltner) from the lungs, liver, kidneys, spleen, brain and meninges showed evidence of thrombi in the blood vessels suggestive of Dickson's findings. In some of the vessels there were accumulations of leukocytes with an occasional fully formed hyaline thrombus. There was usually degeneration of the parenchymatous tissue in the liver and kidneys.

DETECTION AND ELIMINATION OF DANGER FROM FOODSTUFFS

From the experimental data accumulated in this study the following examples were chosen as having a more or less direct bearing on the detection and elimination of danger from foodstuffs:

The thermal death point of the organism was tested. Cultures of the Boise strain in the brain medium and glucose beef infusion showing an abundance of free spores were heated without pressure for varying periods of time at temperatures varying from 80 to 100 C. The organism survived heating to 100 C. for one hour, but failed to grow in subcultures from tubes heated for two hours. In a series of tubes under pressure, growth occurred in fifty per cent. of the tubes autoclaved at 10 pounds pressure for fifteen minutes, but no growth has been observed after using 15 pounds pressure for fifteen minutes. While there was no growth after thirty-six days in those tubes submitted to 15 pounds pressure for fifteen minutes, apparently proving the death of all spores, they are still under observation. Mrs. Burke[3] reports the retarded germination of spores heated at high temperature. She found that spores in the brain medium survived at 15 pounds pressure for ten minutes, the growth in subcultures being determined only after the fifty-third day. Our results show that the organism is sufficiently resistant to account for its survival in canned food.

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[12] Demonstrated with the aid of Miss Mary B. Bryan of B. P. I., U. S. Department of Agriculture.

[13] Van Ermengem, E., in Kolle and Wassermann: Handbuch der pathogenen Mikroorganismen **15**: 919, 1894.

[14] Described by Holman, W. L.: J. Bacteriol. **4**: 151, 1919.

A relative idea of the stability of the toxin produced by the Boise strain was determined by the application of heat as well as light. The filtrate of glucose beef infusion cultures (a diatomaceous filter of standard type was used to separate the bacterial cells from the culture medium) was heated in the water-bath to the following temperatures and held for the lengths of time described in Table 1 and guinea-pigs were injected to determine the virulence.

TABLE 1.—EFFECT OF HEAT ON TOXIN

Temp. C.	Time of Holding Minutes	Dose (Minimum Lethal Dose 0.001 c.c.) C.c.	Occurrence of Death in Animals
62	30	1.0	Within 22 hours.
64	45	0.75	Within 21 hours.
65	30	1.0	Within 8 days.
66.5	30	0.5	Within 21 hours.
68	30	0.45	Within 11 days.
70	0	0.4	Within 5 days.
70	30	0.75	1 of 4 guinea-pigs died within four days; other survived.
73	0	1.6	Within 25 hours.
73	10	1.6	Survived.
75	0	1.0	Survived.
75	5	1.0	Survived.
75	10	1.0	Survived.
80	0	1.0	Survived.
80	5	1.0	Survived.
Control untreated		1.0	Death in 18 hours.

From these results it is apparent that the toxin was attenuated somewhat by subjection to 68 C. for thirty minutes, as the guinea-pig lived over a period of eleven days. The toxin is destroyed at some point between 70 and 73 C. by heating for ten minutes. When the temperature reached 75 C., no appreciable period of heating was required to destroy it.

Cotton-plugged tubes of toxin were exposed to direct sunlight on a fire escape and to diffuse light in front of a window with a southern exposure for the time described in Table 2. Guinea-pigs were then injected to determine the virulence.

It is evident from these results that the toxin is highly resistant to the action of light since exposure to diffuse light for two months and to direct sunlight for two, three, four and twenty-four hours respectively, failed to diminish its virulence. Exposure to the direct rays of the sun for forty hours, however, destroyed the toxin.

In order to gain an idea of the concentration limits of sugar and salt on the growth and toxin production of this strain, a series of tubes of cooked meat medium with varying percentages of glucose and sodium chlorid, respectively, were inoculated and incubated at 37 C. for one week. Those cultures showing growth in the highest percentage were injected into guinea-pigs to determine toxicity. There was growth and toxin production (guinea-pigs died within twenty hours) in 35 per cent. glucose but not in 45 per cent. and in 5 per cent. sodium chlorid but not in 8 per cent. Control guinea-pigs fed the 35 per cent. glucose and 5 per cent. sodium chlorid solutions, respectively, showed no symptoms. These results, though preliminary, indicate the alarmingly wide range of growth for this strain of *B. botulinus.*

TABLE 2.—EFFECT OF DIRECT AND INDIRECT LIGHT ON TOXIN

Kind of Light	Time	Dose (Minimum Lethal Dose 0.005 C.c.) C.c.	Results
Diffuse	1 month	1	Death in about 28-29 hrs.
	2 months	1	Death in about 42 hours.
Direct sunlight	2 hours	1	Death in about 16 hours.
	3 hours	1	Death in about 16 hours.
	4 hours	1	Death in about 16 hours.
	24 hours	1	Death in about 36 hours.
	40 hours	1	Survived.
Control, same toxin, kept in sealed bottle in ice box.		1	Death in about 16 hours.

FOOD SPOILAGE UNDER ICE BOX CONDITIONS

Canned corn, peas, deviled ham, and tongue, canned Swiss cheese and sausage were inoculated in the center of the mass with the Boise strain and placed on a tray covered only with cheesecloth in an ice box at an average temperature of 12 C. Controls were kept at the same temperature. These foods were observed daily for physical signs of spoilage. After twenty-four hours the cheese smelled "off," but the odor was not typical of botulinus. After four days the peas had a peculiar odor, but, as in the case of the cheese, it was not typical of *B. botulinus.* After a week, both the control and inoculated foods showed mold. Small portions of these foods were taken from the extreme edge of the can and emulsified in physiologic sodium chlorid solution, heated at 80 C. for fifteen minutes and then transferred to glucose beef infusion to determine growth. The organism was recovered only from the Swiss cheese and the peas, the two foods that showed some signs of putrefaction.

This preliminary experiment shows that the organism can live and multiply in as low a temperature as 12 C., therefore foods set away in the ice box are not free from danger if *B. botulinus* happens to be present.

EFFECT OF THE SPORES OF THE BOISE STRAIN IN THE ANIMAL BODY

Cultures in glucose beef infusion showing free spores were freed from their toxin by heating at 80 C. for ten minutes. Animals inoculated or fed these cultures showed no symptoms. In another experiment the cells were freed from their toxin by washing in physiologic sodium chlorid solution. They were centrifuged twenty minutes at high speed seven different times. The supernatant liquid was pipetted off, fresh sodium chlorid solution was added and the cells were thoroughly separated after each centrifuging. The cells were allowed to stand twice in sodium chlorid solution for one hour intervals and after the last centrifuging were placed in the ice box over night. Two guinea-pigs and a rabbit when injected with these washed organisms died within seventy-two and ninety-six hours, respectively. Part of these same cells were then rewashed seven times (making fourteen in all) and inoculated immediately into guinea-pigs. These animals survived.

In another experiment cultures were washed seven times as before. Animals fed these washed organisms died within twenty-four hours. From these results it is apparent that cells may be successfully freed from their toxin by heating at 80 C. and by washing, but that washing the cells free is a very difficult matter.

The organism was recovered several times from the feces of the animals fed spores either freed from toxin by heat or by washing, and from the liver and spleen of animals injected with cultures. Colonization of the bacilli in the body has not been proved thus far, but the foregoing isolations from feces prove that the organism goes through the guinea-pig's body in twenty-four to forty-eight hours with undiminished virulence.

A few preliminary experiments on the agglutination and complement fixation reactions of the Boise and Nevin strains have been made, but thus far the results have been unsatisfactory. At this time a sheep and a horse are being immunized against the toxin of the Boise strain, for future experiments.

In testing the toxicity of this strain for larger animals, two dogs, four adult cattle, one hog and four chickens were used. Dog 355, weighing about 5 kg., was injected subcutaneously with 5 c.c. of toxin (minimum lethal dose 0.001 c.c.) and Dog 363, weighing about 20 kg., was fed 13 c.c. of the same toxin. The injected dog showed typical symptoms within forty-eight hours and died within four days. The fed dog survived. A month afterward the same dog (363) was given more toxin by mouth, the dose being 20 c.c. (minimum lethal dose 0.0001 c.c.). The dog survived, indicating a strong resistance to toxin taken by mouth.

Of the four cattle, two were injected and two were fed with toxin. Cow 422 was injected subcutaneously with 10 c.c. of toxin (minimum lethal dose 0.005 c.c.); Cow 344 was given 35 c.c. by mouth, and Cow 431, 40 c.c. by mouth of the same toxin. After nine days the cattle had showed no effects from the toxin. Cow 422 was then injected subcutaneously with 20 c.c. more of toxin (minimum lethal dose 0.0001 c.c.); Cow 344 and Cow 426 (no previous treatment had been given No. 426) received 20 c.c. of toxin subcutaneously. All of these cows succumbed, showing typical symptoms and postmortem findings. Cow 422 died in fifty-two hours, Cow 344 in seventy-three hours and Cow 426 in seventy-four hours. The only cow that survived was Cow 431, which was fed the toxin and received no injection.

A six months old hog (3245) was fed 30 c.c. of toxin (minimum lethal dose 0.005 c.c.). No symptoms were observed. Three weeks later the same animal was injected with 5 c.c. of toxin (minimum lethal dose 0.0001 c.c.) subcutaneously. Three days later the only symptom noted was a very slight incoordination of the hind parts; the animal otherwise appeared normal. One week after the treatment the hog succumbed with botulism. These results with the dogs, cattle and hog seem to indicate that they are resistant to the toxin when it is taken by mouth, but are not resistant when it is injected.

The four chickens were fed with varying amounts of toxin (minimum lethal dose 0.0001 c.c.). The first received 4 c.c., the second 1 c.c., the third 0.5 c.c., and the fourth 0.1 c.c. Those receiving 4 and 1 c.c. of toxin, respectively, died, the first in eighteen hours, the second in forty-six hours. The other two survived, showing no symptoms. These results indicate that the Boise strain when fed in large amounts is toxic for chickens.

COMMENT

Considered in its relation to poisoning from canned food, the results of this study are in the main consistent with the findings of Dickson[1] and Dickson and Burke,[3] but differ in marked respects from those of van Ermengem[11] and others who studied the organisms isolated from sausage in Europe. The Boise strain differs also from the Nevin organism as studied by Nevin,[2] Buckley and Shippen,[5] by DeBord of this laboratory, and from the findings of Graham and his co-workers[15] in the experiment stations of Kentucky and Illinois. The van Ermengem and Nevin organisms are easily killed, even in the spore form, by boiling. Such bacteria cannot be a factor in the spoilage of canned goods processed by any of the well-known methods. The Boise organisms, however, and certain of the organisms of Dickson may clearly be expected to survive occasionally in canned food processed by any of these methods. The discordant results obtained in our autoclave experiments have not been fully analyzed. The rate of penetration of heat into different mediums, the effects of varying hydrogen-ion concentration and the protective effect assumed to be due to some substances must all be considered in a complete analysis of the results. These factors are already being studied in at least two laboratories,[16] but the fact remains that the Boise organism, like the organism of Dickson and Burke, will at least occasionally survive any method of processing in which heavy steam pressure is not used.

Successful canning, so far as the danger from such strains as the Boise organism is involved, depends not so much on the method of work selected as on the rejection of infected material at the start. Dirty, wilted and partly rotted food carries multitudes more of organisms into the canning process than fresh, sound, clean fruits and vegetables. Dirty tables, dirty jars and lids, sewage-polluted water and flies are sources of contamination which should be eliminated. The material should be processed according to the best experience available. Finally, it must be frankly recognized that an occasional jar, or series of jars, may yet spoil because some factor escaped all these precautions. Such food should be destroyed, not salvaged, not fixed up into salads, mince meat or pie stock for human food. The toxin present may be destroyed by heating until jar, lid and rubber, as well as contents have actually reached the boiling point.

Typical spoiled cans are readily identified. Doubtful cases, however, occur frequently. A consumer unfamiliar with a particular product is frequently puzzled by its odor as it comes apparently sound from a can in good condition. Cooking, as recommended by Dickson, appears to be the practical method of destroying possible toxin in such material; even this, however, leaves the spores viable. Feeding suspected food to domestic animals, without safeguards, is clearly undesirable. Chickens, pigs and cattle survive when fed the Nevin organism in moderate amounts. Dickson's chickens, however, and some of those used in our experiments, died. The work of Buckley and Shippen[5] and the Kentucky[17] results show that the excreta of these animals are clearly a menace to other species, since horses died when fed the hen dung from experimental coops. In our experiments the organism was recovered from hen dung forty-eight hours after feeding, and was toxic for guinea-pigs. The organism has also been recovered in full toxin-producing power from the feces of guinea-pigs fed cultures freed from toxin by heating to 80 C. for ten minutes. Such recovery was possible within twenty-four to forty-eight hours after feeding, but has not succeeded after longer periods. Fecal contamination from such sources is, therefore, possible.

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[15] Compare references 7, 8 and 17.

[16] Thompson, G. E.: Temperature-Time Relations in Canned Goods During Sterilization, J. Indust. & Engin. Chem. **11**: 657, 1919.

B. botulinus is not the only heat-resistant anaerobe responsible for putrefactive spoilage. In the examination of many samples of spoiled canned food it has been necessary to depend on the animal experiments to identify those which were toxic. The examination of several lots of material has shown organisms closely resembling the Boise strain in morphology, heat resistance and physical evidences of spoilage, but without toxic effect when fed. In such a case of known history, for example, the spoilage of the jars of food was traced to the well water on the premises. Experimental packs in the well water exhibited typical spoilage in spite of scrupulous care in canning. A survey of the premises proved the contamination to be due to sewage from the household. In spite of its offensive odor, the experimental animals were not harmed by this material. Many such products are doubtless eaten without toxic effect.

Viable spores of an anaerobe find ideal conditions for development in a properly packed and processed can. Such a can presents conditions in which an obligate aerobe cannot develop. Hunter and Thom[18] found 224 out of 530 cans of salmon to contain living spores of a particular organism without evidence that this species had caused changes in the material after it was canned. In this particular work no strict anaerobes were isolated. Mrs. Obst[19] of this laboratory, however, found that anaerobic spore formers were abundant in the sardine canneries, and that, in spite of commercial precautions in processing, it was only necessary to incubate a few cans at 37 C. to obtain one or more "swells."

Careful examination of cultures of experimental packs, together with the known observations of persons connected with the Boise cases and the Newark cases,[20] clearly agree that canned food infected with either strain of this series is definitely spoiled food. It usually shows gas, marked disorganization, and an odor that is offensive and would be classed by most people as putrid. No careful observer can open typical cans without detecting their condition. Dickson in studying material infected by *B. botulinus* has recorded the same observations, but has established no correlation between the physical examination of canned goods and the safety of the consumer. On the contrary, he has issued a general warning against all home-canned food.

Our observations are in harmony with the conclusions of Rosenau,[21] who says: "All the cans examined by Professor Weinzirl and Dr. Cheyney have been eaten by the scientific workers at the experimental lunch club, and careful note of any effects has been made. Not the slightest symptoms have been produced. These favorable results were clearly predicated, for the kinds of bacteria and molds in merchantable goods are of the harmless sort." From this quotation it is clear that the Harvard investigators have selected canned food sound from physical examination and found it safe. It is equally clear that they did not consume food from cans that showed physical signs of spoilage. The application of their conclusions is strictly limited by the assumption put forward by one of them (Weinzirl[9]) that obviously spoiled or putrescent food will not be eaten. This premise has proved unsound in the two cases we have cited, because the food was offensive; it was eaten, and the consumers died. Unfortunately, there are many people who do undertake to salvage canned food which they know to be spoiled or in some stage of decomposition. The warning, therefore, is clearly not to avoid canned food, but to avoid spoiled food canned or uncanned, but especially if canned.

SUMMARY

1. The Boise poisoning case was due to canned asparagus spoiled by a strain of *B. botulinus* (Boise strain) whose spores survive 10 pounds pressure for fifteen minutes or 100 C. for one hour.

2. This strain has an optimum growth temperature of 37 C., high heat resistance, and hence approaches the characteristics given by Dickson for his No. III, but differs markedly from the organism of van Ermengem and the Nevin organism as studied by Shippen.

3. The toxin produced by the Boise organism is destroyed by heating to 75 C., or by heating for ten minutes at 73 C. The toxin varies in strength with changes in cultural condition. At the highest toxicity obtained, the minimum lethal dose for a guinea-pig weighing from 350 to 400 gm. was 0.0001 c.c. of a filtered glucose beef infusion culture incubated twenty-eight days at 35 C. and injected intraperitoneally.

4. Bacilli freed from toxin by washing or spores freed from toxin by heat do not produce symptoms of poisoning when fed or injected, but have been recovered in virulent form from feces of fed animals.

5. All cultures of the Boise organism have a characteristic and offensive odor which was clearly evident in the canned material connected with this case. This has been referred to as butyric but, certainly, in many foodstuffs would be inseparable from the putrefactive group of odors.

6. Decomposition occurring in a can or jar properly packed, exhausted and sealed is necessarily anaerobic. When physical evidence of such decomposition is present, the material should be destroyed, not eaten.

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[17] Graham, R., and Himmelberger, L. R.: Studies in Forage Poisoning, Report U. S. Live Stock Sanit. As. **19**: 22-42, 1915; Studies in Forage Poisoning, J. Comp. Path. and Therap. **29**: 107-116, 1916; Studies in Forage Poisoning, J. Infect. Dis. **19**: 385-394 (Sept.) 1916.

[18] Hunter, A. C., and Thom, Charles: J. Indust. & Engin. Chem. **11**: 655, 1919.

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Clinical Notes, Suggestions, and New Instruments

THE WALCHER POSTURE VERSUS CESAREAN SECTION

H. F. Biggar, M.D., Cleveland

Is it not surprising how many cesarean sections are being performed by the younger class of obstetric surgeons? An obstetric surgeon reports that, though he has not been in practice more than ten years, he has already passed his one hundred and fiftieth cesarean section. It may be questioned whether the conditions warrant the operation. Has not nature perfected the proper way for normal birth?

Cesarean section is justifiable only when the following conditions are present; contracted, deformed or diseased pelvis; placenta praevia; eclampsia; fibroid tumor; kyphosis; osteosarcoma of the pelvis; hypertrophic elongated cervix; uterine fibroma; malignant disease of the cervix uteri; face presentation with chin directly posterior; funnel pelvis; inoperable carcinoma of the uterus; presentation of the head, cord and foot; atresia of the vagina; deformities of fetus of abnormal development, including the hydrocephalic fetus; ruptured uterus; hydramnios; suppurating ovarian cyst; double uterus; adherent placenta and ruptured uterus; Bright's disease; difficult labor after ventral fixation of the uterus; scar of old operations for other conditions; vaginal occlusion; dyspnea; cyanosis; anasarca and albuminuria; dermoid cyst of the pelvis; malignant ovarian tumor: labor with impaction; rigid os; pendulous abdomen; malignant disease of the rectum, and anteversion of the gravid uterus.

Why not try the Walcher posture before using the knife? I have found this posture sufficient in quite a number of patients, even though cesarean section was advised by reputable surgeons, and the patients were willing to submit to the operation.

THE WALCHER POSTURE

The patient is placed in the decubitus position on a table with one end so elevated that the nates project well over the edge, the legs hanging perpendicularly, the feet not touching the floor. When the head presents in the soft parts the end of the table is lowered so that the top is level. The patient is then put in the extreme lithotomy position and delivered with or without instruments. This position increases the diameter of the superior strait of the pelvis one-quarter inch or more.

TYPHOID FEVER TRANSMITTED THROUGH THE BREAST MILK OF THE MOTHER

REPORT OF A CASE IN AN INFANT OF EIGHT MONTHS*

Henry Heiman, M.D., New York

March 19, 1919, there was admitted to the adult medical service, at Mount Sinai Hospital, a nursing mother suffering from typhoid fever. Two days later the patient's baby was brought to the pediatric service, afflicted with the same malady. A bacteriologic study of the mother's breast milk disclosed the presence of typhoid bacilli.

HISTORY OF THE MOTHER'S CASE

The patient was a married woman, aged 29, whose family history and past history were quite negative except for an attack of influenza six weeks previously. Two weeks before admission to the hospital she suffered an onset of pain in the lower back region, headache, fever and chills. There was no epistaxis. Diarrhea had been present for several days. The patient was found acutely ill, restless and actively delirious. The lower pole of the spleen was felt 3 inches below the costal margin. Definite rose spots were present. The pulse was dicrotic. The temperature while the patient was in the ward showed a typhoid curve, gradually falling in the fifth week of the disease from 105 F. to normal. The blood showed a leukopenia, the white count being 4,200 with 68 per cent. polymorphonuclears and 32 per cent. lymphocytes. The blood culture showed the presence of typhoid bacilli, and the Widal reaction was positive. A culture of the breast milk revealed the presence of actively motile bacilli corresponding in every respect to the typhoid organism.

HISTORY OF THE INFANT'S CASE

The patient was an infant, aged 8 months, whose birth history was perfectly normal. It had been breast fed until two weeks before admission to the hospital, having been weaned because of the mother's illness. There had been no previous illness or physical defect. Four weeks before the admission to the hospital there had been an onset with a rise in temperature to 101 F., but the infant seemed as well as usual. In ten days it had apparently recovered entirely. Then there followed a sudden rise of temperature to 105. Both ear drums were incised, but the fever continued. There was no vomiting or diarrhea. There were no convulsions. The baby appeared acutely ill, with rapid respirations, and flushed cheeks. There were no rose spots. The spleen was enlarged, the lower pole being felt 1 inch below the costal margin. The rest of the physical findings were negative. The blood count was 8,000 white cells, with 74 per cent. polymorphonuclears and 26 per cent. lymphocytes. The blood culture showed the presence of typhoid bacilli, and the Widal reaction was positive.

COMMENT

We have found the experience worthy of report because of its very unusual occurrence. We have been unable to find any similar record in the literature. In one case however, reported by Lawrence,[1] typhoid bacilli were found in the breast milk in a nursing mother of 23, ill with the disease. But in this instance the infant escaped infection.

64 West Eighty-Fifth Street.

Idiosyncrasy to Quinin.—About six years ago I drove 6 miles into the country to see Miss O. B., aged 14, who had clinical symptoms of malaria. I left for her quinin sulphate in 3 grain capsules. Within two hours a messenger came for me, and I found her with hands, face and feet swollen, rapid, difficult breathing, and a sense of suffocation and weakness. These symptoms were followed by burning and itching all over, especially within the nose and ears. The symptoms gradually disappeared. The patient had taken 3 grains of quinin. One year later the patient took one of the much advertised L. B. Q. tablets for a cold. Within an hour or two she fainted, falling on the floor, and otherwise had symptoms as in the former case. Three years ago a Mobile physician prescribed I., Q. & S. Elixir. Suspecting quinin, she took only 15 drops. Within two hours she was suffering as before. Two years ago she filled some capsules with quinin for her father. She did not taste it, but unconsciously rubbed her lip. The lip swelled as thick as a negro's, and she had slight constitutional symptoms. Two years ago she married and preceding a recent confinement she had several attacks of fever lasting several days each time and resembling malaria. After a number of trials we found the tertian parasite, but gave her no quinin. Following confinement about ten days, I gave her a tonic, containing one-sixteenth grain of quinin to the dose. The first dose produced all the symptoms detailed in the first instance. The patient is a large woman, weighing 200 pounds. As a small child her mother often gave her quinin without any ill effect.—M. A. Fort, M.D., Grand Bay, Ala.

Warning Against Fly Paper.—An exchange mentions that the Public Health Service in Germany has issued a warning against brands of fly paper which contain considerable arsenic and might prove fatal if it fell into the hands of young children. It is advised to use fly paper that has been made with quassia as this would deter children from touching it, while the content of arsenic is less.

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* Read before the thirty-first annual meeting of the American Pediatric Society, Atlantic City, N. J., June 18, 1919.

[1] Lawrence, C. H.: Boston M. and S. J. **151**: 153 (July 29) 1909.

THE JOURNAL OF THE
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SATURDAY, SEPTEMBER 20, 1919

SPOILED CANNED FOOD

The necessity for preserving perishable foods from the season when they are produced in overabundance to the months when they are scarce is so evident in these days as to require no justification. In all civilized countries, commercial processes of preservation by heat and by cold have become highly developed and are extensively used. During the past few years, household methods of canning and preserving have been especially urged on economic grounds and have been widely put in practice. As one result it has become a familiar experience in many households that some of the domestically canned foods undergo spoiling after the lapse of a few weeks or months. The commercial canners of food on a large scale have similar experiences and sometimes have cans that are "swelled" or "sour" thrown back on their hands. The question has often been raised as to the dangers to health involved in the spoiling of heat-preserved foods, and now the answer to this question seems to be slowly shaping itself.

When canned goods spoil it is pretty evident that either the heating has not been sufficient to destroy the germs originally present or that the container has leaked and allowed germs to enter with the air. In the latter case decomposition may be caused by yeasts, molds, or the ordinary bacteria of dust; in the former the surviving germs are practically certain to belong to the class of spore-formers. The heat-resistant spore-formers may in turn be divided into two groups, the aerobes and the anaerobes. The spore-forming aerobes found in insufficiently processed canned foods seem to belong largely to the *B. subtilis* or *B. mesentericus* groups, and as yet no injurious effect seems to have been laid at their door. This was perhaps to be anticipated, since organisms of these groups have rarely evinced pathogenic properties and since these aerobic organisms, even if they survive the heating, are not able to develop in hermetically sealed cans.

On the other hand, the spore-forming anaerobes constitute a group, many members of which are highly pathogenic for man and the domestic animals, and some of which, notably *B. botulinus,* have been definitely implicated in cases of food poisoning. It has become increasingly evident that one of the main dangers from botulism in this country is the use of food that has been insufficiently heated in the attempt to preserve it. This has been clearly brought out in Dickson's monograph on botulism,[1] and is further illustrated by an important article in this issue of The Journal.[2] The latter investigators lay stress on the fact that in the case reported by them the food was patently spoiled when eaten, and make the somewhat sweeping statement—in the body of the article—that there are "many people who do undertake to salvage canned food which they know to be spoiled or in some stage of decomposition."

The recent studies on botulism appear to establish the interesting fact that there is a wide range of heat resistance among the various strains of *B. botulinus,* and that the organism originally discovered by Van Ermengem and described under this name did not have the same biologic qualities as those manifested by several of the strains of *B. botulinus* isolated in this country. The organism described by Van Ermengem did not grow at 37 C. and had a low heat resistance. The Boise strain isolated by Thom and his associates[2] has an optimum growth temperature of 37 C., and its spores survive steaming under 10 pounds pressure for fifteen minutes or a temperature of 100 C. for one hour. It is evident that the conditions under which home canning is generally carried out will not always insure the death of these heat-resisting strains of *B. botulinus.*

Thom and his associates are inclined to attach considerable importance to the putrefactive odors emitted by the strain of *B. botulinus* with which they have worked. Earlier writers have described the odor of *B. botulinus* cultures as sharp or butyric, but it is evident that some, at least, of the foods in which this organism has grown (in pure culture) are offensively putrefactive. The practical deduction that is drawn is that canned food presenting physical evidence of decomposition should not be eaten. This seems reasonable enough, and it is a rule that is probably followed instinctively in the majority of cases, although there will doubtless be occasional exceptions.

At the present time, it is plain that botulism is disturbingly frequent in the United States (apparently no case has ever occurred in Great Britain), that foodstuffs canned in the household are especially implicated in the causation of botulism, and that canned foods contaminated with *B. botulinus* usually, perhaps always, manifest physical signs of spoiling. Spoiled canned food has long been recognized as potentially dangerous; we can now estimate certain sources of danger much more precisely.

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1. Dickson: Monograph 8, Rockefeller Inst. for Med. Research, 1918.
2. Thom, Charles; Edmonson, Ruth B., and Giltner, L. T.: Botulism from Canned Asparagus, this issue, p. 907.

DO AMERICANS NEED MORE CALCIUM?

Professor Sherman of Columbia University, who has devoted much attention to the inorganic metabolism of man, has come to the conclusion that "the ordinary mixed diet of Americans and Europeans, at least among dwellers in cities and towns, is probably more often deficient in calcium than in any other chemical element." [1] This statement is rendered additionally significant by the fact that calcium constitutes about 2 per cent. of the body weight, a proportion larger than that of any other of the inorganic elements found in the organism. In the case of the growing individual, lime must be provided for the normal development of the bones, which include 99 per cent. of this element. The pregnant mother needs calcium for the rapid increment of the fetus; and during lactation she has a similar requirement for the production of a secretion, milk, which is exceptionally rich in it. The tendency toward a shortage of calcium is not confined to the human species. Forbes,[2] of the Ohio Experiment Station, has summarized the available information to show that liberal milk production in cattle involves a certain degree of impoverishment of the skeleton in mineral substance; that rations which contain no leguminous roughage are apt to be definitely lacking in mineral nutriment, especially calcium; that the response of heavily producing cows to liberal intake of mineral nutriment is remarkable for its efficiency, it being apparently impossible by any method of feeding entirely to prevent loss of calcium, at least during the early part of the period of lactation, and that the mineral constituents of the skeleton appear to be more readily available for use in milk secretion than are nutrients directly absorbed from the ration.

The seeds, such as are represented by the numerous cereals and their milling products that enter largely into our present day diet, the roots and tubers, and the various meat products probably constitute more than three quarters of the food intake of the average adult American. All of these food materials are comparatively poor in calcium. In referring to this deficiency, McCollum, Simmonds and Parsons[3] of the School of Hygiene at Johns Hopkins University regard it as so pronounced that they are of the opinion that "even in those human dietaries in which such calcium-rich foods as milk are used in fair liberality, the intake of calcium may be still below the optimum, and that a direct addition of this element in the form of the carbonate or lactate might be of distinct benefit in human nutrition except perhaps in those regions where the water is unusually rich in calcium salts."

Oscar Loew long since suggested the addition of calcium salts to the dough from which bread is baked. During the war, several European investigators have formulated similar advice in the belief that even when the daily losses of lime are inconspicuous, long continued deficits in the human calcium balance may be a disadvantage. The average daily calcium requirement has been estimated as a little less than 0.5 gm. per man. One pint of milk will furnish this quantity; but aside from this food, the menu of American homes offers relatively few opportunities to satisfy the human need. Admitting, as we now freely may, that the calcium requirement can be satisfied directly by inorganic salts,[4] it remains to be determined whether the unfortunate poverty of American dietaries in milk should not be artificially compensated for. McCollum and his collaborators[3] remind us that since civilized man usually adds sodium chlorid to his foods to suit the taste, the shortage of sodium and chlorin in the diet of man presents no problem. They propose that an addition of calcium could be most conveniently made to our foods through the use of a mixture of equal parts of common salt and of calcium carbonate in the kitchen and on the table. This suggestion deserves a sympathetic hearing.

THE ETIOLOGY OF PANCREATITIS

The common association of inflammatory enlargement of the head of the pancreas and disease of the bile tracts appears to indicate a relationship between the two conditions. It has generally been assumed that bile tract disease is primary and that the pancreatic affection is in some way a result or complication of the primary biliary infection. The question, therefore, in the minds of most investigators of this subject has been as to the modus operandi of this relationship.

Deaver, of late years, has been the champion, in America, of the theory of the lymphatic transmission of infection from the gallbladder to the pancreas. His conception is based largely on clinical experience and may be stated as follows:

> The gallbladder, bile ducts, pyloric region of the stomach and the second part of the duodenum, through their efferent lymph channels, are placed in intimate relation to the head of the pancreas, and it is the head of the pancreas that is most frequently involved in pancreatitis associated with other upper abdominal diseases. The course of infection has time and again been observed at the operating table in gallbladder disease. Inflammation of the gallbladder is followed by enlargement of the cystic lymph glands, periductal lymphangitis, enlargement of the glands at the head and the margin of the pancreas and often of the regional lymph channels at the head of the pancreas. Induration of the head of the pancreas about the common duct is present in 35 to 40 per cent. of disease of the gallbladder. . . . The first stage of chronic pancreatitis is nearly always disease of the pancreatic lymph glands.[5]

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[1] Sherman, H. C.: Chemistry of Food and Nutrition, New York, The Macmillan Company, 1918, p. 262.

[2] Forbes, E. B.; Halverson, J. O., and Morgan, L. E.: The Mineral Metabolism of the Milch Cow, Third Paper, Bull. 330, Ohio Agricultural Experiment Station, September, 1918, pp. 91-134.

[3] McCollum, E. V.; Simmonds, N., and Parsons, H. T.: A Biological Analysis of Pellagra-Producing Diets, VI, Observations on the Faults of Certain Diets Comparable to Those Employed by Man in Pellagrous Districts, J. Biol. Chem. **38:** 113 (May) 1919.

[4] Osborne, T. B., and Mendel, L. B.: The Inorganic Elements in Nutrition, J. Biol. Chem. **34:** 131 (April) 1918.

[5] Deaver: Pancreatic Lymphangitis, Surg., Gynec. & Obst. **28:** 433 (May) 1919.

A second theory as to the cause of pancreatitis is based on the results of numerous experiments in which it has been shown that lesions of the pancreas in every way similar to those found in man may be produced in animals by the injection of various substances, particularly bile and the bile salts, into the pancreatic ducts.[6] The importance of these observations was emphasized by the report of a necropsy by Opie, later duplicated by others, in which a small gallstone in the common duct beyond the point of entrance of the pancreatic duct caused bile to flood the pancreas, producing the typical clinical and pathologic picture of acute pancreatic necrosis.[7] It should be remembered, however, that frequently in cases of pancreatitis there are no lesions of the bile tracts to account for the pancreatic disease. Thus, Archibald and Mullaly found neither gallstones nor cholecystitis in more than 50 per cent. of thirty-four cases of pancreatitis.[8]

There are, therefore, a number of cases in which none of our current theories of the etiology of pancreatitis are satisfactory. Archibald has recently offered experimental evidence, in the rediscovery of the sphincter of Oddi, which promises to remedy our lack of knowledge in this respect.[9] Oddi, in 1888, demonstrated the common duct sphincter and studied its physiology, showing that it could be made to contract reflexly in response to a variety of forms of irritation of surrounding viscera with sufficient force to resist the pressure of 50 mm. of mercury. Archibald has confirmed this work, which previously had escaped attention, and added the observation that bile, forced from the gallbladder under pressure which the duct sphincter can be stimulated to resist for a period of minutes, may find its way into the pancreas and there cause almost any grade of pancreatitis the experimenter wishes to produce, from the chronic fibrous type to the fulminating variety with death in a few minutes.

Normal bile is relatively innocuous. As pointed out by Flexner, the mucus of normal bile seems to reduce the irritative properties of the bile salts through its action as a colloid. Bile from which the mucus has been partially or wholly removed, or in which there has been a marked increase in the proportion of bile salts, is intensely toxic to the pancreas and capable of producing rapid, widespread necrosis of the pancreatic cells.

In the light of Archibald's contribution we now seem to know the chemical and mechanical factors necessary to explain satisfactorily the production of all grades of pancreatitis. However, we lack knowledge of the conditions under which these factors are produced. Changes in the composition of the bile may result from the presence of calculi (which themselves are usually indicative of the presence of low grade infection) and from frank infection. Changes in bile pressure may result from reflex spasm of the sphincter due to hyperacidity or the irritation of gastric or duodenal ulcers; from sudden blocking of the ducts by stone or inflammation, or even from an increase in the rate of bile secretion. The exact relationships here remain to be elucidated.

Archibald takes exception to the idea that pancreatitis ever occurs by retrograde transmission of infection through the lymphatics from the gall tracts to the pancreas. He points out that peripancreatic lymphangitis and lymphadenitis in cases of pancreatitis are probably the results of the pancreatitis rather than its precursors. While the argument seems to be sound, backed as it is by the results of very careful experimental work, it probably would be premature to discard the lymphatic theory altogether. The question deserves at least further study.

THE IMMUNITY OF CITY-BRED RECRUITS

The existence of large bodies of men mobilized in various army camps where they were subject to systematized medical supervision during the past two years has furnished unique opportunities for gathering statistics on an unprecedented scale with respect to the incidence of certain forms of disease. Frequent medical inspection of thousands of men is an uncommon experience, at least on the scale which the preparation for war made possible in the United States. The conclusions afforded by the wealth of data obtainable from such sources are likely to be far more tenable than those drawn from comparatively few cases, however carefully they may be studied.

According to figures recently compiled by Love and Davenport[1] in the Section of Medical Records of the Medical Department of the U. S. Army, it appears that the prevailingly rural camps had at least 25 per cent. more cases of influenza, 10 per cent. more pneumonia, 10 per cent. more deaths and 30 per cent. higher admission rate for all sickness than the prevailingly urban camps. The army experts conclude, therefore, that in the influenza pandemic, rural troops suffered more than urban troops.

This thesis offers an interesting theme for speculation as to the possible causes of this unlike morbidity. To the person accustomed to hear sung the praises of the healthfulness of country life in America, the figures may come as a surprise. The first hypothesis to account for the recorded facts assumed that recruits coming from densely populated regions are immune from a given disease because they have already had the disease. However, Love and Davenport have pointed out that while such an explanation might apply to measles, it does not apply generally. Thus they state that cerebrospinal meningitis is scarcely so frequently encountered in early life as to warrant the assumption that the soldiers from the immune areas had acquired immunity from the disease by having had it in their youth. The hypothesis that the immunity is due to the selective elimination of the susceptibles likewise encounters fundamental contradictions.

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[6] Flexner: The Constituent of the Bile Causing Pancreatitis and the Effect of Colloids on Its Action, J. Exper. Med. **8**: 167 (Jan.) 1906

[7] Opie: The Etiology of Acute Hemorrhagic Pancreatitis, Bull. Johns Hopkins Hosp. **12**: 182 (April, May, June) 1901.

[8] Archibald and Mullaly: Some Observations on the Diagnosis and Treatment of Subacute and Chronic Pancreatitis, Canadian M. A. J. **42** n. s. **3**: 87 (Feb.) 1913.

[9] Archibald: Experimental Production of Pancreatitis, Surg., Gynec. & Obst. **28**: 529 (June) 1919.

[1] Love, A. G., and Davenport, C. B.: Immunity of City-Bred Recruits, Arch. Int. Med. **24**: 129 (Aug.) 1919.

The most probable suggestion thus far advanced assumes that recruits coming from large cities or other densely populated areas have acquired a general immunity to infectious or communicable disease. In the words of Love and Davenport, it assumes that "any one of the communicable diseases leaves the body in a state of heightened resistance to all microparasites, possibly through a condition of persistent hyperleukocytosis." We shall not enter here into the facts of epidemiology which might be cited in support of such a conviction. Even though it be true that after an epidemic year communities will be exceptionally free from epidemics for a year or two, we shall not be inclined in these days to follow the method, once not uncommon, of exposing children to the danger of certain epidemic diseases for the sake of the subsequent immunity that they might thus acquire.

Current Comment

THE DISCOVERY OF THYROXIN—AN AMERICAN RESEARCH

Persons who deal with so-called "practical" affairs, and employ the routine agencies and materials of their vocations or professions, are singularly prone to overlook the labor involved in perfecting what they utilize so effectively. In the hands of the physician, for example, a seemingly simple manometer is made to tell the story of blood pressure in a few minutes; or a complex chemical compound is prescribed with the assurance that it will accomplish a definite therapeutic purpose—in each case usually without any realization of the scientific efforts preliminary to the final success. Scientific research would receive a more respectful consideration if its necessity for present-day practice were more definitely appreciated. This prelude is the occasion for reference to some details recently published with respect to the discovery by Kendall[1] of the active iodin compound of the thyroid gland. We have already referred in The Journal to some features of thyroxin, as the compound has been designated briefly, and its potent physiologic properties. The investigation of the chemical constituents of the thyroid was begun by Kendall in 1910 at the pathologic department of St. Luke's Hospital, New York. Thyroxin was first isolated as a chemical entity in December, 1914. Since then many grams have been prepared at the Mayo Foundation laboratories in Rochester, Minn.; in fact, about 33 gm. have been separated from more than three tons of fresh thyroid material. The structural formula, indicating it to be trihydro-triiodo-oxy-*beta*-indolpropionic acid was determined in the summer of 1917. Osterberg succeeded in synthesizing thyroxin with its 60 per cent. of iodin in December, 1917; and the synthesis and formula have since been confirmed by Kendall. Minute doses, represented by a few milligrams, of thyroxin show the characteristic stimulation of metabolism in man that thyroid medication is known to bring about. Kendall believes that the active chemical groups in thyroxin are essential to the production of energy in the body.[2] American science may take pride in the successful outcome of nearly a decade of patient effort in the laboratory directed to the unraveling of the chemical mystery of the potent thyroid. It is a story of persistent trials in the face of many discouraging incidents. The history of thyroxin, in its early chapters now written where all may study it, furnishes an excellent illustration of that "diligent inquiry and laborious, persistent search of truth" which the dictionary designates as research.

THE JOURNAL OF DENTAL RESEARCH

The *Journal of Dental Research,* which has recently begun its career as a journal of stomatology, "devoted to the advancement and dissemination of knowledge pertaining to the mouth and teeth and to their relation to the body as a whole," represents a distinctly new venture in the field of dentistry. Hitherto the publications dealing with this subject have either been accustomed to limit themselves to news and society transactions or been dominated in most cases by the influence of commercial houses. Professor Gies of Columbia University, an ardent champion of independent journalism in science, has remarked in a prefatory note:

> Dentistry has been asleep in the field of original literature, narcotized by a system of dominant trade journalism that has been notable in the history of dentistry for commercial efficiency, professional obtundity, and unlimited superficiality —a system of journalism, which, because of its general acceptance and approval by dentists, has demoralized the spirit and impoverished the imagination of dentistry; a system of journalism that has been completely eliminated from respect and influence in every other profession, because of that system's inherent insincerity, unreliability, and selfishness.

Two numbers of the new journal have already made their appearance under the editorship of a group of American investigators whose names guarantee adherence to better ideals. An innovation consists in the publication of abstracts or interpretations of the original matter in each communication so that it may be made also to appeal in "practical terms" to those less well equipped to appreciate the niceties of more highly technical research. Furthermore, the editorial office maintains a Bureau of Information on Dental Research for the assistance of dentists who may wish to avail themselves of knowledge and experience which the board of editors may have. It is hoped to support this worthy undertaking by the establishment of a suitable endowment fund. The *Journal of Dental Research* is practical evidence that a new spirit—a scientific spirit —is now permeating the dental profession in this country. Until recently, practically all dental journals were of the "house organ" class. Such journals cost the recipient little or nothing, and scientifically are worth just what they cost!

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[1] Kendall, E. C.: Isolation of the Iodine Compound Which Occurs in the Thyroid, J. Biol. Chem. **39**: 125 (Aug.) 1919.

[2] Kendall, E. C.: Endocrinology **2**: 93, 1918.

THE TEMPERATURE OF THE SKIN

The temperature of the human body is commonly regarded as one of the constants of the normal organism. Probably no measurement of bodily manifestations or functions is made as frequently by the physician as is the estimation of body temperature with the clinical thermometer. The clinician recognizes, in contrast with most laymen, that the temperature of normal persons as commonly measured may show a diurnal range of variation of approximately one degree, so that one cannot regard it as absolutely fixed; but this is an insignificant variation in comparison with the changes in the heat relations attending febrile diseases. Furthermore, it is understood by those whose vocation calls for frequent measurement of body temperature that the figures recorded in the rectum, axilla or vagina are somewhat higher than those furnished by the thermometer in the mouth where body temperature is usually measured. The differences here referred to are not absolutely large and are taken into account whenever temperature readings are made the basis of clinical judgment. In view of the regularities of temperature in the healthy organism as indicated by such data of internal or deep seated records, it is commonly assumed that the heat losses are distributed rather evenly through the skin. Recent ingeniously contrived measurements of the temperature of the human skin at the Carnegie Institution Nutrition Laboratory in Boston have shown that a change of temperature in the mouth or rectum need not be coincident with or parallel to changes in the temperature of the surface of the body.[1] The skin temperatures were found to range in a normally clothed person all the way from 33 C. (94.1 F.) about the chest and back to 28 C. (82.4 F.) in the region of the ankles. In a nude person exposed to an environmental temperature of 14.6 C. (58 F.) extreme ranges of 10 C. or more were noted, with a rectal temperature of 36.7 C. Even with well clothed persons the temperature of the skin, though one of the most important factors affecting the loss of heat from the body, is, according to the Boston observers, very far from uniform; in fact, differences in the temperature of various localities of from 4 to 5 C. have regularly been observed.

THE CEREBRAL COMPLICATIONS OF MUMPS

Mumps is generally considered a benign infection; but during epidemics it may increase in virulence, and severe complications arise. Of the complications, orchitis, pancreatitis and meningitis are the most important. Meningeal reactions may appear two or three days after the appearance of the swelling, or later as the parotitis is subsiding. Frequently orchitis also develops. The meningitis may manifest itself by increased fever, headache, insomnia, general discomfort, and, according to Acker,[1] exceptionally by nausea, vomiting, rigidity of the neck, Kernig's sign, and pupillary changes. The spinal fluid usually is clear, but is under increased pressure and shows a lymphocytosis. Before the advent of spinal puncture, these meningeal symptoms were spoken of as a meningismus of parotitis; but now the occurrence of actual meningitis in the course of mumps is accepted. In a recent study, Haden[2] remarks that many features of the nervous complications point to an encephalitis, and not simply to a meningitis, and that in most cases the cerebral symptoms are out of all proportion to the meningeal reaction as reflected in the spinal fluid. The occurrence of symptoms of cerebral irritation was noted by Acker, who also records cases with convulsions, monoplegia, hemiplegia or aphasia. Other recent reports seem to confirm the view that the symptoms are due to an involvement of the brain substance; but in the absence of anatomic study of such cases the question remains open. It may be well to recall that, in acute infectious diseases, edema of the brain may produce cerebral symptoms with or without signs of meningeal reaction, and that the spinal fluid in such cases may show no cellular changes. The association of orchitis with meningitis in mumps is of interest in view of the recent report by Latham[3] of epididymitis as a complication of epidemic meningitis. He states that some of the mildest cases of meningitis may show marked epididymal involvement. On the basis of Latham's report that in 70 per cent. of the cases with epididymal involvement the meningococcus was found in the blood, we might assume that analogous invasion of the blood takes place in mumps, and that close study of the blood may throw light on its cause.

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[1] Acker, G. W.: Parotitis Complicated with Meningitis, Am. J. Dis. Child. **6**: 399 (Dec.) 1913.

[2] Haden, R. L.: The Cerebral Complications of Mumps, Arch. Int. Med. **23**: 737 (June) 1919.

[3] Latham, J. R.: Epididymitis as a Complication of Meningitis, J. A. M. A. **72**: 175 (Jan. 18) 1919.

Outlines for a Birth-Registration Test.—At present only twenty states and the District of Columbia are included in the birth registration area of the United Sates, and even in these states it has been found that parents and physicians have not attended to this important duty, though the states have been admitted to the list of birth registration states on the basis of 90 per cent. perfect registration. Children's Year workers, in connection with the nation-wide weighing and measuring tests conducted in 1918, found and tested in one town 616 children in which only 192 children were reported as registered; 123 were said to be not registered, and the mothers of 301 children did not know whether the births of their babies had been recorded or not. In another town in which ninety-five children were examined, only seventeen births had been reported. In a Southern state it was found that only 38.4 per cent. of the colored children examined had been registered, while 76.8 per cent. of the white children had been registered. Knowledge of these conditions has led to campaigns for better birth registration, and the Children's Bureau in Miscellaneous Series 12, Bureau Publication 54, has prepared an outline for a birth registration test, giving the plan of canvass step by step and suggesting how to use the results of the canvass, which is to be considered as a necessary part of the community's auditing, at a public mass meeting where the results are announced, by social workers, in talks by physicians and educators, and in connection with other community welfare meetings and activities. A copy of the pamphlet and of the model birth registration law may be had from the Children's Bureau and the Bureau of the Census.

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[1] Benedict, F. G.; Miles, W. R., and Johnson, Alice: The Temperature of the Human Skin, Proc. Nat. Acad. Sc. **5**: 218 (June) 1919.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending September 12, there were 6,598 officers in the Medical Corps, a decrease of 578 from the previous week. The Medical Reserve Corps contained 3,414. The total number of physicians discharged since the beginning of the war is 25,646.

Commission of Reserve Officers as Regulars

Congressman Hawley has introduced a bill in the House which provides that any temporary medical officer who entered the active service in the army on or before April 6, 1917, who was at the date of such entrance between the ages of 22 and 32 years and who served with credit throughout the war, shall on application be regularly commissioned a first lieutenant in the permanent Medical Corps of the Army, and said commission shall be dated as of the date of the entrance of such medical officer into the active service.

Army Reorganization Bill

Following is the exact text of the Army Reorganization Bill, proposed by the War Department and now before Congress, as it relates to the Medical Corps:

"The Medical Department shall consist of the Medical Corps, the Dental Corps, the Veterinary Corps, and the Army Nurse Corps. The Medical Corps shall consist of one major general; two brigadier generals; one hundred and twenty-three colonels; two hundred and eleven lieutenant colonels; nine hundred and twenty-two majors; one thousand seven hundred and fifty-five captains; eight hundred and seventy-eight first lieutenants; one hundred and twenty-five master hospital sergeants; one hundred and twenty-five hospital sergeants; one thousand seven hundred and fifty sergeants, first class; two thousand seven hundred and fifty sergeants; one thousand two hundred and fifty corporals; one hundred and twenty-six mechanics; one thousand seven hundred and sixty-nine wagoners; one thousand one hundred and two cooks; five thousand three hundred and thirty-four privates, first class; and ten thousand six hundred and sixty-nine privates. The Dental Corps shall consist of nineteen colonels; nineteen lieutenant colonels; fifty-nine majors; two hundred and seventy-eight captains; four hundred and eleven first lieutenants; three hundred and fourteen second lieutenants; thirty-four sergeants, first class; one hundred and forty sergeants; one wagoner; three hundred and forty privates, first class; and six hundred and eighty privates. The Veterinary Corps shall consist of five colonels; five lieutenant colonels; fifteen majors; sixty-eight captains; one hundred and one first lieutenants; seventy-six second lieutenants; one hundred and ninety-four sergeants, first class; four hundred and eighty sergeants; ninety-six horeshoers; two hundred and forty corporals; forty-eight saddlers; fifty-four mechanics; nine hundred and sixty stable sergeants; ninety-eight wagoners; ninety-six cooks; eight hundred and sixty-five privates, first class; and one thousand seven hundred and thirty privates. The President is hereby authorized to call into active service, and to retain as long as the conditions of the service require, officers of the Veterinary Reserve Corps, with their consent, in such numbers that, including the number of officers of the Veterinary Corps herein permanently authorized, the total number of veterinary officers on active duty at any time during peace shall not exceed in the respective grades mentioned eleven colonels; nine lieutenant colonels; thirty majors; one hundred and thirty-six captains; two hundred and two first lieutenants; and one hundred and fifty-two second lieutenants. The enlisted strength for the Veterinary Corps provided in this section shall be varied in accordance with the number of draft and riding animals in the Army so that the total number of enlisted men shall not exceed forty for each thousand animals, and the proportions of enlisted men in the various grades shall be approximately as set forth in this Act. The Army Nurse Corps shall be constituted as now provided by law. The general officers herein provided for shall be appointed from officers of the next lower grade in the Medical Corps."

Major-Gen. M. W. Ireland, the Surgeon-General, recently appeared before the Senate Committee on Military Affairs and offered numerous objections to the above provisions. He pointed out that the bill does not provide for any Surgeon-General to act as chief of the Medical Department, and also that it makes no mention of the enlisted personnel of the Medical Department. He also showed that it makes no provision for granting commissions on the basis of examination by a board of medical officers, which fact he much regretted. He declared in favor of promotion by seniority, rather than by selection and was much opposed to the selective method, declaring that it was destructive to the morale of the officers. The Surgeon-General also favored allowing the Medical Department to have general supervision over the procurement and transportation of the supplies for the department. He said that the various branches of the Medical Corps cooperated very effectively during the war. In reply to questions as to whether he favored granting army rank to nurses, General Ireland said that he thought it would be "wholly wrong" to do so.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

San Diego—Thomas R. W.

GEORGIA

Atlanta—Blosser, R.
Augusta—Cutter, W. D.

INDIANA

Fort Wayne—Schanz, R. F.

IOWA

Keokuk—Smith, F. C.

MAINE

West Woolwich—Stott, A. A.

MARYLAND

Baltimore—Duncan, R. E.
Hundley, F. S.
Macke, C. E.

MASSACHUSETTS

Beverly—Cowles, D.
Watertown—Chase, C. O.

MICHIGAN

Detroit—Henderson, W. E.
Murray, G. M.
Reed, F. R.
Pontiac—Prall, H. J.

MISSOURI

Kirksville—Costolow, W. E.

NEW YORK

Brooklyn—De Yoanna, G.
Mount Vernon—Quinn, C. M.
Rochester—Wehle, F. W. A.

PENNSYLVANIA

Pittsburgh—Barb, K. B.

TEXAS

Comanche—Farmer, H. L.

VIRGINIA

Clifton Forge—Wolfe, H. C.
Norfolk—Trigg, D.

WEST VIRGINIA

Wheeling—Caldwell, J. H.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

Note.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

ALABAMA

Birmingham—Siniard, E. C. (L.)
Dothan—Page, W. G. (C.)
Huntsville—Rousseau, W. R. (L.)
Mobile—Thames, E. (L.)
Plantersville — Pickering, A. B. (C.)

ARIZONA

Safford—Martin, G. S. (M.)

ARKANSAS

Arkadelphia—Wallis, C. (L.)
Blytheville—Polk, W. T. (C.)
Hackett—Haney, E. L. (L.)
Jonesboro—Ramsey, J. W. (C.)
Lepanto—Byler, C. E. (L.)

CALIFORNIA

Los Angeles—Hall, E. H. (L.)
Moody, E. E. (C.)
Ojai—Gardner, J. T. (C.)
Pasadena—Fiske, H. A. (M.)
San Francisco—Gleason, C. D. R. (C.)
King, H. R. (L.)
Morgan, N. D. (M.)
San Jose—Hare, C. B. (C.)
Tropico—Mabry, W. C. (C.)

COLORADO

Colorado Springs—Bancroft, G. W. (M.)
Drake—Maitland, L. M. (L.)
Las Animas—Simmons, R. R. (C.)
Monte Vista—Waters, P. A. (L.)
Pueblo—Epler, J. C. (L. C.)

CONNECTICUT

New London—Ganey, J. M. (L.)

DISTRICT OF COLUMBIA

Washington—Hayes, H. L. (C.)
Heller, J. M. (L. C.)
Huntington, W. H. (C.)
O'Donnell, W. F. (C.)
Schurmeier, H. L. (M.)
Stewart, H. D. (C.)
White, J. B. (L.)

FLORIDA

Citra—Blackshear, E. (C.)
Jacksonville—Norwood, J. K. (C.)
Lake Land—Watson, W. H. (L.)
Tampa—Gilmer, E. S. (C.)

GEORGIA

Atlanta—Giuffrida, F. J. (L.)
Wilson, R. F. (L.)
Augusta—Wilcox, E. A. (C.)
Colquitt—Bird, B. C. (C.)
Meansville—Carter, R. L. (C.)
Montezuma—Lightner, H. G. (C.)

IDAHO

Bonner Ferry—Faucett, S. T. (C.)
Pocatello—Scroggs, W. P. (L.)

ILLINOIS

Anna—Hunsaker, C. A. (C.)
Centralia—Hall, J. C. (M.)
Chicago—Axelrad, S. (L.)
Browning, F. E. (C.)
Dufour, E. H. (L.)
Ellis, J. D. (L.)
Elston, L. W. (L.)
Jaffe, J. (L.)
Leach, J. (L.)
McCarty, J. J. (L.)
Merritt, F. W. (M.)
O'Connor, P. P. (L.)
Parkes, C. H. (M.)
Rydin, C. G. (C.)
Schultz, O. T. (C.)
Traxler, P. S. (L.)
Webster, R. W. (M.)
Danville—Barton, F. W. (M.)
Easton—Hanson, M. W. (M.)
Elmwood—Long, H. W. (M.)
Fairfield—Garrison, I. L. (C.)
Farina—Bassett, L. C. (L.)
Florid—Brinckerhoff, F. E. (C.)
Galesburg—Erickson, R. J. (L.)
Gilman—Buckner, R. A. (L.)
Odell—Cole, D. T. (C.)
Pana—Burgess, W. (C.)
Peoria—Sims, C. (C.)
Taylorville—Marney, W. J. (C.)
Wheaton—Greig, T. O. (C.)

INDIANA

Crawfordsville—Cary, N. A. (L. C.)
Gary—Hosmer, H. M. (M.)
Greentown—Freeman, E. E. (L.)
Indianapolis — Ensminger, L. A. (M.)
La Porte—Osborn, G. R. (M.)
Logansport—Holmes, W. W. (C.)
Noblesville—Hooke, S. W. (C.)
Plymouth—Woodbury, H. E. (C.)
West Baden—Sharp, H. C. (M.)
West Terre Haute—Danner, R. J. (C.)

IOWA

Council Bluffs—Hawkins, E. L. (C.)
Knoxville—Shappell, A. E. (C.)

KANSAS

Ada—Boyer, U. S. (L.)
Alton—Brown, P. D. (L.)

Ashland—Carson, P. C. (M.)
Elkhart—Hansen, J. H. (C.)
Lincoln—Sutton, J. M. (C.)

KENTUCKY

Berea—Godbey, L. J. (L.)
Carrollton—Calvert, W. L. (C.)
Edgoten—Straube, S. E. (C.)
Harrodsburg — Goddard, W. B. (L.)
Hopkinsville—Davis, U. G. (L.)
Jeffersontown—Shacklette, J. R. (C.)
Louisville—Abell, C. E. (C.)
Cook, J. F. (C.)
Shaunty, G. M. (C.)
Mount Olivet—Claypoole, H. G. (L.)

MAINE

Auburn—Williams, H. L. (C.)
Dexter—Clough, G. H. (C.)
Waterville—Goodrich, E. E. (C.)

MARYLAND

Baltimore—Hollyday, W. M. (L.)
Weltner, F. P. (M.)
Wilkinson, G. R. (L.)

MASSACHUSETTS

Beverly—Stickney, W. G. (M.)
Boston—Bolotow, N. A. (L.)
Dowling, J. L. (L.)
Hutchins, H. T. (M.)
Janes, A. P. (M.)
Johnson, H. L. C. (C.)
Richardson, E. P. (M.)
Savage, J. C. (C.)
Stearns, R. T. (C.)
Strahlmann, L. (L.)
Canton—Kemp, L. S. (L.)
Middleborough—Burkhead, J. H. (L.)
Springfield—Quinn, J. H. (M.)
Waltham—Hinchey, R. (C.)

MICHIGAN

Eastport—Gates, V. M. (C.)
Flint—Morrish, R. S. (M.)
Ironwood—Collins, C. D. (C.)
Lansing—Humphrey, J. A. (L.)
Michigamme—Sicotte, I. (C.)

MINNESOTA

Fergus Falls—Lindberg, D. O. N. (L.)
Minneapolis—Wipperman, P. W. (L.)
Nicollet—Olson, R. G. (C.)
Winona—Lester, C. A. (C.)

MISSISSIPPI

Durant—Elmore, R. C. (M.)

MISSOURI

Springfield—James, E. F. (C.)
St. Louis—Gibson, R. H. (C.)
Jacobs, M. W. (C.)
Wenger, O. C. (C.)

MONTANA

Dillon—Poindexter, F. M. (C.)
Helena—Riddell, W. C. (L. C.)
Kalispell—Reynolds, R. L. (C.)
White Sulphur Springs—Shroat, L. G. (L.)

NEBRASKA

Nebraska City—Edmonds, W. (L.)

NEW HAMPSHIRE

Littleton—Brown, W. O. (C.)
Portsmouth—Walker, W. D. (M.)
Rochester—Morin, J. J. (L.)

NEW JERSEY

Bridgeton—Glendon, W. P. (C.)
Jersey City—Duckett, W. J. (C.)
Newark—Martland, H. S. (M.)
South Amboy—Tadeusiak, B. H. (C.)
Trenton—Sigler, V. B. (C.)

NEW MEXICO

Silver City—Davis, J. R. (L.)

NEW YORK

Arcade—Davis, G. G. (L.)
Bronxville—Beckwith, E. W. (M.)
Brooklyn—Silverman, M. K. (L.)
Van Wart, F. B. (M.)
Buffalo—Edson, R. A. (C.)
Earlville—Newton, M. H. (L.)
Elmhurst—Zimmerman, R. F. (C.)
Hornell—Conway, J. A. (C.)
Kingston—Cranston, W. J. (M.)
New York—Devol, E. (M.)
Doran, W. G. (C.)
Dourmashkin, R. L. (L.)
Gayle, R. F., Jr. (C.)
Malabre, A. L. (C.)
Pease, M. C. (M.)
New York—Radin, M. J. (L.)
Rieser, S. L. (L.)
Taves, A. W. (M.)
Wing, L. A. (C.)
Zinn, P. R. (L.)
Rochester—Buck, T. D. (C.)
Roscoe—Allaben, C. M. (C.)
Schenectady—Gazeley, W. E. (L.)
Syracuse—Pierson, F. S. (L.)
York—Dike, B. H. (C.)

NORTH CAROLINA

Albemarle—Lyday, C. E. (C.)
Charlotte—Craven, T. (L.)
McKay, H. W. (M.)

NORTH DAKOTA

Devils Lake—Fisher, C. (M.)
Grand Forks—Wilson, W. C. (L.)

OHIO

Canton—Exline, C. E. (L.)
Cincinnati—Benus, H. (L.)
Cleveland—Cohen, A. (C.)
Cooper, F. S. (C.)
Jasinski, I. E. (C.)
Placak, J. C. (M.)
Columbus—Bates, L. V. (L.)
Kerschner, J. E. (C.)
Fostoria—Fruth, V. J. (L.)
Lancaster—Caldwell, S. C. (L.)
La Rue—Shira, D. D. (C.)
Morral—Jolley, J. W. (L.)
Ravenna—Nichols, B. H. (C.)
Toledo—Tait, P. G. (L.)
Youngstown—Phipps, L. E. (L.)

OKLAHOMA

Fort Sill—Lipscomb, W. P. (M.)
Oklahoma City—Roland, M. M. (C.)
Purcell—McCurdy, T. C. (C.)

OREGON

Mabel—Palmer, C. H. (M.)
Portland—Bodine, C. D. (L. C.)
Menzies, C. S. (L.)
Springfield—Kester, E. (C.)
Sutherlin—Patterson, O. E. (L.)

PENNSYLVANIA

Allentown—Kleckner, M. S. (L.)
Barnesboro—Dunsmore, A. F. (C.)
Boyertown—Leidy, R. E. (L.)
Dunsmore—Ginley, F. M. (L.)
Glen Olden—Brown, C. P. (M.)
Philadelphia — Broaddus, R. G. (L.)
Donovan, W. M. (L.)
Greenbaum, S. S. (C.)
Moore, P. H. (M.)
Pilkington, A. (M.)
Snead, G. C. (C.)
Sumner, R. D. (C.)
White, J. A. (L.)
Young, C. H. (C.)
Pittsburgh—Decker, H. R. (M.)
Jackson, D. F. (C.)
McCoy, C. L. (L.)
Meckel, L. O. (L.)
Stimson, G. W. (M.)
Wagerseller, J. K. (L.)
Sharon—Massy, H. E. (C.)
Steelton—Peters, J. M. (L.)
Van Dyke—Kerchner, H. S. (C.)

SOUTH CAROLINA

Newberry—Wicker, J. K. (L.)

SOUTH DAKOTA

Dante—Bonza, F. E. (C.)
Rapid City—Bentley, W. S. (M.)
Sturgis—Brooks, J. D. (M.)

TENNESSEE

Clarksville—Brandau, W. H. (L.)
Dyer—Medling, W. L. (L.)
Kingsport—Baker, H. J. (L.)
Martin—Little, R. M. (C.)
Morristown—Fuller, C. J. (C.)
Nashville—Bell, F. G. (C.)
Holcomb, G. W. (L.)
New Tazewell—Carr, J. C. (C.)
Tampico—Lequire, G. D. (C.)
Woodbine—Waller, C. P. (L.)

TEXAS

Dallas—Gilbert, T. C. (L.)
Huckabay—Foster, W. B. (L.)
Lone Oak—Hall, J. H. (C.)
Menard—Dozier, J. V. (C.)

UTAH

Salt Lake City—Hatch, F. F. (L.)

VERMONT

St. Albans—Loftis, C. A. (L.)

VIRGINIA

Norfolk—Fitchett, M. S. (L.)
Phoebus—Hankins, G. G. (L.)

WASHINGTON

Concrete—Mertz, E. F. (C.)
Fort Steilacoom — Stewart, A. C. (C.)
Raymond—Perry, E. R. (C.)
Reardan—Thompson, L. M. (C.)
Spokane—Adams, O. L. (C.)
Crampton, J. H. (C.)
Wenatchee—Seibert, A. W. (L.)

WEST VIRGINIA

Bluefield—Tickle, T. G. (C.)
Hansford—McClees, E. C. (L.)
Huntington—Hodges, F. C. (L.)
Quincy—Robertson, W. B. (C.)

WISCONSIN

Baraboo—Caldwell, F. C. (L.)
Beloit—Maurer, H. C. (L.)
Delavan—Holmes, B. H. (C.)
Green Bay—Charbonneau, A. (L.)
Manitowoc—Shimek, A. J. (M.)
Milwaukee—Gray, A. W. (M.)
Heraty, J. A. (L.)
McNary, J. F. (L.)
Ogema—Pearson, C. M. (C.)
Tomahawk—Baker, G. R. (C.)

WYOMING

Basin—Harris, C. E. (C.)
Laramie—Park, D. B. (C.)

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

California and Nevada Reciprocate.—A report from the secretary of the California State Board of Medical Examiners states that reciprocal relations have been established between that state and Nevada, effective, Sept. 1, 1919.

New Board Members.—New members recently appointed to the California State Board of Medical Examiners are: Dr. Lemuel P. Adams, Oakland, vice Dr. Arthur M. Smith, Oakland; Dr. Harry V. Brown, Glendale, vice H. Clifford Loos, San Diego; Dr. Alfred J. Scott, Los Angeles, vice Dr. Harry V. Brown, Glendale, and Cyrus J. Gaddis, Oakland, vice Ernest Sisson.

Personal.—Dr. William Palmer Lucas, professor of diseases of children at the University of California Hospital, San Francisco, has been made a Chevalier of the Legion of Honor, and has also had conferred on him by the French government La Medaille de Vermeil des Epidemies for services rendered to the children of France.——Dr. Lulu Hunt Peters, Los Angeles, who has been on a special mission for the American Red Cross in Serbia for five months, has been appointed to the investigation of orphan asylums in Roumania and Albania.——Edwin M. Schultz, Major, M. C., U. S. Army, has been appointed inspector in experimental pathology in Leland Stanford University.——Dr. William B. Kern, superintendent of the State Hospital at Norwalk, has been exonerated by the board of corrections of charges of brutality, poor food, and insanitary conditions brought against him by a newspaper of southern California.

ILLINOIS

Internship Required for M.D. Degree.—The University of Illinois College of Medicine reports that for all classes matriculating in 1917 and thereafter the students are required to complete a five year course, including a year's internship in a hospital, before the M.D. degree will be conferred. This is the ninth medical school to adopt this requirement.

Medical Service in Schools Continued.—Health Commissioner John D. Robertson of Chicago, after a conference with city and school officials, has consented to divert sufficient funds from the Municipal Tuberculosis Sanatorium to pay the doctors and nurses to continue medical service in public schools for two months.

Illegal Practitioner Fined.—Mrs. Emma Calvin, a chiropractor of Monticello, was arrested by the Illinois Department of Registration and Education for practicing without a license and was fined $150 and costs. This is her second offense. It is understood that Mrs. Calvin will carry the case to the supreme court in order to test the validity of the recent medical practice act.

INDIANA

New Officers.—Dr. C. Norman Howard, Warsaw, was elected president of the Thirteenth District Medical Society at its recent meeting held in Culver; Charles E. Reed, Major, M. C., U. S. Army, Culver, vice president, and Dr. Jahmes A. Work, Elkhart, secretary and treasurer.

Public Health Clinic Opens.—A venereal disease clinic was opened in South Bend, September 1, under the auspices of the United States Public Health Service and under the direction of Dr. Earl R. Bush, Indianapolis. The clinic is located at

312 South Lafayette Boulevard and is open daily from 2 to 4 in the afternoon and from 7 to 8:30 in the evening.

MARYLAND

Personal.—Dr. Edgar B. Friedenwald, Baltimore, who served as major in the Medical Corps since May, 1917, has received his discharge and has returned to his home.——Dr. Charles A. Reifschneider, former superintendent of the University Hospital, Baltimore, has arrived at Camp Merritt, N. J., from overseas, where he served with the Medical Corps.

Eye Clinic for Schoolchildren Proposed.—Dr. Benjamin W. Hazell has offered to equip an eye clinic for the children of the poor of Baltimore, if the city will consent to furnish space, heat and janitor service. Wholesale optical houses will supply glasses at cost and Dr. Hazell and other opticians, will give their services free. Diseased conditions of the eye will not be treated, but will be referred to a proper dispensary. The suggestion has been referred to the committee on hygiene of the board of school commissioners.

Foreigners in Baltimore for Study.—Dr. Juan C. Segovia, director-general of the health board of San Salvador, Salvador, and founder of the Institute for Contagious Diseases in San Salvador, has arrived in Baltimore to take a two years' course in bacteriology and parasitology at the Johns Hopkins University.——M. Biraud, a former officer in the French army, whose home is at Poitiers, France, has been announced as one of the recipients of fourteen scholarships to American universities given to French students by the former "American Army Students of France," and will come to the Johns Hopkins Medical School.

MASSACHUSETTS

Semicentennial of State Health Board.—The Massachusetts Department of Health celebrated the fiftieth anniversary of its establishment at the State House, September 13. Among the chief speakers were Dr. Henry P. Walcott, Boston; Dr. William H. Welch, Baltimore; Asst. Surg. Allan J. McLaughlin, U. S. P. H. S., and Sir Arthur Newsholme of England. The health commissioner, Eugene R. Kelly, Boston, presided, and the visitors were welcomed on behalf of the state by the governor.

Personal.—Dr. Herman Morris Adler, Chicago, formerly assistant professor of psychiatry in Harvard University, has been appointed professor of criminology and head of the department of social hygiene, medical jurisprudence and criminology in the medical department of the University of Illinois, Chicago.——Dr. Louis W. Croke, Dorchester, medical director of the U. S. Shipping Board, Recruiting Service, has resigned.——The cross of the Legion of Honor was officially presented to Dr. Morton Prince, in the Hall of Flags of the State House in recognition of his distinguished service in promoting Franco-American cooperation during the late war.

MISSOURI

Child Clinic Opened.—September 1, a child clinic, with Dr. Frank C. Neff in charge, and a dental clinic for children and adults was opened as a portion of the outpatient department of the Research Hospital, Kansas City.

District Society Organized.—Physicians from Clinton, Caldwell, Daviess, Platte, Ray and Clay counties met in Cameron, August 14, and organized the Twelfth Councilor District Medical Association, electing Dr. John D. Musgrave president, and Dr. John J. Gaines secretary, both of Excelsior Springs.

NEW YORK

Personal.—Dr. William L. Munson, Granville, who has recently returned from military service, has been reassigned to duty as sanitary supervisor of Clinton, Essex, Warren, Washington counties and part of Franklin County.——Dr. John A. Conway, Hornell, has returned from service and has resumed his duties as sanitary supervisor for Steuben, Tompkins, Schuyler, Chemung, Tioga and Broome counties.——Dr. Frank Overton, sanitary supervisor for Long Island, has been temporarily assigned to Albany for the last four days of each week as sanitary supervisor for Columbia, Greene, Rensselaer, Albany, Schoharie and Schenectady counties, during the absence of Dr. Charles C. Duryee on special duty in connection with health offices' courses and scoring of health activities of cities.——Dr. Matthias Nichols has been appointed head of the advisory committee of the International Exposition of Municipal Equipment, Grand Central Palace, New York City.

New Hospital for Insane.—Governor Smith broke ground, September 13, for a new state hospital for the insane at Marcy, near Utica. The site of the institution comprises 930 acres of the best farm land in the state and the legislature has authorized the expenditure of $2,000,000 on the buildings, which will house 3,000 patients. Abundant provision has been made for a water supply and sewage disposal at Marcy so that a setback such as that encountered in the attempt to establish a state hospital at Mohansic may be avoided. The governor in his address told of plans that are being made by the hospital commission for a state psychopathic hospital in New York City, which will be the research department for the state hospitals for scientific studies into the causes and treatment of insanity, and which will also be used for the temporary care of the less serious cases of mental disorders. Among the other speakers were Dr. Charles W. Pilgrim, Poughkeepsie, and Dr. Walter B. James, New York City.

Health Activities.—In connection with the International Exposition of Municipal Equipment it is proposed to establish a permanent health center which will serve to demonstrate the kind and amount of apparatus and equipment necessary for such an undertaking.—The West Chester County Chapter of the American Red Cross has established a model child welfare station in the interior of an auto-truck and has sent this exhibit into a number of towns of West Chester County.——An infant welfare exhibit and baby show was given at Gouverneur Fair during the week of August 19, under the auspices of Dr. Stanley W. Sayer, sanitary supervisor of the district, and Miss Winifred Noone of the child hygiene division of the state department of health.——A health meeting was held on the Tonawanda Indian Reservation, August 27, together with a survey and clinic.——A tabulation of the reports of health officers for 1916 has been compiled from which it appears that during that year, the average amount paid per capita for health work was 19 cents.——The board of health of Elmira has authorized the establishment of a general clinic in Elmira to include child welfare work and measures against tuberculosis and venereal disease.——Dr. J. Henri LaRocque, health officer of Plattsburg, is having fitted up a suite of offices in the city health department which will accommodate clinics for tuberculosis, infant welfare and venereal diseases.——Dr. Virgil D. Selleck, health officer of Glens Falls, is making arrangements for venereal disease clinics.

New York City

Annex to Beth David Hospital.—A drive to raise $100,000 for the enlargement of Beth David Hospital was begun, September 7, and will be continued for three weeks. The proposed annex to the building will add 125 beds and will bring the capacity of the hospital up to 175. A donation of $5,000 toward the fund from the Ladies' League of the hospital and $500 from Jacob D. Cohen were announced.

Health Department Moves to New Headquarters.—By September 25, the headquarters of the department of health, now at Centre and Walker streets, will have been removed to Pearl and Park streets, across the street from the Municipal Building. This removal was necessitated by the expiration of the lease on the building at Centre and Walker streets and the refusal of the comptroller and the board of estimate to consider the exorbitant increase in rental demanded by the landlord. The new headquarters will be used temporarily until the specially built structure for which plans are now being prepared can be erected. It is hoped that this new building will be ready for occupancy in about a year.

NORTH CAROLINA

Hospital Opened.—The Lawrence Hospital, Winston-Salem, was opened, September 1. The building is the old Thompson home which has been remodeled for hospital purposes and now has accommodation for twenty-five patients. The institution is in charge of Dr. Charles S. Lawrence and G. Carlyle Cooke.

Personal.—Dr. Frank M. Register, Jackson, health officer of Northampton County for two years, has resigned to accept a position as chief of the bureau of epidemiology of the state board of health at Raleigh.——Dr. Sidney E. Buchanan, Concord, has been elected full-time health officer of Cabarrus County.——Dr. Wilbur B. Robertson, Tarboro, health officer of Edgecombe County, has resigned and has been temporarily succeeded by Dr. William W. Green.

PENNSYLVANIA

State Meeting.—The annual meeting of the Medical Society of the State of Pennsylvania will be held in Harrisburg, September 22 to 25.

Personal.—Dr. Nelson E. Newbury, Scranton, has been appointed director of the city health department.——Dr. Julius H. Comroe has been appointed chief of the genito-urinary dispensary at York.——Dr. Edward E. Marsh, Centralia, recently returned from service abroad, has been elected superintendent of the Pottsville Hospital.——Dr. George W. Stimson, Pittsburgh, Major, M. C., U. S. Army, who has been serving in France as otolaryngologist with Evacuation Hospital No. 31, has returned from overseas.——Dr. James R. Montgomery, Bloomsburg, recently returned from active service in France, was, August 15, appointed county medical officer, succeeding Dr. Samuel B. Arment, resigned.

Philadelphia

Personal.—Dr. P. Gaskell Skillern, Jr., who was senior medical officer on the *U. S. S. Orizaba* while the ship was commissioned by the French government, has sailed for Denmark where it is reported, he is to marry Miss Lisa Valentiner of Koge.——Dr. Alonzo Englebert Taylor of the University of Pennsylvania will give the Lane Lecture before the Stanford University Medical School, California, in December.

New Department of Public Health.—The new Philadelphia charter has so affected the department of public health and charities as to separate the health work from its charity functions. Under the terms of the new law, there is a department of public health of which the director of public health is the head, appointed by the mayor with the advice and consent of the council. He is to have the power to appoint an assistant director, and such other officers and employees as may be provided for. The department has the care, management, administration and supervision of city activities relating to public health, including hospitals, control of housing and sanitation, and collection of vital statistics. The board of health is to consist of the director of public health, as president, and two other members, who shall be appointed by the mayor with the consent of the council. Two of the members of the board must be physicians.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that no award of the Alvarenga Prize has been made for 1919, and that the next award of the prize, being the income of one year of the bequest of the late Señor Alvarenga amounting to about $250, will be made, July 14, 1920, provided an essay deemed by the committee of awards worthy of the prize shall have been offered. Essays entered for competition may be on any subject, but cannot have been published; must be typewritten and if in a language other than English must be accompanied by an English translation and must be received by Dr. Francis R. Packard, secretary of the College, 19 South Twenty-Second Street, Philadelphia, on or before May 1, 1920. Each essay must be sent without signature, but must be marked with a motto accompanied with a sealed envelope having on its outside the motto and inside the name and address of the author. The successful essay or a copy of it is to remain in the possession of the college. Other essays will be returned on application within three months after the award.

TEXAS

Personal.—Dr. A. P. Harrison, Corsicana, has been appointed state director of the bureau of rural hygiene, succeeding Dr. Platt W. Covington, Austin, resigned.——Dr. Marshall E. Parker, Anderson, has been reappointed state registrar of vital statistics.——Dr. Victor E. Bonelli, Corpus Christi, has been appointed city school physician of Fort Worth.——Dr. Lane B. Cooke has been appointed city health officer of Dallas.

Quarantine Merger.—September 1, Robert L. Wilson, Surg., U. S. P. H. S., in charge of the quarantine station at Galveston, took over the equipment of the full quarantine station at the city of Galveston and with this transfer the dual system of quarantine service of the port of Galveston ceased to exist. The quarantine properties of the city were sold to the United States for $90,000. The property was valued at $116,000. It is estimated that by the transfer of the property to the United States, there will be a saving for the state of more than $210,000.

Cooperation in Health Work.—Dr. Charles W. Goddard, Holland, president of the state board of health, August 27, completed the draft of the contract whereby the state of Texas and the International Health Board offer $5,000 to each of four counties appropriating a similar amount for a county health department with a whole-time health officer. Special provision is made for active work to stop soil pollution and the combating of hookworm. The county health officer is to be appointed by the state health officer as also are his assistants in sanitary work.

WISCONSIN

Medical Building for Ashland.—Dr. John M. Dodd, Ashland, has awarded a contract for a new office building which will cost $25,000 or more and will be equipped with seven new offices, each of which will be occupied by a physician or a dentist.

Personal.—Dr. Fred T. Nye, Beloit, has retired after forty years of active practice, and will move in a short time to Irvington, Ala.——Dr. Herman H. Albers, Allenton, was elected president of the First District Medical Society at its meeting held near Waukesha, August 20.

CANADA

Educating Young Physicians.—The Ontario Medical Council adopted the following resolution at its recent meeting: "That all physicians who had had only one year of practice before enlisting in the army, be compelled to take a six months' postgraduate course, and that the Ontario government give a grant of $500 to cover such expenses."

Medical Council Elects Officers.—At the recent meeting of the Medical Council of Canada, Dr. J. C. Connell of Kingston, Ont., was elected president; Dr. Alex MacNeill of Summerside, P. E. I., vice president, and the following were reelected: Sir Thomas Roddick, honorary president; Dr. R. W. Rowell, Ottawa, registrar, and Mr. F. H. Chrysler, general counsel.

Hospital News.—The Kingston General Hospital will build a special wing for the treatment of tuberculous patients. This is in connection with the hospital enlargement scheme of Queens Medical Department.——The city council of Niagara Falls has apportioned $50,000 toward a 100-bed hospital to cost $100,000.——The county council of Huron County, Ont., has approved a grant of $50,000 for hospital purposes.

Personal.—Dr. Theodore A. Lomer, D.S.O., medical officer of health for Ottawa, has returned from overseas.——Dr. George S. Strathy, Toronto, has returned from overseas.——Major George D. Porter, Toronto, has resigned his position as commanding officer, Divisional Laboratory No. 2, after three and a half years' service.——Dr. Robert E. Wodehouse, M.O.H., Fort William District for Ontario, has been made an officer of the British Empire.

Council for Combating Venereal Disease.—The Canadian National Council for combating venereal disease has recently been organized. The aims and objects being to combat venereal diseases by whatever means seem desirable, to encourage and assist the dissemination of a sound knowledge of the physiologic and moral laws of life in order to raise the standard both of health and conduct; to cooperate with existing associations, to seek their approval and support and to give advice when desired in order to provide the constituent social measures which are basic in the solution of this problem; to promote such legislative, social and administrative forms as are relevant to the foregoing aims and objects; to provide accurate and enlightened information as to the prevalence of these diseases, and as to the necessity for early treatment; to promote the provision of greater facilities for their treatment and to increase the opportunities of medical students, practitioners and trained nurses for the study of these diseases.

GENERAL

Warning.—Dr. Eugene M. Stansbury, Vermilion, S. D., writes to warn the profession against a man claiming to represent a supply company of St. Louis, Mo., selling auto supplies to members at factory prices. He offers two years' service for $60, calling only on physicians. A letter addressed to the concern at St. Louis, Mo., is returned, stating that there is no such company nor such a street address.

Dietitians Elect Officers.—At the annual meeting of the American Dietetics Association held in Cincinnati, last week, Miss Lulu Graves, professor of home economics in Cornell University, Ithaca, N. Y., was elected president; Miss Ruth Wheeler, Baltimore, and Miss Margaret Deevers, Mount Sinai Hospital, Cleveland, were made vice presidents; Miss

E. Geraghty, New Haven, Conn., was elected secretary, and Miss Margaret Sawyer, American Red Cross, Washington, D. C., treasurer.

Military Surgeons' Meeting.—The annual meeting of the Association of Military Surgeons of the United States will be held at the Hotel Statler, St. Louis, October 13 to 15. Commissioned officers of the Army, Navy, Public Health Service and National Guard, members of the Medical Reserve Corps and physicians who have been commissioned and subsequently honorably discharged from the service are eligible to membership and will be welcomed at this meeting of the association.

Hospital Association Election.—At the twenty-first annual meeting of the American Hospital Association held at Cincinnati, September 8 to 13, under the presidency of Dr. Andrew R. Warner, Cleveland, the following officers were elected: president, Dr. Joseph B. Howland, Boston; president-elect, Lewis R. Baldwin, superintendent of the University Hospital, Minneapolis; vice presidents, Drs. Henry E. Webster, Montreal; Richard G. Brodrick, San Francisco, and Miss Margaret Rogers, St. Louis, and treasurer, Mr. Asa A. Bacon, superintendent of the Presbyterian Hospital, Chicago.

Graduate Medical Fellowships for Negroes.—Mr. Julius Rosenwald of Chicago is offering six fellowships to negro graduates in medicine by which they may pursue advanced studies in the fundamental medical sciences under favorable conditions. Each fellowship stipend will be $1,200 to pay the student's transportation to and from the institution in which he will work as well as his laboratory and tuition fees, books and living expenses. The medical schools in which these fellowships will be available will be selected by a special committee under the direction of the General Education Board, New York City.

Bequests and Donations.—The following bequests and donations have recently been announced:

For the enlargement of the Winston-Salem, N. C., Hospital, an addition of $50,000 to the gift of her late husband, by Mrs. Reynolds.

Permanent fund of the Infant's Hospital, Thomas Morgan Rotch Memorial Building, Boston, $6,000 by the will of Clara Morgan Rotch.

To improve and extend the workshop of the Saginaw, Mich., Anti-Tuberculosis Hospital, a donation of $500 by E. C. Mershon.

Johns Hopkins Hospital, Baltimore, $250,000, contingent on the expiration of annuities, by the will of John W. Grace, Baltimore.

For a maternity hospital at Hastings, Neb., $40,000 and for the Mary Lanning Memorial Hospital, Hastings, Neb., $300,000 by the will of W. H. Lanning.

Michael Reese Hospital, Chicago, $84,000, on the death of Mrs. Emma Rosenthal, by the will of Albert Dallemand.

Kenosha, Wis., Hospital, $16,000, by the will of Elizabeth M. Moore.

Pathometry of the Influenza Epidemic.—The subcommittee on pathometry of the influenza epidemic, of the special committee on statistical study of the influenza epidemic which was reorganized at the meeting of the Section of Vital Statistics of the American Public Health Association in December, 1918, held meetings at Columbia University, New York, September 19 and 20. The discussion at the preliminary meetings of the committee brought out a rather confusing lack of agreement as to the effects of preventive measures and of modes of treatment on the form of the epidemic wave and as to the kinds and character of statistical data available. The work and recommendations of the other three registration and tabulation subcommittees will, it is hoped, result in presenting data that are uniform and better adapted to comparative study toward discovering the quantitative relationships which this epidemic holds in common with other epidemics.

Executive Committee of National Tuberculosis Association Meets.—The executive committee of the National Tuberculosis Association met at the Russell Sage Foundation in New York City, September 13, at which time a survey of the tuberculosis situation in the United States was presented which shows that the country is face to face with a condition more menacing to the people than actual warfare. This survey shows an annual death rate of 150,000 from tuberculosis in the United States and more than 1,000,000 active cases in the nation. To combat the spread of the disease the committee asserts that an intensive national campaign is necessary. Funds for this campaign will be sought by a ten day sale of Red Cross seals, beginning December 1. The total of the state budgets will be more than $6,500,000. In the course of the discussion, it was pointed out that the death rate of 150,000 a year from one preventable disease means the sacrifice of more lives than the United States Army lost in the year it was actively engaged in the war. An educational campaign has been formulated which will be extended to every part of the country, with the view of impressing on the people that tuberculosis is preventable and curable and of inducing them to take measures to protect themselves. Plans to care for all afflicted persons will be pressed and a special effort will be made to search out incipient cases.

Workers in Venereal Disease Campaign Wanted.—The recently created Interdepartmental Social Hygiene Board of the United States government is in need of a number of specially trained men and women to complete its organization. The United States Civil Service Commission has announced examinations for the following positions: chief of division for scientific research, $3,500 to $4,500 a year; chief of division for educational research and development, $3,500 to $4,500 a year; educational assistant, $2,800 to $3,600 a year; chief of division of relations with states, $3,500 to $4,500 a year; chief of division of records, information and planning, $3,500 to $4,500 a year; supervising assistant and inspector, $2,800 to $3,600 a year; field agent, $1,800 to $3,000 a year. All positions are open to both men and women. Applicants for these positions will not be given scholastic tests in an examination room but will be rated on their education, experience and writings. Published writings of which the applicant is the author will be submitted with the application. For most of the positions a thesis on one of a number of given subjects will be accepted in lieu of published writings. The receipt of applications will close, November 4. Detailed information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board at the postoffice or custom house in any of 3,000 cities. The law creating the Interdepartmental Social Hygiene Board provides for the cooperation of the War and Navy Departments and the Public Health Service of the Treasury Department for the prevention, control, and treatment of venereal diseases. The duties of the board as set forth in the act are: to recommend rules and regulations for the expenditure of moneys allotted to states for the use of their respective boards or departments of health in the prevention, control, and treatment of venereal diseases; to select universities, colleges, or other suitable institutions which shall receive allotments for scientific research for the purpose of discovering more effective medical measures for the prevention and treatment of venereal diseases; to recommend such general measures as will promote correlation and efficiency in carrying out the purposes of the act; and to direct the expenditure of certain moneys appropriated by the act.

FOREIGN

Mortality Increase at Riga.—It is reported from Riga that the mortality during April last was eight times as large as in pre-war times. During June there were 359 deaths caused by starvation.

Meeting of the Italian Orthopedic Association.—The tenth Congress of the Italian Society of Orthopedics will be held at Bologna, October 19 and 20, 1919. The subjects for discussion will be Prostheses and the Treatment of Pseudoarthroses. By special invitation, Prof. Carlos Francioni will deliver a lecture on "The Morphologic Evolution of the Human Organism in the First Stage of Life." In connection with the congress there will be held an exhibition of orthopedic apparatus and instruments.

Mortality in Spain.—The decrease in the population of Spain has begun to cause serious concern. During February last the average birth rate in the most important cities was 2.12 per thousand while the mortality rate was 2.42. In twenty-nine of the provincial capitals the number of deaths exceeded the number of births. These capitals included every important city in Spain. At Madrid, the death rate was 2.55 and the birth rate was 1.84. Over one fourth of the deaths in the various cities were among infants under 5 years.

American Medical School in Paris.—The project for the establishment of the American School of Medicine in Paris took definite shape at the meeting held recently in the office of Charles F. Beach, an American lawyer in Paris. In addition to a number of laymen, Drs. Tuffier of the Academy of Medicine, Dehelly, Alexis Carrel, Edmond Bornet, and other noted physicians and surgeons of Paris were present. The new school is to be entirely postgraduate in character, and will be under the joint direction of American and French physicians.

New Public Health Act in South Africa.—The parliament of the Union of South Africa has adopted a comprehensive bill known as the Public Health Act, 1919, chapter four of which deals with venereal diseases and applies to most of the health measures which have been adopted in the United States with the exception of the compulsory report of cases to the health authorities. Compulsory treatment of all cases is provided and any person who infects another knowingly is declared guilty of an offense. Advertisement of nostrums is prohibited.

Deaths in the Profession Abroad.—Dr. **A. Tamburini,** professor of psychiatry at the University of Rome and director of the psychiatric clinic, aged 71. He was elected president of the Italian Societá freniatrica in 1895, and has been constantly reelected since, and has always been called on to preside at the Italian psychiatric congresses. He was long a member of the national public health council and recently published a large work on the care of the insane by the state in different countries. For forty years he has been director of the *Rivista sperimentale di Freniatria.*——Dr. **C. Vignolo-Lutati,** instructor in skin and venereal diseases at the University of Turin, and a noted writer on these subjects.

The Monaco Congress for Physiotherapy.—Great preparations have long been under way for this international gathering at Monaco in October which aims to extend the knowledge and application of the natural resources of the allied and neutral nations, the mineral waters and muds, the seashore, climate, altitude, sunlight, etc. There are to be special congresses and sections devoted to thalassotherapy, hydrology, heliotherapy, hygiene, spas, climatic resorts and touring, alpine climbing, etc. France and Italy in particular are making efforts to present an instructive display of their natural resources in these lines. French is the official language of the thalassotherapy congress and the only theme appointed for discussion is "Medical and Surgical Tuberculosis at the Seashore," but other communications on other subjects are to be presented.

Medical Gatherings in the Scandinavian Countries.—The *Ugeskrift for Laeger* comments that after the long suspension on account of the war, medical congresses are now being held in the Northland with new zeal and profit. The surgical and dermatologic congresses were held at Christiania in July. In August the tuberculosis specialists, the pediatrists and the internists each held a special congress at Copenhagen where in September was also held the Nordiske hygieniske Kongres. The Medical League of Sweden and the similar organization in Denmark held their meetings also in August, as already mentioned elsewhere. Many physicians attended several of these meetings in turn. At the Congress for Internal Medicine the registration was 215, the attendance including eighty physicians from Sweden, seventy from Denmark, forty-six from Norway, eighteen from Finland and one from Iceland. Almost the whole range of internal medicine was represented in the forty-two communications presented. They included a number of interesting reports on research by the younger workers.

LATIN AMERICA

Nurses' School in Colombia.—At the Women's University, just established at Medellín, Colombia, there will be given a two years' course in nursing.

Study of Influenza.—Dr. Antonio Cueto Vásquez, the secretary of the commission on infectious diseases, has been sent to the United States by the government of Cuba to study the treatment of influenza as practiced in this country.

Typhoid Epidemic in Bogotá.—It is reported from Bogotá, Colombia, that a serious epidemic of typhoid has appeared in that city. It is said that as many as fifteen patients had been taken in one day to the Hospital of San Juan de Dios.

New Pasteur Institute in Mexico.—On recommendation of the president of the superior board of health, the government has decided to open a Pasteur Institute in the city of Chiapas, in view of the fact that a large proportion of rabies cases proceed from that state.

Superior Board of Health Organized in Nicaragua.—The government has just appointed the personnel of the superior board of public health, which will consist of members of the medical profession of the city of Granada. Dr. Juan José Martínez was appointed president of the board.

New Tropical Medicine Society in Mexico.—A medical association has just been organized at Villahermosa, Mexico, under the title of *Sociedad Tabasqueña de Patologia Tropical.* Its object will be to study the diseases which affect that region. The following officers have been elected: president, Dr. Jesús Flores; secretary, Dr. Otilio Aguilar C; assistant secretary, Dr. Eduardo Castellanos Q., and treasurer, Dr. Diógenes López R.

PARIS LETTER

Paris, Aug. 28, 1919.

The Transfusion of Blood in Shock Produced by War Wounds

At a recent meeting of the Société de chirurgie de Paris, Drs. Lacoste, Lartigaut and Picqué, hospital surgeons of Paris, communicated the results that they have secured from the transfusion of blood in thirty-six cases of war wounded. They were not in position to study the density of the blood, a research recommended by Richet, but they undertook a blood count after the method of Depage and Govaerts, and they studied especially the arterial tension with the aid of Pachon's oscillometer.

Lacoste, Lartigaut and Picqué made a blood examination in thirteen wounded men, eight of whom presented a deficiency of blood cells such as is considered by Depage and Govaerts as symptomatic of a serious hemorrhagic condition and as beyond the reach of ordinary therapeutics. These patients presented at the same time clinical symptoms extremely indicative of serious posthemorrhagic anemia, and yielded a mortality of 25 per cent. However, in this series of thirteen patients there were five in whom the hemorrhagic syndrome was at least as frank and just as alarming as in the other cases but who nevertheless did not present an appreciable diminution in the number of blood cells. Among these five patients there were no fatal cases. Therefore, from the practical standpoint, in case a patient is clinically hemorrhagic it is well to make a blood cell count. In the event that the deficiency reaches limits considered by Dupage and Govaerts as alarming, the surgeon has an added reason for blood transfusion. But one should not conclude that the maintenance of a normal or approximately normal blood count for the first few hours is a sufficient contraindication for transfusion, and that it justifies one in relying on a satisfactory improvement in the blood picture. In more than a third of the cases there is a discrepancy between the blood picture and the serious indications of acute anemia. Nor should the indications for blood transfusion be based solely on the result of the blood cell count but rather more on a study of arterial tension.

Out of approximately 1,600 grave untransportable cases, Lacoste, Lartigaut and Picqué found only thirty-six cases in which transfusion was indicated, thirty-three of which were due to hemorrhagic and three to nonhemorrhagic shock. In seven cases of this series they performed preoperative transfusion on moribund men who were pulseless, presented no arterial tension, and were insensible to artificial serums, such men as would have died at the beginning of the war before the eyes of the surgeon, whereas, today, many such patients, thanks to blood transfusion, can be put into condition to sustain an operation successfully. Immediate postoperative transfusion performed in order to improve the general condition of the wounded to whom the shock of an unavoidable immediate operation has come in addition to traumatic shock were also seven in number. These transfusions permitted the extension of the indications for surgical procedure in wounded men on whom formerly an operation could not have been attempted.

The other transfusions were late postoperative. These concern wounded men who, under the influence of artificial serums, camphorated oil, caffein, etc., had made a temporary gain but relapsed into a state of shock. The transfusion supervening at the time when the first medication has become ineffective may then save some patients. Others, moreover, do not react to the serums and present a progressive lowering of the arterial tension with a decrease in the maximal and minimal pressure, a fall of the oscillometric index, reduction of the differential pressure of the range of oscillation; in such cases transfusion is instituted without delay.

Repatriation of Prisoners of War

The international committee of the Red Cross has addressed a letter from Geneva to the interallied conference in Paris calling attention to the question of repatriation of prisoners of war. The letter refers to the difficulties encountered at the time of the repatriation of the prisoners from entente countries interned in the states of the central empires. It states that if the repatriation cannot be begun immediately, at least plans for the repatriation ought to be worked out at once in order that the actual transportation may be begun as soon as the peace treaty is ratified and be an accomplished fact by the time winter sets in. Such provision is especially indicated in view of the various difficulties that may arise on account of the large number of prisoners and the great distances some of them must be transported.

Interallied Medical Mission to Poland

An interallied medical mission consisting of Col. H. S. Cumming, representative of the Medical Corps, U. S. Army, as director; Professor Castellani; George S. Buchanan, an officer of the British Public Health Service, and Dr. Visbecq, chief surgeon of the Medical Corps of the French Army, has just left Paris for Warsaw. At the request of the Polish government this mission has been sent to Poland to study the problem of typhus fever and other contagious and epidemic diseases that are making great ravages in Poland at this time. This mission was organized by the Red Cross League.

The American Red Cross in France

The American Red Cross has just published a report of its work in connection with the American army in France. It received in its hospitals 89,539 wounded or sick, who required 1,110,000 days of hospitalization. The average cost of a day's hospitalization, including medical and surgical care, has been 9.78 francs. At the time of the signing of the armistice the American Red Cross had under its control twenty-two hospitals with 14,326 occupied beds.

The American national committee has just made a gift of $32,742.95 to the American Red Cross, to create at Paris an American hospital for wounds of the face and jaw. Soldiers disfigured by war wounds will be admitted here for treatment.

The Optical Institute

In a previous letter I referred to the plan of establishing an optical institute with a view to restoring in France the manufacture of optical lenses and optical instruments in general, which of late years has passed into the hands of the Germans (The Journal, Dec. 23, 1916, p. 1954). This institute has become an actual fact. It will work in the interest of all French manufacturers of opticians' supplies; it will not be conducted for commercial profit but solely for the purpose of advancing optical science and the optical industries for the common welfare. The forms of activity of this new scientific institute will be: (1) a training school of optics; (2) a laboratory of research and experiment, and (3) a professional school for advanced study.

The school of optics will train experts in the manufacture of optical goods. M. C. Fabry, at present professor of general physics at the Faculté des sciences de Marseille, has been selected as the head of the new institution. Mr. Lucien Poincairé, rector of the University of Paris, has evinced an especial interest in the institute and has expressed his intention of requesting a professional chair of optics at the Sorbonne.

The laboratories will comprise a research department in which the instructors of the school may conduct their theoretical and practical researches with relation to the various kinds of glass, optical instruments and opticians' accessories, and a department for the study of manufactured products or any matters of importance submitted for examination into by the institute. These laboratories will serve likewise for the training of students. The purpose of the professional school will be to train workers in glass, opticians and mechanicians who shall be preeminently qualified.

The Origin of Shock

At the meeting, July 15, of the Academy of Science, Professor Quénu presented an interesting report of some investigations of Dr. Pierre Delbet, professor of clinical surgery at the Paris School of Medicine, on the toxicity of lacerated muscles from the standpoint of the pathogenesis of shock. Delbet undertook numerous experiments. He removed the crushed and lacerated muscles of 121 animals, including rabbits, rats, mice, frogs and eels, and injected the filtrate of these tissues in 213 animals. The toxic effects were noted in every instance, and the animals developed polypnea, disappearance of reflexes, and coma, frequently ending in death. Recovery is possible even after coma sets in. The early deaths which supervene in from a few minutes to six or seven hours after injection, without the animal coming out of the coma, seem to be due to the intoxication of the cerebral and bulbar nervous centers. The retarded deaths which take place after the animals have recovered from the coma are due mainly to liver alterations. Muscular tissue infected by the streptococcus, the staphylococcus, the proteus or the *B. pyocyaneus* appeared less toxic than the aseptic tissue.

The toxic accidents are always of the same type, but they vary greatly in intensity. The same character of dose may produce insignificant results or may have a mortal effect. Gray rats and frogs, which are eminently carnivorous, proved much more susceptible than guinea-pigs, which are herbivorous. These facts developed by experiment led to the suspicion that the strong meat diet of the soldiers was one of the causes of the frequent severe symptoms of shock during the war.

LONDON LETTER

London, Aug. 27, 1919.

Punishment of Pharmacists Under the Venereal Diseases Act

The venereal diseases act of 1917 marked a new departure in English law by rendering penal the treatment of venereal diseases by any one but a qualified physician. Formerly any quack or other person, however ignorant, could treat any disease with impunity. The only liability was that in case of death they might be tried for manslaughter, but, as a matter of fact, even in the case of Christian scientists who had undertaken to treat serious disease which proved fatal, no conviction has ever been obtained. In the present case a pharmacist and his assistant were prosecuted. The former advertised in the *Daily Telegraph* "prescription 606," which he described as a "bad blood tonic." In a pamphlet which he issued he wrote: "Even syphilis in most instances can be cured by the patient himself, provided he is told at the outset what remedy to take." His formula was stated to consist of potassium, mercury, sodium and iron iodids, sarsaparilla and other drugs. A police inspector went to his shop and asked if the "606" advertised was for venereal disease. He was told it was, and bought a box of tablets. The assistant told a police sergeant that his "606" was the best he could have and better than arsphenamin. The jury found both defendants guilty. The principal was sentenced to four months imprisonment and the assistant to six weeks. The judge said he took into consideration the fact that this was the first case of the kind in which a prosecution took place.

Tuberculosis Among Ex-Soldiers and Sailors

The interdepartmental committee appointed by the minister of health and the minister of pensions to consider the steps for the provision of residential treatment for discharged soldiers and sailors suffering from tuberculosis, and for their reintroduction into employment, especially on the land, has issued its report. The number of ex-service men invalidated out of the services on account of tuberculosis, or afterward found to be suffering from tuberculosis attributable to, or aggravated by, conditions of service, amounts to about 35,000. Of these, 22,000 have received or are receiving residential treatment, which has often been for far too short a period. The committee feels that the problem of the tuberculous ex-soldier or sailor is only one aspect of the national problem of dealing with tuberculosis. The best possible use should be made of all existing means of treatment, and then these means should be expanded and improved as rapidly as possible. The priority of treatment hitherto afforded to ex-service men should continue. There is serious shortage of accommodation in existing sanatoriums and hospitals for the treatment of tuberculosis. The number of beds in the United Kingdom is 19,500. If allowance be made for the number required for women and children, the number available for the male adult population is only about 10,000. The accommodation should be increased immediately. The question of using existing army hutments for the treatment of tuberculosis presents many difficulties. The hutments are not likely to provide satisfactory accommodation, but it is possible that the best army hospital huts, and others of similar construction, would make satisfactory sanatoriums, at any rate for temporary use. With regard to treatment, it should take place in three stages. First should come the sanatorium, next the colony where treatment is continued but where training is the main objective, and lastly the permanent village settlement, where permanent employment is afforded under medical supervision.

Rats as Carriers of Spirochaeta Icterohaemorrhagiae

Major A. G. R. Foulerton, officer in charge of the hygiene department of the Army Medical College and health officer for East Sussex, has presented a report to the city corporation of an investigation undertaken at their instance on the protozoal parasites of the rat, with special reference to spirochetal jaundice in man and the London rat as a natural reservoir of that disease. During the last four years, Japanese workers have shown that the rat is a carrier of the microbes of spirochetal jaundice and rat-bite fever, which, though harmless to the rat, is pathogenic to other animals, including man. Rat carriers of the microbe of jaundice have been found not only in Japan but also in Algeria, America, Belgium, France and Tunis. Examination of 101 London rats caught showed that four were carriers of the spirochete of jaundice.

Physicians Increase Their Fees

Since the war the cost of living has increased more than 100 per cent. A certain increase of physicians' fees has naturally taken place, but it has not been universal or uniform. The British Medical Association thinks that 50 per cent. is the least that physicians' fees should be increased, considering not only the increased cost of living but also that of drugs, instruments and gasoline. Some time ago the association circularized local authorities asking that medical salaries should be increased by 33⅓ per cent. Panel physicians are at present receiving a bonus varying from 15 to 30 per cent., according to their total incomes.

The Influence of Alcohol on Manual Work

For the Medical Research Committee an investigation on the influence of alcohol on manual work and on neuromuscular coordination has been carried out by Dr. H. M. Vernon and Dr. Major Greenwood. The conclusions arrived at are as follows: Small doses of alcohol, well within the limits of what would be deemed by all moderation, do not sensibly affect the speed of performance of such semiautomatic operations as typing a memorized passage or setting down and adding a row of figures on a mechanical calculator, but gravely depreciate the accuracy of performance. Two glasses of port wine in a person accustomed to drink a glass of wine have this effect when the wine is taken with food. Less than this is sufficient to produce a result if taken on an empty stomach. Should the task set be very familiar to the subject, the foregoing conclusion does not hold. Such small doses of alcohol did not exert any measurable effect on the number of mistakes in either the typing or the adding test made with a speed of performance to which the subject had become familiarized by long practice. None of the experiments bring out any effect on the slow addings or typings, experiments which were made at a speed to which those experimented on were quite accustomed.

Peculiar Method of Suicide

An inquest was held in York on a woman, a physician and latterly a patient in a lunatic asylum. Last November the deceased told a visiting relative that she had attempted to kill herself and ought to be dead, since she had stuck a needle into her heart. The medical superintendent was informed, and found two apparently simple pin pricks below the left breast. The patient had been suffering from melancholia and grew very much better and her delusions left her. Nothing more was heard of the needles until recently, when, after a few days' illness the lady died. The necropsy disclosed one needle sticking through and a second one into the walls of the heart together with signs of acute inflammation.

Marriages

WILLIAM LACEY EDMUNDSON, Major, M. C., U. S. Army, Denver, to Miss Dorothy Peacock Hunnewell, at Wilmette, Ill., August 16.

ZÉNON ALBERT D'AMOURS to Miss Pauline Jaramillo, both of Las Vegas, N. M., at Trinidad, Colo., August 30.

CARL HENRY DAVIS, Milwaukee, to Miss Elizabeth Greene Upham of Kilbourn, Wis., September 6.

CLAUDE GOLDWIN SCRUGGS, Lenox, Ga., to Miss Annabelle Mills at Monticello, Fla., August 13.

JAMES ALTO WARD, Baltimore, to Miss Linda Belle Heacock of Birmingham, Ala., September 8.

LAWRENCE DELANO MILLER, Toledo, to Miss Elizabeth Hamby of Cleveland, August 28.

HARRY FREY, Rock Island, Ill., to Miss Helen M. Somers of Grinnell, Iowa, September 2.

HENRY J. DEHAAN to Miss Fannie Haislip, both of East St. Louis, Ill., September 3.

MERTON O. ARNOLD, Chicago, to Miss Urcell V. Senneff of Dixon, Ill., June 20.

OTTO JOHN JIRSA to Miss Blanche Rezanka, both of Chicago, recently.

Deaths

Benjamin Franklin Church, Redlands, Calif.; College of Physicians and Surgeons, Baltimore, 1888; aged 61; a member of the Medical Society of the State of California, and in 1917 chairman of the eye, ear, nose and throat section of the society; president of the San Bernardino County Medical Society in 1917-1918; once president of the Travis County and Kaufman County (Texas) medical societies, and president of the Los Angeles Academy of Medicine; a specialist in diseases of the eye, ear, nose and throat; formerly dean of the faculty and professor of ophthalmology and otology in the College of Physicians and Surgeons, Los Angeles; who had been under treatment in Los Angeles for mental troubles for eight months; leaped from the window of his physician's office, September 2, and was instantly killed.

Boswell P. Anderson ⊕ Colorado Springs, Colo.; University of Virginia, Charlottesville, 1868; Washington University Medical School, Baltimore, 1869; aged 72; a Confederate veteran; at one time president of the Colorado State Medical Society; for more than forty-five years physician and surgeon to the Colorado State Blind and Deaf Institute; president of the staff of St. Francis' Hospital, Colorado Springs; for ten years chief surgeon and thereafter consulting surgeon to the Colorado Midland Railroad; died at his home, August 25, from angina pectoris.

Joseph Manuel Elliot, New Orleans; Tulane University, New Orleans, 1889; aged 59; a member of the Louisiana State Medical Society; professor of clinical medicine in the New Orleans Post-Graduate School of Medicine; chief of staff of the department of internal medicine at Charity Hospital, New Orleans, and visiting physician to the hospital for twenty-five years; vice president of the City Bank and Trust Company, New Orleans; died at his home, August 30.

George Herbert Richards, Orange, N. J.; New York Homeopathic Medical College, New York City, 1885; aged 66; formerly president of the Orange board of health and of the board of education; a lieutenant in the Medical Reserve Corps of the Army, and discharged in December, 1917; president of the board of trustees of the Homeopathic Hospital of Essex County, N. J.; died at his home, September 9, from heart disease.

Walter Cheyne ⊕ Sumter, S. C.; College of Physicians and Surgeons in the City of New York, 1891; aged 51; a specialist in urology; secretary of the Sumter County Medical Society in 1916, and president in 1918; at one time secretary of the South Carolina Medical Association, and first president of the National Association of State Secretaries; one of the founders of Toumey Hospital, Sumter; died at his home, August 13, from cerebral hemorrhage.

John Anderson Johnston ⊕ **Capt., M. C., U. S. Army,** Manila, P. I.; University of Pennsylvania, Philadelphia, 1893; aged 46; a specialist in bacteriology; president of the Manila Medical Society of Sciences; died in the Department Hospital, Manila, August 1, from acute dilatation of the heart and chronic myocarditis following influenza.

George Robert Curran ⊕ Mankato, Minn.; University of Michigan, Ann Arbor, 1892; aged 56; local surgeon of the Chicago and Northwestern system; surgeon to St. Joseph's Hospital; formerly first lieutenant and assistant surgeon in the Second Minnesota Infantry; died at his home, September 1, from heart disease.

John H. Alexander, Greensburg, Ind.; Medical College of Ohio, Cincinnati, 1874; aged 90; a resident of Decatur County for sixty-one years; physician to the state Odd Fellow's Home for many years; also president and secretary of the Decatur County Board of Health; died at his home, September 4.

Josephine Elizabeth Smith ⊕ Chicago; Rush Medical College, 1917; an intern at Cook County Hospital until Feb. 28, 1919; who passed the examination of the National Board of Examiners in October, 1917; died in the Washington Boulevard Hospital, Chicago, August 5, from acute lymphatic leukemia.

William Watts, Toledo, Ohio; University of Michigan, Homeopathic Medical School, Ann Arbor, 1878; aged 65; formerly major and surgeon, Sixth Infantry, Ohio National

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⊕ Indicates "Fellow" of the American Medical Association.

Guard; a member of the staff of the Toledo Hospital; acting coroner of Lucas County in 1917; died at his home, August 31.

Robert Aloysius Biechele, Wooster, Ohio; Western Reserve University, Cleveland, 1888; aged 52; once president of the Stark County (Ohio) Medical Society; president of the Citizen's National Bank and the Wooster Electric Company; died at his home, September 3, from angina pectoris.

George Ellsworth Paff, Chicago; Indiana University, Indianapolis, 1908; aged 35; formerly of Gary, Ind.; died in the Grace Lutheran Sanatorium for Tuberculosis, San Antonio, Texas, about August 20, from tuberculosis.

Charles D. Ricker ⊕ **Capt., M. C., U. S. Army,** Fabens, Texas; Maryland Medical College, Baltimore, 1902; aged 43; died in the Walter Reed General Hospital, Tacoma Park, D. C., August 4, from myocarditis.

Samuel Wesley Rimmer ⊕ San Saba, Texas; Kentucky School of Medicine, Louisville, 1890; aged 55; once president of the San Saba County Medical Society; died at his home, recently, from angina pectoris.

Herbert B. Perry, Benson, Ill.; Jenner Medical College, Chicago, 1896; aged 60; a member of the Illinois State Medical Society; died in Brokow Hospital, Bloomingtn, Ill., August 25, from nephritis.

Thomas Noel White, Spring Garden, Ala.; Medical College of Georgia, Augusta, 1860; aged 80; surgeon of the Nineteenth Alabama Cavalry, C. S. Army, during the Civil War; died at his home, August 23.

Edward Malcolm Bruce, Chicago; Hahnemann Medical College, Chicago, 1891; aged 58; professor of internal medicine in his alma mater; died at his home, September 8, from cerebral hemorrhage.

Cyril Wickfield Sager, Titusville, Pa.; American Medical College, Eclectic, St. Louis, 1885; Hahnemann Medical College, Philadelphia, 1894; aged 57; died on his farm at Beaverdam, Pa., August 24.

Lee Mason Barney, Elkhart, Ind.; Northwestern University Medical School, Chicago, 1889; aged 53; who had been blind since 1913; died at his home, September 4, from cerebral hemorrhage.

Abijah Marvin Allen, Adrian, Mich.; University of Michigan, Ann Arbor, 1861; aged 85; assistant surgeon of the Seventh Michigan Infantry during the Civil War; died suddenly, August 26.

William S. Stillé ⊕ Parkersburg, W. Va. (license, West Virginia, act of 1881); aged 69; died at his home, August 26, from pneumonia, three weeks after an operation for the removal of gallstones.

Halton I. Jessup, Philadelphia; Hahnemann Medical College, Philadelphia, 1884; aged 57; a specialist in ophthalmology; died at his home, September 3, from pyelonephritis.

Martin F. Coomes, Louisville, Ky.; Louisville (Ky.) Medical College, 1873; aged 72; died in St. Joseph's Infirmary, Louisville, August 28, a short time after a surgical operation.

George L. B. Rounseville, Mattoon, Ill.; Bennett Medical College, Chicago, 1883; aged 74; died in Cook County Hospital, Chicago, August 15, from valvular heart disease.

Burrell Thomas Landers, Oklahoma City; American Medical College, Eclectic, St. Louis, 1890; aged 75; a practitioner for forty-two years; died at his home, August 29.

Frank H. Williams, Spring Lake Beach, N. J.; University of Pennsylvania, Philadelphia, 1874; aged 67; died at his home, August 29, from cerebral hemorrhage.

Frank L. Hoag, Elk Rapids, Mich.; Detroit College of Medicine and Surgery, 1892; aged 51; died in Chicago, September 8, from chronic interstitial nephritis.

Walter May Fitch, Chicago; Rush Medical College, 1885; aged 57; died at his summer home in Twin Lakes, Wis., September 11, from heart disease.

John Joseph Barth ⊕ Chicago; Rush Medical College, 1914; aged 33; died in the Alexian Brothers Hospital, Chicago, August 29, from septicemia.

James Riggs Burkhart, Davenport, Iowa; Keokuk (Iowa) Medical College, 1898; aged 43; died at his home, September 8, from heart disease.

H. Walter Murlless ⊕ Guilford, Conn.; Louisville (Ky.) Medical College, 1893; aged 50; died at his home, August 24, from sarcoma.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

THE LUCAS LABORATORIES' PRODUCTS

The Journal has received several inquiries about the products put out by the Lucas Laboratories, Incorported, of New York City. A typical inquiry is that received from Dr. F. A. Jewett of Brooklyn, who writes:

> "The enclosed circular is sent out to the medical profession by Dr. William Lucas, 287 W. 70th St., New York. What do you know of this man and his methods?"

William H. Lucas was graduated by the Medical College of Ohio in 1895 and was licensed in 1897. He is not a member of his local medical society. The products put out by the Lucas Laboratories are for intravenous use, and their method of exploitation indicates that the concern is less interested in the science of therapeutics than it is in taking commercial advantage of the present fad for intravenous medication. The Journal has protested editorially against the unnecessary use of the intravenous administration of drugs, and the abuse of this method of drug-giving prompted the Council on Pharmacy and Chemistry recently to emphasize the danger of indiscriminate intravenous medication.

The products of the Lucas Laboratories, Inc., have not been examined either by the A. M. A. Chemical Laboratory or by the Council on Pharmacy and Chemistry. The composition of these products is essentially secret, which in itself should be sufficient to deter physicians from using them. Of course, in accordance with all the tenents of orthodox nostrum exploitation, "formulas" are furnished. Even the crude hieroglyphics that used to be palmed off on the medical profession by nostrum exploiters under the guise of "graphic formulas" are outdone by the Lucas Laboratories in publishing the alleged formulas of its preparations. If we, as physicians, knew more chemistry, the Lucas Laboratories would not find it profitable to publish such ineffable nonsense as that which characterizes their "literature." For instance:

"'Luvein' Arsans (Plain)" is said to be: "Di hypo sodio calcio phosphite hydroxy arseno mercuric iodide." The first part of this "formula" might stand for sodium and calcium hypophosphite. The remainder is meaningless except that it suggests (but does not insure) the presence of arsenic and mercury iodide.

"'Luvein' Arsans, Nos. 1, 2 and 3."—"Meta hydroxy iodide sodio arsano mercuric dimethyl benzo sodio arsenate, ai oxy sodio tartaria sulpho disheuyl hydrazin." Who can venture even a conjecture as to the possible significance of this?

"'Luvein' Creosophite."—"Ammonio hydroxy calcio sodio hypo-phosphite arsenous pentoxy iodide." While the name suggests creosote, the "formula" gives no hint of this. It might refer to hypophosphites of ammonium, calcium and sodium with iodide of arsenic. Whether arsenous (trivalent arsenic) or arsenic (pentavalent arsenic) iodide or both are intended, is a question.

"'Luvein' Hexacol."—"Hexa methylenepyro catechin mono methyl amino ether glycerite." By moving these syllables around like the old "fifteen puzzle" they can be arranged to represent hexamethylenamin and monomethyl-ether of pyrocatechin (or guaiacol), having the "glycerite" left over.

It is futile to discuss the therapeutic claims made for the various preparations put out by the Lucas Laboratories. One might as profitably discuss the therapeutic claims made for "Peruna" or "Paine's Celery Compound" for the exploitation of the latter products is on just as high a scientific plane as the exploitation of the "Luvein" nostrums. The proposition offered to physicians by the Lucas Laboratories, Inc., is an insult to the intelligence of the medical profession. Not that the products themselves are necessarily any worse or any better than many others offered for intravenous use; the selling methods are more crude, that is all.

The facts are, we have entered a new cycle of nostrum development. The unscientific mixtures for oral administration that characterized so large and disreputable a part of the proprietary medicine business of the past two or three decades, are giving way to equally unscientific mixtures for intravenous use. The dangers of the older nostrums are accentuated in the newer by the added element of risk that is inseparable from intravenous therapy. Add to this the temptation to the physician in the way of more substantial fees which, legitimately enough, may be charged when intravenous administration is called for, and the menace of the new style nostrum becomes evident. The Journal can only reiterate the warning that intravenous therapy should be employed only when most positively indicated. Further, because of the danger that is inseparable from this method of drug administration, physicians should be doubly careful to see that products employed for intravenous use come from firms of unquestioned scientific standing.

CASE'S RHEUMATIC SPECIFIC

Last week The Journal recorded the issuance of a fraud order against Jesse A. Case of Brockton, Mass. On account of the false and fraudulent representations made by Case for his nostrum he was denied the use of the United States mails, Aug. 18, 1919. Very shortly thereafter Case made application for the revocation of the fraud order on the grounds that he had entirely discontinued his fraudulent mail-order nostrum business and was now engaged in an entirely different business of a legitimate character. In addition to his personal application, Case filed the following affidavit:

> "I, Jesse A. Case, being first duly sworn, depose and say that the business heretofore conducted by me, (i. e.) the selling of a rheumatism treatment which the Fraud Order issued against me on August 22, 1919, was designed to suppress has been discontinued and will not be revived any time in the future and that any remittances hereafter received for said treatment will be returned to the sender."

The postal authorities have notified The Journal that as Case's fraudulent business no longer exists and Case has sworn that he will not revive it and will return to the senders any remittances that may come to him in the future for his "rheumatism cure" it is believed that the ends of justice will be met and satisfied by revoking the fraud order. The order has been revoked.

Correspondence

"DEATH FROM RHUBARB LEAVES DUE TO OXALIC ACID POISONING"

To the Editor:—The case of death after eating rhubarb leaves (The Journal, Aug. 23, 1919, p. 627) deserves, I think, some further discussion. It seems to be established that oxalic acid is one of the most active of the acids. It is generally stated in the textbooks that, unlike the other corrosive acids, such mild alkalis as potassium acid carbonate (saleratus) or sodium acid carbonate (baking soda) cannot be used as antidotes, as the oxalates of these metals are almost as poisonous as the free acid. They are, however, not likely to be as corrosive. Oxalic acid is apparently a very frequent product of both animal and vegetable metabolism. It is almost always found in the form of an oxalate, generally calcium oxalate. This is an almost constant constituent of urinary sediments, and very frequent in leaf and root tissues. In the latter it generally occurs as bundles of fine needles in special cells. The corm of the Indian turnip of our forests (*Arisaema triphyllum* (L.) Torr.) contains a large amount of these crystals, and the extremely irritating property of the corm is due to their mechanical action.

There is no likelihood that calcium oxalate will act as a specific poison. It is highly insoluble in water, and even in many dilute acids. The standard antidote has been lime. "Scrape the ceiling with a fire-shovel in an emergency" has been for more than half a century a classic in toxicology. I am inclined to the opinion that in the cases of poisoning by rhubarb leaves which have lately been reported, including the case in The Journal, the mechanical action of the calcium oxalate is the cause. The patient suffered an abortion, and it is worth while to inquire whether this was not brought about by the irritation of the pelvic viscera by the crystals. It is not likely that the feebly acid gastric juice would be able to dissolve this material.

The original article from which the abstract in *Chemical Abstracts* (**11**:2374, 1917) is printed (quoted by The Journal in the bibliography) is not accessible to me, but the process is given in the abstract, and it consists first in heating the vegetable matter with strong hydrochloric acid, which dissolves all the oxalates. The calculation is made to pure oxalic acid, but there is, of course, no reason to believe that this exists as such in any plant. When plant structures have a distinct sour taste, as in the case of species of *Oxalis,* it is generally assumed that potassium acid oxalate is present. The figures in the article to which you call attention give for rhubarb 3.2 gm. per thousand of material as prepared for cooking. Now 1,000 gm. are more than 2 avoirdupois pounds, and this amount would according to the analysis yield about 50 grains of oxalic acid, but, as I have remarked above, much of this is probably in the form of calcium oxalate. The standard authorities give the fatal dose of oxalic acid as rather large, from 50 to 60 grains; and even supposing that the whole of the oxalic content of the rhubarb leaf was the free acid, about 2 pounds of it would be required to furnish a poisonous dose.

I am inclined to think, therefore, that the mechanical irritation of the insoluble sharp crystals is the cause of the death.

Henry Leffmann, M.D., Philadelphia.

[Comment.—There is ample evidence opposing the mechanistic theory of our correspondent. Most of the cases of poisoning recorded followed the eating of rhubarb stems, but a number have resulted from eating the leaves. Fortunately, most of the victims recovered. The reports of the fatal cases show that there were violent vomiting and diarrhea followed by coma and death. Epistaxis with noncoagulability of the blood has been observed, and an abortion before death reported. The symptoms (especially the noncoagulability of the blood) are such as would be expected from the ingestion of moderate quantities of oxalic acid or soluble oxalates, by those having an allergic manifestation toward oxalic acid.

In the case which has been best studied (Poisoning by Rhubarb Leaves, *Lancet* **1**:847 [June 2] 1917; *Pharm. J.* **98**:413 [May 12] 1917; The Journal, June 23, 1917, p. 1928; June 30, 1917, p. 1954), oxalic acid was detected in the internal organs, but no evidence was presented to show the presence of calcium oxalate crystals or other mechanical irritant in the viscera. The physician who made the necropsy attributed the death to coma consequent on oxalic acid poisoning. The chemist who examined the internal organs of the deceased also analyzed rhubarb leaves from the same field as those eaten by the victim and found about 10 grains each of potassium oxalate and calcium oxalate to the pound. Van Itallie and Lemkes believe that the toxic dose of potassium oxalate, usually stated at from 30 to 75 grains, is actually much less. If this is true, the contention that the amount ingested in the case recently reported was not sufficient to cause death is much weakened. Our correspondent thinks it unlikely that the feebly acid gastric juice would be able to dissolve calcium oxalate (an inert substance), thus transforming it into soluble oxalates (poisonous substances). In the A. M. A. laboratory, 1 gm. of calcium oxalate was treated with 500 c.c. of 0.2 per cent. hydrochloric acid at the laboratory temperature for four hours. About 0.2 gm., or 20 per cent., was rendered soluble. Doubtless the amount would be greater at the temperature of the body.

The acridity of the Indian turnip and some other plants is due to the mechanical action of calcium oxalate crystals. The irritating properties are destroyed by cooking. Wiley believes that the calcium oxalate crystals are dissolved in the cooking process but, since the acidity of the Indian turnip is low, it is more probable that the heat destroys the crystalline structure of the raphides by depriving them of their water of hydration. In the cases of rhubarb poisoning it is clear that the stems and leaves which had been eaten were cooked. It is reasonable to suppose that the same effect on the oxalates might be obtained by cooking rhubarb as by cooking the Indian turnip. Further, there is no evidence that crystals of calcium oxalate have been detected either in the vomitus or internal organs of the poisoned victims, or in the cooked rhubarb which they had eaten. Until this evidence is forthcoming, the theory of mechanical irritation must rest in the domain of the unproved.—ED.]

NECROPSIES AT BELLEVUE HOSPITAL

To the Editor:—I have read with interest Dr. Francis Carter Wood's article on "The Relation of Pathology to Medicine" (THE JOURNAL, Aug. 23, 1919, p. 569). I may be pardoned for having focused attention on that passage which inquires: "If the Mayo Clinic and the General Memorial Hospital of New York succeed in obtaining a permit [for necropsy] in over 90 per cent. of deaths, why does Bellevue Hospital obtain only 7 per cent. and many other institutions only from 20 to 30?"

As far as Bellevue Hospital is concerned, the interrogation is misleading, without design on Dr. Wood's part, of course. I have investigated the necropsy figures of Bellevue Hospital covering the past seven years and I find that, with the exception of the chaotic period of 1918, when the percentage fell to 7.6, and the year 1915, when it dropped to 14 without any cause now recallable, our necropsies obtained by consent vary between 25.4 and 36 per cent. of the total number of deaths, excluding from the computation, of course, those cases which fall under the jurisdiction of the chief medical examiner's office—with these we neither dare nor care to meddle—and the unclaimed dead—with these we have nothing to do since, when an individual dies in Bellevue Hospital and is without friends or relatives, the unclaimed body passes thence to the custodianship of the commissioner of public charities, who now exercises full authority over its disposal—whether it is to be given to the anatomic board for scholastic purposes or buried in Potter's Field without dissection. In these two ways between 1,200 and 1,500 bodies every year automatically pass beyond all possible control of the hospital authorities at the very instant that death occurs.

I should also like to point out that in Bellevue Hospital the average total number of deaths yearly is 3,546, while in the Mayo Clinic the average is about 254, and in the General Memorial Hospital it is lower still, so that it is scarcely fair to compare the necropsy statistics of the two smaller institutions with those of the second largest general hospital in the Western Hemisphere. Compared, however, with the Boston City Hospital—the only really large American institution whose necropsy figures are available to me—the Bellevue record is indeed creditable, the Boston institution, with an average yearly death rate of 1,830, securing only about 7 per cent. of necropsies.

In Bellevue Hospital there are two outstanding obstacles to the securing of consent for necropsy, namely, the ignorance and prejudice of relatives or their inaccessibility, and the interdiction of the Jewish religion. In fact, these two obstacles unite to render it impossible to secure permission for postmortem examination in no small proportion of deaths; and yet, in spite of these formidable impediments, Bellevue Hospital secures by consent an average of about 400 necropsies yearly. All of them are performed by the accredited pathologists of the institution. Moreover, a large part of the work of the medical examiner's office and of the medical assistant to the district attorney of the county of New York is carried out in the postmortem rooms of Bellevue Hospital. Attendance on every necropsy thus performed is open to our visiting and resident staff. The total number of necropsies from these two sources seldom, if ever, falls below 1,200 a year, at least 30 per cent. of the number coming from the wards of Bellevue Hospital. In short, the student of pathologic anatomy can see as much postmortem material, perhaps more, within the walls of Bellevue Hospital than in any other institution in the English speaking world, embracing not only the average run of cases, but also an extraordinarily wide range of material representing the pathology of crime and violence.

Although at Bellevue Hospital we are by no means satisfied with our work in pathology, we nevertheless feel that not only is the hospital doing its share to keep alive an interest in pathologic anatomy, without which there is no intelligent medicine, but also the institution is playing no mean part in the development of the newly organized institute of legal medicine of which the city of New York has reason to be proud and for which it should be thankful.

DOUGLAS SYMMERS, M.D., New York.
Director of Laboratories, Bellevue and Allied Hospitals.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WAR RISK INSURANCE

To the Editor:—I am at present an officer in the Medical Reserve of the U. S. Army. My hospital internship was incomplete at the time of the armistice. Consequently I have not been called to active service. Is it possible for me now to take out the Army insurance policy which was granted to all officers and men on active service, and at the same rates? If so, can you give me any information as to how to proceed to do so? I shall appreciate anything you may do for me by way of advice in this matter.

J. R. SCOTT, M.D., Kerhonkson, N. Y.

ANSWER.—The War Risk Insurance Act provides that insurance shall be granted to every commissioned officer and enlisted man and to every member of the Army Nurse Corps (female) and of the Navy Nurse Corps (female) when employed in active service under the War Department or Navy Department, upon application to the Bureau and without medical examination. It further provides that such insurance must be applied for within 120 days after enlistment or after entrance into or employment in the active service and before discharge or resignation. As the inquirer was never in the active service, he is not entitled to war risk insurance. Even if he was at one time in the active service, he cannot now, after separation from active service, take out a war risk policy.

INTRAVENOUS USE OF ANTIMONY TARTRATE

To the Editor:—In THE JOURNAL, Aug. 23, 1919, p. 645, I find an abstract of an article entitled "Bilharziasis Treated by Intravenous Injection of Antimony Tartrate," which appeared in the *Journal of Tropical Medicine and Hygiene*. Please inform me whether the authors give in this article the composition and the method of preparation of the solution of Antimony Tartrate used, and also give such facts concerning the technic, as amount administered, interval between injections, and occurrence of reactions.

L. A. KENNELL, M.D., Philadelphia.
Lieutenant, M. C., U. S. Navy.

ANSWER.—The apparatus in use at the Khartoum Civil Hospital for the intravenous injection of antimony tartrate, both for bilharziasis and also for leishmaniasis, is as follows: 1. Two small 50 c.c. Bohemian flasks one containing a sterilized solution of antimony tartrate (antimony and potassium tartrate, U. S. P.), ½ grain to 20 minims of distilled water (20 grains to the ounce), the other containing a sterilized solution of physiologic sodium chlorid solution for dilution purposes, each labeled with their respective contents. 2. Two record syringes (glass with metal plungers), a small one of 20 minims, and a large one of 10 c.c. The same size needles are used for both syringes; they should be fine (hypodermic) and sharp with platinum iridium tips (a fine sharp needle is a very important requisite). 3. A small sterilizer, two or three small beakers, crucibles and watch glasses should be ready for holding and mixing solutions, and for containing the solution of antimony and the physiologic sodium chlorid solution ready for use. With a skilful assistant to compress the veins, a tourniquet is unnecessary. A prominent vein of the arm is chosen, preferably not the median basilic at the elbow as it is in relation to the brachial artery; any prominent vein, however, will do; sometimes a vein at the back of the hand is conveniently conspicuous when others are not. This small operation should be done with much care. It is absolutely necessary to inject the antimony tartrate solution inside the lumen of the vein, or phlebitis and necrosis result. The skin is sterilized with ether or alcohol; iodin may be used, but it has a tendency to obscure the veins on dark skins. Treatment commences with the injection of ½ grain in about 40 or 50 minims of physiologic sodium chlorid solution. Injections take place every other day, equal parts of the antimony solution and the physiologic sodium chlorid solution being used when larger doses are reached. The dose is increased by ½ grain every injection until 2 or 2½ grains have been reached, and this is maintained (in the case of boys of 16 or under, 1½ grains is the maximum dose employed). The total quantity of antimony injected would be 20 or 25 grains, according to circumstances. If more than 25 grains are required, the surplus needed should be reserved for a second course. When the dose of antimony tartrate is 1½ grains or 2 grains (sometimes before), a cough immediately on injecting indicates that the antimony is already in the pulmonary circulation, and shows that the drug is both rapid and far reaching in its action.

BIOGRAPHIC NOTES ON FUCHS, TSCHERNING AND LANDOLT—THE ORIGIN OF SPECTACLES

To the Editor:—1. I require some biographic notes about Dr. Ernst Fuchs of Vienna and Drs. H. M. E. Tscherning and Edmond L. Landolt of Paris. As it is impossible to find much about European celebrities in works of reference after 1914, I would appreciate any information you can give me about these men. What I particularly wish to know is whether they are still living, and what professional positions they now occupy.

2. I have a recollection of having read somewhere in recent years of excavation in Greece, Rome or Egypt of spectacle frames, or some other indication that the ancient peoples were acquainted with the use of eyeglasses. Can you supply me with the reference

W. H. Bates. M.D., New York.

Answer.—1. No information regarding any of these men is available since 1916; but it is not likely that any of them have died since they are all of sufficient note to have received general mention regardless of the war. The following data are available concerning the last positions which they have occupied:

Fuchs.—The "Biographisches Lexikon" for the year 1901 lists Fuchs as follows: "Fuchs, Ernst, zu Wien. geb. daselbst June 14, 1851. studierte . . . war 1876 bis 80 Assistent bei Arlt. 1880 bis 85 Prof. der Augenheilk. in Lüttich, und ist seit 1885 Prof. der Augenheilk. (als von Jaeger's Nachfolger). Litterar. Arbeiten . . . Lehrbuch der Augenheilkunde (bis jezt in 7 Aufgabe erschienen and in 6 Sprachen übersetzt)." He retired in 1915.

Tscherning.—The "Annuaire médical" lists: "Tscherning, 1887. Directeur du laboratoire d'ophthalmologie à la Sorbonne, oculiste de l'Institution nationale des Sourds-Muets (maladies des yeux) de 1 h. à 3 h. mardi, samedi, rue du Mézières 15."

Landolt.—"(Edmond) Zurich, 1869. Paris, 1874. O. medecin-oculiste consultant à l'Institution nationale des jeunes aveugles. Clinique des maladies des yeux, tous les jours de midi à 2 h. St. André des Arts, 27 excepté le samedi, rue Volney 4."

2. We know of no recent excavations of spectacle frames. There are historical data, however, for the statement that lenses were used by old persons to distinguish small print in China and in Europe in the thirteenth century, from 1260 to 1367 A. D. These medieval glasses are said to have come from Turkestan, and historians are inclined to believe that they reached Turkestan from India, where they existed at the end of the twelfth or the beginning of the thirteenth century. On a tombstone in a Florentine church appears the inscription: "Here lies Salvino d' Armati of Florence, the inventor of spectacles. God forgive him his sins. Died in the year of our Lord 1317." Armati is credited with the discovery of glasses in 1285. The American Encyclopedia of Ophthalmology, **7**:4898, thus summarizes the history of lenses: "The inventor of glasses is unknown; the nations of antiquity probably knew nothing of these instruments. . . . Near the end of the thirteenth century convex-spherical lenses came into use in China and in Europe. It is probable that neither obtained their knowledge directly from the other." The earliest known pairs of spectacles consisting of two large circular lenses, connected by a nose-bridge, known to have been the property of the Renaissance humanist Willibald Pirkheimer (1470-1530), are on exhibition in Nuremburg museum.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

California: Sacramento, Oct. 20-23, Sec., Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.

Colorado: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Georgia: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.

Illinois: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.

Kansas: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.

Louisiana: New Orleans, Nov. 4. Sec., Homeo. Bd., Dr. F. H. Hardenstein, 702 Machesa Bldg., New Orleans.

Michigan: Lansing, Oct. 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.

Montana: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Nevada: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

New Jersey: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

West Virginia: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Wyoming: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

AMERICAN CONFERENCE ON HOSPITAL SERVICE

The first regular meeting of the American Hospital Conference, which was organized in Chicago, April 21, 1919,[1] for the purpose of establishing a closer affiliation of all organizations interested in the betterment of hospital service, was held at Cincinnati, September 9-12, in connection with the annual meeting of the American Hospital Association. A constitution and by-laws were adopted in which the name of the organization was changed from the American Hospital Conference to the American Conference on Hospital Service.

The organization is composed of two accredited delegates from each of the following fifteen organizations:

American Association of Industrial Physicians and Surgeons.
American Association of Hospital Social Service Workers.
American College of Surgeons.
American Hospital Association.
American Medical Association.
American Nurses Association
Association of American Medical Colleges.
Catholic Hospital Association of the United States and Canada.
Federation of State Medical Boards of the United States.
International Compensation Board.
Medical Department of the United States Army.
Medical Department of the United States Navy.
National League of Nursing Education.
National Organization for Public Health Nursing.
United States Public Health Service.

Provision is also made for the appointment of honorary delegates who have the privilege of the floor and may serve on committees but are not entitled to vote or to hold office. The organization will be controlled by a board of eleven trustees, including the president and treasurer; the other nine were elected for terms of one, two and three years so that three vacancies will occur each year.

The office of president and that of executive secretary for the present have been left vacant, the trustees being empowered to fill these positions from the best talent available. In the election of officers, Dr. A. R. Warner, superintendent of Lakeside Hospital, Cleveland, was made first vice president;

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[1] See Report of the Council on Medical Education, J. A. M. A. **72**:1757 (June 14) 1919.

Miss Clara D. Noyes, president of the American Nurses' Association, second vice president, and Dr. Harry E. Mock, president of the American Association of Industrial Physicians and Surgeons, was elected treasurer. Nine trustees were elected, three each for terms, respectively, of three years, two years and one year. Those for the three year term were Dr. S. S. Goldwater, director of Mount Sinai Hospital, New York; Dr. John M. Dodson, dean of Rush Medical College, Chicago, and Mr. John G. Bowman, director of the American College of Surgeons, Chicago. For the two year term those elected were Father Charles B. Moulinier, president of the Catholic Hospital Association, Milwaukee; Miss Edna G. Henry, president of the American Association of Hospital Social Workers, Indianapolis, and Dr. Roger Morris, professor of medicine at the University of Cincinnati. For the one year term those elected were Col. James D. Glennan of the Medical Department of the United States Army; Senior Surgeon J. H. White of the United States Public Health Service, and Dr. David A. Strickler, president of the Federation of State Medical Boards of the United States, Denver. The next meeting will be held in Chicago during the first week in March following the Sixteenth Annual Conference of the Council on Medical Education.

Delaware June Examination

Dr. H. W. Briggs, secretary of the Delaware State Board of Medical Examiners, reports the written and practical examination held at Wilmington, June 17-19, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 9 passed and 1 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Maryland		(1919)	76.8
University of Nebraska		(1919)	82.3, 87.3
New York Homeo. Med. Coll. and Flower Hosp.		(1918)	88.6
Jefferson Medical College		(1919)	86.6
Medico-Chirurgical College of Philadelphia		(1915)	89
University of Pennsylvania		(1917) 84.8, (1918)	80.8
University of Virginia		(1918)	81.5
	FAILED		
Temple University		(1918)	71.8

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Jefferson Medical College		(1912) Pennsylvania, (1913)	Vermont
Medico-Chirurgical Coll. of Philadelphia		(1901, (1913)	Penna.
University of Pennsylvania		(1915), (1918)	New York

Michigan June Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 10-12, 1919. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Twelve candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Michigan Homeopathic Medical School		(1896)	82.3.
		(1919)	84.6, 84.6, 85, 86.4, 86.9, 87, 87.5, 94.7.
University of Michigan Medical School		(1918) 83.6, (1919)	85.9
University of Pennsylvania		(1919)	82.9

Vermont June Examination

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written and practical examination held at Burlington, June 26-28, 1919. The examination covered 12 subjects and included 90 questions. An average of 75 per cent. was required to pass. Nineteen candidates were examined, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University, Chicago		(1918)	80.8
University of Vermont		(1915) 87.8, (1918) 84.2, (1919)	79.8, 80.3, 81.9, 82.2, 85, 85.1, 85.3, 85.5, 86, 86.2, 86.4, 86.5, 86.6, 88.1, 89, 90.1.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Baltimore Medical College		(1906)	New Hamp.

Book Notices

Training School Methods for Institutional Nurses. By Charlotte A. Aikens. Cloth. Price, $2.25 net. Pp. 337, with illustrations. Philadelphia: W. B. Saunders Company, 1919.

This book especially emphasizes the importance of common sense methods, and of golden rule standards in the management of schools for nurses. The first section of the book takes up the task of the training school, the pupil, the teacher, the course of study, principles and methods of teaching. While not minimizing the importance of proper educational standards, it points out the danger of losing sight of service to the sick in the ever increasing demands of the training school curriculum. Good moral character, intelligence and broad human sympathy are primary requisites in the candidate for training. The author urges the importance of clear, definite, painstaking, practical instruction at the very beginning of the course. She considers the junior year the time of greatest importance in the life of the student—the time when methods of study, of thought and of work are being formulated; the time when new ideals and visions of service should inspire to lives of usefulness. The choice of teachers and methods of teaching are treated in a very helpful and suggestive manner. The second section of the book deals with the head nurse, her duties and responsibilities, and her relation to the patient, to his relatives, to the student nurse, to the staff and to the institution. Bedside teaching, ward housekeeping, general management, records and orders are all carefully and systematically treated. One chapter each is devoted to the duties and responsibilities of the chief surgical nurse and to the night supervisor. To the instructor of nurses, to the head nurse or supervisor of nurses the author brings much of inspiration as well as a broad fund of knowledge gained from many years of experience as a teacher of nurses and as a hospital executive.

First Lessons in Bacteriology for Nurses. By M. E. Morse, M.D., Pathologist to the Boston State Hospital. Cloth. Price, $1.25 net. Pp. 139, with 30 illustrations. Philadelphia: W. B. Saunders Company, 1919.

This is a practical discussion of one of the most important of the branches of medicine of which the nurse should have a clear understanding. Having a practical knowledge of bacteriology, she is able to understand why she does certain things and the importance of doing them well. The author has succeeded in avoiding unnecessarily technical language and in presenting the subject in such elementary terms as to make it possible for the average nurse to get a good fundamental knowledge of what bacteria are, how they grow and what they do. Separate chapters are devoted to the bacteriology of special diseases, as tuberculosis, pneumonia, typhoid fever, measles, scarlet fever, whooping cough and venereal diseases. In separate chapters are discussed immunity, vaccines, serums, etc. While elementary and written especially for nurses, physicians who realize that they are becoming "rusty" will find this little book helpful as a first step in "brushing up."

Clinical Case-Taking: An Introduction of Elementary Clinical Medicine. By Robert D. Keith, M.A., M.D., Consulting Physician, Tan Tock Seng's Hospital, Singapore. Cloth. Price, $1.50 net. Pp. 104. New York: Paul B. Hoeber, 1919.

This is a little volume of about ninety pages. While intended primarily as a guide for students in the taking of case histories, it is in effect a small compend of physical diagnosis, and as such fulfils its purpose admirably. The student is taught how to take complete histories, special attention being paid to the present complaint, the technic of examination, and to a certain extent how to interpret the results. A few of the commonly used laboratory methods are also given. We believe that the technic of taking diastolic pressure should be included, and that attention should be drawn to the value of the pulmonary excursion. The intern just entering on his medical service, and the student, should alike profit by the valuable suggestions made by the author.

Social Medicine, Medical Economics and Miscellany

EFFECT OF THE HIGH COST OF LIVING ON PUBLIC HEALTH

The effect of the high cost of living on health was investigated by the department of health of the city of New York (Harris, L. I.: Some Medical Aspects of the High Cost of Living, *Am. J. Pub. Health* **9**:491 [July] 1919) just prior to the outbreak of the epidemic of influenza in 1918. What foods working people do without when prices are high, how many women and children are forced into labor by the high cost of living, and how much their nutrition is reduced were queries to which the investigation sought answers. It was instituted on the assumption that "an adequate income plays a greater rôle in the maintenance of public health than any other single factor." Public health nurses gathered detailed information relative to 2,084 families, representing, in income and nationality, a typical cross-section of the population of New York. Twenty-one per cent. had a total annual income of $600 or less; 51 per cent., of $900 or less, half that declared necessary for a family of five by the U. S. Commission of Labor, in 1918. In 9.8 per cent. of the homes, the housewife had been compelled to enter industry; 9.1 had had, for the first time, to seek charitable aid. It was found that as effects of the low economic status boarders are taken in, overcrowding the homes; fatigued mothers are prevented from giving proper maternal and nursing care to the children and the sick members of the family, on their return, at night, from a day's arduous labor; illness is augmented, because special treatment, nursing care, and freedom from work and worry cannot be had, and recovery is retarded for the same reasons, and because essential, nourishing foods are unobtainable. A delayed recovery results in an added loss of time from work, and, therefore, in a progressive increase of bad conditions. The high cost of living forced a large proportion of families to dispense with such foods as meat, eggs, butter, milk and sugar, foods of a class particularly needed in the treatment of such diseases as tuberculosis. The condition bore heavily on children. In 296 families, milk was entirely eliminated from the children's dietary, and, in seventy-one, very considerably reduced. Butter was eliminated in 370 and reduced in 191; meat, eliminated in 544 and reduced in 238. Much more marked eliminations and reductions of these nourishing foods were practiced among the adult members of the families. In 628 families, the high cost of living had a pronounced effect on the quality and the amount of clothing which they were able to purchase, and, in 507, accustomed forms of recreation had been largely dispensed with. In 287 cases, the high cost of living retarded recovery from illness, and cost a loss of working time, valued at $41,395, in 285. "The industrial worker," it is concluded in the report, "should receive adequate wages in proportion to the cost of the necessities of life, lacking which, not charity but a pension from the community in whose behalf he has labored" should be given.

VENEREAL DISEASE PROPHYLAXIS

Early in 1919, an interdepartmental committee was appointed in Great Britain to consider what measures should be taken to mitigate the dangers of the dissemination of tropical and other diseases among the civil population during the demobilization of troops. A note on prophylaxis against venereal diseases has just been issued in the form of a report to the minister of health. In analyzing this report the British *Chemist and Druggist* says: "A good many witnesses appear to have been examined and various statistics were before the committee as to the effect of prophylaxis after exposure to venereal diseases. In regard to the general experience of prophylactics distributed before exposure to infection, as prevailing in the various services, the committee came to the conclusion (1) that certain drugs, if properly applied, are efficacious in preventing venereal disease; (2) that if these drugs are not properly or skilfully applied their efficacy cannot be relied on; (3) that the issue of prophylactic 'packets' tend to give rise to a false sense of security, and thus to encourage the taking of risks which would not be otherwise incurred and the neglect of facilities for early treatment when available, and in certain cases might even increase the spread of disease; (4) that, in spite of the most careful instruction, the grant or issue of 'packets' results in many an individual using them for self-treatment after he finds himself infected; (5) that, where preventive treatment is provided by a skilled attendant after exposure to infection, the results are better than when the same measures are taken by the individual affected, even after the most careful instruction; (6) that the excessive consumption of alcoholic liquors not only diminishes the sense of responsibility, but also tends to prevent the proper use of prophylactics and to delay the individual's application for skilled treatment; (7) that the most carefully organized 'packet' system, such as exists now in the army (a system which would be unattainable in the civil community), has not produced such a general reduction in the incidence of venereal disease as to counteract the disadvantages mentioned in these conclusions; (8) that the organization of recreation and social amenities has assisted in the reduction of the incidence of venereal diseases in the services before the war, and has also assisted in preventing that increase in the incidence of these diseases which, from past experience, might have been anticipated during the war; and (9) that energy should not be dissipated on measures of doubtful value, but concentrated rather on wise propaganda and the provision of early, prompt and skilled treatment, in order to diminish the prevalence of these diseases. It should be recognized that failure to cure these diseases is one of the main causes of their prevalence, and that failure to cure, in the most skilled hands, results largely from failure to treat them in their early stages. The general conclusion is that there has not been sufficient evidence of the beneficial results gained by the distribution of phrophylactic packets to prove the value of the system or to justify recommending its official encouragement among the civil population."

SANITATION IN THE TROPICS

When the term "tropical sanitation" is used in this country, one is likely to think of the work accomplished by army medical officers in Havana, the Canal Zone, Porto Rico, etc. A very different picture of the problems which Latin American countries have to face in their efforts to improve sanitary conditions, is given in the book which the veteran medical journalist of Peru, Dr. C. E. Paz Soldán, has recently published (Las Bases médico-sociales de la legislación sanitaria del Perú, Biblioteca de la Reforma Médica, Lima, 1918). Dr. Paz Soldán reviews the progress of sanitary legislation in his country from the colonial times when plagues were considered punishments inflicted by Providence, and public prayers the only weapons with which the people defended themselves. The picture he outlines of present sanitary conditions is rather lugubrious. In his opinion the most difficult handicap in Peru is that due to race distribution. In contrast with Argentina, Uruguay and Brazil, which have a relatively large population belonging to the Caucasian race, Peru has in its territory a larger percentage of Indians than any other South American nation, forming four fifths of the whole population. In addition, other non-Caucasian elements have been added, among them being the African negro and more recently Chinese and the Japanese. On the Spanish element, which is the basic element of the white population, there have been superimposed of late Italians, Englishmen, Frenchmen, Slavs and Turks. In spite of immigration, however, a decrease of population has been taking place to such an extreme that in the author's opinion Peru is a country without people. In addition to ethnical considerations, physical conditions complicate the situation, since the great mountain range of the Andes divides the country into three different sections, each one of which has entirely different problems. Acute as the public health problem is in the rural sections where people live in inadequate dwellings under insanitary conditions, it is just as pressing in Peruvian towns, which in general and with one possible exception, Lima, lack safe water supplies and modern systems of garbage and sewage disposal. The descriptions of the way people are lodged are depressing, indeed. As typical of conditions in one of the ports with the largest commerce, he quotes from a city physician's report the following :

> In small rooms built of dirt, dung and straw; under roofs covered with reeds and dirt; with few if any windows, you will find the worst possible congestion of all kinds of people and animals: dogs of all breeds, rabbits, chickens, ducks and the never to be missed donkey with its old and odorous equipment which the family use for bedclothes.

As can be expected, all sorts of epidemic diseases prevail in Peru. While no exact figures are available since the sanitary services are not organized, it is known that smallpox never ceases its ravages, especially in the interior of the country. Tuberculosis is present all over the country, receiving each year new impulse from the discharge of tuberculous soldiers from the army. Next to smallpox, which is estimated to cause from 15,000 to 20,000 deaths annually, typhus fever is probably the most serious disease, causing annually thousands of deaths, especially among the Indians of the *punas.* But likewise plague, leprosy, typhoid, hookworm, malaria and practically every other tropical disease is undermining the national vitality. In concluding, Dr. Paz Soldán says that probably all these evils are the work of the past; and at this moment when humanity is looking toward the future, it may be expected that the dawn of a new epoch is about to appear. The first step in the new road to be traveled must, of course, consist in the enactment of adequate sanitary legislation, and it is on this point that the author insists in his timely essay.

ANOTHER DECISION ON THE HARRISON LAW

The commissioner of internal revenue, July 12, issued a decision based on the United States circuit court of appeals in the case of *Thompson* v. *the United States,* which came up on a writ of error from the United States district court for eastern Missouri. The court held that the Harrison law, being a revenue measure, is not an unconstitutional invasion of the police power reserved to the states. Regarding expert testimony by physicians as to the manner of treating drug addicts, the court held it proper to permit physicians to testify as experts as to well recognized methods of treating drug addicts, to show that the dispensing of narcotics, in the case in question, was not done in a legitimate manner. The expert testimony in this case was that, unless confined so that he cannot secure a supply of drugs secretly a drug addict cannot be cured. The court held that this testimony was properly admitted. The court further held that although enacted under the taxing power of Congress, it is to prevent the growing use of narcotics, which Congress regarded as a menace to the nation, and that the act has a moral end as well as being a revenue measure.

In regard to the sale of drugs by physicians, the court held that the exemption of a physician "in the course of his professional practice only" from the requirement that narcotics shall be dispensed on an official order form does not justify a physician in selling narcotics if he does not do so in good faith for the purpose of securing the relief of one suffering from an illness or to cure him from the morphin habit. The exception in the law must be construed strictly, and those who claim the benefit of any such exception must establish it as being clearly within the words as well as within the reason thereof. This means that the burden of proof of good faith lies on the physician accused of violating the law. The court also holds that in cases in which physicians furnish narcotics to addicts in decreasing quantities and claim to be curing the addict, the physician must be in personal attendance or must give the addict such personal attention as is sufficient to show that he is acting in good faith. The evidence showed that the defendant in this case was sending drug addicts morphin by mail or express without personal attendance on them, reducing the amount slightly with each succeeding shipment. The court held these reductions to be evident subterfuges for the purpose of evading the law and that the defendant under the cloak of a practicing physician was selling narcotics not in the regular practice of his profession.

This decision confirms the constitutionality of the Harrison law, which has already been upheld in a number of similar decisions. It emphasizes the moral justification for the law and holds that a law can have at the same time both a moral and a practical justification. It affirms the value of expert testimony in deciding what are proper methods of treating drug addiction, and it further holds that personal attendance on the part of a physician is a necessary part of such treatment.

DEPORTATION OF WOMEN WITH VENEREAL DISEASE

According to an item published in the *Star and Herald* of the Republic of Panama, under a decree issued by the government of the republic, 124 women are to be deported from Panama. The law under which this decree was issued, provides for the deportation of all loose characters, or persons of ill-fame resident in the republic, irrespective of nationality. The government of the republic has considered that the best means to keep the cities and towns moral is to deport these women to their native countries. Of the 124 women to be deported, 84 were from the island of Jamaica, 7 from the island of Barbados, 2 from the island of St. Lucia, 5 from the island of Trinidad, 19 from the island of Martinique, 5 from the island of St. Thomas, and 2 from the island of Porto Rico.

Medicolegal

Leaving Packing Without Notifying Patient

(*Studyvin v. Weston* (*Iowa*), *171 N. W. R. 15*)

The Supreme Court of Iowa, in affirming the order of the trial court, as having properly directed a verdict for the defendant at the close of the plaintiff's evidence, says that the plaintiff was in a hospital in care of the defendant as a surgeon for a period of five days. He performed a surgical operation on her consisting in lancing of urethral abscess. It was located on the urethra and on the vagina wall. At the time of the operation the defendant used a piece of cheesecloth or surgeon's gauze for the purpose of absorbing blood and pus from the incision. This was placed as a packing within the vagina. The particular piece used by the defendant was described by the plaintiff's husband as a witness as being 2 feet long and 2½ inches wide. Ten weeks after the discharge of the plaintiff from the hospital she discovered a smaller piece of cloth or gauze within the vagina and removed it. The ultimate complaint of her pleading was that the defendant failed to advise her that he had inserted any cloth or gauze in the vagina, and that she was thereby prevented from discovering its presence, and that its long continuance therein resulted in injury to her. Her experts testified that the use of gauze or cloth was proper, and that its long continuance without change was not necessarily injurious, though very offensive. At the expiration of five days the plaintiff left the city, and accepted no further attention from the defendant. Up to that point of time the presence of the packing in the vagina was neither injurious to the plaintiff nor wrongful on the part of the defendant. If the plaintiff did not know of its presence, her husband did. Its removal called for no surgical skill. Moreover, it might well be assumed that during her further convalescence she would seek the aid of a local physician, and the presence of the packing would be readily discovered by any physician.

Assuming, however, for the sake of the argument, that the defendant should have warned the plaintiff and should have instructed her as to the removal of the packing, and that he failed in his duty in such respect, yet the evidence wholly failed to show that the presence of the packing resulted in any injury to her. At the time of the operation and for some time prior thereto, the plaintiff was suffering from a serious disease. One of the resulting effects of such disease was the abscess for which she obtained surgical relief. The surgical operation was not calculated to check the disease. The defendant did not treat her for such disease. The symptoms suffered by the plaintiff after the surgical operation were of the same kind as those suffered before the operation, though they grew more severe with the progress of the disease. Two expert witnesses testified on behalf of the plaintiff that the presence of the packing for such inordinate length of time could produce septicemia, especially in view of its contact with a surgical wound. But they testified also that even this was improbable. It appeared affirmatively and without dispute that the surgical wound "healed all right," and that it was involved in no complication whatever. There was no evidence, expert or otherwise, that the plaintiff had suffered from septicemia. On the entire record the court is satisfied that no cause of action was disclosed against the defendant.

Cold Storage Limitation to Protect Public Health

(Nolan v. Jones et al. (Pa.), 106 Atl. R. 235)

The Supreme Court of Pennsylvania holds constitutional the statute of that state, of 1913, entitled "An act for the protection of the public health and the prevention of fraud and deception, by regulating the storage and sale of cold-storage foods," etc., so far as it limits the time within which foods, particularly butter, may be held in cold storage, and then sold or offered for sale, as that no butter which is held in cold storage for a longer period than nine months shall be sold, offered or exposed for sale. The court says that no part of the federal constitution, or any of the amendments thereto, takes from the states the right to determine what shall be prohibited as prejudicial to the public good; and the fact that, under the peculiar circumstances of any given case, the particular article condemned happens to be "wholesome" cannot affect the application of a legitimate police statute comprehending a whole class of objects, of which the kind in question is one, the class being such as reasonably justifies regulation for the preservation of the public health. It is a matter of common knowledge that food will start to decay even in cold storage, and many articles, when subjected to a long period of such treatment, although able successfully to withstand inspection immediately before removal, will thereafter rapidly putrefy or deteriorate; hence it cannot be held that any measure beyond enforced inspection is unreasonable. Ordinarily it is for the legislature to determine whether inspection or prohibition is the appropriate remedy, and there is nothing about the present statute which would justify the court either in determining that the inhibition under attack is an unreasonable exercise of police power or in assuming that the law was enacted otherwise than in good faith and for the public welfare. In Pennsylvania only the special legislation that is expressly forbidden in Section 7, Article 3, of the state constitution is invalid on that particular ground, and there is no prohibition to be found therein against special food laws; furthermore, cold storage food is now so universally used that it has, even in popular acceptance, fallen into a class by itself, which requires legislative regulation for "the protection of the public health." This is not undue, but just and proper, classification; and, because an act such as the present of necessity fails to govern articles not placed in cold storage, that fact does not, in any legal sense, make the statute one granting special "privileges and immunities" to the owners of the latter class of food; or, to put it more concretely, if it were conceivable that butter could be preserved in salable condition for more than nine months without modern, scientific cold storage, and hence that owners thereof would be privileged to dispose of their property, on the market, under circumstances which would deprive owners of cold storage butter from so doing, that would not make the legislation before the court subject to the charge of granting exclusive privileges and immunities to a special class. The statute is general in that it applies to a distinct and justifiable class, and all persons dealing in food articles, at their option, may or may not bring themselves within the statute.

Society Proceedings

COMING MEETINGS

American Academy of Medicine, Harrisburg, Pa., Sept. 23.
American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Public Health Assn., New Orleans, Oct. 27-30.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Kentucky State Medical Assn., Ashland, Sept. 23-25.
Medical Assn. of the Southwest, Oklahoma City, Oct. 6-8.
Minnesota State Medical Assn., Minneapolis, Oct. 2-3.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
New Mexico Medical Society, Albuquerque, Oct. 3-4.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Southern Medical Association, Asheville, N. C., Nov. 10.
Vermont State Medical Society, Burlington, Oct. 9-10.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

September, 1919, **18**, No. 3

- *Leukocyte Counts During Influenza in Infants and Children. J. C. Montgomery and E. C. Dunham, Baltimore.—p. 153.
- *Fat Metabolism of Infants and Young Children. IV. Digestion of Some Vegetable Fats by Children on a Mixed Diet. L. E. Holt, A. M. Courtney and H. L. Fales, New York.—p. 157.
- *Cerebrospinal Involvement in Hereditary Syphilis. P. C. Jeans, St. Louis.—p. 173.
- *Incidence and Significance of Rheumatic Nodules in Children. J. Brennemann, Chicago.—p. 179.
- *Cerebral Complications in Mumps. H. R. Casparis, Baltimore.—p. 187.
- *Case of Diabetes Insipidus in a Girl of Ten Years from Standpoint of Endocrinal Involvement. D. M. Cowie, Ann Arbor, Mich.—p. 194.
- *Toxic Properties of Heated and Decomposed Milk and of Milk Cultures of Bacterium Welchii (Bacillus Aerogenes Capsulatus). W. W. Ford, Baltimore.—p. 199.

Leukocyte Counts During Influenza.—Leukocyte counts were made by Montgomery and Dunham in thirty cases of influenza occurring in infants and children less than 12 years of age. They found that the tendency in uncomplicated influenza in infants and children is toward a leukopenia, rather than a leukocytosis. There is a tendency to a slight leukocytosis in complicating pneumonia. In this series, in all pneumonia cases resulting fatally, the leukocyte counts were under 10,000. The prognosis, in general, is better in pneumonia cases which exhibit a leukocytosis. Differential counts have shown: (*a*) a tremendous variation in the differential formula, and (*b*) nothing sufficiently constant to be of clinical aid in diagnosis or prognosis.

Fat Metabolism of Infants.—The observations recorded by Holt and others indicate that corn oil and nut butter, the vegetable fats studied, are valuable foods for children, are exceedingly well borne and are apparently digested and absorbed with ease. The authors, therefore, feel warranted in the belief that these articles may safely be introduced into the regular diet of children, and that to a considerable degree they may be substituted for the more expensive milk fat, given either as milk or as butter, but they should never entirely replace milk fat. How much milk fat is needed to furnish the amount of the fat-soluble vitamin required for normal growth and nutrition has not yet been determined by the authors.

Cerebral Involvement in Hereditary Syphilis.—According to a survey of the literature by Jeans there is found involvement of the central nervous system, as shown by the cerebrospinal fluid, in about one third of all individuals with acquired syphilis. Among the 214 patients having hereditary syphilis who were studied by Jeans, a similar incidence of involvement of the central nervous system was found.

Rheumatic Nodules.—According to Brennemann all observers are agreed on two points, practically: the rheumatic nodule means rheumatism and it practically always means endocarditis. These nodules vary in number from one or two to 100 or more—commonly there are eight or ten. If numerous, they are always widely scattered. The greater the number the more surely will some of them be very large, especially over the patellas, the back of the head, or on the spines of the vertebrae. They occur always in connection with the deep fascia, the tendons, or the periosteum, but they have favorite localizations. Thus they are nearly always found, if present at all, about the condyles of the humerus, and in and about the olecranon process. Occasionally, a very large one is found near the end of the olecranon process that is almost indistinguishable till it is found to be movable. It is especially about the elbow that the joint must be flexed properly, and careful search made both with the eye and the finger. They are rarely as large here, except over the olecranon, as they are in other locations where they are connected with the periosteum. In Brennemann's experience they occur relatively frequently and are very large, not only the margins as commonly reported, but over nearly the whole of the patella, commonly on both knees. When the knee is flexed sharply they are very conspicuous. They are frequently found over the malleoli, especially over the external malleolus, on the styloid processes of the radium and of the ulna, but they are never large or numerous here. A striking and not uncommon location is on the knuckles and sometimes the tendon of nearly every knuckle is the seat of from one to five nodules. If the hand is open they quite escape notice; if the hand is tightly clenched they appear as prominent, shining, whitish or grayish clusters along the tendons. Less frequently they occur on the toes. In six or eight cases the most prominent nodules have been under the scalp, always on the back of the head. If present, there are usually from two to six, or more, large bumps nearly the size of a hazel nut. Occasionally they show a distinct predilection for the spine, where they may be hard to find if laterally or deeply seated, and most conspicuous if located on the tips of the spinous processes. Occasionally they occur along the spines and vertebral borders of the scapulae, less frequently about the shoulder joint and along the crests and articulations of the ilia. Rheumatic nodules have a tendency to appear in groups, or waves. The life of the individual nodule varies from a few days to as many months.

Cerebral Complications in Mumps.—Casparis records two cases. In one the disease was ushered in by delirium and vomiting and in the other by headache with tâche cerebrale.

Diabetes Insipidus.—With a view to determining whether endocrinal involvement was present in Cowie's case, roentgenographic examination of the sella turcica was made, and epinephrin and glucose blood sugar curves were studied, but the result was negative, hence Cowie concludes that the case was idiopathic in origin.

Toxic Properties of Milk.—Milk heated to 80 or 85 C. for from twenty to thirty minutes and kept at 37 C. decomposes with the elaboration of definite poisonous substances, a fact which, Ford says, should be kept clearly in mind in the consideration of the problem of milk pasteurization; and, under all circumstances, milk heated to temperatures sufficient to destroy vegetative bacteria but not their spores should be kept at a low temperature to prevent the development of these spores and should be used within a brief interval after the heating. Whether the bacterial products found in this decomposed milk have any poisonous action when taken into the digestive tract has not been determined, but in view of their presence in milk the practice of keeping pasteurized milk for any considerable period of time before using is condemned strongly by the authors. Finally, the occurrence of toxic substances in heated milk arising from the development of spore bearing bacteria requires a rigid supervision of milk production before pasteurization to prevent the entrance of organisms of this character.

American Journal of Medical Sciences, Philadelphia and New York

September, 1919, **158**, No. 570

*Food Factors in Gastroenterology. L. B. Mendel, New Haven.—p. 11.
Terminal Stage of Case of Hepatic Cirrhosis. F. M. Allen, Lakewood, N. J.—p. 307.
*Diagnosis of Late Syphilis of Central Nervous System. C. Frothingham, Boston.—p. 312.
Murmurs of Mitral Stenosis and of Aortic Regurgitation. H. E. B. Pardee, Montclair, N. J.—p. 319.
Comparison of Medical Casualties in British and American Troops at a General Hospital in France. R. Fitz, Boston and A. Cunningham.—p. 328.
*Spinal Decompression. N. Sharpe, New York.—p. 335.
Prominent Features of Psychoneuroses in War. J. F. W. Meagher, U. S. Army.—p. 344.
*Localization of Tumor Metastases. G. E. Armstrong and H. Oertel, Montreal, Canada.—p. 354.
Isolation of Meningococcus from Cases of So-Called Influenza. R. Kinnicutt and C. A. Binger, U. S. Army.—p. 360.
Account of An Epidemic of Influenza Among American Troops in England. F. M. Meader, J. H. Means, and J. G. Hopkins, U. S. Army.—p. 370.
*Unidentified Pandemic Disease (Influenza?) D. Roberts, New York.—p. 397.
Pneumonia as a Complication of Epidemic Influenza. A. V. Bock and J. L. Stoddard, Boston.—p. 407.

Food Factors in Gastro-Enterology.—Mendel emphasizes the fact that dietetics offers no cure-alls to the gastroenterologist, nor does any other mode of therapy. Calories, proteins, vitamins, acidophilic bacteria, merely furnish viewpoints from which important problems of practice may be examined.

Diagnosis of Late Syphilis of Central Nervous System.—Inasmuch as lumbar puncture is practically without danger, and as it opens up a means of diagnosing late syphilis of the central nervous system when other diagnostic means fail, and as late syphilis of the central nervous system calls for a special form of treatment, Frothingham believes it fair to demand that in all cases of old syphilis a lumbar puncture should be performed as a diagnostic procedure before instituting treatment.

Spinal Decompression.—The value of operation for cranial decompression, especially that of subtemporal decompression in supratentorial lesions, has been well recognized for years, Sharpe maintains that laminectomy for spinal decompressions or for exploration is of equal if not greater value. It has in the past been employed but rarely, and then usually at the wrong time, and as a last resort when all other measures have failed and the nerve tissue is irreparably damaged. And yet there can be no doubt that in patients having obscure lesions of the cord or in doubtful diagnoses an exploratory laminectomy, frequently terminating as a simple decompression, has been followed by remarkable improvement of the patient. The spinal operation has an advantage over the cranial decompression, for while a cranial decompression may be used for an exploratory procedure, the lesion itself can rarely be removed through the original incision; so that a second operation, the formation of an osteoplastic flap, is frequently necessary. But in spinal laminectomy the major part of the cord at the supposed site of the lesion is before the eye of the operator for exploration, and spinal decompression, exploration and possible removal of a lesion can be carried out at the one operation. Furthermore, diagnosis and localization of cord lesions is more accurate than the lesions of the brain. Sharpe discusses the value of exploratory laminectomy in cases of doubtful diagnosis or lesions of obscure origin which can be localized, and the value of spinal decompression in certain selected cases of well recognized forms of cord disease which formerly were not considered amenable to surgical interference.

Localization of Tumor Metastases.—Armstrong and Oertel claim that the localization of metastases depends on a number of factors. Important among these are: 1. The quantity of the tumor elements and the methods of dissemination. 2. Effects of injurious metabolic products of tumor cells on a tissue, causing degeneration and inflammation and thereby weakening its physiological resistance. 3. Close biogenetic (embryonic) relation of tumor cells to a tissue soil, whereby types of tumor cells derived from an embryonic layer grow more readily in the environment of organs or tissues which are derived from the same layer of the blastoderm.

Unidentified Pandemic Disease.—Intravenous injections of a mixed influenza vaccine, given in doses sufficiently large to cause a definite reaction consisting of a chill or definite chilly sensation one-half hour after the injection, accompanied by a rise in pulse rate and sometimes by a slight fall in temperature, Roberts believes to have been the best form of treatment used in several hundred of these cases. In a consecutive series of 200 cases of definite influenzal pneumonia treated by his plan the mortality was 9.6 per cent. This was in striking contrast to a series of eighty-six consecutive cases treated by an expectant plan with a mortality of 3.13 per cent. By this plan of treatment not all cases can be saved, but Roberts was convinced that in many cases which were naturally terminated fatally the patient recovered promptly in the most striking manner.

American Journal of Ophthalmology, Chicago

August, 1919, **2**, No. 8

Congenital Choroideremia. A. B. Connor, Chicago.—p. 553.
Eyes of Signalman. A. Duane, New York.—p. 555.
Organization and Activities of Ophthalmic Service in A. E. F. A. Greenwood, Boston.—p. 565.
Penetrating and Perforating Wounds of Eyeball with Diagnosis and Treatment of Retained Foreign Bodies. W. T. Shoemaker, Philadelphia.—p. 590.
Ocular Complications of Peripheral Epilepsy. J. M. Penichet, Havana, Cuba.—p. 594.
Infectious Granuloma of Lacrimal Gland. D. W. Wells, Boston.—p. 597.
Location of Trephine Opening in Glaucoma Subsequent to Cataract Operation. R. I. Lloyd, Brooklyn, N. Y.—p. 601.
Strabismus. F. Valk, New York.—p. 603.
New Method of Suturing in Advancement Operation for Strabismus. J. G. Huizinga, Grand Rapids, Mich.—p. 606.
Refraction in Keratoconus. J. de J. Gonzales, Leon, Mexico.—p. 606.
Some Eye Complications in Influenza. A. S. Green and L. D. Green, San Francisco, Calif.—p. 607.

Boston Medical and Surgical Journal

Sept. 4, 1919, **181**, No. 10

Gaseous Exchange with Unpracticed Subjects and Two Respiration Apparatuses Employing Three Breathing Appliances. M. F. Hendry, T. M. Carpenter and L. E. Emmes, Boston.—p. 285. To be continued.
Reconstruction of a German Shell Shattered Arm. C. L. Scudder and F. J. Callanan, Boston.—p. 296.
Graphic Method for Recording Conjugate Deviation Tests, and Its Use. E. A. Tracy, Boston.—p. 299.
*Result of Examination of Prostate and Vesicles in 125 Cases with Negative Venereal History. G. G. Smith, Boston, and H. N. Klein, U. S. Army.—p. 300.

Examination of Prostate and Vesicles in 125 Cases with Negative Venereal History.—Including all the cases noted in their records as having had no venereal disease, Smith and Klein found that sixteen cases out of 125 showed more than two pus cells per oil immersion field and might, therefore, be said to have prostatitis or vesiculitis. Cases with indurated vesicles but with no pus in the secretion were not included. In this series of 125 cases, therefore, about 13 per cent. of the men who had no venereal disease, showed definite signs of a prostatitis or vesiculitis. In practically all of these there were no symptoms referable to the prostatic condition, nor did it seem, in any of these cases, as if their arthritis was due to infection from this source.

Iowa State Medical Society Journal, Des Moines

Aug. 15, 1919, **9**, No. 8

Medical Department of Iowa State University at Iowa City. D. S. Fairchild, Clinton.—p. 265.
Prophylactic and Symptomatic Treatment in Eclampsia. F. J. Smith, Little Rock.—p. 268.
Cocain in Treatment of Keratitis. E. H. Hazen, Oakland, Calif. —p. 273.

Journal of Experimental Medicine, Baltimore

Sept. 1, 1919, **30**, No. 3

Biology of Streptococcus. I. Antigenic Relationships Between Strains of Streptococcus Hemolyticus. A. R. Dochez, O. T. Avery, and R. C. Lancefield, New York.—p. 179.
*Oxygen of Arterial and Venous Blood in Pneumonia and Its Relation to Cyanosis. W. C. Stadie, New York.—p. 215.
*Oxygen and Carbon Dioxid Content of Arterial and of Venous Blood in Normal Individuals and in Patients with Anemia and Heart Disease. G. A. Harrop, Jr., Baltimore.—p. 241.
*Cyanosis. I. Primary Causes of Cyanosis. C. Lundsgaard, Copenhagen.—p. 259.
Cyanosis. II. Secondary Causes of Cyanosis. C. Lundsgaard, Copenhagen.—p. 271.
*Erythrosis, or False Cyanosis. C. Lundsgaard, Copenhagen.—p. 295.

Oxygen of Blood in Pneumonia.—The results of a study of thirty-three cases of pneumonia in which the oxygen of both arterial and venous blood were determined are given by Stadie. The Rockefeller Institute arterial puncture was done six times on one patient without injury. In all, about ninety punctures were made and no ill results have been observed. In five normal subjects the mean arterial unsaturation was 5 per cent. of the total oxygen capacity; the mean venous unsaturation was 26.8 per cent. In the pneumonia cases the arterial oxygen unsaturation varied from 0.0 to 68.2 per cent.; the venous oxygen unsaturation varied from 14.4 to 85.5 per cent. In the fatal cases, as opposed to the nonfatal cases of pneumonia, the mean arterial oxygen unsaturation was 32 per cent. as against 13.9 per cent. As a rule, an arterial unsaturation of over 20 per cent. was associated with a fatal outcome. Similarly, the mean venous oxygen unsaturation was 57 per cent. in the fatal cases and 36.3 per cent. in the nonfatal cases. In five cases in which no cyanosis was observed at any time, the mean arterial oxygen unsaturation was 5.4 per cent. the mean venous oxygen unsaturation 31.5 per cent. In cases which showed cyanosis of varying degree during the course of the illness, the mean arterial unsaturation was 24.7 per cent., and the mean venous unsaturation 44.5 per cent. Cases without cyanosis have an arterial unsaturation close to the normal. There is a definite relation between the degree of cyanosis and the percentage of arterial unsaturation. With increasing cyanosis the arterial unsaturation becomes greater. The venous unsaturation varies similarly. In individual cases with marked cyanosis, associated with high arterial unsaturation, the clinical improvement of the patient and the diminution of the cyanosis were accompanied by a similar diminution in the arterial and venous unsaturation. Conversely, an increase of cyanosis was accompanied by an increase in arterial unsaturation. It is evident to Stadie that the cyanosis of pneumonia patients is due to the incomplete saturation of venous blood with oxygen in the lungs, and that the various shades of blue observed in the distal parts are caused by an admixture of reduced hemoglobin and oxyhemoglobin in the superficial capillaries. No unusually low total oxygen capacities were observed, even in fatal cases with intense cyanosis. On the contrary, in these cases the total oxygen capacity was unusually high, pointing toward a concentration of the blood. Again, in only one case was there any marked fall in the oxygen capacity during the illness. Therefore, methemoglobin formation, in these cases, can hardly have occurred to such an extent as to be an important factor in the production of cyanosis. Of the thirty-three cases studied, however, only seven were lobar pneumonia cases, the rest being of types ordinarily unusual and which have accompanied the recent influenza epidemic; and of the seven, not all were in all respects typically lobar. The possibility still remains, therefore, that in typical lobar pneumonia caused by the pneumococcus, methemoglobin may play a part in the cyanosis.

Blood Gases in Anemia and Heart Disease.—The data presented by Harrop indicate that at least in many circulatory diseases during decompensation, particularly when there are physical signs of pulmonary congestion, there is a disturbance of the pulmonary exchange, as indicated by the lowering of the percentage saturation of the arterial blood with oxygen. The oxygen consumption tended to be high in individuals with cardiac disease during the periods of marked decompensation and lower as compensation was regained.

Causes of Cyanosis.—The data presented by Lundsgaard in these two papers are said to prove that abnormally high oxygen unsaturation of the blood is a cause of cyanosis. This increased oxygen unsaturation may be produced in two ways: (*a*) by an increased reduction of oxyhemoglobin to reduced hemoglobin in the peripheral capillaries, and (*b*) by an incomplete oxidation of the venous blood in the lungs. No quantitative parallelism exists between the degree of cyanosis and the amount of oxygen unsaturation of the venous blood. The first condition occurs during exercise or when the blood flow is retarded, as in decompensated heart condition. The second condition occurs in certain lung and heart diseases, and when the alveolar oxygen tension is greatly decreased, as at high altitudes. If the blood is completely saturated with oxygen in the lungs, the oxygen unsaturation of the venous blood may increase from thirteen to fourteen volumes per cent., some arterial oxygen unsaturation may be assumed, and the greater this, the lower the venous oxygen unsaturation is. Even if neither râles nor dulness can be detected in the lungs, conditions may exist which prevent complete oxidation of the arterial hemoglobin. This is especially frequent in patients with mitral lesions. Cyanosis cannot be produced in patients whose hemoglobin percentage is below 35 in the Haldane scale (oxygen capacity of 6.5 volumes per cent.).

Erythrosis, or False Cyanosis.—In the venous blood of a patient with Vaquez' disease normal values were found by Lundsgaard for the oxygen unsaturation (reduced hemoglobin), although the total hemoglobin and oxygen capacity were abnormally high. The carbon dioxid content was normal. The color of the skin and mucous membranes was more reddish than blue. Lundsgaard proposes to term this condition erythrosis in order to distinguish it from cyanosis.

Journal of Medical Research, Boston

May, 1919, **40**, No. 1

Developmental Phases of Protozoon of "Blackhead" in Turkeys. E. E. Tyzzer, Boston.—p. 1.
Senile Changes of Testis and Prostate in Dogs. L. W. Smith, Boston. —p. 31.
*Reactions to Chilling of Body Surface. Experimental Study of Possible Mechanism for Excitation of Infections of Pharnyx and Tonsils. S. Mudd and S. B. Grant, St. Louis.—p. 53.
*Cirrhosis of Liver Following Intraportal Injection of Toxic Substances. S. Ogata, Chicago.—p. 103.
*Influence of Alcohol and Nicotin on the Ovary. S. Ogata, Chicago. —p. 123.

Reactions to Chilling of Body Surface.—A method and instruments are described by Mudd and Grant by means of which changes in the temperature of the skin and exposed mucous surfaces of human subjects may be followed quantitatively. The method consists essentially in holding in apposition with the surfaces, by means of specially devised "applicator," the terminals of a thermophile in circuit with a d'Arsonval galvanometer. From the thermometer and galvanometer readings the absolute temperature of the surface beneath the thermopile junctions is readily computable at any time. By this thermogalvanometric method the temperature of the skin and oral and pharyngeal membranes was shown to fall with chilling of distant areas of the body surface and to rise again on rewrapping the subject. Control experiments showed the blood temperature relatively unaltered by such cutaneous chilling: such small changes as were effected were in the direction of a minute rise with chilling and a fall on rewrapping. Two control experiments showed no consequential changes in blood pressure with cutaneous chillings. Animal experiments have resulted in a rise of blood pressure with chilling. An increase in volume of respiratory exchange was found to result from cutaneous chilling. Such respiratory increase usually caused a depression of mucous membrane temperature. Changes in temperature of the skin or exposed mucous surfaces are thus shown to be the result of changes in vasomotor tone in the vessels supplying those surfaces. A fall in superficial temperature indicates vasoconstriction; a rise, vasodilation. Chilling of the body surface causes reflex vasoconstriction in the skin of the head and neck. Earlier attempts at explaining the excitation of pharyngeal and tonsillar infections by cutaneous chilling have been based on the assumption that such chilling causes congestion of the mucous membranes. These experiments show, on the contrary, that chilling of the body surface causes reflex vasoconstruction and ischemia in the mucous membranes of the palate, faucial tonsils, oropharynx and nasopharynx. In four instances exposure was followed by a "cold" or sore throat. The mucous membranes of one subject remained normal after sixteen exposures.

Experimental Cirrhosis of Liver.—In the cases in which Ogata injected alcohol into the portal and mesenteric veins repeatedly there were seen marked cirrhotic changes in the interlobular spaces, with often newly formed bile ducts, especially marked in one case; and in addition in two of the cases there was also a marked round cell infiltration with increase of connective tissue in the central portions of the lobules. Further, he saw also in this series various pronounced degenerative changes of the liver parenchyma. The cirrhosis, however, was not the same as Laënnec's cirrhosis of the liver. On the other hand, in the series of cases in which he injected alcohol repeatedly into the ear vein, he observed but slight changes in the interlobular spaces and in the parenchyma of the liver. The difference observed in the two groups of experiments Okata thinks may be due to the difference in concentration of the alcohol as it arrives in the liver. It is evident that the repeated injections of extract of cigar tobacco into the portal and mesenteric veins may have some toxic effects on the liver. Through the repeated injections of sterilized emulsion of human tubercle bacilli into the portal vein and mesenteric veins of the rabbit, there followed marked changes resembling tuberculous lesions which were followed by an increase of connective tissue, chiefly in the interlobular spaces, together with some toxic effects on the parenchyma of the liver. These experiments seem to indicate, then, that cirrhotic changes in the liver may be produced by killed tubercle bacilli and their toxic products without the presence of any living tubercle bacilli, and that there may be some relation between tuberculosis, especially of the peritoneum and intestine, and cirrhosis of the liver. Sterilized colon bacilli and their toxic products may produce cirrhotic changes in the liver, though not the same as Laennec's cirrhosis.

Influence of Alcohol and Nicotin on Ovary.—Ogata's observations show that the fact that chronic alcoholism of parents has a great influence on their descendants seems to be principally dependent on the injurious influence of the alcohol on the spermatozoon, though in a less degree it may depend on the influence of alcohol on the ovary. There is no apparent influence of nicotin on the ovary.

July, 1919, **40**, No. 2

Comparative Study of Leismania Infantum of Infantile Kala Azar and Leptomonas (Herpetomonas) Ctenocephali Parasitic in Gut of Dog Flea. E. E. Tyzzer, Boston, and E. L. Walker, Berkeley, Calif. p. 129.
*Study of Micro-Organisms Found in Merchantable Canned Foods. E. W. Cheyney, Boston.—p. 177.
*Compensatory Hypertrophy of Thyroid. L. Loeb, St. Louis.—p. 199.
*Types of Streptococci Found in Sputum of Bronchial Asthmatics. I. C. Walker and J. Adkinson, Boston.—p. 229.

Micro-Organisms Found in Canned Foods.—Seven hundred and twenty-five cans of merchantable foods in prime condition were carefully examined by Cheyney for bacteria, molds and yeasts. Fifty-eight, or 8 per cent., of these cans, were found to contain living micro-organisms. Not all foods contained them, however, some being found always sterile, some with a constantly low percentage, others with a high percentage of cans containing viable micro-organisms. There was a uniform average found throughout for each food; vegetables being sterile or showing only a small number of cans containing viable organisms (8 per cent.), fruits showing a consistently lower number (3 per cent.), fish and meats varying from 10 to 20 per cent. The micro-organisms isolated constitute a sharply limited group of resistant spore-bearers, including the *B. subtilis-mesentericus* group, the related thermophils, an anaerobe, four common species each of aspergillus and penicillium, and two borderline yeasts. No pathogenic micro-organisms were found. The bacteria were associated chiefly with the meats, while the molds formed the sole flora of all the fruit cans found to contain living micro-organisms. Thermophils were found only in crab and lobster. There was evidence to suggest that in certain foods the bacteria and molds had persisted through the processing, and that the usual methods of processing must be increased to obtain actual sterility in these foods.

Compensatory Hypertrophy of Thyroid.—From Loeb's experiments the following conclusions are drawn: (1) If in a pregnant guinea-pig an almost complete extirpation of the thyroid is carried out, pregnancy may continue to take its normal course. Pregnancy does not promote, and perhaps retards in certain cases, compensatory hypertrophy of the thyroid in the mother; and under such conditions hypertrophy of the thyroid in the offspring does not need to take place. There is so far no definite proof that such hypertrophy ever occurs if the thyroid of the mother had previously been extirpated. In the majority of cases, abortion seems to follow an almost complete extirpation of the thyroid of a pregnant guinea-pig. Abortion does not usually interfere with the occurrence of compensatory hypertrophy in the remnants of the thyroid of the mother. In a guinea-pig in which both thyroids have been almost completely extirpated, and subsequently compensatory hypertrophy has taken place, the normal sexual cycle may continue to take place and pregnancy may occur. If one lobe or one lobe and one half is extirpated in a pregnant guinea-pig, pregnancy may proceed. Under those conditions the remaining parts of the thyroid show no deviations from the usual results of these operations. After extirpation of one and one half of the thyroid, a very mild degree of hypertrophy was found in the remaining part.

Streptococci in Sputum of Bronchial Asthmatics.—The different types of streptococci found by Walker and Adkinson in asthmatic sputum are not numerous. Practically all of the hemolytic streptococci were included in the four types, namely, *S. subacidus*, *S. anginosus*, *S. pyogenes* and *S. infrequens*. Practically all of the nonhemolytic streptococci were included in the four types, *S. nonhemolyticus* I., *S. ignavus*, *S. salivarius* and *S. mitis*. In doing the skin tests on bronchial asthmatics, it would seem to be advisable to use the protein of these types of mico-organisms rather than the protein of any one type alone. As a rule, the thick sputum of asthmatics, provided it is washed, contains very few different types of bacteria, and contamination by mouth or air organisms is unusual. For these reasons autogenous sputum vaccines seem to be practical, but they should be made at frequent intervals, since the types of organisms present in sputum are not constant, and therefore there is a chance that some vaccines may not contain the particular organism which is causing symptoms.

Journal of Urology, Baltimore

June, 1919, **3**, No. 3

*War Nephritis. N. M. Keith and W. W. D. Thomson.—p. 87.
Experimental Hydronephrosis—Repair Following Ureterocystoneostomy in White Rats with Complete Ureteral Obstruction. H. Hinman, San Francisco.—p. 147.

War Nephritis.—The investigation reported on by Keith and Thomson was carried out in thirty-three cases specially selected from about 300. These were all typical cases of war nephritis, and, with one exception, only those were included which from their previous history and clinical condition negatived as far as possible a previous nephritic condition. The authors divide these cases into two groups: Resolving and nonresolving. The resolving group is characterized by (*a*) rapid disappearance of edema accompanied by a distinct diuresis, copious excretion of chlorids, and fall in blood pressure; (*b*) rapid diminution in amount of albumin in urine; (*c*) relatively good renal function. The nonresolving group is characterized by (*a*) showing disappearance of edema and delayed diuresis; (*b*) persistent gross hematuria and persistence of albumin in the urine; (*c*) development of permanent retinal changes; (*d*) grave impairment of renal function. Relapses are of frequent occurrence in both types of the disease and are of serious prognostic significance. An acidosis of moderate degree is present. In the resolving group this disappears with general improvement, but in the nonresolving group alkali therapy is required to restore the normal acid base relationship. Functional tests are of the greatest value in forming an opinion as to the extent of renal impairment. Prognosis as to ultimate complete recovery, even in the resolving group, must be guarded. In the nonresolving group many cases show relatively early in the disease evidence of permanent renal change. The exhibition of alkali is of distinct service in many cases as shown not only by a restoration of the normal acid base relationship in the blood, but also by an improvement in renal function. When death occurs in the first two weeks of the disease an intracapillary glomerulitis is the most striking histologic feature; when death occurs in the fifth week there is found, in addition, a proliferation of the cells lining Bowman's capsule, intense edema of the interstitial tissue, small round celled infiltration and flattening of the epithelium lining the convoluted tubules. When death has been delayed to the seventh week of the disease the proliferated cells of Bowman's capsule are replaced by fibrous tissue, with resulting sclerosis of the malpighian tuft, increase of interstitial tissue, and widespread and severe tubular changes.

Laryngoscope, St. Louis

August, 1919, **29**, No. 8

Hemorrhage in Epidemic Influenza. M. A. Goldstein, St. Louis.—p. 447.
Use of the Pitch Range Audiometer in Otology. S. W. Dean and C. C. Bunch, Iowa City, Iowa.—p. 453.
Submucous Correction of Nasal Septum. J. A. Cavanaugh, Chicago.—p. 463.
Limitations of Diagnostic Value of Roentgenogram in Disease of Nose and Ear. J. Guttman, New York.—p. 472.
Correction of Nasal Deformities by Implantation of Bone: Improved Technic. W. W. Carter, New York.—p. 476.
History of an Obscure Case of Intracranial Infection with Necropsy Findings. P. D. Kerrison, New York.—p. 480.
Idiopathic Epilepsy Found to Be Due to Empyema of Antrum of Highmore. Operation and Recovery. J. C. Keeler, Philadelphia.—p. 484.
Nasopharyngeal Conditions, Tending to Prolong Meningococcus Carriage. J. W. Babcock, New York.—p. 486
Case of Chronic Purulent Otitis Media Complicated by Thrombosis and Cerebellar Abscess; Operation; Recovery. H. Tanaka, Takasaki, Japan.—p. 491.

Missouri State Medical Association Journal, St. Louis

September, 1919, **16**, No. 9

Management of Streptococcus Empyema. H. P. Kuhn, Kansas City.—p. 285.
Mechanics of Fluid in Pleural Cavity. L. Clendening, Kansas City.—p. 287.
Irritable Heart of Soldiers. J. C. Lyter, St. Louis.—p. 291.
Base Hospital No. 21. W. Fischel, St. Louis.—p. 293.
Hour Glass Uterus. F. E. Wilhelm, Kansas City.—p. 295.
Suppuration of Frontal Sinus and Its Complications. W. D. Black, St. Louis.—p. 298.
Neuroretinitis (Choked Disk) Sequel to Thyroid Extirpation. J. W. Sherer, Kansas City.—p. 304.

New York Medical Journal

September, 1919, **110**, No. 10

Work of Physical Reconstruction as It Concerns Orthopedic Surgery. J. E. Goldthwait, Boston.—p. 397.
Some of the Different Aspects Between Influenza, Pneumonia and Pneumonic Plague. S. T. Lee, Paris, France.—p. 401.
Variability in Vulcanization the Cause of Psoriasis. G. Elliott, Toronto.—p. 403.
Chronic Appendicitis. Study of Postoperative End Results. E. MacD. Stanton, Schenectady, N. Y.—p. 406.
Practical Methods of Infant Feeding. H. Goldstein, New York.—p. 409.
What the War Has Taught Us Surgically. Wounds. J. A. Miller, New York.—p. 414.
Hemoptysis. H. Rabinowitsch, New York.—p. 416.

Ohio State Medical Journal, Columbus

September 1, 1919, **15**, No. 9

Value of Military Surgery in Civilian Practice. G. W. Crile, Cleveland.—p. 541.
*Mediastinal Dermoid; Report of Case. I. H. Harris, Columbus.—p. 547.
Insidious Aspect of Rheumatic Fever in Childhood. A. G. Helmick, Columbus.—p. 553.
Internal Medicine Problem in Base Hospital in America, France and Army of Occupation. W. G. Stoner, Cleveland.—p. 556.
*Medicolegal Aspects of Mental Defectiveness. H. H. Goddard, Columbus.—p. 558.
Impetigo Contagiosa in Infancy. J. L. Murray, Toledo.—p. 561.
Milk Situation in Dayton. S. T. Pyper, Dayton.—p. 563.

Mediastinal Dermoid.—A young woman, 19 years old, a native of Russia, complained of difficulty in breathing and weakness. The roentgen-ray examination showed a distinct shadow in the right thoracic cavity. Harris aspirated the mass and withdrew a considerable quantity of semifluid material, yellow in color. As he withdrew the needle a long hair came out with it, confirming the diagnosis of dermoid cyst. At operation it was found that the growth occupied almost all of the right pleural cavity and was adherent to the diaphragm, pericardium and tissues about the root of the right lung and other mediastinal structures, and that it had pushed the parietal pleura in front of it as it extended outward into the thoracic cavity. The mass removed was a large cyst measuring 22x19x10 cm. the inner surface of which was covered with hair and the contents consisted of an oily lumpy material and a great deal of long brown hair. Three other small dermoids, 8x1.5 cm., were attached to the main cyst, but did not communicate with it. One about the size of a hen's egg communicated with the cavity of the larger cyst. The weight of this growth was about 2,800 gm. Owing to the fact that the lung which had been compressed by the tumor failed to expand it became necessary later to obliterate the thoracic cavity on that side. The patient then made a complete recovery.

Medicolegal Aspects of Mental Defectiveness.—Discussing the problem of the feebleminded, Goddard says that we do not protect society by punishing these individuals. Society is never safe when these mental defectives of criminal tendencies or experience are at large. The only protection is to place them in an environment suited to their low mentality. Such an environment is furnished by an institution or colony for the feebleminded. The courts are largely employed with repeaters. These repeaters are generally mentally defective. That is the logical expectation because mental defectiveness is incurable. An insane person may recover; a mental defective cannot. Once started on a criminal career there is no reforming them because of their weakmindedness. For the welfare of society and for their own happiness they must be colonized. Present laws make this a slow, difficult and costly proceedure.

Psychobiology, Baltimore

March, 1918, **1**, No. 5

Auditory Sensitivity of White Rat. W. S. Hunter, Lawrence.—p. 339.
A Simple Maze: Relation of Distribution of Practice to Rate of Learning. K. S. Lashley, Minneapolis.—p. 353.

South Carolina Medical Association Journal, Greenville

August, 1919, **15**, No. 8

Anemia in Childhood. R. M. Pollitzer, Charleston.—p. 526.
Diazo, Russo, and Weisz Reactions in Typhoid Fever. F. B. Johnson, Charleston.—p. 530.
Empyemas of Influenza. J. H. Taylor, Columbia, S. C.—p. 533.
Constructive Methods in Infant Welfare Work. L. Duke, Rome, Ga.—p. 536.

Southern Medical Journal, Birmingham

August, 1919, **12**, No. 8

Diagnosis of Diseases of Pancreas. T. R. Brown, Baltimore.—p. 433.
Diarrhea. H. Gray, Boston, and A. B. Brower, Dayton, Ohio.—p. 438.
Roentgen Ray in Diagnosis of Pulmonary Tuberculosis. J. W. Hunter, Jr., Norfolk, Va.—p. 443.
Value of a Drug. P. W. Rowland, Oxford, Miss.—p. 448.
*Studies of Malaria Control. I. Relative Frequency of Malaria in Different Ages and Age Groups in a Large Area of Great Prevalence. C. C. Bass, New Orleans, La.—p. 456.
*Studies on Malaria Control. VI. Frequency of Malaria Infection Without Recognized Symptoms, Compared with Frequency of Recognized Attacks in an Area of Great Prevalence. C. C. Bass, New Orleans.—p. 460.
*Studies on Malaria Control. VII. Proportionate Dose of Quinin Required to Obtain Same Results in Treating Malaria in Children of Different Ages as in Adults. C. C. Bass, New Orleans.—p. 462.
*Studies on Malaria Control. VIII. Observations Indicating That Effective Immunity Against Malaria Parasite Infection Does Not Occur. C. C. Bass, New Orleans.—p. 464.
*Use of Pepsin Quinin Mixture: A Treatment of Malaria Carriers. F. E. Harrington and E. Barrier, Washington, D. C.—p. 468.
Control of Malaria. J. A. LePrince, New Orleans.—p. 469.
Malaria Control a Business Man's Problem. J. A. LePrince, New Orleans.—p. 471.
Cancer of Breast. L. C. Fischer, Atlanta, Ga.—p. 475.
Rarer Forms of Sterility in Male. V. D. Lespinasse, Chicago.—p. 478.
Sterility in Women. W. T. Black, Memphis, Tenn.—p. 480.
Leukorrhea. J. E. Garrison, Birmingham, Ala.—p. 483.
Blood Transfusion. M. Beekman, Natchez, Miss.—p. 487.
Lesions of Mouth in Congenital and Acquired Syphilis. C. Watterson, Birmingham, Ala.—p. 489.
Intratracheal Injections. T. W. Moore, Huntington, W. Va.—p. 501.
Progressive Abnormalities of Refraction. R. R. Daly, Atlanta, Ga.—p. 503.

Frequency of Malaria at Different Ages.—Approximately 50 per cent. of all the malaria in the locality investigated by Bass was found in persons under 20 years of age.

Malaria Without Symptoms.— In 44.91 per cent. of these cases studies by Bass malaria either does not produce any symptoms whatever or at least does not produce symptoms that are recognized as malaria.

Malaria: Dose of Quinin for Children.—Bass states that when the child is less than 1 year of age the proportionate doses for children is 1/20 that of the adult dose. From 1 year on to 15 years the dose for a child is one tenth the adult dose.

Immunity in Malaria.—Immune bodies are produced in malaria and the immunity processes contribute largely to elimination of the infection. In fact, they are usually sufficient to eliminate the infection in time without the aid of specific medication. In any given locality where malaria is very prevalent, if it were followed by lasting and effective immunity, there should be little malaria in older children and adults. In a locality where approximately 50 per cent. of the community have malaria during a given year, it is observed that malaria occurs about three fourths as frequently in adults as in children. This observation indicates that whatever immunity is produced is not lasting and effective against new infection.

Use of Pepsin Quinin Mixture for Malaria Carriers.—According to Harrington and Barrier the administration of a quinin and pepsin mixture reduces the incidence of unpleasant results about 70 per cent. as compared with the idiosyncrasies manifest following the administration of plain quinin sulphate, without any evidences of imparing the effect on the plasmodia in the circulating blood. After careful investigation, the following proportion of quinin and pepsin was adopted: Quinin sulphate, 90 parts (by weight); milk sugar, 6 parts (by weight); powdered pepsin, U. S. P., 4 parts (by weight). Mix thoroughly and place in capsules No. 0 or No. 3. This mixture gave, in capsule No. 0, 4.97 grains of quinin sulphate.

Southwestern Medicine, El Paso

August, 1919, **2**, No. 8

Concerning Refraction in Relation to Conservation of Vision. D. F. Harbridge, Phoenix, Ariz.—p. 1.
Sentiment Against Graduate Nurse.—M. V. Braun.—p. 5.
Traumatic Perinephritis and Perinephric Abscess. P. Rigney, El Paso.—p. 7.

Tennessee State Medical Association Journal, Nashville

August, 1919, **12**, No. 4

Some Practical Procedures Used by Army That Are Applicable to Civil Work. L. E. Burch, Nashville.—p. 119.
Secondary Cataract and Method of Treatment. C. M. Peavler, Bristol.—p. 122.
An Unusually Difficult Cataract Extraction and Some Other Interesting Eye Conditions. R. Fagin, Memphis.—p. 126.
Résumé of Cataract Operations. G. C. Savage, Nashville.—p. 129.
Surgical Lessons of War. W. D. Haggard, Nashville.—p. 137.
Value of Clinical Laboratory in Diagnosis. R. E. Yates, Paris.—p. 142.
Treatment of Drug Addiction. A. D. Greenfield.—p. 144.

Texas State Journal of Medicine, Fort Worth

August, 1919, **15**, No. 4

Requirements for Doing Honest and Efficient Surgery. J. S. McCelvey, Temple.—p. 145.
Standardization of Ophthalmology and Ethical Attitude to be Assumed by Its Members. J. H. Burleson, San Antonio.—p. 148.
Progressive Lenticular Degeneration or Wilson's Disease; Report of Case. M. L. Graves, Galveston.—p. 149.
Cutis Exhauriat. A. W. Acheson, Denison, Texas.—p. 153.
Hypophyon. R. W. Moore, Fort Worth.—p. 156.

Wisconsin Medical Journal, Milwaukee

August, 1919, **18**, No. 3

Treatment of Fractured Femur. C. H. Lemon, Milwaukee.—p. 85.
Food Facts and Fancies. H. P. Greeley, Madison.—p. 90.
Acute Suppurative Otitis Media. G. H. Lawrence, Stevens Point.—p. 95.
Bunion; Its Care and Cure. H. A. Robinson, Kenosha.—p. 100.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

July 31, 1919, 13, No. 2

Treatment of Malaria. XXVI. Action of Arsenic and Quinin on Quartan Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock and J. W. S. Macfie.—p. 97.

Treatment of Malaria. XXVII. Intravenous Injections of Novarsenobillon and Intramuscular Injections of Quinin Bihydrochlorid in Simple Tertian Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, and J. W. S. Macfie.—p. 101.

Filaria Pertenue. J. Rodhain.—p. 109.

Treatment of Malaria. XXVIII. Quitenin Hydrochlorid in Simple Tertian Malaria. J. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie and W. R. O'Farrell.—p. 117.

Treatment of Malaria. XXIX. Oral Administration of Liquor Arsenicalis With Quinin Bihydrochlorid in Simple Tertian Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie and W. R. O'Farrell.—p. 119.

Treatment of Malaria. XXX. At What Time After Cessation of Quinin Treatment do Relapses Occur in Simple Tertian Malaria? J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie and W. R. O'Farrell.—p. 125.

Phagocytosis of Erythrocytes by An Ameba of Limax Type. W. Yorke and J. W. S. Macfie.—p. 133.

Strongylidae in Horses. VIII. Specieis Found in American Horses. W. Yorke and J. W. S. Macfie.—p. 137.

*Distribution and Destruction of Quinin in Animal Tissues. I. J. Lipkin.—p. 149.

*Cases of Acute Amebic Dysentery in Asylum Patients Never Out of England. A. M. Smith.—p. 177.

Case of Multiple Infection by Dracunculus Medinensis. B. Blacklock and W. R. O'Farrell.—p. 189.

Distribution and Destruction of Quinin in Animal Tissues.—Evidence is given by Lipkin bearing on the possibility that there exist in the blood vascular system regions kept almost free from quinin throughout a period of quinin medication The quinin content of tissues has been more extensively studied. Accumulation at much higher concentration in most tissues than in the blood is confirmed. The suprarenal is preeminent in this respect, although not so markedly with intramuscular as with intraperitioneal injections. Fairly large accumulations may occur also in the spleen and kidney; the lymph glands contain much less quinin than the surrounding blood. The liver, kidney, muscle, intestinal wall and probably pancreas, have considerable power to destroy quinin postmortem, and, therefore, presumably during life. The blood, spleen, suprarenals, bone marrow, lymph nodes, salivary and thyroid glands have little or no such power. The quinin destroying agent extracted from the liver is thermolabile, inactivated at 100 C. and acts best in neutral media. Its action is rapid at first, but soon falls off. It does not act at all in the absence of oxygen, and is hindered by hydrogen peroxid. It can be crudely "purified" by fractional precipitation with alcohol. Quitenin is formed by the action of liver pulp on quinin. Quitenin given to a malarial patient by mouth, in ample doses, was therapeutically inert. As none appeared in the urine, this is probably true also of its metabolites. In the feces of a case of blackwater fever, a brown pigment is described which, although not itself cholecyanin, readily yields this body. New tests for quitenin and quinotoxin are described. The thalleioquin test is rendered capable of detecting easily 0.004 mg. of quinin.

Cases of Acute Amebic Dysentery in Asylum Patients Never Out of England.—Five hundred and four asylum patients were examined by Smith for intestinal protozoa. Fifty-nine of these had acute dysentery and in three of the cases vegetative *Endameba histolytica* were found in the stools. All the usual protozoa were also found in the stools, but the infections were distinctly less numerous than in the patients of another asylum previously examined.

Glasgow Medical Journal

August, 1919, 92, No. 2

Aftermath of Malaria and Dysentery. J. Cowan.—p. 65.

Investigation into Phenomena of "Serum Disease"; Relation Between Its Various Forms and Proteins of Horse Serum. W. T. G. Davidson.—p. 75.

With the 1/1st Lowland Field Ambulance in Gallipoli. G. H. Edington.—p. 87. To be Continued.

Japan Medical World, Tokyo

Aug. 10, 1919, No. 295

*Experimental Study of Antihemorrhagic Action of a Highly Concentrated Physiologic Sodium Chlorid Solution Administered Intravenously. Otsubo.

Standardization of Antityphoid Serum. Fukuhara and Yoshioka.

Antihemorrhagic Action of Highly Concentrated Physiologic Sodium Chlorid Solution Administered Intravenously.—Otsubo determined experimentally that the antihemorrhagic action of a highly concentrated physiologic sodium chlorid solution consists in increasing the coagulability of the blood and lowering the blood pressure.

Journal of Pathology and Bacteriology, Cambridge

May, 1919, 22, Nos. 3-4

*Can Lipoids Act As Antigen? C. Y. Wang, Edinburgh.—p. 224.

*Detection of Diphtheria Bacilli in Swabs by Means of Fluid Serum. C. Y. Wang, Edinburgh.—p. 229.

Value of Complement fixation Test as a Means of Differentiating Between Enteric Vaccinated and Typhoid Infected Persons. W. D. O'Kelly, Dublin.—p. 235.

*Experimental Scurvy in Monkeys. A. Harden and S. S. Zilva.—p. 246.

*Sebaceous Glands in Cervix of Uterus. Report of Case. G. W. Nicholson.—p. 252.

Dentigerous Cyst in Upper Jaw of a Cod. H. C. Williamson, Aberdeen.—p. 255.

Agglutination Results with Certain Dysentery Organisms Placed Against Homologous and Heterologous Serums. A. Distaso, E. Goodall and H. A. Scholberg.—p. 257.

*Spirobacillus Zeylanicus (Castellani). F. E. Taylor.—p. 262.

*Chemotherapy of Bacterial Infections, with Special Reference to Experimental Pneumococcus Infection. C. H. Browning and R. Gulbransen.—p. 265.

Biochemistry of Pathogenic Anaerobes. VI. Proteolytic Action of Bacillus Sporogenes (Metchnikoff) and Bacillus Welchii. C. G. L. Wolf.—p. 270.

*Comparative Toxicity of Triphenylmethane and Flavine Dyes for Tissue and Bacteria. J. H. Mueller.—p. 308.

Adenoma of Bladder. W. E. de Korte.—p. 319.

*Loss of Complementing Power in Guinea-pig Serum at Various Temperatures. J. W. Bigger.—p. 323.

*Cultural Characters of Certain Anaerobic Bacteria Isolated from War Wounds. R. S. Adamson.—p. 345.

Can Lipoids Act as Antigens?—Wang's experiments showed that in the case of the dry blood an antigenic capacity is found in the extract of a lipoidal nature. This finding differs from that shown in the experiment conducted along similar lines by Ritchie and Miller. The disagreement in the results is probably due to the fact that in the procedure Wang adopted for extraction the blood was treated alternately with ether and chloroform, the extracts derived from both being put together for use. It may also be that, by saponification, the extracts were rendered more easily assimilable in the body of the animal, and, consequently, in a more favorable position to bring on a reaction. With regard to the lipoidal extracts of egg white and horse serum, experiments fail to present any evidence of an antigenic capacity.

Detection of Diphtheria Bacilli in Swabs.—In the examination of swabs for the presence of diphtheria bacilli Wang found that wet serum is a better medium for cultivation. It is, therefore, advisable that the swab instead of being smeared on solidified blood serum should be put directly it is received, into the fluid serum and incubated. While a number of organisms met with in the throat are capable of producing acid in the wet serum, this property is especially pronounced in the case of the diphtheria bacillus. This observation would warrant the assertion that, when the reaction of the culture is unchanged or remains plainly alkaline, the diphtheria bacillus may be excluded.

Experimental Scurvy in Monkeys.—Experiments made by Harden and Zilva show that by giving monkeys a good nutritious basal diet, lacking the antiscorbutic factor, scurvy can be induced in these animals. The daily amount of food consumed naturally varied, but on the average the monkey ate about 70 gm. of wheat germ, 100 gm. of boiled rice, 80 gm. of nuts, 80 gm. of bread and 150 c.c. of beer. The autoclaved rice and the wheat germ were made up in a paste with about 100 c.c. of autoclaved milk. The food consumed by the animal was of high calorific value and contained an abundant supply of protein and of the antineuritic factor.

The experiment commenced June 25. The first definite symptoms of scurvy were observed October 18. A second monkey was fed autoclaved rice and bread and milk. The main feature of this diet, in contradistinction to the one of the previous experiment, was that, besides the lack of the antiscorbutic, the antineuritic factor was almost absent. The only source for the antineuritic factor was the autoclaved milk. This animal consumed on the average 200 gm. rice and 40 gm. of bread and half a pint of milk daily. The experiment was started July 28. November 6 decided hemorrhages of the gums were first observed. A third experiment was performed to demonstrate that the scorbutic condition in the monkey induced by dietetic means can be cured by the administration of an antiscorbutic. The main ration of this animal consisted of rice and wheat germ. Bread and monkey nuts were not given to this animal. The average daily consumption was about 200 gm. of rice and 40 gm. of wheat germ. The experiment was started October 18. December 29 slight sponginess of the gums was observed. January 23 the scorbutic condition of the animal was very acute. The antiscorbutic used was lemon juice from which the free citric and other acids had been removed. January 23 the monkey received, by means of the stomach pump, 25 c.c. of the treated lemon juice, which was equivalent in antiscorbutic potency to 100 c.c. of the original juice. The next day it received another dose, equivalent to 100 c.c. of lemon juice. After twenty-four hours an improvement could already be observed. Doses of the treated lemon juice equivalent to 150 c.c., 250 c.c., 250 c.c., and 130 c.c., were administered during the following four days. January 28 the gums were almost normal and the teeth were practically firm. The monkey continued on the scorbutic diet with a daily addendum of treated lemon juice, equivalent to 10 c.c. of the original juice. March 16 it was chloroformed, and, with the exception of an old green-stick fracture of the radius of the left forearm just above the wrist, everything was found to be normal at the postmortem examination.

Sebaceous Glands in Cervix Uteri.—Nicholson believes that the sebaceous glands in the cervix of the uterus in his case were a product of the mesoblastic lining of the cervix.

Spirobacillus Zeylanicus.—Taylor isolated this organism from the stools of a case of postdysenteric colitis. The case is reported in detail.

Chemotherapy of Bacterial Infections.—Experimental proof is afforded by Browning and Gulbransen that by the use of antiseptics a highly virulent and invasive bacterial infection can be overcome while still relatively localized in the living body, although the tissues by themselves are unable to cope with it; further, the evidence indicates that this result has been attained by an actual cooperation of the chemical agent along with the natural defensive mechanisms, i. e., the organisms are not killed through the sole agency of the antiseptic. A strain of pneumococcus rendered highly virulent for mice by repeated passages was used to infect a series of animals intraperitoneally, then, after an interval, watery solution of diaminoacridine sulphate (proflavine), 1 : 600, in the proportion of 1 c.c. per 20 gm. mouse, was introduced into the peritoneum. That the therapeutic result depends on the combined action of the drug and the tissues on the bacteria, appears from the fact that an amount of antiseptic which too closely approaches the toxic limit may fail to produce cure, whereas smaller doses are effective. Thus, in one series, out of eight mice receiving a dose of from 1 : 400 to 1 : 500 proflavine, seven were cured, while out of four receiving a dose of 1 : 3,000, which is the maximum nonlethal dose, two died with pneumococcal septicemia and one died acutely with other organisms in the heart blood.

Triphenylmethane and Flavine Dyes.—Mueller found that the triphenylmethane dyes seem to show a very definite specificity, now for one and now for another type of organism. Malachite and brilliant green, closely related chemically, affect the streptococcus and the colon bacillus. The two violets, probably the same chemical in different degrees of purity, attack the colon bacillus and *B. pyocyaneus,* while the two blues, again closely related and quite distinct from any of the others, seem specific for gram-positive organisms. The formation of addiction products of the dye with a halide, as in methyl green and iodin green, seems to greatly reduce toxicity for all bacteria, and sulphonation apparently quite destroys it. Tissue cells are inhibited before streptococci in every case by the triphenylmethane dyes. In the case of the flavines, however, the dilution producing inhibition is the same for tissue and streptococci, although other bacteria require greater concentrations. Specific action, while less marked than in broth, runs in a general way parallel to it, while in brilliant green and night blue there is evidence of specific toxicity for tissue cells. From these data one would expect better clinical results from the use of flavine than brilliant green in wound dressings. It is also worthy of note that in every case a greater concentration of dye is necessary to inhibit bacterial growth in the presence of serum and tissue than in plain broth. In no case in this series did an antiseptic show greater toxicity for bacteria than for tissues.

Complementing Power in Guinea-Pig Serum.—The methods described by Bigger are said to afford a satisfactory means of estimating decreases in the complementary powers of serums over considerable periods of time.

Cultural Characters of Anaerobic Bacteria.—Fifteen organisms were studied by Adamson and their cultural characters are described. Thirteen are sporeproducing bacilli, one a nonsporing bacillus and one a diplococcus.

Journal of State Medicine, London

August, 1919, **27**, No. 8

After War Social Reconstruction. T. Oliver.—p. 225.
War Time Experience of Factory Medical Officers and Position of Factory Medicine Under Peace Conditions. W. J. O'Donovan.—p. 241.

Journal of Tropical Medicine and Hygiene, London

Aug. 1, 1919, **22**, No. 15

Blackwater Fever. J. P. Williams.—p. 145.
Etiology of Blackwater Fever. W. E. Masters.—p. 146.
Occurrence of Carcinoma in Liver of a Leper and of Squamous Epithelioma with Tuberculosis in a Cow. J. B. Cleland.—p. 147.

Lancet, London

Aug. 16, 1919, **2**, No. 5007

India During War. A. W. Sheen.—p. 273.
Maternal Mortality in Childbed. J. Phillips.—p. 275.
*Conduct of Labor and Puerperal Sepsis. J. H. E. Brock.—p. 277.
Kineplastic Amputations. M. F. Kelly.—p. 280.
*Lengthening of Amputation Stumps. W. E. Gallie.—p. 282.
Case of Carcinoma of Pelvic Colon Treated by Excision and Anastomosis. C. Frankau.—p. 282.
Segmental Hyperalgesia in Malaria. D. W. C. Jones.—p. 283.
Paratyphoid Infections of Pleura. J. H. Abram and E. Glynn.—p. 283.
Smallpox Notes for Practitioners. W. M. Wanklyn.—p. 284.
*Vaccination by Subcutaneous Injection. J. R. Goodal.—p. 285.

Conduct of Labor and Puerperal Sepsis.—The premise that nature sterilizes the vagina and washes out intruding organisms is defended by Brock as follows: One of the earliest changes in the uterus on conception is edema of the cervix, which steadily progresses throughout gestation. This phenomenon is not due to pressure, because it starts almost with impregnation. Whatever its cause, it subserves a purpose over and above that of increasing the dilatability of the cervix. With the progress of the presenting part, the cervix becomes gradually dilated and subjected to an increasing pressure. As a result, vessels are ruptured, and tears, small or large, occur. The torn vessels are sealed, and from them exudes a copious flow of serum mixed with extravasated blood. The purpose of this serous exudation is, doubtless, physiologic, and it is in all probability bactericidal, resembling the flow of lymph after wounds in other parts. Brock suggests that its rôle is probably partly to cleanse the vagina and partly bactericidal to retained organisms. While all this is a physiologic process and wholly beneficial to the patient, it becomes far otherwise if vaginal examinations are made the rule in labor. Instead of protection, it may be a menace to life.

Lengthening of Amputation Stumps.—A case is cited by Gallie to show that amputation stumps may be lengthened.

With an osteotome applied in the sagittal plane one half of the terminal 3½ inches of the shaft of the bone was cut free. This piece of bone was slid downward so as to lengthen the femur by 2½ inches, and was then fastened by two long screws of beef bone. The flaps were then dissected up sufficiently far to allow them to be drawn down and closed over the end of the bone. The wound healed by primary union, except for a hematoma, which opened spontaneously and disappeared without infection; otherwise recovery uneventful. Two months later the fragments were solidly united and the patient commenced active exercise of the stump to increase the density of the bone. He is now wearing the ordinary artificial limb and has a very satisfactory stump. The extensive splinting of the bone led to rather profuse hemorrhage. Gallie suggests that this could be avoided by substituting for the method described an ordinary inlay bone graft or a graft driven into the medullary cavity.

Vaccination by Subcutaneous Injection.—Goodall has vaccinated hypodermically approximately 6,000 men and quite a number of officers' children. He uses the ordinary vaccine put up in the small capillary glass tubes, injecting 1 c.c. and changing the needle after each injection. The local reaction sets in usually in from two to four days. This local reaction is much like that following antityphoid inoculation and just as variable in intensity. About 8 per cent. of vaccinations proved ineffective, showing but slight local reaction, not more than, perhaps, could have been accounted for by the iodin applied to the skin; in 70 per cent. (approximate only) there was a reaction similar to the usual reaction after antityphoid inoculation, i. e., local swelling, heat, tenderness, slight pain and redness. In a small percentage of cases the reaction was marked, causing swelling and edema of the elbow, and in a few cases edema resulted involving the whole arm and hand. In every one of the 6,000 cases vaccinated hypodermically by Goodall or under his supervision the local condition subsided without any signs other than those of excessive local reaction. After the seventh or tenth day the local swelling and induration subside, leaving a hard nodule in the subcutaneous tissues, usually ill defined at first, becoming later well circumscribed and lasting for about one month. This is quite painless after the first acute reaction. The process differs in no respect from that of an antityphoid reaction, except that the onset is slower and the reaction spreads itself over several days. The general symptoms vary in intensity and do not differ from those of ordinary vaccination. In the 6,000 cases quoted there was not one case of infection.

Medical Journal of Australia, Sydney

Aug. 2, 1919, **2**, No. 5

Risk of Malaria in Australia. R. Fowler.—p. 83.
Malaria in Macedonia. M. C. De Garis.—p. 84.
Incidence of Malaria Among Troops on a Transport to Australia from Egypt and Palestine. W. Summons.—p. 86.
Fracture of Mandible near Angle. R. V. Hennessy.—p. 88.

Practitioner, London

August, 1919, **103**, No. 2

Diet in Acute Disease. J. F. H. Broadbent.—p. 81.
Dietetics of Diabetes and Glycosuria. W. L. Brown.—p. 88.
Diet in Obesity. L. Williams.—p. 100.
Dietetics in Chronic Arthritis. F. G. Thomson.—p. 110.
Diet in Renal Circulatory Disease. P. Bergouignan.—p. 122.
Connection Between Food and Disease in Infants. E. Pritchard.—p. 131.
Diet in Tuberculosis and Pulmonary Disease. M. Paterson.—p. 143.
Dietetics in Dermatology. G. Pernet.—p. 153.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 4, 1919, **43**, No. 23

*The Initial Lesion of Pulmonary Tuberculosis in Infants. R. Dumas and H. Béclère.—p. 651.
*Bronchiestasia Cured by Induced Pneumothorax. E. Rist.—p. 652.
Induced Pneumothorax in Treatment of Dilatation of the Bronchi. P. E. Weil.—p. 656.
*Lethargic Encephalitis. Papin, D. Denéchau and C. Blanc.—p. 659.
*Menorrhagia Arrested by Antithyroid Treatment. P. E. Weil.—p. 672.
Influence of Minor Professional Traumatisms on Localizations of Syphilis. G. Railliet.—p. 677.
*Necropsy Findings in Pneumonia. P. Menetrier.—p. 679.
Pneumococci Isolated in Infants' Ward. P. Nobécourt and J. Paraf.—p. 687.

Initial Lesion of Pulmonary Tuberculosis in Infants.—The breast fed infant of 13 months contracted tuberculosis from a nurse and developed *splénopneumonie bacillaire* with signs of tracheobronchial glandular involvement. The child threw it all off finally, and six years later not a trace can be found except one small shadow, evidently a calcified gland. This was probably the initial lesion, and around it was a peri-tuberculous congestion so intense that it simulated pleurisy of the right side.

Artificial Pneumothorax in Treatment of Dilatation of the Bronchi.—Rist reports the case of a child of 5½ with a manifest focus of sclerosis in one lung, with bronchiectasia, consecutive to bronchopneumonia from whooping cough and measles two and a half years before. He induced artificial pneumothorax, and a complete cure followed which has persisted for five years to date. This measure should not be applied as the last resort, but, as in this case, before the sheets of the pleura are solidly adherent, and while there is still some sound elastic tissue in the inferior lobe. In the radioscopic surveillance of this case he noted, as with any pneumothorax of the kind, that during inspiration the mediastinum was displaced and the amplitude of the heart beat exaggerated on that side. He also noted that the stump of the left superior lobe swelled up suddenly at each ventricular systole, shrinking to its former size at each diastole. Weil reports two similar experiences, but as the interval had been eighteen years or more the pleural adhesions were too solid for the artificial pneumothorax to prove effectual. Only partial benefit was realized, and this only in one case, but even thus the results are encouraging for this new application of artificial pneumothorax in treatment of dilatation of the bronchi before irreparable lesions are installed.

Lethargic Encephalitis.—Papin and his co-workers remark that this disease seems to be spreading in France, and they report four cases in adults at Angers, with necropsy in one. They comment on the number and diversity of the symptoms. In two cases there were nocturnal attacks of precordial pain, distress, tachycardia and convulsive movements, all recurring for more than six weeks. None of the three survivors have regained their earning capacity during the four months to date. They seem to be crippled in body and one in mind besides.

Antithyroid Treatment of Menorrhagia.—In the case reported by Weil the uterine hemorrhages had kept up for twenty-five days each month for a year, and the woman of 30 had only 2,000,000 erythrocytes and 40 per cent. hemoglobin, while the blood took ten minutes for the clot to form, and coagulation of the venous blood took fifteen minutes. The gums also bled readily but there were no personal or hereditary hemorrhagic antecedents. The woman had a small goiter but no other signs of exophthalmic goiter. He gave tentative organotherapy with thyroid, suprarenal, pituitary and other organ extracts, and tried iron and arsenic—all to no avail. Then he changed to what he calls antithyroid treatment, and a complete cure soon followed. He used for this three teaspoonfuls a day of a glycerin preparation of the blood of goats thyroidectomized over a month before. The literature records the cure by this means of a persisting and recurring hemorrhagic pleurisy in a case of exophthalmic goiter, and the arrest of severe menorrhagia in one woman, a virgin. The hemorrhage-reducing power of this antithyroid treatment seems to be restricted to the genital sphere and complex endocrine disturbance. Ramond has reported a case in which thyroid treatment improved myxedema in a woman of 48, and seemed to cure completely a tendency to multiple recurring hemorrhages.

Necropsy Findings in Pneumonia.—Menetrier classifies the macroscopic findings in 400 pneumonia cadavers. He was impressed among other things by the fact that in the 181 showing tuberculous lesions, in seventy-eight they were of long standing. Fatty degeneration of the liver was almost constant, and in nearly all it seemed to be the direct work of the pneumonia toxin.

Paris Médical

Aug. 2, 1919, **9**, No. 31

Review of Renal Pathology Since 1914. R. Grégoire and P. V. Radot.—p. 77.
Urinary Surgery in 1918. F. Marsan.—p. 82.
Acute Azotemia in Mercuric Chlorid Nephritis. P. Merklen and C. Kudelski.—p. 92.
*Nontraumatic Perinephritic Hematomas. Rapin.—p. 94.
*Ileopelvic Congestion. F. Cathelin.—p. 103.

Nontraumatic Perinephritic Hematoma.—Rapin relates that the hematoma had developed in the man of 35 after scarlet fever. Except for nephritis the kidney seemed sound at the two interventions to evacuate the hematoma. The man died a year later from the progress of his untended nephritis. The diagnosis has rarely been made before the operation, the symptoms indicating merely internal hemorrhage, with sudden violent pain in the kidney region and retroperitoneal tumefaction. Ecchymosis in the lumbar and scrotum region is instructive. The pain differs a little in its site from that with acute pancreatitis, and the kidneys should be examined even when the latter is suspected. Operative treatment has given 50 per cent. recoveries, while all died of the eight under expectant treatment.

Ileopelvic Congestions.—Cathelin applies this term to the cases that used to be called *faux urinaires* or *psychopathes urinaires,* explaining the organic basis for the pelvic plexalgia, pelvic neurosis, or pelvic varicocele. The disturbances are of a functional nature resulting from the abundance of veins in the pelvis. It is an actual venous lake, the vessels and the plexuses closely interwoven. The whole region below the diaphragm is varicose, and vague, deep and radiating pains, disturbance in micturition during the day (not at night as these patients "urinate with their brain," and at night the brain rests), and a nervous or syphilitic taint are the most prominent signs and symptoms. The course and evolution are very slow, and disturbance may take the "false urinary" or the "false genital" form. The subjects may complain of the bladder, kidneys, prostate or urethra, of impotence, spermatorrhea, nocturnal pollutions, etc. There may be no history of gonorrhea or acquired syphilis. Treatment should be by hygiene, psychotherapy, possibly epidural injections, and training the urinary or genital apparatus to better habits. No intra-urethral treatment should be given, no instillation or lavage of any kind, but electrodes to the perineum and above the pubis sometimes give results. He advises as the most important measure to give a sedative at night to ensure sleep, with valerian daily and some depurative every morning, such as a tablespoonful of "horseradish syrup," and, above all, 30 drops daily of the fluid extract of hamamelis, fractioned, before each of the main meals of the day, supplemented by diuretic teas in abundance to dilute the salts and stone-forming elements in the urine. The catheter must never be used in these cases, as it not only could do no good but might transform the patients into true *urinaires* by infecting them or breeding a habit. Severing the pubic veins is a measure that he does not recommend.

Presse Médicale, Paris

July 31, 1919, **27**, No. 42

*Reconstruction of the Nose. L. Ombrédanne.—p. 413.
*Operative Treatment of Ulnar Contracture. R. Le Fort.—p. 414.
*Operative Treatment of Banti's Disease. L. Losio.—p. 415.

Reconstruction of the Nose.—Ombrédanne asserts his conviction that if the Italian method had been followed in some recently published experiences with reconstruction of the nose, the outcome would have been still better as there would have been no need to depend on flaps from the vicinity. His success with the Italian method seems to have been remarkable, judging by the cases illustrated. He ascribes his success to certain technical points which he describes in detail, especially the importance of refraining from modeling the nose after the Italian flap from the arm has been cut off. It must be given two months to retract and heal definitely in place before the tip of the nose and the nostrils are modeled into their final shape.

Ulnar Contracture.—Le Fort's illustrations show how the contracture (if there is no bony ankylosis) can be corrected by severing the branch of the extensor tendon that is attached to the first phalanx, severing at the same time the fibers joining the tendon to the perforating fibers of the palmar aponeurosis and the interossei and the lumbricales at their junction with the extensor tendon. All these fibers are cut close to the tendon, which is thus relieved from the inward pull causing the claw hand.

Operative Treatment of Banti's Disease.—Losio recently reexamined a woman of 58 who seemed to be in perfect health although in 1916 he had operated on her for primary splenomegaly with cirrhosis of the liver at the ascites stage—a typical case of advanced Banti's disease. He combined splenectomy with omentopexy, and cites others' experiences to confirm the rational premises and successful outcome of this combined method. The spleen is the organ primarily affected, and splenectomy is indicated whenever the primary splenopathy is capable of entailing cirrhosis of the liver. He warns that every scrap of the spleen must be removed with minute care, and search must be made for possible supernumerary spleens which should also be removed.

Aug. 7, 1919, **27**, No. 43

*Disturbance in Absorption of Fat by the Intestines. A. Lemierre and others.—p. 425.
*Extraction of Projectiles under Roentgen Control. Gudin.—p. 427.
Symptoms from Wounds of Arteries. H. Mondor.—p. 429.

Disturbance in Intestinal Absorption.—Lemierre and his co-workers review the means at our disposal to detect defective absorption of fat by the bowel, especially when there is retention of bile and disease of the pancreas. They insist that bile is indispensable for absorption of fat by the bowel, while this is but little affected by lack of pancreatic juice. At least, the latter is not indispensable, like the bile. The partial or total absence of absorption of the fat ingested should be regarded as a sign of insufficiency of the biliary apparatus rather than as a sign of insufficiency of the pancreas alone. The pancreas may be decidedly pathologic without the absorption of fats being much disturbed. Previous research in this line has given conflicting findings on account of the inexact methods followed. By direct determination in the blood of the absorbed fats, the findings have always been exact and concordant, and this method they commend as dependable. Chemical tests for fat in the blood are too complicated for general use, but examination of a drop for blood-dust, hemokoniae, is simplicity itself, as all that is necessary is to examine with the ultramicroscope a drop of blood between slides. They studied in the dog the effect on absorption by the bowel of fat ingested after resection of the common bile duct, and also in clinical cases of obstruction of the biliary passages. When bile is completely shut off, no hemokoniae appear in the blood after ingestion of a test meal of fat, and chemical tests of the blood show no difference in the fat content fasting or after the test meal. This estimation of the difference between the lipemia fasting and after the test meal is a much easier method than to determine the absolute fat content. The fat in the blood reaches its height from four to six hours after the test meal, and the examination of the blood should be done during these hours.

Extraction of Projectiles Under Roentgen Control.—The special advantage of Gudin's simple and portable device is that the radioscopic localization can be done in daylight and without changing the position of the patient. In case the roentgen procedure is not available, the device can be used as a simple compass. Seven illustrations of it are given.

Progrès Médical, Paris

July 19, 1919, **34**, No. 29

Symptoms with Injury of Nerves in Submaxillary Space. A Barbé.—p. 281.
Spa Treatment of Neuralgia. L. Bertier.—p. 282.
Radium Emanations in Therapeutics. Baud and Mallet.—p. 284. Cont'n.
Some Indispensable Formulas in Dermatology. L. Bory.—p. 287.
*Lactic Acid-Albumin in Treatment of Intestinal Infections. B. Gheza.—p. 288.

Acid Treatment of Intestinal Infections.—Gheza bases this treatment on Giani's success with a fermented lactic acid-peptone serum in treatment of bowel infections. Moruzzi confirmed Giani's success, but he ascribed it exclusively to the acid. Gheza uses an acid drink for the purpose, made of 14 parts lactic acid with 250 parts sugar in 500 parts beef serum. In twenty cases of dysenteric enterocolitis with over twenty bowel movements a day, the patients improved remarkably under this treatment, as also in five cases of typhoid and one of paratyphoid. In one of the dysentery cases the number of passages dropped from twenty to one by the fourth day. In a typhoid case, this treatment begun the eighth day was followed by defervescence in three days after this "lemonade treatment" was begun. No details are given as to doses, etc.

July 26, 1919, **34**, No. 30

*Tuberculous Process in Lower Jaw. A. Aimes and Aubanel.—p. 291.
Radium Emanations in Therapeutics. Baud and L. Mallet.—p. 293. Conc'n.
*Spa Treatment of Liver Diseases. Willemin.—p. 296.

Tuberculosis of the Jaw.—Aimes and Aubanel report the case of a boy of 8 who developed a tuberculous process in one ankle, a year later one in the forearm, and later one in the tibia. Five years after the first symptoms, an abscess appeared in the left lower jaw and pus kept reforming after repeated punctures. The entire left jaw shows notable thickening on radioscopy, with a zone of less opaque bone in the horizontal ramus. The prognosis of such lesions is grave. In Perrot's compilation of twenty-four cases, only ten of the patients recovered, and this recovery is precarious. In two cases the patients succumbed to tuberculous meningitis. The outlook in the present case seems absolutely bad.

Spa Treatment of Liver Disease.—Willemin explains the factors in the benefit in disease of the liver from a course of mineral waters at Vichy. It seems to stimulate the antitoxic action of the liver and restores the physiologic balance as the poisonous wastes with which the cells were gorged are washed out as by a freshet. Under the influence of the course the leukocytes show important modifications and phagocytosis is whipped up. Analysis of the urine, stools and blood shows the benefit from the waters, in particular on the three great functions of the liver. The power to reduce sugar is regained to large extent, so that diabetics with from 40 to 80 gm. sugar witness its disappearance, and larger sugar contents drop to a third. The waters do not seem to benefit materially dyspepsia of nervous origin or with dilatation of the stomach, but when liver disease is a factor, marked improvement is realized. Symptoms of liver involvement should be sought in all cases of dyspepsia. If the liver is too profoundly diseased for recuperation, the Vichy waters may exaggerate the morbid condition, as in conditions generally in which the reaction to the effect of the waters may be more than the extremely debilitated patients can stand.

Revue de Chirurgie, Paris

January-February, 1919, **38**, No. 1-2

*Melanic Cancer of Male Breast. E. Forgue and E. Chauvin.—p. 1.
*Wounds of the Liver. Soubeyran.—p. 21.
*Traumatic Hematomas Back of the Omenta. G. Miginiac.—p. 81.
Physiologic Torsion of the Femur. P. le Damany.—p. 135.
*Treatment of Cavities in Bones from Traumatic Osteomyelitis. H. Lefèvre.—p. 140.

Melanic Cancer of Male Breast.—Forgue and Chuvin report a case of melanic cancer of the male breast and summarize 18 others they have found on record. The ages ranged from 10 to 69, with 40 as the average. The influence of traumatism seems evident in 4 cases, but heredity as a factor did not appear except in one case. The list includes 5 Frenchmen, 6 Anglo-Americans, 6 Germans and one Italian. The tumor had been noted before the medical examination from one to five years, an average of nearly two and a half years. Long survival is recorded in some cases with early operation before the glands had become involved. In 2 cases two operations were required, and the patients survived three and fourteen years.

Wounds of the Liver.—Soubeyran analyzes 323 cases of war wounds of the liver, and compares them with the stab wounds of the liver in peace, discussing the treatment and the outcome.

Retro-Omental Hematoma.—Miginiac remarks that the only treatment for traumatic hematoma back of the omenta is by a laparotomy. In forty-five cases he has compiled, the mortality in all the untreated cases was 100 per cent., and only two recovered in the six cases treated by puncture alone.

Treat of Cavities in the Bones.—Lefèvre noted that cavities after traumatic osteomyelitis, when located in the femur, seemed to be the hardest to cure. He reviews the indications for treatment, and summarizes fifty-six cases from his own service.

Revue Neurologique, Paris

February, 1919, **26**, No. 2

*Experimental Study of Lesions from Explosions without Direct Contact. A. Mairet and G. Durante.—p. 97.
Hyperostoses in Case of Lateral Amyotrophic Sclerosis. A. Barbé.—p. 111.
*Conceptions of Space, Time and Number. W. van Woerkom.—p. 113.

Experimental Research on Aerial Shock.—Mairet and Durante give photomicrographs of the findings in rabbit brains after exposure to explosions without direct contact. Their extensive research confirms that it is necessary to distinguish between a contusion, a commotion or concussion, and an emotional shock. The effects of contusion from a solid or gaseous agent are focal lesions with attrition. The effects of a commotion are a vibratory shaking up, and this causes diffuse lesions in the elements most readily shaken up, but there is no attrition. The emotional shock is the result of exhaustion and overwork or excesses of various kinds, and its effect is purely functional. The *commotioné,* they reiterate, is a *blessé interne* with lesions which differ from those we had been accustomed to observe before the war. The diffuse lesions are extremely minute but extremely numerous, and the resulting symptomatology is often abortive but is always complex—an entirely new field for exploration which may lead indirectly to the solution of many hitherto obscure problems. It may reveal the organic basis for many conditions hitherto deemed pure neuroses. The data presented, they add, renders darker the outlook for the *commotionés,* even the simplest forms, as they show that these immediate war vascular and other lesions may lead to grave and irreparable secondary lesions. Not only will many of them be unable to recuperate, but they seem destined to entail sequelae calling for disability pensions. (Although "concussion" is a good French word, it is never used in this connection, as it has a special meaning of illegal graft in French. "Commotion" is the term preferred in France, and it is being generally accepted elsewhere now.)

The Geometric Sense, Sense of Time and of Numbers.—Van Woerkom describes a case of retrogressing aphasia of the Broca type which emphasizes anew the essential difference between the psychic act of recognition—passive memory—and the psychic act of evocation—active memory.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 24, 1919, **49**, No. 30

The Functions of the Cerebellum and Adjacent Organs. E. Rothlin.—p. 1113.
Errors in Interpretation of Wassermann Reaction. G. Cornaz.—p. 1124.

Chirurgia degli Organi di Movimento, Bologna

July, 1919, **3**, No. 2-3

*Projectile Fracture of the Femur. A. Contini.—p. 133.
*Surgery of Amputation Stumps. D. Montemagno.—p. 201.
*Projectile Wounds of Spinal Cord and Meninges. G. Pieri.—pp. 257.
*Reconstruction of the Thumb. G. Pieri.—p. 325.
*Topography of Fibers of External Popliteal Nerve. G. Perrone and G. Tanfani.—p. 332; Id. of Ulnar Nerve. G. A. Pietri and G. C. Riquier.—p. 336.

War Wounds of the Femur.—This is a summary of the experiences and outcome with fracture of the shaft, or both shaft and epiphysis, in sixty cases.

Surgery of Amputation Stumps.—Montemagno discusses the various indications which confront the orthopedic surgeon, and gives an illustrated description of the technic advisable under the different conditions. The work is based on 384 cases of reamputation at the Rizzoli Orthopedic Institute. In fifty-four cases the reamputation had to be bilateral. A number of points are emphasized to guide surgeons at the primary amputation.

War Wounds of the Spinal Cord and Meninges.—Pieri analyzes 119 clinical cases of this kind, observed mostly at an advanced surgical station.

Reconstruction of the Thumb.—Pieri slits the soft parts down to the base of the basal phalanx of the thumb, and prepares this phalanx to serve as the thumb. In the two cases illustrated, the men were able in a few weeks to grasp firmly articles that were not very small with the reconstructed thumb.

Topography of the Fibers of the Popliteal and Ulnar Nerves.—In these two communications a number of cases are described in which peculiar conditions after war wounds remarkably facilitated investigation of the course of the fibers in these nerves, and of the domain innervated by the different fibers.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 6, 1919, **40**, No. 54

*Electric Treatment of Causalgia. G. Boschi and G. Tanfani.—p. 540.

Electric Treatment of Causalgia.—Boschi and Tanfani report most gratifying results from the high frequency current in treatment of causalgia, describing a number of typical cases after war wounds. Transient relief followed each application, and the pain grew more attenuated and disappeared completely in from two weeks to two months in about half the cases. This simple treatment should be given a trial if nothing can be found that suggests pressure on the nerve. They apply the current merely in the form of the effluvium.

July 10, 1919, **40**, No. 55

*Induced Pneumothorax In Treatment of Tuberculous Pleurisy. P. Binda.—p. 554.

Tuberculous Pleurisy.—Binda points out that in treating tuberculous pleurisy we must not overlook the practically invariably accompanying tuberculous process in the lung. For this, we are reduced to general measures and local compression of the lung by induced pneumothorax. This can be applied after evacuation of the effusion and in appropriate cases seems the most rational and effectual method at our disposal. It obviates any disturbance resulting from evacuation of the fluid, and prevents formation of adhesions. Air alone in the pleura is not always capable of preventing the total or partial collapse of the sheets of the pleura. The pneumothorax should be kept up until a connective tissue barrier has been thrown up around the pulmonary focus.

Riforma Medica, Naples

July 19, 1919, **35**, No. 29

*Pluriglandular Dystrophy. E. Mariotti.—p. 590.
*Physical Agents as Affecting Phagocytosis of Bacteria. P. Ciancio. —p. 596.
Treatment of Scabies. G. Riva.—p. 599.
*Adaptation of Bacteria. P. Rondoni.—p. 599.
*Bone Complications of Typhoid. E. Aievoli.—p. 601.
The Scientific Sources of Modern Stomatology. B. de Vecchis.—p. 606.

Glandular Dystrophy.—Mariotti gives an illustrated description of a case of general pluriglandular dystrophy, predominantly thyroid and genital, in a tall young man with persisting juvenile characteristics. Implantation in the thigh of a testicle just removed from another patient was followed by some improvement, but it proved only brief and transient as the implanted tissue was resorbed.

Influence of Physical Measures on Phagocytosis.—Ciancio reports experiments with human leukocytes in suspension in their own serum, defibrinated, seeking to determine the effect of heat, sunlight and ultraviolet rays on the phagocytosis of bacteria. The germs studied were the staphylococcus, colon bacillus and *Faecalis alcaligenes*. The staphylococcus after heating was more easily incorporated by the leukocytes, and phagocytosis was still more intense after the germs had been exposed to the ultraviolet rays, and most intense of all after exposure to sunlight. The ultraviolet rays seemed to damage the other germs to such an extent that they were destroyed by the serum before phagocytosis was possible.

Adaptation of Micro-Organisms to the Organism.—Rondoni cites some facts which seem to suggest that pathogenic microorganisms may have their protoplasm altered in time so that they then become susceptible to the action of antibodies which before they resisted, or vice versa. This calls for caution in the estimation of certain biologic reactions, while at the same time it opens new routes for progress, and explains certain still obscure points in infectious diseases. For instance, the self-limiting course in relapsing fever which stops after two or three relapses, while syphilis keeps on indefinitely.

Bone Complications with Typhoid.—Aievoli discusses the bone and joint complications with typhoid and paratyphoid and the importance of bacilli carriers. He insists on the necessity for watching over convalescents and not ascribing to "neuralgia" or "hysteria" any pain in bones or joints. The danger from an overlooked spondylitis is particularly grave on account of the deformity liable to follow if immobilization is neglected. It may not be necessary to apply a stiff corset, but at least the patient should be immobilized in a good position.

Rivista di Clinica Pediatrica, Florence

June, 1919, **17**, No. 6

Bacteriology of Influenza in 1918. G. Fiore.—p. 281.
*Chronic Hemorrhagic Purpura and Tuberculosis. G. Genoese.—p. 304.

Chronic Purpura and Tuberculosis.—Genoese analyzes the scanty literature on chronic purpura, and reports two cases in which chronic hemorrhagic purpura developed in children of 6 and 2, and was soon followed by symptoms of pulmonary tuberculosis. He thinks this is more than a coincidence, and argues that the purpura was the first manifestation of the tuberculosis; in these cases it was the first and continued the most predominant. In Bensaude's complication of 36 cases of chronic purpura, tuberculosis was manifest in 7 and probable in 5 more; in Monnot's 48 cases, tuberculosis was certain in 16. In some of these cases the tuberculosis affected the peritoneum, meninges, kidneys, glands or suprarenals instead of the lungs. In conclusion he calls attention to the appearance of giant ecchymoses under the influence of tuberculin treatment.

Rivista Critica di Clinica Medica, Florence

May 24, 1919, **20**, No. 21

*Pleurisy with Induced Pneumothorax. A. Varisco.—p. 241.

Early Sign of Pleurisy with Induced Pneumothorax.—Varisca has noted that when inflammation develops, the injected gas becomes rapidly absorbed. This is the first objective warning that pleurisy is installed.

Anales de la Facultad de Medicina, Lima

March-April, 1919, **2**, No. 8

Mental Disease in Early History of Peru. (Locos de la Colonia.) H. Valdizan.—p. 71. Cont'n.
*Yellow Fever in Peru. J. Arce.—p. 93. Cont'n.
*Trypanosome Found in Blood of Bats at Lima. M. Noriega del Aguila. —p. 134.

Yellow Fever in Peru.—Arce is professor of tropical medicine, and he discusses here the alleged endemic occurrence of yellow fever in the coast towns of Peru, giving a historical sketch of the endemic foci in Guayaquil and Panama and its eradication in Panama. The epidemics of supposed yellow fever in Peru in previous centuries are also described in this instalment of his work. He mentions parenthetically Manson's blunder in stating that yellow fever has been encountered at Cuzco, Peru, at an altitude of 9,000-10,000 feet. Manson was misled by Archibald Smith's report of cases of yellow fever in the coast towns, which he personally inspected, while he accepted as the same disease cases of typhus reported by others from the mountain regions. Smith stated that the points in which the disease on the coast differed from that in the mountains were evidently merely the modifications induced by the altitude and the climate. Smith's statements have never been officially contradicted, although the physicians of Peru never agreed with him, and Arce says it is high time to correct Manson's mistake.

Trypanosome in Blood of Bats.—Noriega reports the finding of *Trypanosoma vespertilionis* in the blood of 7 per cent. of forty bats of the molossus species at Lima. He says that this is the third trypanosome identified in Peru, the others being the lewisi and the duttoni, found in 1904 and 1917, respectively.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

June, 1919, **2**, No. 6

*Acute Primary Spasm of the Esophagus. S. Martínez Gómez.—p. 321.
*Chronic Constipation and Vagotony. C. B. Udaondo.—p. 326.
Intestinal Tuberculosis. F. Gallart Monés.—p. 335.

Acute Primary Spasm of the Esophagus.—In the first case here described by Martínez the robust woman of 30 found that she was unable to swallow after a fall which did not cause any appreciable lesions. Fluids swallowed were expelled when they reached a certain point in the esophagus. He was able to pass a semiflexible tube down into the stomach but found it difficult to withdraw as the spasm of the esophagus gripped it tight. A faradic current was then applied to the neck and chest, and in five minutes the spasm subsided and there has been no further trouble since. She had had a similar attack of primary spasm of the esophagus seven years before on the occasion of a sudden death in the family, and it had yielded likewise to the faradic current. Its effect could have been only by suggestion, he remarks, as otherwise the galvanic current would have been indicated.

Chronic Constipation and Vagotony.—Udaondo regards spastic constipation as merely one manifestation of general overexcitability of the autonomic nervous system. This hypervagotony manifests itself in various ways, with intermittent involvement of different organs, and prominent in this is atonic or spastic constipation, isolated or combined or consecutive. Treatment of this form of constipation should be addressed to the nervous system, and he has been most successful with atropin.

Brazil-Medico, Rio de Janeiro

June 14, 1919, **33**. No. 24

Care after Pleurotomy. J. de Mendonça.—p. 189.

June 21, 1919, **33**, No. 25

Gregarina Hydrophili n. sp. G. Hasselmann.—p. 193.
Statistics of Influenza Epidemic. Bulhoes Carvalho.—p. 194.

Crónica Médica, Lima

June, 1919, **36**, No. 672

*Tuberculous Rheumatism. E. Odriozola.—p. 195.
*Urine Diagnosis of Renal Tuberculosis. C. A. Zevallos.—p. 198.
*Trichomonas Hepatitis. E. Escomel.—p. 208.
*Vincent's Angina. J. C. Dianderas.—p. 211.

Tuberculous Rheumatism.—Odriozola reports a case of subacute articular rheumatism that began to develop two days after wading a stream when much fatigued. The features of the case suggest Poncet's tuberculous articular rheumatism, and tuberculin treatment offers the best prospects, beginning with minute doses and repeating the injections weekly, gradually increasing them.

Urine Diagnosis of Renal Tuberculosis.—Zevallos applied the Debré and Paraf technic for the fixation reaction in 19 persons with kidney symptoms suggesting a tuberculous lesion, and in 12 the outcome was positive, confirmed by the course of the case in all. In a compilation of 81 certain cases, the findings were positive in 79, while inoculation tests were positive only in 60 and direct examination showed a tuberculous focus only in 22. Zeballos used serum from tuberculous patients for the antituberculosis serum, not having prepared horse serum available.

Trichomonosis of the Liver.—Escomel has encountered two recent cases and describes the total of five in which *Trichomonas intestinalis* was obtained from the abscess in the liver. Three of his five patients died, but the two latest treated by his improved method, with turpentine and iodin alternately, recovered completely after a two months' course, and have had no recurrence during the three years since. (His method was described in The Journal, May 17, 1919, p. 1501.)

Vincent's Angina.—Dianderas describes a case in his own person in which *Capsicum annuum* seemed to act like a specific. He touched the lesions with the triturated seeds in a semifluid paste, repeating the applications every fifteen minutes at first. Within thirty-six hours only slight traces were left of the gangrenous patches, and healing proceeded rapidly, although deep recesses had been left by the burrowing processes before they had been arrested by this topical medication. The burning from the first applications caused intense salivation and rhinorrhea but in three hours the fever had dropped and the relief was so intense that he slept tranquilly all night. The capsicum is a household remedy in his country, and it seemed to prove its efficacy in his case after failure of all the usual measures.

Crónica Médico-Quirúrgica, Havana

June, 1919, **45**, No. 6

*Future Orientations of the Medical Press. J. Santos Fernández. —p. 179.
*The New Orientations of the Cuban Medical Press. J. E. López-Silvero.—p. 185.

The New Orientations of the Medical Press in Cuba.—Both Santos Fernández and López-Silvero expatiate on the need for closer relations between the scientists of South, Central and North America, and mention appreciatively the Spanish Edition of The Journal as an exponent of the importance and the intensity of this movement for *aproximación de la cultura médica continental,* meaning the western continent.

Gaceta de los Hospitales, Mexico, D. F.

July 13, 1919, **2**, No. 2

Abnormal Children. A. Lozano Garza.—p. 17. To be continued.
*By-Effects with Spinal Anesthesia and Means to Combat Them. E. García.—p. 19. Concluded in No. 3.—p. 28.
Case of True Hermaphroditism. A. Jimenez O'Farril.—p. 22.

By-Effects of Spinal Anesthesia.—García examined the spinal fluid obtained by lumbar puncture drawn as soon as the patient exhibited symptoms of distress after injection of cocain into the subarachnoid space. It showed reactions indicating the presence of cocain, and the symptoms subsided at once after 40 c.c. of fluid had been withdrawn. In others of the twelve cases described the spinal fluid was withdrawn without waiting for symptoms to develop, and none of these patients developed headache or any other symptoms thereafter. His experiences show that cocain persists in the cerebrospinal fluid up to five hours after even a small amount has been injected. The advisability of withdrawing the toxic fluid at the slightest symptom of intolerance is obvious. The fluid can be withdrawn immediately the analgesia is complete. It is not even necessary to wait for the conclusion of the operation, as the analgesia once installed does not seem to lose in quality when this is done. If simple withdrawal of spinal fluid does not arrest all disturbances, he adds that the spinal canal might be rinsed out.

July 20, 1919, **2**, No. 3

*Sodium Cacodylate in Large Doses. E. Moreno.—p. 31.

Sodium Cacodylate in Large Doses.—Moreno reports three cases of rheumatism in a syphilitic, or anemia consecutive to malaria, or suspicion of pulmonary tuberculosis, all in adults, and all given a course of sodium cacodylate in doses up to 0.5, 0.6 and even 1 gm. Marked improvement was evident in all.

Gaceta Médica de México, Mexico

July, 1919, **54**, No. 1

*The Hematology of Altitudes. D. Vergara Lope.—p. 3.
Serodiagnosis of Syphilis. E. de Raso.—p. 17.
*Pulque Yeast. M. Cordero.—p. 24.
Lymphocytosis in Syphilitic Blood. T. G. Perrín.—p. 29.

The Gaceta.—This journal is the official organ of the Academia Nacional de Medicina, Mexico, and herewith it enters on the first volume of its fourth series, in its fifty-fourth year. Dr. E. Landa is the editor, and it is to be published monthly.

Hematology of Altitude.—Vergara here presents evidence to prove that the polycythemia of high altitudes is the result merely of the concentration of the blood from losses of water, owing to the dryness and rarefaction of the air. This concentration of the blood has a useful purpose in conserving the activity of the gas interchanges, and in promoting the circulation in the rarefied air. His research was done mostly on the residents of the high tableland of central Mexico, and he cites a number of similar findings by others. The average number of erythrocytes in 225 observations was, 6,480,000; Landa found in children 6,185,000, and Vergara in thirty-eight observations in adults found 6,762,236. His large work on life on high tablelands, written in collaboration with Herrera, obtained the Hodkins international medal of the Smithsonian Institute.

Pulque Yeast.—Cordero suggests that the yeast from pulque be utilized like brewers' yeast.

Plus-Ultra, Madrid

April, 1919, **2**, No. 10

Medical Inspection of Schools at Madrid. S. de los Terreros, A. Muñoyerro and M. Cirajas.—p. 175.
*Study of the Dynamics of the Heart. M. Bañuelos.—p. 182.
*Chronic Colon Bacillus Infection of the Urinary Apparatus. R. Mollá. Pascual and Picatoste.—p. 188.
*Conjunctival Tuberculosis. J. Basterra Santa Cruz.—p. 193.
Examination of Tuberculosis Suspects. Hyvert.—p. 204.
Suppurating Polycystic Kidney. M. Scrés.—p. 208.
Gonococcus Pyelonephritis. Id.—p. 209.
Aviators' Neurosis. C. Juarros and A. Pérez Núñez.—p. 211.
Influence of Aviation on the Sensibility, Tendon Reflexes and Muscle Force. C. Juarros.—p. 212.
Case of Progressive Spinal Muscular Atrophy. Wenceslao López-Albo. —p. 212.
Complications of Influenza: Lethargic Encephalitis? F. Garcia.—p. 219.
Dangers in Modern Roentgenotherapy apart from the Radiations. F. Reber.—p. 224.
Case of Dercum's Disease. C. Jiménez.—p. 227.
Case of Addison's Disease. Id.—p. 228.

The Dynamics of the Heart.—Bañuelos tabulates the findings and gives tracings showing the influence of epinephrin, ether, atropin and muscarin on the blood pressure, as compared with the heart beat.

Chronic Colon Bacillus Infection of the Urinary Apparatus.—Mollá relates the details of five cases of chronic colon bacillus infection of the bladder, and emphasizes its resistance to the ordinary measures in vogue for treatment of cystitis. It seems to be aggravated by silver salts. The bladder responds with pain to pressure on the hypogastrium and through the vagina and rectum. The pain may be mild or absent when the bladder is gently compressed through the hypogastrium, but if the hand suddenly releases the bladder, as the latter stretches there is acute pain. The cystitis with this infection is often of the dolorosa type, and there is generally slight terminal hematuria, and exploration with instruments is exceptionally painful, while the capacity and tolerance of the bladder are slight or null, and incontinence is frequent. No other form of cystitis is so liable to concretions and incrustations. Two of the five cases described were in boys of about 11. Recovery has not been complete to date in any of them, but his three patients with colon bacillus pyelonephritis recovered completely after nephrectomy. In this latter affection only one kidney is involved, as a rule, and the general health does not suffer so much as with other infectious germs. The accompanying cystitis is generally mild and permits exploration of the ureters. There is seldom a history of hematuria, and tubercle bacilli are never associated with the colon bacilli. The kidney is usually displaced in these cases, and adherent, as these suppurative processes usually develop only in the displaced and adherent kidney. Concretions and incrustations do not develop with colon bacillus pyelonephritis, and the large size of the kidney is explained by the almost invariable preceding uronephrosis. The large size and the peculiar predisposition to adhesions render nephrectomy more difficult than is the rule with tuberculous kidneys.

Tuberculosis of the Conjunctiva.—Basterra says that he has encountered both primary and secondary tuberculous lesions in the conjunctiva, as he describes with numerous microphotographs. He found it more frequent in girls and women than in men; the majority of the patients were between 10 and 30 years old. The conjunctiva of the lids and tarsus is the usual site, but the clinical differential diagnosis is not enough. If the lesion is not very extensive, it yields readily to touching with 50 per cent. lactic acid.

Progresos de la Clínica, Madrid

May, 1919, **7**, No. 77

*Industrial Accidents Injuring the Urinary Apparatus. V. Juaristi. —p. 198.
Radiologic Diagnosis of Appendicitis. J. González Campo and J. González-Campo de Cos.—p. 209.
Dieting for Recalcification. S. Carro.—p. 223.

Industrial Accidents Involving Urinary Apparatus.—Thirteen illustrations accompany Juaristi's account of his experience with grave industrial accidents causing rupture of the kidney, fracture of the pelvis, etc., and the measures applied to correct conditions. Industrial accidents involving the urinary apparatus frequently entail serious inconvenience from fistulas, etc., loss of procreating power, and there is always danger of secondary stenosis. All this should be borne in mind in estimating the workman's compensation. Serious indirect injuries of the urinary apparatus from fracture of the spine generally soon terminated fatally in his experience. In other indirect cases there was merely transient paresis of the bladder.

Revista Española de Obstet. y Ginecología, Madrid

May. 1919, **4**, No. 41

*The Radiations of Radio-Elements and the Technic for Their Use. Mme. Curie.—p. 193.
Double Uterus. Cospedal.—p. 201.
*Hernia of Pregnant Uterus. J. Ledesma.—p. 205.

Radioactivity.—Mme. Curie's address was briefly summarized, Aug. 9, 1919, p. 459.

Hernia of Pregnant Uterus.—Ledesma gives drawings of a pregnant woman of 42 with a huge hernia which did not interfere with bowel movements. She had long been subject to reducible inguinal hernia, but at about the middle of this seventh pregnancy the hernia became suddenly immensely larger and could not be reduced. Soon she felt fetal movements in it, and a committee from the Academia Médico-quirúrgica was appointed to study the case and do cesarean section at the proper time. A viable child was thus delivered from the hernia, and interesting data recorded from auscultation of the uterus thus exposed for research. The uterus was reduced afterward and menstruation has been regular since.

Revista Médica, Puebla, Mexico

June 15, 1919, **1**, No. 11

*Malaria in Mexico. E. Torres.—p. 241. Conc'n.
*Localization of Pneumococcus in the Genitals. M. A. Torroella.—p. 245.
Action of Cyanid of Mercury in a Case of Chronic Malaria. E. Olivares.—p. 247.
*Septic Infection in the Newly Born. S. Ramírez.—p. 249.
Hypochlorite Treatment of Puerperal Infections. U. Valdés.—p. 250.
Importance of Analysis of the Sputum. M. Ibañez.—p. 252.

Malaria in Mexico.—Torres here concludes his long article on this subject, discussing the mosquitoes found in Mexico, the ravages caused by the disease in that country and the means best adapted to eradicate it. He estimates at 100,000,000 pesos the annual losses from malaria, as the very lowest possible figure.

Pneumococcus Infection of the Genitals.—Torroella reports the case of a woman, a virgin, who for twenty years had had a purulent discharge from the vagina. He found that the uterine cervix was of a wine color, and the walls of the vagina congested. The pneumococcus was found in pure cultures, and recovery soon followed injections of an autovaccine by Wright's method. Similar success was realized in a second case, the patient a young man who had had an abscess in the perineum after an attack of supposed gonorrhea. A mucopurulent discharge from the meatus revealed the pneumococcus in pure cultures, and under an autovaccine the cure was soon complete. Torroella suggests that these pneumococcus infections may be sometimes mistaken for gonorrhea, and this may explain the failure of treatment of gonorrhea in some cases. He remarks in conclusion that the clinic does not present now any fundamentally new phenomena which were not already present in the clinical pictures of a century or two ago, but they were overlooked then. If we overlook some of them now we show culpable neglect of the diagnostic means at our disposal.

Septic Infection in the Newly Born.—Ramírez says that both of the two infants died. There was a case of scarlet fever in one of the families at the time.

Revista de Medicina y Cirugía Prácticas, Madrid

July, 1919, **124**, Nos. 1562-1564

*Laryngectomy. R. Botey.—p. 41.
*Treatment of Rebellious Hiccup. D. F. Venegas.—p. 121.
Hemorrhagic Purpura. E. Giménez de Azcarate.—p. 124.

Laryngectomy.—Botey calls attention to a special drawback of the Glück technic for laryngectomy and describes how to avoid it.

Rebellious Hiccup.—Venegas has promptly relieved the patient in some cases by compression of the diaphragm. This can be accomplished by distending the stomach with gas, having the patient swallow a mixture of 5 gm. each of citric acid and sodium bicarbonate. The gas generated by this pushes up the diaphragm and this may arrest tenacious hiccup. Another means of compressing the diaphragm is by having the patient lie supine, and flexing the legs and then flexing the thighs to the extreme on the abdomen. This pushes up the contents of the abdomen, and the position should be maintained for ten minutes at least, or until the spasm of the diaphragm has relaxed. The same measure can be applied anew if the hiccup returns. He has never tried the gas distention of the stomach as the mechanical flexing of the thighs on the abdomen always answered the purpose in time.

Rev. Sud-Amer. de Endocrinología, etc., Buenos Aires

June 15, 1919, **2**, No. 6

Syphilitic Meningitis. F. Abelardi.—p. 185.
Anti-Anthrax Serum. Varsi.—p. 189.

Revista de la Universidad de Buenos Aires

May-June, 1919, **41**, No 141. (Only medical articles listed.)

Clinical and Surgical Comparative Study of Pubiotomy and Symphysiotomy. D. Iraeta.—p. 257. Cont'n.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 7, 1919, **1**, No. 23

*Pernicious Anemia as an Independent Disease. G. J. van Thienen. —p. 2006.
*Space in Imaginary Conceptions. A. Grünbaum.—p. 2014.
Influenza at Amsterdam. J. ten Brink and C. Hoek.—p. 2020.
*The Thread Test for Gastric Ulcer. A. J. A. Koelensmid.—p. 2027.
*Psychoses from Influenza. H. J. M. Schade.—p. 2029.

Pernicious Anemia as an Independent Disease.—Van Thienen examined the blood of 100 healthy persons to ascertain if there was any connection between the number of red corpuscles and the catalase content of the blood. His findings suggested the advantage of a catalase index, the quotient obtained by dividing the catalase content figure by the number of millions of red corpuscles. This represents the milligrams of H_2O_2 generated per million corpuscles. This index in health, with the normal average of 27.54 for the catalase figure, averages 6.14. This catalase index is thus an important aid in investigating pathologic blood. It is much more enlightening than the catalase figure alone. He tabulates this index from 10 cases of cancer, ranging from 5.0 to 6.5; in 10 cases of tuberculosis, range 5.6 to 6.5; 10 of acute hemorrhage, range from 5.4 to 6.6; 7 of severe anemia, range 5.0 to 6.5; 7 of leukemia, range 4.6 to 7.6, and 17 cases of pernicious anemia. In the latter group the range was from 10 to 17.6 with one exception in which it was 9.2. In 24 persons with pernicious anemia, over 60 tests all confirmed this extraordinarily high catalase index in this disease, and in this disease alone. This seems to justify its acceptance as a separate disease.

Ideas of Space in Imaginary Conceptions.—Grünbaum asked persons to close their eyes and then summon before their "mind's eye" the conception of a red ball. Then to the question where they saw the ball, some said "A few steps in front"; others "To the left" or "right." This sense of direction in imaginary conceptions was tested from various points of view as he describes.

The Thread Test of Gastric Ulcer.—Koelensmid remarks that Einhorn's thread is a very sensitive test for occult blood in the stomach. But a positive reaction does not necessarily indicate an ulcer. In 160 applications of the test the findings very rarely conflicted with what was known of the stomach conditions otherwise. In 3 cases of cancer there was no reaction; in 61 cases of certain ulcer in stomach or duodenum the reaction was positive in 44; negative in 2, and dubious in 15. In 43 cases of neurosis, atony or other nonulcer cases, the reaction was negative in 31, dubious in 10, and positive in 2. The test thus has strong corroborative value, and repeated negative reactions render the diagnosis of ulcer in stomach or abdomen highly improbable.

Psychoses After Influenza.—In each of the six cases described recovery was prompt. Schade treated them on the basis of a psychosis from toxic action, with purging, restriction to milk, no sedative drugs. The continuous bath proved very useful in two of the cases.

Nordiskt Medicinskt Arkiv, Stockholm

Nov. 30, 1918, **51**, Internal Medical Section, No. 2

*Research on Diabetes. K. Petrén.—p. 107.
*Diagnosis of Subphrenic Abscess. H. C. Jacobæus.—p. 175.
*Acidosis in Diabetes. E. B. Salén.—p. 186.
Clinical Significance of Tube Casts. U. Quensel.—p. 211.

Research on Diabetes.—Petrén records the details of twenty cases of diabetes in which he experimented to determine the conditions under which and the degree to which the tolerance for carbohydrates could be increased by an appropriate diet. The tabulated data confirm that the shorter the duration of the diabetes the better the outlook, as also with a tolerance of 40 gm. and over at the beginning of treatment. This harmonizes with Naunyn's dictum that a case of diabetes can be classed as mild only when the sugar can be banished from the urine with reduction to 60 gm. of bread. By reducing the carbohydrates in the food we not only induce symptomatic improvement, but as the tolerance for carbohydrates increases under this, we can assume that it is an actual rational treatment of the the disease, modifying perhaps certain functional factors at least. By systematic and persevering treatment for one, two or three months he increased the tolerance in many of his cases by 33, 50 or 91 to 118, and even to 128 with longer treatment.

Subphrenic Abscess.—Jacobæus found on thorascopy after exploratory puncture that the lung and pleura were hyperemic but that the diaphragm bulged upward on that side, and its surface showed signs of inflammation and fibrin deposits. The suspicion of an abscess just below was confirmed by the operation done at once. In a second case the diagnosis wavered between empyema and subphrenic abscess until air was injected after fluid had been aspirated by puncture. Roentgen examination then showed the diaphragm pushed up by the air bubble, corroborating the assumption of subphrenic abscess. As the pus soon grew sterile no operation was attempted.

Diabetic Acidosis.—Salén presents evidence to the effect that there is no regularity in the proportional urine content of the acetone bodies, and that beta-oxybutyric acid may occur in large amounts even when the total acetone content may be too small to elicit differential reactions. The beta-oxbutyric content can be estimated separately by oxidation to obtain the titrable acetone. For this he found Engfeldt's method II simple, reliable and convenient, and has still further simplified it, as he describes.

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EPIDEMIOLOGY AND RECENT EPIDEMICS *

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NEW YORK

Since the last congress, held in 1916 in the midst of the racking uncertainties of the great war, notable events and serious calamities have befallen the world and arrested the attention of all thoughtful men. A bitter and passionate military contest has been brought to a hopeful conclusion; but because of the unparalleled cost of the struggle, in lives and in treasure, deep unrest, revolution even, starvation and disease are prevailing over a large part of Europe, while also within the three year period elapsed between the last congress and the present one three destructive epidemics of disease have ravaged the United States and the world.

Hence it has seemed fitting to me that on this occasion and before this representative body of medical men we should pause for a brief period in order to review, as it were, our knowledge of epidemics and at the same time of the practical hygienic measures, based on this knowledge, which we have already put or in ordinary course of events may reasonably hope to put into motion against the spread of these epidemics, so that we may form a judgment of the efficacy of such measures and arrive possibly at new points of view from which to launch a more decisive attack. Moreover, it seems imperative that we should consider not only the sum of our knowledge of epidemics, but also certain facts relating to the populations affected which react powerfully on the successful application of the hygienic means available.

Three epidemic diseases—poliomyelitis, streptococcus pneumonia and influenza—have been especially destructive in the western world during the past three years; also, because of certain common characteristics, they are well adapted for the purpose I have in view.

POLIOMYELITIS

In the United States we are becoming increasingly familiar with epidemics of poliomyelitis. Prior to 1907, infantile paralysis was a rare disease in this country; since then it has prevailed fitfully every summer and autumn, and in one notable instance, at least, in the winter season,[1] claiming victims by the score or hundred, until in 1916 an outbreak of unprecedented severity, with its center of violence in New York State, swept over a considerable number of states.

Fundamental knowledge of poliomyelitis may be said to have grown rapidly since Wickman's epochal clinical studies published in 1907. We are, indeed, today in possession of precise information covering essential data with regard to the nature of the inciting microorganism, notwithstanding its very minute size, and also concerning the manner in which it leaves the infected or contaminated body within the secretions of the nasopharynx chiefly and gains access to another human being by means of the corresponding mucous membranes and apparently in no other way. Moreover, the inciting virus so called, up to the present time and notwithstanding many and assiduous efforts, has not been detected apart from the infected or merely contaminated human being, and there is therefore no foundation in ascertained fact for an assumption that the virus is conveyed to persons otherwise than by other persons who harbor it.

STREPTOCOCCUS PNEUMONIA

The second example, namely, that of streptococcus pneumonia, presents a phenomenon almost, if not quite, new among the epidemic diseases. It appears as if during the winter of 1917-1918 there occurred in several localities within the United States, and also, but in less degree, in France, at least a great increase in the incidence of a type of pneumonia which previously had been very infrequent. It appears also that the greatest number of cases and of fatalities arose in the United States in the military cantonments; that the disease first prevailed as a secondary pneumonia following measles; but that before long the severity of the infection was such that cases of primary streptococcus pneumonia began to arise. Moreover, at this juncture the disease spread from the military to the civil populations.

The nature of the micro-organism inducing this form of epidemic pneumonia is indicated in the name which the disease has come to bear. The difficulty in this instance has not been in finding out the inciting microbe, but rather in differentiating the streptococci responsible for the epidemic disease from streptococci possessing the ordinary pathogenic properties, or even from those of saprophytic nature so commonly present on the upper respiratory mucous membranes without provoking widespread disease. However, numerous studies of the bacteriology of this epidemic of pneumonia, at distinct and often widely remote cantonments, showed that the microbic incitant was in almost every instance *Streptococcus hemolyticus.* Moreover, because of the wide occurrence of the epidemic pneumonia, this type of streptococcus could be found in normal throats and as a secondary invading micro-organism in the lungs in cases of ordinary lobar pneumonia. Thus far very little progress has been made in the classification of streptococci, which form a class apparently even more heterogeneous than the pneumococci.

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* President's address, read before the Tenth Congress of American Physicians and Surgeons, Atlantic City, N. J., June 16, 1919.

[1] At Fairmont, W. Va.

The point I wish to emphasize is this: Regarding epidemic diseases in general we are wont to assume the introduction from without, and usually from a distant locality, of a special kind or race of micro-organism which is held directly responsible for the epidemic ensuing. In the instance of the epidemic pneumonia, no such importation or new introduction of the inciting streptococcus needs to be or actually is assumed. It is so probable as to amount to practical certainty that the excessively virulent *Streptococcus hemolyticus* was developed by a process of selection, through successive transfer from person to person, and by gradual enhancement of its invasive properties.

We are in this case on safe grounds when we assert that the inciting streptococcus is always personally borne: that is, that it leaves the respiratory organs of one person to be introduced on the corresponding organs of other persons, and in no other manner. In other words, the mechanism or mode of infection in epidemic streptococcus pneumonia, as in poliomyelitis, may be said to be clearly apprehended.

INFLUENZA

The case of influenza, the third and perhaps the most important example cited, is quite different, since wide divergences of belief and opinion regarding the nature of the inciting micro-organism and the manner of infection still prevail. The reasons for these differences are several, but the most important, perhaps, relates to the common observation of the manner of spread or attack of the disease. To the casual observer there is something uncanny in the way influenza strikes down its victims. While other epidemics proceed from bad to worse, with at least progressive increases of intensity, influenza seems to overwhelm communities over even wide stretches of territory as by a single, stupendous blow. While in the one case the gradually accelerating rate of speed of extension may be taken to indicate personal conveyance of the provoking micro-organism, in the other the sudden wide onset appears the very negation of personal communication.

Hence the invoking of mysterious influences, the revival of the notion of miasm and similar agencies, to account for this phenomenon. Indeed, the public mind in general lends itself readily to such formless concepts, for the reason that there still resides in the mass of the people, even in the more enlightened countries, a large uneradicated residue of superstition regarding disease. One does not need to look far or dig deep in order to uncover the source of this superstition. We have only recently emerged from a past in which knowledge of the origin of disease was scant, and such views as were commonly held and exploited were mostly fallacious. It is, indeed, very recently, if the transformation can be said to be perfect even now, that the medical profession as a whole has been completely emancipated.. All this is very far from being a matter of remote importance only, since in the end the successful imposition of sanitary regulations involves wide cooperation; and until the majority of individuals composing a community is brought to a fair level of understanding of and belief in the measures proposed, serious and sustained endeavor to enforce them is scarcely to be expected.

And yet no better instance of a communicable disease could perhaps be invoked than influenza to exorcise the false idea of the mysterious origin of epidemics. To dwell solely on the sudden and overwhelming stroke of the disease is wholly to overlook the significant incidents that precede the mass infection, because they are of such ordinary nature and lack all dramatic quality. Accurate observers noted long ago that influenza in its epidemic form did not constitute an exception to the common rule governing epidemic diseases, which were obviously associated with persons and their migrations. What the early students made out by tracing the epidemic backward to its point of departure, more modern observers have confirmed by carefully kept records, often graphically compiled, as in the excellent instance of the Munich records covering the epidemic of 1889-1892, which can now be supplemented by a number of similarly constructed records of the epidemic just passed. These detailed records show convincingly a period of invasion during which there is a gradual rise in the number of cases, to culminate, within a period variously estimated at from one to three weeks, in a widespread, so-called "explosive" outbreak of the disease.

It happens that the early cases of epidemic influenza tend not to be severe, chiefly because they rarely are attended by pneumonia and hence are frequently mistaken, and the confusion in diagnosis is resolved only when the full intensity of the epidemic is realized. In the meantime, rich opportunity has been afforded for the free and unrestricted commingling of the sick and the well, of doubtless healthy carriers of the inciting agent and others, until so high a degree of dissemination of the provoking micro-organism has been secured as to expose the entire susceptible element of the population, which happens to be large, to an almost simultaneous response to the effects of the infecting microbe.

Deductions of like import can be drawn from the geographic movements of influenza epidemics. In eastern Russia and Turkestan, influenza spreads with the pace of a caravan, in Europe and America with the speed of an express train, and in the world at large with the rapidity of an ocean liner; and if one project forward the outcome of the means of intercommunication of the near future, we may predict that the next pandemic, should one arise, will extend with the swiftness of the airship. Moreover, not only is this rate of spread determined by the nature of the transportation facilities of the region or the era, but towns and villages, mainland and island, are invaded early or late or preserved entirely from attack according as they lie within or without the avenues of approach or are protected by inaccessibility, as in instances of remote mountain settlements and of islands distant from the ocean lanes or frozen in during winter periods.

It is desirable, in the interest of clear thinking, to carry this consideration of the characteristics of epidemic influenza a step farther. A feature of the epidemic disease of particular significance is the tendency to recur, that is, to return to a stricken region after an interval, usually of months, of relative quiescence. Thus the beginnings of the last pandemic in western Europe and the United States have been traced to sporadic cases appearing in April, May and June, possibly even earlier in certain places, while the destructive epidemic raged during September, October and November of 1918. There are very good reasons for believing that in itself influenza is not a serious disease, but that its sinister character is given by the remarkable frequency with which it is followed, under particular circumstances, by a concomitant or secondary pneumonic infection to which the severe effects and high mortality are traceable. Now it is this high incidence of pneumonia, the product of invasion of the respiratory organs with bacteria commonly present on the upper respiratory mucous membranes—streptococci, pneumococci, staphylococci, Pfeiffer's bacilli, and even meningococci—that stamps the recurrent waves of the epidemic with its bad name.

If we compare the pneumonic complications of influenza with those which arose in the cantonments in 1917-1918, first as attendants of measles and later as an independent infection, we note immediately that in both instances the severe effects and high fatalities arose, not from bacteria brought or imposed from without, but from their representatives which are commonly resident on the membranes of the nose and throat in health. Whatever we may have to learn of the micro-organism inducing measles, still undiscovered, and of influenza, still under dispute, and their mode of invasion of the body, no one would question that the bacteria inducing pneumonia are personally borne.

EFFICACY OF PUBLIC HEALTH MEASURES

With these various considerations before us, we may now discuss the question of the efficiency of our public health measures in diminishing the incidence of epidemic diseases. It should now be evident that our three examples are essentially instances of respiratory infections, that is, diseases in which the inciting micro-organism enters the body by way of the air passages, although not necessarily, as in poliomyelitis, directly injuring those parts. Protection in diseases of this class is not to be secured by applying sanitary measures on a wide scale to an extraneous and inanimate source of the infectious micro-organisms, as to water supplies contaminated with the dejecta of typhoid patients, or even to inferior animal species, such as the mosquito or the rat, which act as intermediaries in conveying the germs of yellow fever or of infectious jaundice; but it is alone to be attained by methods of personal hygiene, applied on the individual scale of safeguarding one person from another, the most difficult of all hygienic regulations to enforce.

Returning now to epidemic poliomyelitis, we may fairly claim that we are in possession of the essential facts which, if widely applicable, should enable us to control the spread of that disease. But we can, I think, hardly claim that up to the present time our accomplishments in that direction have been remarkable. It is sufficient merely to compare the curve of incidence of the Swedish epidemic of 1905, before the nature and mode of infection of poliomyelitis were known, with those of the last several years, in Massachusetts and New York State for example, in order to conclude that the progress of the epidemics in the several places was practically identical.

And, indeed, this is what might be expected in view of the difficulties surrounding the prompt and accurate diagnosis of poliomyelitis in its atypical and abortive, often ambulant forms. Once the disease is introduced under conditions favoring its epidemic spread, a wide dissemination of the inciting micro-organism takes place, and a constantly increasing number of persons becomes exposed to its presence before any restrictive measures are put into effect, and indeed also after they have been applied. In the case of poliomyelitis, as in that of influenza itself, a wide distribution of the infectious agent precedes the enforcement of preventive sanitary regulations. These considerations do not, of course, warrant intermission of the protective measures now in use, which undoubtedly save many individuals from exposure and thus from potential attack; they do, however, offer an explanation of why, up to the present time, greater success has not attended efforts at control once the epidemic is under full way.

The case with the epidemic pneumonias is of another order: They represent theoretically two diseases which should respond to methods of control based on our knowledge of their mode of infection. In the epidemic streptococcus pneumonia and the pneumonia following influenza we are dealing with pathologic conditions in which not a newly introduced, extraneous micro-organism is operating widely and insidiously, but one in which the active microbes concerned are examples merely of intensified races of common and almost omnipresent species belonging to the flora of the nasopharynx. The infectious agents in these instances are contained within the nasal, buccal and bronchial secretions, and are disseminated in the sprayed material which is coughed or otherwise thrown into the surroundings of the patients. The lesson, therefore, to be derived from the severe experience of the recent pneumonia epidemics is to the effect that measles and influenza patients are not to be assembled into large groups or kept in open wards, but should be placed in separate rooms or cubicles, where they and their attendants may be preserved as far as possible from sputum droplet contamination. In the instance of epidemic pneumonia, a chain of direct infection from one patient to another tends to be established, and hence the sanitary control of those diseases is to be sought through the breaking, as it were, of this vicious circle.

A distinction has now been intimated in the possibilities of direct sanitary control between the two epidemic diseases—namely, poliomyelitis and influenza—introduced from without, and the pneumonias, which are mere, if intense, exaggerations of sporadic diseases ordinarily prevailing. I propose now to lay before you a suggestion as to means of attacking the exotic epidemic diseases which may come to merit serious attention.

ERADICATION OF DISEASES IN ENDEMIC FOCI

Epidemic diseases in the commonly accepted sense have fixed locations—the so-called endemic homes of the diseases. In those homes they survive without usually attracting special attention often over long periods of time. But from time to time, and for reasons not entirely clear, these dormant foci of the epidemics take on an unwonted activity, the evidence of which is the more frequent appearance of cases of the particular disease among the native population, and sooner or later an extension of the disease beyond its endemic confines. Thus there are excellent reasons for believing that an endemic focus of poliomyelitis has been established in northwestern Europe from which the recent epidemic waves have emanated.

Similarly, there are excellent reasons for regarding the endemic home of influenza to be eastern Europe, and in particular the border region between Russia and Turkestan. Many recorded epidemics have been shown more or less clearly to emanate from that area, while the epidemics of recent history have been traced there with a high degree of conclusiveness. From this eastern home, at intervals usually of two or three decades, a migrating epidemic influenza begins, moving eastward and westward, with the greater velocity in the latter direction.

Now since the combating of these two epidemic diseases, when they become widely and severely pandemic, is attended with such very great difficulty and is of such dubious success, and this notwithstanding the prodigious public health contests which are waged against them in which the advantages are all in favor of the invading micro-organismal hosts, it would seem as if an effort of central rather than peripheral control might be worth discussion. According to this proposal, an effort at control amounting even to eventual eradication of the diseases in the regions of their endemic survival would be undertaken, an effort, indeed, not occasional and intensively spasmodic, as during the pandemic excursions, but continuous over relatively long periods, in the hope that the seed beds, as it were, of the diseases might be destroyed.

That such an effort at the eradication of a serious epidemic disease may be carried through successfully, the experience with yellow fever abundantly proves. In attacking that disease, the combat was not put off until its epidemic spread had begun and until new territory, such as New Orleans, Jacksonville and Memphis, had been invaded; but the attack was made on its sources at Havana, Panama and now Guayaquil, to which endemic points the extension into new and neutral territory had been traced.

I do not disregard the essential fact, in bringing this suggestion forward, that the control at its sources of yellow fever is quite another and probably far simpler problem than the control in their endemic foci of poliomyelitis and influenza. It is, perhaps, unnecessary to go far into the reasons why the latter would doubtless prove to be far more difficult of accomplishment than has been the former. I am not now engaged in presenting a plan of operation or proposing that the attempt at eradication be made immediately. Our knowledge of all the facts involved in the epidemiology of poliomyelitis, and especially of influenza, may still be too imperfect for immediately effective action. But the very magnitude of the problem of these otherwise uncontrollable epidemic diseases invites to an imaginative outlook which, while perhaps nonrealizable today, may not, in view of the rapidly advancing knowledge of the infectious diseases, be hopelessly out of reach tomorrow.

Nor am I insensible to the labor and cost in money and talent which the setting out on such an ambitious enterprise would entail. But here, at least, is a world problem of such proportions and nature as to invite the participation of all the scientifically advanced countries in a common effort to suppress one of the most menacing enemies of civilized man and of human progress.

In proposing to strive for the high achievement, not merely of parrying the blows struck by destructive epidemics, but of rendering them impotent to strike in the future, we may pause for a moment to reflect on the different ways in which peoples react to great calamities, such as those brought by war and by disease. As the results of a cruel and devastating war, revolutions in governments supposed the most stable may occur; no such result follows on still more devastating epidemics. The recent epidemic of influenza claimed, possibly, more victims than did the great war, and the losses to the world in emotion spent, treasure consumed, and progress impeded are incalculable; yet, through a fortuitous circumstance of psychology, from the one calamity the world may emerge chastened, perhaps even bettered, while from the other, because of a depth of ignorance amounting often even to fatalism, mankind may largely miss the deep meaning of the lesson.

USE OF RADIUM IN FIFTY CASES OF UTERINE HEMORRHAGE

FROM CAUSES OTHER THAN CARCINOMA OR MYOMAS *

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Radium being comparatively a new agent, it is premature to take the position that it has yet reached its maturity or possibilities. As all innovations do, it is now running the critical gamut. In one camp it is unconditionally condemned, while in the other it is equally acclaimed. Where such contention exists the truth is found in the midway position.

Though radium is yet in its developmental period, and though already we have abandoned some of our earlier fondest hopes, still, in the past five years, there have been deduced certain well established clinical facts.

Menstruation is a complex process influenced by innumerable factors, ranging from undeveloped organs, defective endocrines and new growths down to constitutional dyscrasias. In many instances its derangement is a local expression of a constitutional condition; therefore it is most difficult correctly to divide cases of uterine bleeding, of these types, into segregated pathologic groups. In some instances the true pathology is not understood. For the purpose of presentation, the cases have been divided into three nominal groups.

GROUP 1. HEMORRHAGE IN YOUNG WOMEN

In Group 1 are placed those cases in which there is an excessive bleeding, with no marked local discomfort, but a decided constitutional impairment resulting from too great a loss of blood. In many of these cases there is no discernible anatomic wrong. Curetting, organotherapy and constitutional remedies fail; the bleeding continues, and in severe cases something radical must be done. What this "something radical" must be reduces itself to the removal of some of the organs, or to allowing the future welfare of the young woman to be jeopardized. Surely many of us have encountered such cases, and the action to take presents a serious problem.

If radium does not act, as we believe, entirely through altering ovarian function, but rather by altering the endometrium and myometrium, then it seems that this is a most valuable field for its use. The literature contains some encouraging reports, and it appears reasonable, as we improve and refine our technic, to expect some substantial help. Certainly it would be most valuable to know that excess bleeding could be controlled and the menstruation not suppressed.

Our experience has not been extensive in this group. In one of five cases there is one in which, by the use of

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small, graded amounts of radium, the flow was returned to normal. In another case, an effort to check the flow by graded doses failed, and the treatment had to be pushed on to complete cessation; but even this was better than an abdominal operation.

ILLUSTRATIVE CASES[1]

CASE 1 (62447)—*History.*—Miss R. B., a schoolgirl, aged 17, began menstruation at the age of 12 years. The flow was very profuse at the first menstruation and has continued so. She was operated on, June 5, 1917, and a curettage was performed. Since July 17, 1917, she had had practically a continuous vaginal bleeding. Three applications of radium were given, of 1,500 mg. hours.

Result.—Complete suppression of the menses followed.

CASE 2 (57958)—*History.*—A woman, aged 28, had a cyst removed from the right ovary when she was 22. Four months ago the menstruation began to be excessive and resulted in a flow lasting twenty-five days. She was curetted twice. Four treatments with radium of 3,859 mg. hours were given.

Result.—There was complete cessation of menses.

CASE 3 (55149)—*History.*—A woman, aged 33, for several years had had very irregular menstruation, sometimes lasting twenty-eight days. She was operated on for suspension, with no relief. One treatment with radium of 750 mg. hours was given.

Result.—The menstruation returned to a normal and two day type.

CASE 4 (57943)—*History.*—A girl, aged 16, started menstruation at the age of 13 years. It was very scanty and irregular. The uterus was curetted, Sept. 15, 1917, after which the menses stopped for three months, and the patient then bled continuously for two months. A small amount of radium was used from an outside source with no relief. Treatment of 1,275 mg. hours was given.

Result.—Two treatments produced a cessation of the menses.

CASE 5 (57783)—*History.*—Mrs. E. J., aged 25, began menstruation at the age of 14 years, and was made very sick from its inception. The bleeding lasted eight weeks, coming in large clots, and the flow was profuse. The menses were never regular. She had had one living child and two miscarriages, the last one a year ago, followed by four months of bleeding. She had had numerous operations. For the past year she had menstruated twice a month, each period lasting from six to seven days. For the past two months she had had a continuous uterine bleeding. Four applications of radium were given, the first of 75 mg., with eleven hours' exposure, and the remaining three of 50 mg., with eleven hours' exposure.

Result.—The condition was entirely relieved.

GROUP 2. AGGRAVATED AND INTRACTABLE DYSMENORRHEA

Cases of violent dysmenorrhea which have resisted all treatment, and in which the general health is markedly impaired, are placed in this group. The affection is most frequently seen in the neurotic type who are reluctantly yielding to advancing years and are as yet unmarried. It is commonly observed in teachers, or in those lately beginning to work, their mission in life still unsettled. The patient has about ten comfortable days in a month, the rest being spent in bed or in struggling to keep up during the premenstrual or the postmenstrual storm. In many of these patients there may be found no anatomic wrong, but the distress is there and is gravely altering her life. We have all had these rebellious cases, in which endocrines, stem pessaries, curetting and climatic changes fail, and in which it is imperative that something be done. As a final measure, if the life is to be useful, menstruation must be stopped. We know that radium will cause the cessation, and we know further that the treatment is less painful and upsetting than an ablation operation and, still further, that it does not seem to be followed by as intense nerve disturbances. Twelve such cases are here reported, complete relief being obtained in all, chiefly through suppression; but in one instance the treatment relieved the pain, and normal menstruation continued, just as resulted in Case 3 in the preceding group.

ILLUSTRATIVE CASES

CASE 6 (64044)—*History.*—Miss L. S., aged 35, a schoolteacher, began menstruation at the age of 14 years and has always suffered pain, but had gradually grown worse in the past four years. She had been unable to teach in this time during her period. She suffered intense headache and backache, and her general health had been markedly impaired. She scarcely recovered from one month's epoch before another appeared. The organs were normal to palpation. A dilatation and curettage were performed and a stem pessary applied, without relief. She was given three applications of radium of 50 mg. and ten hours' exposure each.

Result.—A complete suppression of menstruation and a marked improvement of general health have followed.

CASE 7 (57686)—*History.*—Mrs. P., aged 28, who began menstruation at the age of 15 years, suffered severe pain and stayed in bed two days each month. She had been married two years, but had no children. She was operated on, March 13, 1913, having the left ovary removed and part of the right. Her general health improved after the operation, but at the menstruation period she suffered severe pain all over the abdomen, and was forced to remain in bed, with frequent urination during the period. Five applications of radium were given, three of 50 mg., with ten hours' exposure, and two of 75 mg., with ten hours' exposure.

Result.—Suppression of the menstruation followed.

CASE 8 (62803)—*History.*—Mrs. V. B., aged 23, a saleswoman, began a normal menstruation at the age of 13, which gave her no trouble until Feb. 14, 1917, when the flow became profuse and very painful. She was curetted in April, 1917. The appendix was removed, May 15, 1917. The flow had been practically continuous since the April operation. The patient suffered great pain in the back, and general discomfort, and was anemic. She was given a treatment of 50 mg. of radium, Aug. 26, 1917, for a ten hour period, 50 mg., Sept. 9, 1917, and 25 mg., Sept. 19, 1917.

Result.—Complete relief followed.

CASE 9 (65262)—*History.*—Mrs. P. D., aged 31, who menstruated at the age of 13 years and thereafter regularly and normally, and who had been married fourteen years, having one child, aged 11 years, was operated on four years ago. An appendectomy was performed and a laceration sutured. For the past few years menstruation had been very scant, but the pain was so severe that it necessitated the use of hypodermic injections of morphin. This condition gradually grew worse. Four applications of radium were given, two of 50 mg. and two of 75 mg., ten hours' exposure each.

Result.—Complete relief followed.

CASE 10 (60654)—*History.*—Mrs. R. H., aged 33, who began menstruation at the age of 15 years, had been married eleven years, having no pregnancies. She had always suffered excruciating pains at the menstrual period, going to bed three days, and had passed large clots of blood. The flow was very profuse. Five applications of radium were given, each of 50 mg. and ten hours' exposure.

Result.—The menstruation was suppressed and there was complete relief.

CASE 11 (57713)—*History.*—Miss H. H., aged 30, began menstruation at the age of 14 years, and it was regular until she was 17, when it became irregular and developed pain. The pain had gradually grown more intense and she had to remain in bed one week. The flow was very profuse, especially in the past six months. Six applications of radium were given, each of 50 mg. and ten hours' exposure.

Result.—Complete relief followed.

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[1] Publication of the cases reported in this paper is made possible through the courtesy of the Radium Institute of New Orleans. This institute is composed of eight physicians of New Orleans, of whom the author is one.

Case 12 (53695)—*History.*—Mrs. P. G., aged 25, who had been married four years, suffered with dysmenorrhea before and after marriage until the birth of her child. The appendix was removed, the ovary resected and the uterus suspended shortly after her confinement. She then suffered with pains in both sides, and with a profuse menstruation, lasting seven days and extremely painful. She also had severe cramps in the legs. Two applications of radium were given, 75 mg. total twenty-four mg. hours.

Result.—Complete relief followed.

Case 13 (61710)—*History.*—Miss M. A., T. N., aged 35, menstruated normally until ten months ago, when she began suffering great pain and having a profuse flow. She had had a decided loss of weight in the past ten months. Two applications of radium were given, one of 50 mg., with ten hours' exposure, and one of 75 mg., with ten hours' exposure.

Result.—Suppression of menstruation followed and great improvement.

Case 14 (68655)—*History.*—Mrs. V. B., aged 38, had a normal menstruation at the age of 13 years, and had been married fifteen years, having one child, aged 11, and one miscarriage, seven years ago. Nine months ago an appendectomy and a myomectomy were performed on her. She had a scant menstruation, and felt dreadfully during the period, suffering general prostration. One application of radium of 50 mg. was given of 525 mg. hours.

Result.—Menstruation stopped for six months and then reappeared as the three day type, with no pain.

Case 15 (55352)—*History.*—Mrs. H., aged 35, who had been married ten years, and concerning whom there is no record of menstrual history, was operated on two years ago for profuse menstruation, but without relief. She suffered intense headaches at the time of the flow, necessitating her remaining in bed. Two applications of radium of 75 mg. were given, with ten hours' exposure.

Result.—Suppression of menstruation and complete relief.

Case 16 (56065)—*History.*—Mrs. E. T., aged 30, had been married eight years and had never suffered from menstrual periods before her marriage. She had been married two years when a child was born, and was healthy for two years after, when pains in the sides and ovaries developed during menstruation. The menstruation began to be irregular and to appear twice a month. The patient was curetted one year ago for continuous bleeding, which was checked temporarily, but again appeared with the former pains. One application of radium of 75 mg. was given, with eighteen hours' exposure, a total of 1,350 mg. hours.

Result.—The flow gradually decreased. There have been no late reports.

Case 17 (66803))—*History.*—Mrs. A. C., aged 32, who had menstruated normally and regularly until two years ago, had been married thirteen years and had had two children, the youngest aged 10. She had had no miscarriages. For the past two years the periods had been exceedingly painful and associated with nausea and intense headaches. Three applications of radium were given, two of 50 mg. and one of 75 mg., each with ten hours' exposure.

Result.—Complete relief followed.

Case 18 (71289)—*History.*—Mrs. M. D., aged 46, who had been married twenty-seven years and had no pregnancies, and whose menstruation was, as a rule, irregular, was operated on five years ago, an appendectomy and the removal of one tube and ovary being performed. After the operation the menses were regular, accompanied by a great deal of pain, requiring her to go to bed for a week. For the past three years she had been menstruating every three weeks; and for the past month the flow was very profuse, lasting from eleven days to two weeks. Four applications of radium of 50 mg. were given, with ten hours' exposure.

Result.—Complete suppression of the menses and complete relief followed.

GROUP 3. CHRONIC METRITIS

In this division falls the greatest number of cases. For want of a better term "chronic metritis" is used. Whether the pathologic condition is polypoid, hypertrophic or hyperplastic endometritis, or results from myopathic or vascular changes, most of these conditions are combined in the term "chronic metritis."

The ages of the patients are usually between 36 and 56 years. Many have had numbers of children; the uterus is in malposition, enlarged and firmer than normal, having associated therewith an enlarged chronic cervicitis. In these cases, bleeding is often rebellious; the patients may be curetted repeatedly, to no avail, and the final cure comes about through hysterectomy. Often the bleeding is so profuse that packing becomes necessary. To treat the condition, inflammatory diseases must be eliminated first; next, an exploratory curettage is performed in search of malignancy. Then, by the application of radium, the menstrual life is brought to a close. So far as our experience extends, it seems that the nerve upheaval is less through this method than the surgical. It is well known that most of these uteri have about completed the useful period, and when complicated by pathologic changes following a low grade infection, only complete removal gives the desired relief. Radium is unquestionably preferable in that it accomplishes the same result with less discomfort and no danger to life. As will be seen from the histories, thirty-five such cases were treated, with one partial failure. In this case there persisted an occasional bleeding, especially after coitus, and fearing potential malignancy, the uterus was removed.

There is some discomfort associated with radium intra-uterine applications, as seen in malaise, nausea and general lassitude, lasting from twenty-four to thirty-six hours; but this is negligible in most cases, and its worst form is in no way comparable to the operative course. If radium had no other field of virtue than is evidenced in this group, its use is warranted.

Though radium is by no means fully developed, and even if we discount some of the earlier claims for it, there have been produced sufficient positive data to cause it to take rank as a useful agent, and I feel that it should be made available to the localities through cooperating professional groups.

ILLUSTRATIVE CASES

Case 19 (58300)—*History.*—A woman, aged 42, who menstruated at the age of 14 years, and whose flow continued regular and normal, had been married eighteen years. The oldest child was aged 16 and the youngest 11. For the past year menstruation had been very irregular and very profuse, lasting five days. At the last period there was a heavy flow lasting twelve days. Examination revealed a large uterus, freely movable. Two applications of radium were given, one of 75 mg. and the other of 50 mg., both with eleven hours' exposure.

Result.—Complete relief followed.

Case 20 (62969)—*History.*—Mrs. H. S., aged 29, whose menstruation began when she was 16, and who has one child, aged 3, was curetted two years ago and had the uterus suspended and the appendix removed. For a year and a half following she had a profuse flow during menstruation, and for the past two months the flow had been almost hemorrhagic, and accompanied with pain and large clots. She had pain in the back and the ovarian region, and lost weight and became constipated and anemic. Three applications of radium were given, each of 50 mg., with eleven hours' exposure.

Result.—Complete relief followed.

Case 21 (61200)—*History.*—Mrs. L. T., aged 35, began menstruation at the age of 15 years, which was irregular and lasted eight days from the start. She had been married three months. The appendix was removed in September, 1916. Since the operation she had been bleeding twice a month. Menstruation was profuse and lasted from ten days to two weeks. She was very weak from the loss of blood. Two applications of radium of 50 mg. each were given, with eleven hours' exposure.

Result.—Complete suppression of the menses followed.

Case 22 (65485)—*History.*—Mrs. F. Y., aged 36, who had been married ten years and had one child, aged 9 (no miscarriages), had menstruation which was regular, but always painful. About a year ago the flow became more profuse and more painful. She was operated on in June, 1917, an appendectomy, a removal of the left ovary and a resection of the right ovary being performed. Six weeks after the operation she had a severe hemorrhage, necessitating packing. The uterus was large, freely movable and normal in position. The patient was a marked neurotic and definitely anemic, and was almost a physical wreck from the excessive bleeding. Four applications of radium were given, two of 75 mg. and two of 50 mg. each, with ten hours' exposure.

Result.—A complete suppression of menstruation and a complete transformation constitutionally followed.

Case 23 (64525)—*History.*—Mrs. A. P., aged 40, had been bleeding profusely off and on for the preceding nine years, and an amputation of the cervix and a curettage were performed five years ago. She has seven children, the youngest aged 10. After the operation, the bleeding was more profuse, hemorrhagic at times. There were severe pains in the abdomen during menstruation. Four applications of radium of 50 mg. each were given, with ten hours' exposure.

Result.—Complete relief followed.

Case 24 (73309)—*History.*—Mrs. W. R., aged 31, had had a profuse uterine bleeding for three weeks. She was curetted, Sept. 16, 1918. Relief followed for only two months, and then bleeding recurred. There was a slightly bloody discharge off and on, and the flow was very profuse at the time of her period. Three applications of radium of 50 mg. each were given, with ten hours' exposure.

Result.—Complete relief followed.

Case 25 (56058)—*History.*—The patient, aged 38, began menstruation at the age of 14 years. The flow was regular but profuse. She had two children. For several years she had had frequent bleeding, both at the regular period and between the periods. Curettage relieved her for only two months. The bleeding stopped for ten days; then, September 13, the flow started and continued almost hemorrhagic, until November 9. One application of 75 mg. of radium was given, with twelve hours' exposure, 900 mg. hours.

Result.—There has been an improvement in bleeding, but it has not entirely stopped.

Case 26 (61691)—*History.*—Mrs. A. J., aged 31, was perfectly healthy until four years ago, when her menstruation began to be irregular, very profuse, and to last five days. She was operated on one year ago. A dilatation and curettage and an appendectomy were performed, but no relief was obtained. The patient suffered loss in weight and became anemic. Four applications of radium were given, three of 50 mg. and one of 75 mg. each, with eleven hours' exposure.

Result.—The condition was relieved.

Case 27 (65465)—*History.*—A woman, aged 42, began menstruation at the age of 17 years, which was regular and of five days' duration, and had had five full time children, the youngest of whom is aged 5. The patient was well until May 11, 1917, when she was awakened by a flooding which lasted ten hours. She had not flooded any more until two months ago. During the past two months she had had two hemorrhages, gradually growing worse. During this hemorrhage her temperature was as high as 103.5. Feb. 22, 1918, a dilatation and curettage was performed. Seventy-five mg. of radium were introduced at the time of operation, with nineteen hours' exposure, 1,425 mg. hours. March 13, 75 mg. were given, 900 mg. hours. The patient returned to the city a few months ago with a temperature of 102, whereupon a pyometra was discovered containing from 6 to 8 ounces of pus, which was drained.

Result.—The patient continued normal.

Case 28 (73517)—*History.*—Mrs. O. W., aged 39, concerning whom there was nothing of interest in her early menstrual life, was curetted three times for excessive bleeding, the last curettage being performed eleven years ago. She has one full term child, aged 16, and had one miscarriage eight years ago. Since this time had had excessive bleeding. The flow had continued for five or six months and been very profuse at times. Three applications of radium were given, two of 50 mg. and 1 of 75 mg.

Result.—Complete cessation of the menses followed.

Case 29 (56976)—*History.*—Mrs. M. C., aged 36, had had menorrhagia for the past four years. Three months ago she had a severe hemorrhage, and there had been an excessive flow for the past two months. One application of radium of 75 mg. was given, with twenty-four hours' exposure; four days later another, with twenty-two hours' exposure, and another with fifteen hours' exposure.

Result.—Complete cessation of the menses has followed.

Case 30 (67828)—*History.*—Mrs. C. O., aged 40, who had had two children, the youngest of whom is aged 16, menstruated regularly until one year ago; she then began having flooding spells lasting from five to six days, and loss in weight. One application of 50 mg. of radium was given, with ten hours' exposure.

Result.—No return of bleeding; she was discharged relieved.

Case 31 (73559)—*History.*—Mrs. S. C., aged 32, who had had four children, of whom the youngest is aged 4, had always had profuse bleeding during menstruation, but in the past four years it had increased in duration and in quantity. The patient was operated on a year ago; a cyst on the ovary was removed and a curettage performed. Since that time the bleeding has been more profuse and alarming, so that packing was the only means of control. She came to her physician to know if the uterus should be removed or if there was any other way that the alarming hemorrhage could be controlled. Three applications of radium were given, two of 75 mg. (one with ten hours' exposure and the other with twenty-four hours' exposure), and one of 50 mg., with ten hours' exposure.

Result.—Suppression of the menses and marked improvement constitutionally followed.

Case 32 (57201)—*History.*—The patient, whose menstruation began when she was 15, and which was always regular until two years ago, had had five children, three of whom are living. Four years before the radium was applied, an amputation of the cervix and a curettage were performed for excessive bleeding and irregular menstruation. At the time of the operation the uterus was large and freely movable, and the amputation was performed with the hope that the uterus would diminish in size. The patient objected to removal of the uterus. Three applications of radium were given, of 100, 75 and 50 mg., with ten hours' exposure each.

Result.—The flow became slight, with spots after coitus. A hysterectomy was performed, but no malignancy found.

Case 33 (56497)—*History.*—Mrs. P., aged 46, was in good health until six years ago, when she began to suffer with painful menstruation. Three years ago she began having an irregular flow, showing every three weeks and rather profuse. She was operated on one and one-half years ago for the removal of a polypus on the cervix. She also took roentgen-ray treatments. The flow reappeared six months later, hemorrhagic in character. One application of 75 mg. of radium was given, with ten hours' exposure.

Result—Painful menstruation was entirely stopped and there has been no vaginal discharge.

Case 34 (62617)—*History.*—Mrs. A. D., of whose case there is an incomplete history, was curetted unsuccessfully for excessive menstruation and profuse vaginal discharge. She was given an application of 25 mg. of radium, with twelve hours' exposure, with two large exposures.

Result.—Complete cessation of the menses followed.

Case 35 (60940)—*History.*—Mrs. E. D., aged 41, whose menstruation began when she was aged 14, and was of the regular normal type, had been married nineteen years and had had two children, the oldest of whom was aged 16 and the youngest 11. She had had almost continuous uterine bleeding for the past year, very profuse at times and passing large clots. Amputation of the cervix was performed, June

30, 1917. Two applications of 50 mg. of radium, each with ten hours' exposure, were given.

Result.—Complete relief followed.

Case 36 (65653)—*History.*—A woman, aged 42, who had been married twenty-one years, and has one child, aged 17, had been operated on six times for the repair of laceration and the removal of one ovary and tube. She had had fairly good health, only painful menstruation. Three months ago the menstruation began being irregular, appearing every fifteen days and lasting nine days. For the last six weeks she had been bleeding practically continuously, passing large clots. Three applications of 50 mg. of radium were given, each with ten hours' exposure.

Result.—Cessation of menses and complete relief followed.

Case 37 (68847)—*History.*—Miss H. K., aged 40, the history of whose case is incomplete, had profuse vaginal bleeding. There had been previous local treatment without result. Three applications of 50 mg. of radium were given, each with ten hours' exposure.

Result.—Complete cessation of the menses followed.

Case 38 (63434)—*History.*—Mrs. M. L., aged 51, who had had ten children, of whom the youngest is aged 8, was curetted eight years ago for bleeding almost continuously, with a profuse flow. The menstruation was regular until twelve years ago, and since that time the patient had been bleeding in between the periods, the flow lasting from four to five days. Preceding the radium treatment, the bleeding was profuse and hemorrhagic in character. The vagina had to be packed to stop the flow. Two applications of radium were given, one of 50 mg., with eleven and one-half hours' exposure, and one of 75 mg., with eleven hours' exposure.

Result.—Complete cessation of the menses followed.

Case 39 (69957)—*History.*—Mrs. E. A., aged 50, who had had six children, of whom the youngest is aged 14, had had no menstrual disturbance until four months ago, and since that time had been bleeding almost continuously with a profuse flow, at times hemorrhagic in character. She was quite anemic, and felt weak from the loss of blood. Two applications of radium were given, one of 75 mg., and one of 50 mg., each with ten hours' exposure.

Result.—Complete cessation of the menses followed.

Case 40 (71949)—*History.*—Mrs. C. P., aged 53, who went through the menopause four years ago, a year later, from excitement and nervousness, had bleeding start again. There had been a slight flow, lasting one or two days, for the last year. Malignancy was eliminated. Two applications of 50 mg. of radium were given, each with ten hours' exposure.

Result.—There was no evidence of bleeding.

Case 41 (54998)—*History.*—A schoolteacher, aged 42, who began menstruation at the age of 14 years and was anemic, had no abnormal features of the flow until six years ago, when she developed an irregularity and menorrhagia. The condition had gradually grown worse, and she had been bleeding for the last ninety-five days. The uterus was slightly enlarged, the adnexae negative. Two applications of 50 mg. of radium were given, each for twelve hours, and two of 75 mg. for eleven hours.

Result.—Complete cessation of the menses, with a marked improvement of general health followed.

Case 42 (53650)—*History.*—Mrs. M. L., aged 40, a healthy, normal person, had no menstrual disturbance until one year before the radium treatment, when the flow began to increase in duration and quantity, and a flooding spell occurred in May, 1916. When the patient was examined, June 1, 1916, she had a profuse, bloody, vaginal discharge. The uterus was about the size of a double fist, symmetrical and freely movable. There was no adnexa trouble. Fifty mg. of radium were applied, June 5, with eleven and one-half hours' exposure, and 75 mg., June 20, with eleven hours' exposure.

Result.—The uterus is now normal, and a complete cessation of the menses has followed.

Case 43 (65626)—*History.*—Mrs. M. G., aged 40, who had been married twenty years and had three children, was operated on for complete laceration. For the past year the menstruation had been irregular and profuse in quantity, and there had been continuous bleeding for the past eight months. The patient was anemic and very nervous, and had lost in weight. Three applications of radium were given, one of 75 mg. for eleven, and two of 50 mg. for ten and one-half hours.

Result.—There has been a suppression of the menses. Marked menopause symptoms were treated with hypodermic injections of corpus luteum.

Case 44 (65596)—*History.*—Mrs. K. K., aged 42, who had been married seventeen years, and had had four children, all living, the youngest of whom is aged 8, had been curetted twice, the last time two years ago. The flow temporarily improved after curettage, but reappeared, quite profuse. For the past few months, the patient had been bleeding continuously, passing large clots. Three applications of radium, each of 50 gm., with eleven hours' exposure, were given.

Result.—The condition was completely relieved.

Case 45 (70021)—*History.*—Mrs. B. L., the history of whose case is incomplete, began to have irregular menstruation ten years ago. For the past three or four months she had had flooding spells. She was curetted two years ago and operated on twice since then, but the flow continued. Two applications of radium were given, each of 50 mg., and ten hours' exposure.

Result.—The condition was completely relieved.

Case 46 (61565)—*History.*—Mrs. J. M., aged 39, who had had her last child four years ago, was well until two years ago, when she began bleeding excessively. Curettage gave temporary relief. For the past month she had had a continuous flow. She had lost in weight and was anemic. Six applications of radium were given: Aug. 8, 1917, 50 mg., twelve hours' exposure; August 15, 75 mg., twelve hours' exposure; September 3, 25 mg., eleven hours' exposure; November 27, 50 mg., eleven hours' exposure; Jan. 1, 1918, 50 mg., ten hours' exposure, and June 6, 50 mg., ten hours' exposure.

Result.—Complete relief followed.

Case 47 (53807)—*History.*—Mrs. B. V. M., aged 38, of whose case there is an incomplete history, had a miscarriage four years ago. One month later excessive bleeding started, lasting four days. Every month she bled excessively, suffering with pains in the right side, the back and lower extremities. Three applications of radium were given, two of 50 mg. and one of 75 mg., each with eleven hours' exposure.

Result.—The excessive flow was controlled and the patient now menstruates normally, the menstruation lasting six days.

Case 48 (58277)—*History.*—A woman, aged 30, suffered from profuse and prolonged menstruation. An appendectomy was performed and a cystic ovary and small polypus removed, Dec. 16, 1916. A practically continuous hemorrhage had persisted since the operation. Four treatments with radium, totaling 2,550 mg. hours, were given.

Result.—Suppression of the menses followed.

Case 49 (56051)—*History.*—The patient, aged 45, had always had profuse menstruation, lasting for five or six days. The last few years she had menstruated twice in a month. The flow was copious. The patient had been treated locally for a long period. Two treatments with radium, totaling 2,675 mg. hours, were given.

Result.—The condition was completely relieved.

Case 50 (56753)—*History.*—A woman, aged 35 years, had had flooding spells for several years, lasting five or six days. Blood appeared in large clots, and just previous to the radium treatment there was almost a continuous bloody discharge. The patient had been curetted twice, and her appendix had been removed. She had had two courses of deep, roentgen-ray therapy, which checked the flow for a year, but it reappeared in hemorrhage form. One treatment with radium, of 550 mg. hours, was given.

Result.—Complete stoppage of menstruation followed.

Case 51 (55804)—*History.*—A woman, aged 44, had been menstruating irregularly for the past year and a half. The flow was very profuse and returned every nineteen days, accompanied by pains in the back. One treatment with radium, of 865 mg. hours, was given.

Result.—Complete relief followed.

THE TREATMENT OF MYOMA UTERI WITH RADIUM *

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Sufficient time has now elapsed since my associates and I began the treatment of myomas and myopathic hemorrhages of the uterus with radium to arrive at a just estimate of its therapeutic value. Within certain limitations we may, with positive assurance, from our observation of more than 150 cases, assume that, from the standpoint of efficiency, safety and morbidity, this remedy must supplant surgical intervention in these tumors and for the relief of intractable myopathic hemorrhages. Beyond these limitations, however, we are also convinced that surgery still has a dominant place in the treatment of properly selected cases. Our experience of the last four years in the use of radium has, therefore, marked out rather well-defined lines of procedure, on which we may advance with safety. In any field of endeavor the danger of any innovation is that too much may be expected of it; likewise, too much is often claimed for it.

In our first experience we limited the use of radium to women within the menopausal cycle, and we have only gradually, and to a very limited extent, worked outside of this physiologic boundary, for we are convinced that in young women heedless radiation may be quite as unfortunate in its results as were the early efforts of overenthusiastic or poorly balanced ovariotomists. Radium is quite as potent in its power to bring on a premature menopause, and it is quite as upsetting to the nervous equilibrium of a young woman, as the removal of the ovaries. Fifty mg. of radium applied for twenty-four hours within the uterus of a young woman will in many instances bring on an abrupt and serious menopause; and while in our series of cases one or two patients have received this dosage, it was given in our earlier experience, when the potentialities of radium were not fully realized and its dosage was yet within the period of experimental endeavor. We quickly learned that a moderately prolonged intra-uterine application was most hazardous and not to be repeated. As we view this question, three essentials are capital in the use of radium; first, an accurate diagnosis in all cases; second, the proper selection of cases; and third, the careful graduation of dosage, beginning when young women are being treated, with a minimum application and increasing the duration of application slightly if the first attempt fails to check the excessive flow.

In our study of results in women within the menopausal years, certain facts stand out in relief. Among the most obvious are these: The tumor must be uncomplicated with coincident inflammatory disease: it must be causing hemorrhage, and it should not be too large. In our cases, when pain, even without coincident evidences of inflammatory disturbance, has been present, it is seldom relieved even though the tumor largely disappears; and in other instances in which there was an old salpingitis, a flare-up of a quiescent process has occurred. In two cases a subsequent operation was necessary—in one a hysterectomy and in the other a vaginal puncture of a large pelvic abscess was necessary to relieve the patient. These two instances alone in our large series would not cast great discredit on this procedure, if all the other patients suffering with pain had been relieved of this symptom as the tumor decreased in size and menorrhagia ceased. Such, however, has not been the case; and we have, therefore, established a rigid rule that no patient suffering with pain lateral to the uterus is to be radiated. We choose an operation instead, for we can then ascertain the extent of the pathology and treat it conservatively or radically, according to the indications. In this connection we desire most emphatically to protest against the use of radium in the treatment of any acute or quiescent inflammatory case, whether associated with a myoma or standing alone. One of my esteemed colleagues, a radiologist, informs me that this point should be emphasized especially, for already an occasional enthusiast asserts that radium may be beneficial in the treatment of pyosalpinx. This degree of optimism is very dangerous, and cannot too quickly be discredited, for we have already observed its evil.

In keeping this remedy well within its proper bounds, its great value may be established without reflections on it; but through such a policy as that just referred to, its employment will be discredited. The proper selection of the tumor to be treated from the standpoint of size and symptomatology is also clearly necessary, for a therapeutic policy that covers all myomas regardless of structure is, as we view our experience, without justification. We have seldom used radium in a tumor larger than the size of a five months' pregnancy, and then only under very exceptional circumstances, such as in the presence of grave cardiac or renal complication or serious consitutional defects which plainly rendered any operation too dangerous. The rule which we generally follow is to confine this treatment to cases in which the tumors are the size of a three months' pregnancy or smaller. This policy is based on previous years of experience in the surgical treatment of myoma, which has established the great frequency of associated lesions in these large tumors, and we believe, therefore, that we serve a better end in recommending an operation in this class of cases than the application of radium.

One not infrequently finds in many cases a degree of anemia not accounted for by the loss of blood, and a complexion more like that of cachexia than occurs with an uncomplicated anemia; and furthermore, there is an asthenia of a toxic type which is not satisfactorily accounted for by a simple blood loss. Seldom is a malignant condition encountered, but not infrequently varying stages of degeneration of the tumors are discovered on macroscopic section marked by a grayish red or slaty discoloration of some of the tumors, indicating a partial gangrene, in others liquefaction necrosis, etc. Through the absorption of these necrotic or degenerating materials, serious inroads on the patient's constitution have occurred and a rapid healthful rebound follows a hysteromyomectomy. Based on these observations, we cannot look with favor on the conversion of these large tumors through radiation into retrogressive tissues, which through absorption may cause toxic symptoms. Under such conditions the patient may serve as the sarcophagus for her decadent tumor. Also, these large tumors are very frequently associated with, or through pressure have produced, other lesions, especially of the inflammatory

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class. Frequently pressure symptoms have forced the patient to consult the surgeon, and there may be no variation of the menses from the normal. In such cases the tumor may be a pure fibroid, largely of a dense hyaline or calcareous type, certainly not responsive to radiation.

For these, and still other reasons, therefore, we find no evidence thus far in our experience to convince us that the large tumors should not be removed by approved surgical methods. In no instance has there been so quick a decrease in the size of even the smaller tumors to justify us in believing that the larger tumors which are giving pressure symptoms will diminish sufficiently rapidly in even six months or a year to give satisfactory relief. We stand, therefore, on the general principle against radiation in tumors larger than a three months' pregnancy, and in only the exceptional case do we deviate from this rule.

Those who decry the use of radium in all myoma cases ring the changes on the dangers of sarcoma. Such objections have no basis in fact, for seldom, indeed, is sarcoma a degenerative or concomitant evil of myoma. If it were as common as is asserted by some of these alarmists, out of every series of 100 partial hysterectomies, as are usually performed by American surgeons, a definite percentage of recurrent sarcomas in the cervical stump should be encountered. In more than 1,000 hysterectomies performed in the gynecologic department of the University Hospital such a sequel has been observed but once. In a review of 816 myomas in our laboratory by my associate, Dr. Charles C. Norris, he finds only thirteen sarcomas, or less than 0.1 per cent., which were not diagnosed at the time of operation, only twenty-six such cases in all this series having been encountered. Based both on clinical and on laboratory conclusions, therefore, we deal with fears solely within the domain of fallacious supposition in discussing the dangers of sarcomatous changes in myomas and fibromas. Even were these fears jusified, there would still be no strong argument against the use of radium, since these tumors quickly react to this influence. It is not, therefore, the fear of sarcomatous degeneration which makes us slow to radiate large tumors, but it is because of the other objections just enumerated. To define our policy clearly, we would say that we radiate chiefly for one symptom, and that is hemorrhage. In myopathic changes in the uterus and in the smaller myomas causing excessive flow a safer or more certain means of relieving this symptom has not been found, for it acts with clocklike regularity, and we therefore consider a small myomatous uterus causing menorrhagia in a middle aged woman as no longer within the surgical domain. When radium is not available, the use of the roentgen ray in skilled hands may take its place. In the near future, therefore, we believe that the surgeon who operates in this type of cases will have a difficult task ahead of him in justifying his action.

SYMPTOMS ACCOMPANYING RADIATION

Under special headings may be enumerated some of the occasional symptoms accompanying radiation:

Nausea.—Frequently within from twenty-four to forty-eight hours after the intra-uterine application of radium the patient will experience considerable nausea, not, however, greater than that observed after the administration of one-fourth grain of morphin in the occasional case. As we always perform a dilatation and curettage under nitrous oxid anesthesia, with a preliminary one-fourth grain of morphin administered one hour before the anesthetization, we have often felt that there were about equal chances between the effects of the radium and the morphin in the production of the symptoms; for nausea and vomiting are the exception rather than the rule after radiation. In no case has this symptom been either alarming or persistent.

Pain.—This symptom is also a variable factor, and may be attributable to the curettage, which is performed in all of these cases for diagnostic assurance. When this symptom persists or is accompanied by fever, we fear the possibilities of an acute inflammatory attack or the exacerbation of a quiescent lesion. This complication has occurred but seldom. However, it has been noted in possibly twenty or thirty instances in our series, and we are inclined to adopt in the future the plan of merely dilating the cervix and inserting the radium in those cases of periodic menorrhagias following a cyclic menstrual type without intermenstrual spotting; for in no instance have we discovered a carcinoma of the fundus in any of these cases, notwithstanding a careful routine study of the curettings. In those cases, however, in which there is intermenstrual spotting, or in which there is continuous bleeding, curettage should never be omitted, for this is the court of final diagnostic resort. When this very suggestive symptom has been present, carcinoma of the fundus has occasionally been encountered and an immediate or subsequent hysterectomy has been performed. A simple hysterectomy carries so high a percentage of cures in this class of cases that we never trust to radium, but invariably choose the more radical surgical measure.

Leukorrhea.—The rule in all of our cases has been that a yellowish but never profuse leukorrhea will follow radiation for a short time—usually from three to six weeks. Hemorrhage likewise may not cease at once, although this is the rule. We warn our patients against apprehension if the flow does not cease at once, and usually tell them to expect no decided result under six weeks, although the great majority are relieved at once of excessive bleeding, but have a somewhat yellowish, sticky discharge for possibly six weeks, after which it ceases. In several instances a profuse leukorrhea has actually been cured by radiation.

Menopause.—The change of life in these cases varies in its phases, as the constitutional and temperamental characteristics of women vary. In this connection one might employ the lines of the comic opera librettist: "There are never two women alike, and never one woman alike twice." In the more marked grades of anemia we believe the climacteric change is more abrupt and attended with more pronounced symptoms. This may be explained on the theory that the hematogenous system has been working for weeks or months at a great speed in corpuscular generation, since the continuous loss of blood is so great that this excessive deficit must be remedied. A quick check on this great activity must in many instances jar the physiologic equilibrium and thus induce a more acute menopause. So far as we are able to judge, we believe that the menopause is somewhat more trying to the average woman under an abrupt cessation than when she drifts into this change more naturally. In estimating the possible objections to radiation this symptom may possibly be classed in this light, although it in no way differs from the same sequel after a hysterectomy in which the ovaries are removed. In general, we find our patients very enthusiastic over their results, and count this possibly trying symptom as of light moment compared with their satisfaction over an escape from an operation.

FAILURE TO RELIEVE

In four cases we have failed to relieve patients sufficiently to satisfy them or ourselves, and we have subsequently resorted to a hysterectomy. Two patients have been operated on in other clinics. So far as we have observed, no disadvantage has occurred from the preliminary radiation, as all of the patients on whom an operation has been performed have recovered without complication.

TECHNIC OF APPLICATION

In our entire series of cases we have varied but little in our method of treatment. For women in the menopausal years, one extra-uterine application of 50 mg. of twenty-four hours' duration is made. Under gas the cervix is dilated and a simple curettage for diagnostic purposes is performed, followed by a light packing of the uterine cavity with a 5 per cent. solution of iodin momentarily before the radium is introduced. We enclose the platinum or silver radium container in a black rubber drainage tubing securely tied at each end. A 50 mg. tube is inserted into the fundal cavity to the top and left thus for twenty-four hours. When the cavity is 3½ inches or more in depth, we usually use 25 mg. tubes arranged in the rubber tubing tandem fashion, to insure a wider radiation of the uterine wall. After the radium is withdrawn, we usually keep the patient in bed three days, as after ordinary curettage, and at the end of five days she is discharged and permitted to resume her ordinary duties.

In women under 40 years of age we grade the dosage largely according to their years. As a rule, if the menorrhagia is excessive we may leave the tube in place twelve hours if the patient is over 35. In still younger women we never apply it more than six hours, choosing rather to make a reapplication several weeks later if the first fails. In this way the menopause will not be induced. There are several instances in our series in which normal menses have occurred after an interval of weeks or months, even when a twenty-four hour dosage has been applied; but as a rule the menopause is permanent.

RESULTS

In one phenomenal case, that of a woman aged 32, married ten years and sterile, who had suffered from severe menorrhagia which had reduced her hemoglobin below 35 per cent., the flow ceased quite abruptly and she passed through a rather severe menopausal period and yet became pregnant and went to term; but through a severe postpartum hemorrhage the poor woman lost her life. In many instances patients have passed through a typical climacterium, and the periods have returned and have then resumed a normal menstrual physiology. This phenomenon has been sufficiently frequent to make us believe that the radioactivity of the usual dosage is expended chiefly within the uterus and not on the ovaries. In considering the amount of radium employed in these cases, we feel that the smaller dosage, such as we have indicated, has given very satisfactory results, and, therefore, it is within the easy range of every well equipped hospital to have available at least 100 mg. of this substance for use in their clinical departments. It should, however, be placed within the jurisdiction of one capable clinician of the staff to advise as to its use. Certainly it is not a remedy for haphazard use, for it requires the training and judgment of a skilled specialist to advise as to when and how it should be applied.

ABSTRACT OF DISCUSSION

OF PAPERS OF DRS. S. M. D. CLARK AND JOHN G. CLARK

Dr. Harold Bailey, New York: In the radium treatment of cervical cancer there are two problems: The application of the radium to the cervix in such an amount that there will be a retrogression of the local lesion without the production of deep slough or fistula, and the radiation of the parametrium by such massive dosage that the necessary amount of ray intensity (whatever that may be) will reach all parts of the pelvic tissue involved. The first problem is comparatively simple from the point of physical conditions, for the cervical canal is approximately in the center of the involved part and offers an ideal location for an applicator in the shape of a capsule. This type of application will probably always be the chief or most important single factor in the treatment. Granting that a complete retrogression is produced in the cervix, then we are in the same position as if the cervix and uterus had been removed by a simple hysterectomy and the return of the disease is just as certain as if this operation had been done. With small amounts of radium the only way so far as I know, of producing distant effects in the parametrium, excluding rectal application, is by reapplication of the capsule to the same areas in the cervical canal. Experience through nearly two years of use of radium in this manner has convinced me that it is seldom effective and furthermore that it produces lesions which are quite important as regards the patient's comfort. The second problem is best solved by two types of accessory applications that require large amounts of radium, amounts in the magnitude of a gram. Properly protected these large doses may be placed for short periods in the posterior fornix at either side of the cervix and thus radiate the lower part of the broad ligament. Amounts of 1 gm. may be placed above the surface of the skin and over different areas in turn and thus conduct an additional radium intensity into the pelvic tissues. In this manner it is highly probable that sufficient radium intensity can be produced throughout the pelvis to affect unfavorably any cancer cells that may happen to be there. Unfortunately just the amount that will accomplish our purpose without producing an endarteritis that will some months in the future cause a sclerosis with stricture and fistula and other serious symptoms, must be arrived at by cautious experiment. Therefore, it is quite patent that the possessor of small amounts of radium must be satisfied at present to conduct palliative treatment of inoperable cancer and should not attempt to treat operable cancer. The preoperative treatment of cervical cancer with radium should consist (where only small amounts are available) in using the intracervical capsule for a considerable dose and then waiting three or four weeks before operating. Caution must be used in considering too favorably the temporary healing of the local lesion for the common history of these cases is that within the period of a year further cancerous development ensues. In cancer of the body of the uterus operation should be done following radiation. Under radium treatment small fibroids may retrogress so that their size causes no symptoms. Larger fibroids may diminish in size but there remains above the true pelvis a heavy sclerotic mass that is apt to cause symptoms from its weight alone. The bleeding in most of the cases may be checked entirely. Cessation of menstruation is probably caused by the lack of functional activity of the ovary and the endarteritis produced in the tumor itself. In selecting the cases it is necessary to rule out not only all those with abnormal conditions in the pelvis but also all very large or the pedunculated or adherent or submucous fibroids and also all those with large retrocervical nodules. There remain suitable for the radium treatment all those that have some physical condition rendering operation inadvisable and also all small freely movable fibroids without any discernible complications. This last mentioned group should have the radium treatment as a tentative measure. The mortality from radium treatment of fibromyoma together with that of the undiagnosed and untreated complications may be higher than 1.5 to 2 per cent. Radium is particularly successful in the treatment of this class of cases. As in the fibroid group the bleeding does not cease usually unless the menstruation is stopped. Care must be used in selecting these cases. A thorough curettage should be done and all the scrapings examined. One piece may show adenomatoid membrane and a nearby section may show signs of beginning cancer. Another possibility that deserves consideration in the radium treatment of younger patients is that a partially ripe ovum may be so injured that on impregnation later abnormal development may occur.

Dr. Ernest C. Samuel, New Orleans: We have not attempted to radiate tumors that are large or rapidly growing, impacted in the pelvis, causing pain or pressure symptoms. We have done this only when they were of small size and in patients beyond 35 years of age. The tumors not causing hemorrhage have been left to the surgeon, except in probably one or two instances. I was glad to hear what Dr. Clark said concerning sarcoma being a bugbear in the matter of radium treatment. We have had some pain following the application of radium, but since we have ceased using morphin preliminarily to radium the nausea has been reduced at least 75 per cent. We have given up entirely the use of gas for the introduction of radium. Of the 125 patients treated three have come to operation. In one case there was no result whatever from very large doses frequently repeated. As Dr. Clark said, after very careful examination there was no evidence of malignancy found in the specimen. I have had three unhappy experiences with a lighting up of infection after radium was used. I cannot agree with Dr. Clark as to the menopause being a bit short. Our observation has been different. It seems to come on a little more slowly and not to produce the symptoms as fast as he has observed. In regard to malignancy, we are not using the very large dosage of which Dr. Bailey speaks. We have absolutely discarded it, using only the smallest dosage, and after three treatments, which I think is a little more than Dr. Clark gives, if there is no appreciable effect on the mass, we stop treatment entirely and tell the patient's family that nothing more can be expected of radium. Dr. Schmitz of Chicago has demonstrated that implanting the radium tube in the parametrium is of much value. It seems to offer much in the future care of these cases, especially in recurrences out in the parametrium and deep in the pelvis

Dr. A. H. Curtis, Chicago: Of the patients whom we have treated with radium we have available statistics from 229. Forty-six with uterine cancer have obtained some palliative relief. Of this number there has been very marked amelioration of the symptoms in fourteen. Up to the present we have had no patient in whom we anticipate that a permanent cure has been secured. The hemorrhage ceases, the discharge stops, the cervix almost invariably heals over; there is cessation of pain for several months, but eventually the patient succumbs to the disease. In the protection of the bladder and the rectum we have found that, instead of the use of the customary gauze pack, insertion of a rubber dam is very much more satisfactory. Because of its elasticity it can be inserted without distress; the parts are forced away from the carcinomatous tissue and we have absolutely no trouble from adhesive vaginitis. In cases in which it is desirable to use radium as a preliminary to operation I think it is well either to operate within the first twenty-four hours before inflammatory reaction has occurred, or to wait for two and a half or three weeks in order that an immunity may have been established from the inflammatory reaction following the application of radium. In the noncancerous group of cases, without doubt radium is of great therapeutic value. We are able to effect a cure in almost all cases where radium is indicated. We have found that the routine use of 1,200 mg. in small sized fibroids and with patients in the menopause there is a tendency to hot flushes which disturb an otherwise excellent result. On this account we are inclined to use a smaller dosage and have recently employed 1,000 mg. or less. In severe hemorrhage in women of younger age, the so-called idiopathic hemorrhage, even a smaller dosage will suffice. In all of these nonmalignant cases there is apt to be bleeding for several weeks, sometimes for a couple of months, but almost always a cure is assured if we are patient. Another complication is that of a very profuse watery discharge, persisting oftentimes for three or four months; but I know of no case in which it has not spontaneously ceased. I am optimistic concerning the use of radium in intractable leukorrhea of cervical origin. The cervix is open to infection from below. As a result there is marked hypertrophy of the cervical tissues, which are permeated with infection by all sorts of organisms. Fifty milligrams of radium are inserted in the cervix as high as the internal os and left for twelve to sixteen hours. Its use is sometimes necessary again after two months. But finally the glands are destroyed and the infection ceases. The ultimate results are extremely gratifying.

Dr. Edward H. Richardson, Baltimore: I am glad to note that the general tone of these papers has been conservative. There is no longer any doubt about the superiority of radium over other methods of treating certain cases of myoma and I believe the specific indications for its use will soon be defined accurately through the splendid work now being carried on in this field by those possessing this agent. In general, I agree with the limitations as outlined by Dr. John G. Clark. There is one group to be kept in mind, however, which he may have mentioned. This is illustrated by a case of a myomatus uterus not larger than a four months pregnancy in which I advised operation. The ovaries could not be palpated prior to laparotomy and when they were exposed, the left one was found to be moderately enlarged from cystic degeneration while at one point on its surface there was a papillomatous outgrowth, one and one-half centimeters in diameter, which appeared to be carcinomatous in nature. One must be careful to eliminate such early cases of carcinoma of the ovaries as a complication of myoma before advising radium, because, if I am informed correctly, it has been the uniform experience of radiologists that malignant growths of the ovaries are not amenable to this form of therapy. With reference to the treatment of carcinoma of the cervix and of the body of the uterus by radium, my observations have been limited to a small series of cases, all either hopelessly inoperable or instances of intrapelvic recurrence. Under such circumstances a cure could not reasonably be expected, but in all of them the rate of growth seemed to have been materially retarded and in other respects, too, its superiority as a palliative measure in these hopeless cases was convincingly shown. It is quite possible that further improvement in the technical methods of radiotherapy may yet reward by brilliant achievement the efforts of those now courageously working in this discouraging field. In the meantime they should receive the unstinted cooperation and encouragement of the profession.

Dr. LeRoy Broun, New York: It would be a great mistake to allow the impression to go out from this meeting that we may indiscriminately make use of radium or the roentgen ray in the treatment of fibroid tumors, and I am glad of this opportunity to accentuate the limitations placed on the treatment of fibroid tumors as Dr. Clark of Philadelphia has done. He clearly brings out the point that the essential factor is a positive diagnosis that there are no complications and the other that of hemorrhage. The presence of pain indicates that some intercurrent pathologic condition exists, such as associated disease of the ovaries and tubes with adhesions or changes in the tumor growth. In 1,760 consecutive cases of fibroid tumors in which operation was done, the following changes had taken place in the tumors: In ninety cases there were necrotic changes; in twenty-five cases there was calcareous degeneration and in twenty-five cases there was malignant disease of the fundus—not of the cervix. In others words, in 8 per cent. of the fibroid tumors conditions existed in which radium should not be used and in which, as a rule, no knowledge of such changes could be diagnosed prior to the operation. There were a number of ovarian complications, 3 per cent. contraindicating the use of radium. These included ovarian cysts, dermoids and malignant disease. In 7 per cent. there was an infectious salpingitis, not salpingitis the result of increased circulation associated with fibroid tumors. This is where the danger arises in the use of radium—in our inability to make a positive diagnosis and to exclude the intercurrent pathologic condition. In a clear case, however, with absence of coincident pathologic conditions, or of degenerative changes in the fibroid tumor growth, radium is unquestionably of the greatest possible assistance. By it we can control hemorrhagic symptoms in uncomplicated fibroids and save the patient from a mutilating operation. I am glad to place this emphasis on the limitations in the use of radium which Dr. Clark has brought out.

Dr. John Osborn Polak, Brooklyn: Diagnosis is the keynote. All have defined the class of cases in which radium should be used, but they have not shown us how to make this diagnosis. Dr. Clark of New Orleans says they have discarded the use of morphin and of anesthesia in the introduction of the radium, but he does not tell us how he makes a definite diagnosis as to the absence of inflammatory adnexal conditions without the use of anesthesia. Of course, histories are almost always reliable, but errors occur in the best regulated hospital. We recently had two cases in which we used radium; a very active reaction resulted. Both tubes and ovaries had been removed for inflammatory conditions. The operating surgeon had left a large metritic uterus which was causing hemorrhage. Both these women were suffering from diabetic trouble and operative intervention was inadvisable. Both patients were cured with radium but the introduction of radium into these uteri caused the most active inflammatory reaction in the parametrium and in the peritoneum. Our own experience with radium has been limited to these cases of enteritis or subinvolution near the menopause with hemorrhage. We have had seventy-six cases treated for hemorrhage with absolute cure of the bleeding in all of the cases. Three patients have had to have repeated exposures. There has been only one case of a young girl in which radium was used for the control of hemorrhage. This case was treated by repeated small applications of radium with a most satisfactory result. I think it is a mistake for us to give the impression that operation for fibroids is to be eliminated. In watching the cases of other men in which large doses of radium have been used for the control of tumors I have been very much interested in seeing that a number of these cases had subsequently to be operated because of pressure changes and lack of diminution in size. The hemorrhage, however, in all cases in which I have seen radium used and in all the cases in which we have used it ourselves, has been absolutely controlled.

Dr. Henry Schmitz, Chicago: We have endeavored to find an explanation of the fact that some myomas disappear following radium application while others do not. In the latter instance the microscopic sections invariably show the presence of numerous atrophic fibroblasts and an abundance of highly differentiated fibrous tissue. In myoma uteri the dosage has been reduced greatly in the last two years in our work and we now deem a single application of 25 to 35 mg. for twenty hours sufficient to bring about amenorrhea. If the patient fails to respond to one such application we may repeat the dose after three or four months, when the desired result will be obtained. Such a careful plan of treatment prevents the later appearance of profuse leukorrhea of which so many patients complain and which at times seems to be quite persistent, lasting not only three to six months, but sometimes even a year. Concerning the use of radium in carcinoma of the uterus we must always remember that if it did nothing else than give relief it is preferable to the cautery in inoperable cases. In the hemorrhagic myopathies the results of radium therapy have been good, provided the causative factor has been corrected first. It is of special importance to rule out malignancy. Of twenty-three inoperable cases of cancer treated in 1914 three patients are living and well today, having had no recurrence. The demonstrable reduction in the size of the tumor of a kind not to be attributed to the natural processes of evolution of that tumor or its associated lesions is the one essential feature to be observed in speaking of a curative action of any agent. On the other hand, if such a therapeutic measure relieves symptoms such as hemorrhage and discharge and brings about local healing, the agent is only a palliative one. If we consider the results of radium therapy from this point of view we shall avoid many misunderstandings or wrong conclusions.

Dr. Samuel M. D. Clark, New Orleans: If the case histories are studied it will be seen that most of the patients had previously been operated on in some fashion. As to the fibromyomas, I was interested to hear of the percentage of adnexal inflammation being so low, not over 30 per cent. In the colored women, among whom myomas are common, adnexal inflammation is found in 85 per cent., leaving only 15 per cent. suitable for radium treatment. It is to be regretted that there was not more discussion on the control of menstrual bleeding in young women without producing suppression. We need more light on this phase of the subject.

Dr. John G. Clark, Philadelphia: So far as my attitude toward radium is concerned, therapeutically it is at most a mere handmaid of surgery. As I have stated in my paper, there are cases of fibroid which should not be treated by radium, thus reducing the total number of cases to which radium is applicable to a smaller proportion than those submitted to surgery. Particular stress should be laid on the necessity for all of these cases to have the best diagnostic advice before the determination to use radium or the roentgen ray is arrived at. Certainly, it is not within the province of the roentgenologists to pass on this phase of the question. Unless this decision is carefully controlled, serious opprobrium will be cast on a very valuable remedy. Dr. Samuels believes that his patients have not suffered as much with acute menopausal symptoms as ours have. Possibly this may be due to the fact that he has used a smaller dosage. At least, this is the only way in which I can explain the apparent difference in our results. So far as the question of leukorrhea is concerned his patients appear to have a slight leukorrhea but like our series, this is never annoying. Seldom are they troubled with this slight discharge for more than six weeks, and in many instances not at all. A very gratifying sequel in several cases of chronic leukorrhea has been a cure by the use of radium. The one point on which special stress should be laid is that radium does not take the place of surgery, except in a limited number of cases. Every surgeon here knows how reluctantly he advises a hysterectomy in a woman in the menopausal years who is suffering with mere myopathic hemorrhage or from a very small fibroid, as the gravity of the operation is greatly out of proportion to the lesion. These are the cases par excellence for the use of radium and they should never be submitted to operation.

Health Centers.—A health center is a place where people may come to learn how to keep well. It is not too expensive for any community with a population of 10,000. A health center is simplicity itself, a single room, if no more is available, in the central part of the town, where the public health nurse and doctor in attendance can give advice to people on matters of health. This health center should be conducted by the board of health of the municipality, as it is really a municipal duty to see that the health of the citizen is preserved. Very often, however, it is more easily started by some private philanthropic agency; the Visiting Nurse Association, for example, could carry it along as a demonstration until it is finally taken over by the municipality. Such a health center need not be confined to any particular age group. Prenatal instruction can be given there; the infant can be supervised there; it can serve also as a conference center for the child of preschool age, the schoolchild, and the child in industry, and, for that matter, the adult. Every community, or group of communities, should have one.—*The Commonwealth* **6**:120 (May-June), 1919.

TREATMENT OF EXTRA-UTERINE PREGNANCY AFTER THE FIFTH MONTH [*]

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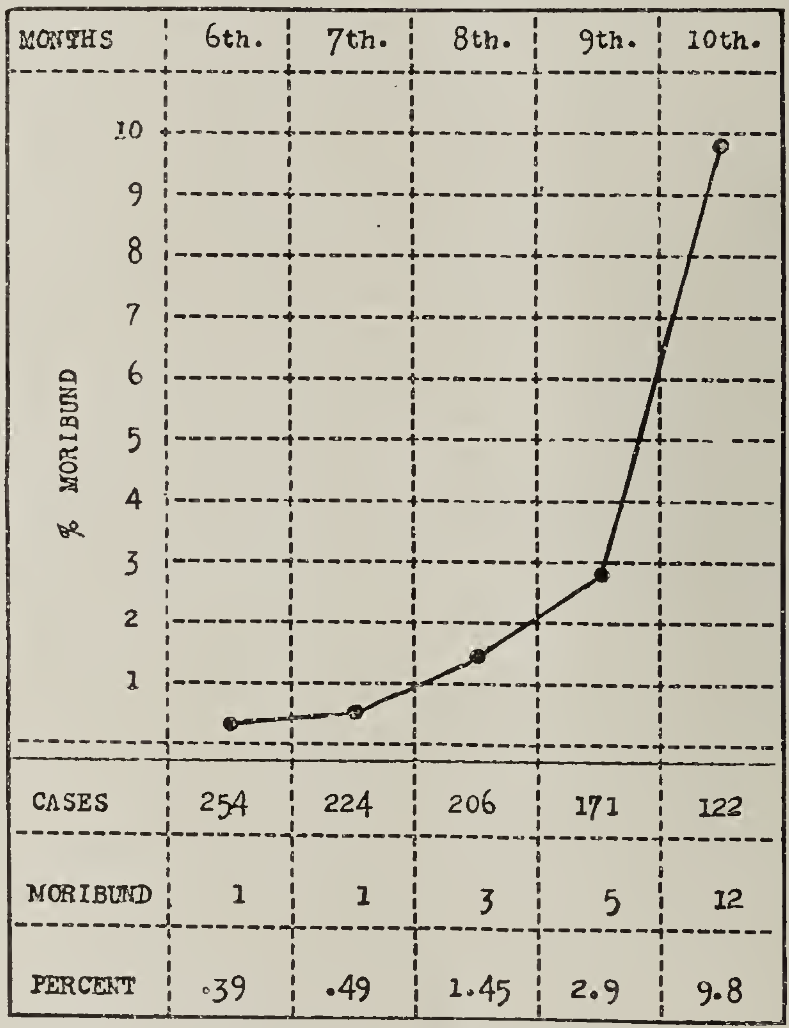
The incentive for this study was a case of full term extra-uterine pregnancy which I had the good fortune to treat in the Long Island College Hospital last fall:

Mrs. C. C., aged 32, primipara, married nine years, menstruated regularly every twenty-eight days. Her last menstruation began Jan. 18, 1918, and continued for three days. No bloody vaginal discharge was noticed at any time during the pregnancy prior to the day before admission to the hospital. In the second month, the patient suffered from pain in the right lower quadrant of the abdomen. Occasionally, this was severe enough to necessitate her remaining in bed, but at no time required the services of her physician. After about two weeks, the pain disappeared, and she resumed her usual household duties. No further symptoms were observed until the last month, when the fetal movements became very active and painful. Oct. 4, 1918, intermittent pains and a bloody vaginal discharge led the patient to believe that she was in labor, and a midwife was called. After two days of suffering, the patient was brought to the hospital. On admission, examination revealed a marked distention of the abdomen. The fetal head was felt very close to the examining fingers in the left lower quadrant. Neither contractions nor the round ligaments could be palpated. Percussion revealed an irregular area of tympany, which extended from the ensiform to slightly below the umbilicus. The fetal heart was heard on the right side below the umbilicus. From these atypical abdominal findings, the fetus was thought to be free in the abdomen.

Because of the extreme distention, it was deemed advisable to postpone operation until after an attempt was made to relieve this complication, as the patient was otherwise in good condition. Gastric lavage and colonic irrigations were used to good advantage, and on the following morning, Oct. 8, 1918, the patient was prepared for a laparotomy.



MONTHS	6th.	7th.	8th.	9th.	10th.
CASES	254	224	206	171	122
MORIBUND	1	1	3	5	12
PERCENT	.39	.49	1.45	2.9	9.8

Chart 1.—Cases in which patients were moribund at the time of operation.

Vaginal examination under anesthesia disclosed a soft thick cervix, which admitted two fingers easily. The uterus was distinctly felt on the right side and was about the size of a four months' pregnancy. Digital exploration of its cavity revealed it to be empty, and the walls were found to be free from rupture.

The abdomen was opened through a midline incision which extended from the symphysis to the umbilicus. After the sac had been incised, a well developed child was extracted. The placenta was found to be widely attached to the right broad ligament and sigmoid and extended anteriorly along the parietal peritoneum almost to the midline. By the use of clamps and ligatures the placenta was removed. A vigorous hemorrhage now took place from the friable areas through which some of the ligatures had torn. Pressure was made over the abdominal aorta, thus partially arresting the flow of blood, while the bleeding points were secured with three clamps. These were surrounded by a Mikulicz drain, and the wound was closed, except in its lower angle, through which the drain and clamps protruded. The patient was returned to her bed in good condition. The duration of the operation was forty minutes.

The clamps were removed on the third day, and the drain was started on the following morning. The temperature rose to 100.6 on the second day following the operation, after which it remained below 100 until October 20, when the wound suppurated. A febrile convalescence continued for twenty-four days, during which the highest temperature was 102.4. The patient was allowed out of bed, Nov. 23, 1918, and was discharged from the hospital in good condition three weeks later.

She has returned several times during the past five months to the post partum clinic, where examinations have shown a complete recovery.

The child was 50 cm. long and weighed 3,450 gm. at birth. No malformations were noted. It was placed under the supervision of Dr. Watton of the department of pediatrics, who recommended artificial feeding because of the mother's condition. On the eighth day, suppurative parotitis developed. Following recovery from this condition, the child did well and weighed 15 pounds and 10 ounces when last seen, June 10, 1919.

RECORDS OF TWO HUNDRED AND SIXTY-TWO CASES

The treatment of this condition must be learned from a statistical analysis of the results in a large series of cases, since the experience of individual operators is so limited that their conclusions are less satisfactory than the deductions which one might make from a collective study of the cases reported in the literature. A careful search of the literature, as well as replies to a questionnaire which was sent to over 200 obstetricians, revealed only 262 cases of extra-uterine pregnancy between the years 1809 and 1919 in which operations were performed after the fifth month, with a living fetus.

MATERNAL MORTALITY

Table 1 shows the maternal mortality following operative treatment.

A. Prior to 1890, that is, before the days of asepsis, fifty patients were operated on for this condition, and thirty-four died, a mortality of 68 per cent.

B. During the following ten years, 35.3 per cent. of the patients died. As suggested by Harris, this improvement probably was due to the influence of the teaching of asepsis.

C. The mortality was further lowered in the succeeding ten years to 21.9 per cent. of ninety-one cases, as a result of the advances made in the technic of abdominal surgery.

D. Only twenty-two case reports were found in the literature of the past nine years, owing to the fact that the war greatly interfered with the collection of medical data. Of these twenty-two patients, four died, a mortality of 18.1 per cent.

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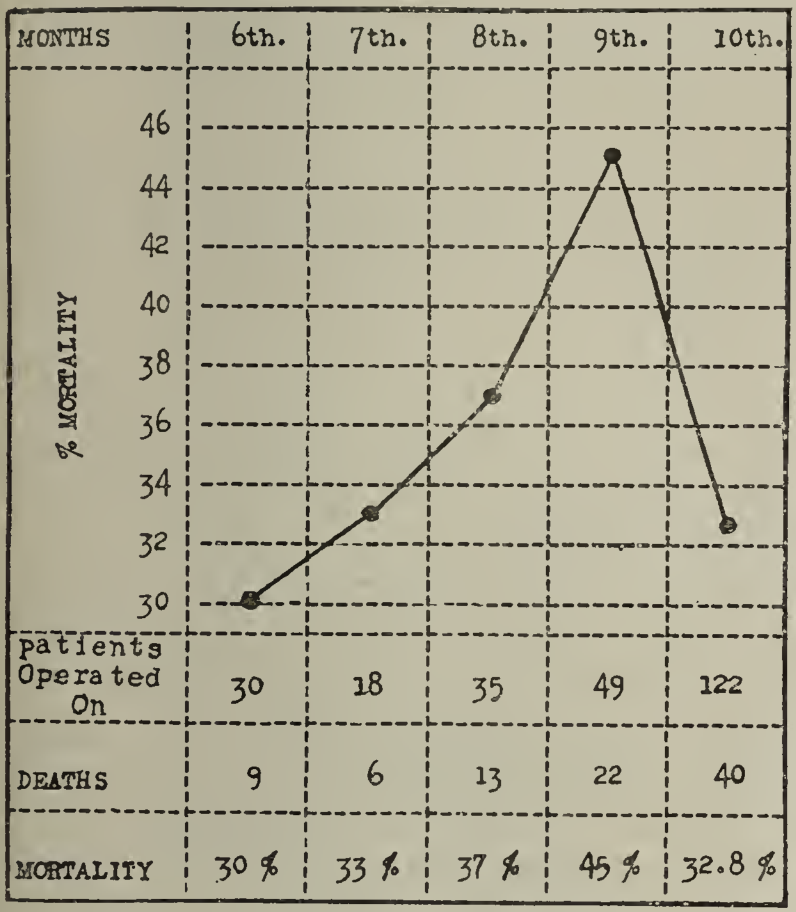
[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

E. The mortality for the entire series of 262 cases was 35.8 per cent.

OPERATIVE TREATMENT

In spite of this high death rate (35.8 per cent.), the treatment of advanced extra-uterine pregnancy always should be operative, as noninterference gives even worse results.



MONTHS	6th.	7th.	8th.	9th.	10th.
patients Operated On	30	18	35	49	122
DEATHS	9	6	13	22	40
MORTALITY	30 %	33 %	37 %	45 %	32.8 %

Chart 2.—Operative mortality at different periods of gestation.

Time to Operate.—Our decision as to the proper time to operate depends on three factors:

1. The danger to the mother of waiting for a viable child.
2. The operative risk at various periods of gestation.
3. The best time to interfere in the interest of the child.

DANGER TO THE MOTHER OF WAITING FOR A VIABLE CHILD

The danger to the mother of waiting for a viable child is shown in Chart 1. From a period of relative quiescence during the sixth and seventh months, the maternal risk gradually but slightly increases in the eighth and ninth, to become a prominent factor in the tenth month. Twelve of the 122 patients who reached the last month were moribund before the operation was performed. Of these moribund cases, only two were noted during the first two weeks of this five-month period, while ten occurred during the thirty-ninth and the fortieth weeks. Were this growing danger in the late stage of pregnancy the only factor to be considered in determining the time to operate, we might conclude that:

TABLE 1.—MATERNAL MORTALITY

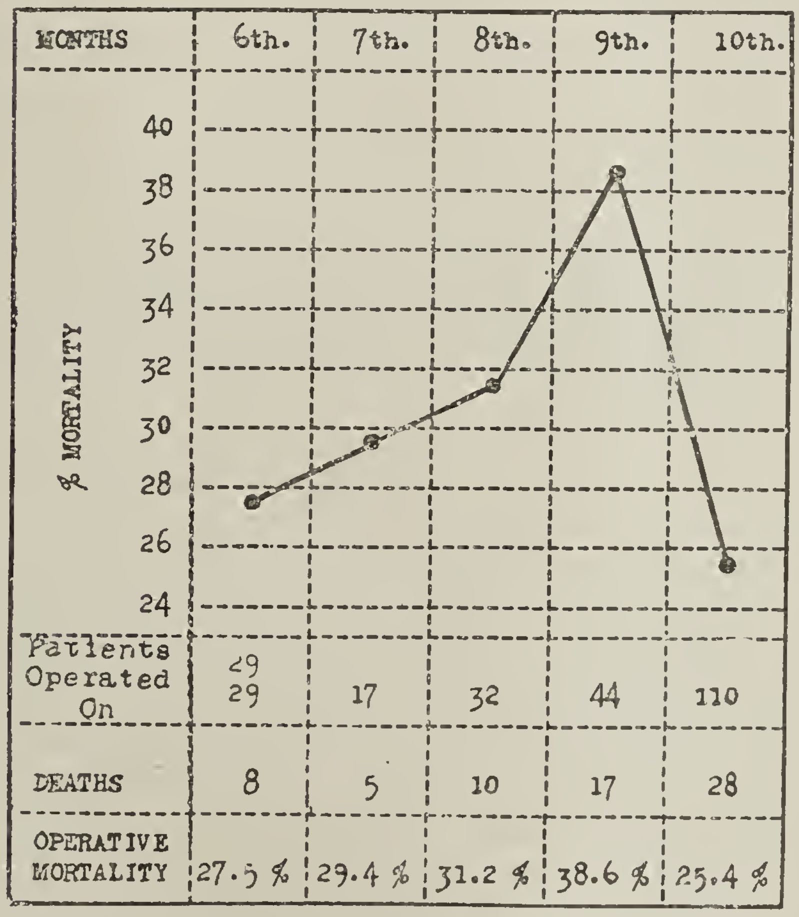
Period	Cases, No.	Deaths, No.	Mortality, per Cent.
A. 1809 to 1890	50	34	68 0
B. 1890 to 1900	99	35	35.3
C. 1900 to 1910	91	20	21.9
D. 1910 to 1919	22	4	18.1
E. 1809 to 1919	262	94	35.8

1. The best time to operate is during the sixth or the seventh month.
2. The added risk in waiting for a well developed child is slight up to the thirty-ninth week.
3. The danger of a catastrophe is sufficiently great in the last two weeks to warrant interference before this period is reached.

OPERATIVE RISK AT THE VARIOUS PERIODS OF GESTATION

The operative risk at the various periods of gestation is shown in Chart 2. The danger from the operation itself increases as pregnancy advances, until the last month is reached, when it is less than at any previous time. An analysis of all of the deaths shows the apparent reason for this diminished risk during the tenth month to be a lessened tendency toward hemorrhage at that time. After the thirty-eighth week, 36.8 per cent. of the deaths were due to hemorrhage, while almost twice as large a proportion, 65.3 per cent., resulted from this cause when the operation was performed before the last two weeks.

By adding the moribund cases in Chart 1 to the operative deaths in Chart 2, the maternal mortality is found to be 30 per cent. for the sixth month, 33 per cent. for the seventh, 37 per cent. for the eighth, 45 per cent. for the ninth and 32.8 per cent. for the tenth. Chart 3 is a graphic representation of these figures, and illustrates the fact that, even though almost 10 per cent. of the patients operated on during the last month were moribund before the operation, the gross maternal mortality for the tenth month is almost as low as in the sixth, and lower than in the intervening months.



MONTHS	6th.	7th.	8th.	9th.	10th.
Patients Operated On	29 29	17	32	44	110
DEATHS	8	5	10	17	28
OPERATIVE MORTALITY	27.5 %	29.4 %	31.2 %	38.6 %	25.4 %

Chart 3.—Mortality at different periods of gestation.

BEST TIME TO INTERFERE IN THE INTEREST OF THE CHILD

The most suitable period for intervention in the interest of the child is shown in Table 2, which gives the duration of life of the infants born at different periods. These figures are very conservative, as many of the children reported as living at the end of from two to four weeks undoubtedly lived longer. Since

56.6 per cent. of the sixty infants born at from thirty-six to thirty-eight weeks survived one month, while only 47.5 per cent. of the eighty born in the thirty-ninth and fortieth weeks lived the same length of time, it would seem that the safest time to operate in the interest of the child is in the thirty-eighth week.

If the series of cases is sufficiently large to permit us to draw conclusions we may infer that:

1. The best time to operate is in the thirty-eighth week.
2. We are justified in waiting for this period of election, provided the patient is kept under observation.
3. This plan will best conserve the interests of both mother and child.

OPERATIVE TECHNIC

The difficulties which one meets in operating in these cases are usually encountered in the handling of the placenta. Its removal frequently has resulted in uncontrollable hemorrhage. The opposite procedure, its retention within the abdomen, is said to have been responsible for many cases of fatal sepsis. Table 3 gives a comparison of the results obtained by each method.

Before asepsis was generally practiced, the customary routine was to leave the placenta and drain until it came away. Since 1890, most operators have preferred its removal whenever possible. The more frequent use of the latter plan has led to marked improvements in its technic and a consequent progressive diminution in the mortality, while little change has been noted in the results following marsupialization. When the placenta was left, the usual practice was to suture the sac to the abdominal wound and drain until its contents came away. These patients frequently became infected, and many died of sepsis. As the removal of the placenta is impossible in some instances, our results might be bettered if we used the modern surgical principle of avoiding drainage in these cases. We leave blood clots and placental tissue in the abdomen without drainage when we operate on earlier extra-uterine pregnancies. Would it not be well to follow the same routine when it is impossible to remove the placenta in the advanced cases?

TABLE 2.—INFANT MORTALITY *

Period of Gestation, Weeks	Time of Infants' Survival: 1 day	2 days	1 Week	2 Weeks	3 Weeks	1 Month	1 Year	Time Unknown
40	31	2	2	3	2	10	25	10
39	2	..	..	..	..	2	1	..
38	2	4	..	..	1	4	12	..
37	4	1	..	..	..	1	2	1
36	12	..	..	1	1	10	5	3
35	6	..	..	..	..	1	..	..
34	1	..	1	..	..	1	..	1
33	3	..	..	..	1	1	1	..
32	9	1	..	..	1	1	..	..
31	2	..	..	..	..	..	..	..
30	17	1	..	..	..	1	2	..
29	2	..	..	..	..	..	..	..
28	5	1	..	..	1	..	..	..
20 to 27 incl.	37	1	..	..	..	..	..	1
Unknown	2	..	1	..	2	..	1	2
	135	11	4	4	9	32	49	18

* In 202 cases, in which the period of gestation was from twenty-eight to forty weeks, eighty infants survived one month, 39.6 per cent. In eighty cases, in which the period was from thirty-nine to forty weeks, thirty-eight infants survived one month, 47.5 per cent. In 140 cases, in which the period was from thirty-six to forty weeks, seventy-two infants survived one month, 51.4 per cent. In sixty cases, in which the period was from thirty-six to thirty-eight weeks, thirty-four infants survived one month, 56.6 per cent.

With this suggestion in mind, I placed three fifths of a 500-gram placenta, removed by cesarean section, in the abdomen of a dog. The animal promptly recovered. Two months later its abdomen was reopened, and no trace of the placenta could be found. Absorption takes place under similar conditions in the human being, as has been demonstrated by eight of the cases included in this analysis. The placenta was left to be absorbed in the abdomen in twelve patients. Four of these died, a mortality of 33.3 per cent. In two of the fatal cases, death occurred from sepsis on the second and fourth days and, in all probability, was independent of the method of handling the placenta. These results compare very favorably with the 38.7 per cent. mortality which followed the use of drainage.

TABLE 3.—A COMPARISON OF THE MORTALITY IN THOSE CASES IN WHICH THE PLACENTA WAS REMOVED WITH THAT IN CASES IN WHICH IT WAS LEFT

Period	Placenta Removed: Cases, No.	Deaths, No.	Mortality, per Cent.	Placenta Left: Cases, No.	Deaths, No.	Mortality, per Cent.
A. 1809 to 1890	15	4	26.6	33	28	84 0
B. 1890 to 1900	60	17	28.3	38	17	47.7
C. 1900 to 1910	66	11	16.6	23	8	34.7
D. 1910 to 1919	18	2	11.1	4	2	50.0
E. 1809 to 1919	159	34	21.3	98	55	56.7

The mortality following the removal of the placenta, as well as that which accompanies its retention with and without drainage, is shown in Table 4. While these figures are somewhat deceptive, in that the placenta was left in the most difficult cases, they are sufficiently trustworthy to justify the statement that it should be removed whenever possible, and that when its retention is necessary, drainage should be avoided except in the presence of hemorrhage or infection.

Many of the fatalities recorded in this series were due to the fact that the operators had no definite plan of treating the placenta other than the idea that it should be removed. Usually the child was quickly extracted, and the removal of the placenta immediately attempted. Not infrequently an alarming hemorrhage necessitated the abandonment of all desire to remove this troublesome structure, and tampons were employed to stop the bleeding, the surgeon considering himself fortunate if the patient was alive at the end of the operation. As no one method is satisfactory for all cases, the surgeon should be familiar with the indications for, and contraindications to, each of the foregoing procedures. If a careful exploration is made before attempting any one of them, the most suitable plan for each case will be adopted before it has been made hopeless by the use of a faulty routine.

TABLE 4.—OPERATIVE MORTALITY OF THE DIFFERENT PROCEDURES IN CASES OF EXTRA-UTERINE PREGNANCY FROM 1890 TO 1919

Procedure Employed	Cases, No.	Deaths, No.	Mortality, Per Cent.
Placenta removed	137	23	16.7
Placenta left to be absorbed	12	4	33.3
Placenta left (wound drained) until it came away	52	22	38.7

OUTLINE OF AN OPERATIVE ROUTINE

The following outline of an operative routine has been suggested by the study of these cases:

1. There should be a preliminary preparation for the control of hemorrhage and the treatment of the acute anemia which may follow. This should include sequestration of the extremities, to permit of autotransfusion. A donor whose blood has been previously tested should be at hand. An

assistant should be instructed in the technic of controlling hemorrhage by compression of the abdominal aorta.

2. On opening the abdomen, care should be used to avoid incising the placenta, as hemorrhage from this source may prove troublesome during the operation and, in those cases in which the placenta must be left, may necessitate the use of a tampon.

3. If possible, a careful exploration of the abdomen should be made before the sac is incised.

4. The extraction of the child should be as gentle as possible to avoid disturbance of the placental insertion.

5. As the handling of the placenta is the most formidable part of the operation, a second careful exploration should be made, if necessary, before deciding on the procedure to be employed.

6. Since the usual mechanism of controlling hemorrhage from the placental site is not followed when the pregnancy is extra-uterine, the vessels supplying this region should be ligated before the placenta is disturbed. Whenever this blood supply is accessible, the placenta should be removed.

7. The conditions which favor the removal of the placenta are:

(*a*) Its attachment by a pedicle which can be ligated.

(*b*) Easy exposure of the ovarian and uterine extremities of its blood supply.

(*c*) Easy exposure of the ovarian extremity of its blood supply on the side involved, and sufficient accessibility of the uterus to permit of hysterectomy from the opposite side, thus effecting a ligation of the uterine end of the placental supply.

8. After the removal of the placenta, the abdomen should be closed without drainage.

9. If the insertion of the placenta is such that preliminary control of its blood supply is impossible, its removal is contraindicated and great care should be exercised to avoid disturbing its attachment.

10. Under such circumstances, two plans of treatment are available:

(*a*) Closure of the abdomen without drainage, leaving the placenta to be absorbed.

(*b*) Drainage by the use of a Mikulicz tampon, after having sutured the sac to the margin of the wound.

11. The first of these procedures deserves employment whenever the preceding manipulations have not caused hemorrhage, and when infection is not present.

12. If the placenta is cut as the abdomen is entered, the hemorrhage may be arrested by the use of clamps and mass ligation of the cut surface, thus permitting its retention without drainage.

13. The retained placenta ultimately will be absorbed. While waiting for absorption there is a slight risk of secondary hemorrhage and infection from the adjacent intestines.

14. These complications will necessitate a second operation. Should suppuration take place, drainage may be obtained through the vagina.

15. The second method, marsupialization, is applicable to those cases in which the removal of the placenta is contraindicated and the presence of infection or hemorrhage from the placental site necessitates the use of a tampon.

16. The continuous use of drainage predisposes to peritonitis, from which a rather large percentage of patients died in former times, when this procedure was the one of choice.

CONCLUSIONS

1. Because of the high mortality connected with advanced extra-uterine pregnancy and the infrequent occurrence of this condition, every case should be reported.

2. The relatively large number of children that survived operation does not justify a disregard of the interests of the child.

3. The actual operative risk is less during the last month than at any other time.

4. There is very little added risk in delaying the operation until the thirty-eighth week if the patient is kept under observation.

5. Interference at the thirty-eighth week offers the best opportunity for the survival of the child.

6. Preliminary preparation for the treatment of hemorrhage should precede operation.

7. Before attacking the placenta, a careful exploration should be made to determine the proper procedure to be employed.

8. Removal of the placenta gives the best results.

9. The conditions which favor removal of the placenta are:

(*a*) Its attachment by a pedicle which can be ligated.

(*b*) Easy exposure of the ovarian and uterine extremities of its blood supply.

(*c*) Easy exposure of the ovarian extremity of its blood supply on the side involved, and sufficient accessibility of the uterus to permit of hysterectomy from the opposite side, thus effecting a ligation of the uterine end of the placental supply.

10. Preliminary ligation of the vessels supplying the placental site should precede all attempts at removal.

11. When preliminary control of these vessels is impossible, the placenta should be left in the abdomen.

12. Closure of the abdomen without drainage is indicated when hemorrhage and infection are absent, even though the placenta is not removed.

13. The retained placenta will ultimately be absorbed.

14. A slight danger of secondary hemorrhage exists, and infection from the adjacent intestines may occasionally occur before absorption is complete.

15. These complications will necessitate a second operation. If suppuration takes place, drainage may be obtained through the vagina.

16. Marsupialization should be limited to those cases in which the removal of the placenta is contraindicated and the presence of infection requires drainage, or in which hemorrhage necessitates the use of a tampon.

17. The continuous use of drainage invites infection in these cases, as is shown by the results obtained when this procedure was the one of choice.

200 Hicks Street.

Eggs in Liquid Form.—During recent years the export from China of eggs in liquid form, preserved with boric acid, has developed very large proportions. Prior to the war relatively small quantities of this material were imported into England, the bulk of it going to Germany. The small quantities imported were used principally for industrial purposes, such as leather dressing, and to a limited extent for confectionery. After the outbreak of the war large consignments arrived at certain British ports as cargoes in prize ships, and since then large quantities have been imported in the ordinary course of trade. These products occasionally arrive in the form of whole egg mixed, but usually the egg yolk and egg albumin are sent separately. Samples of yolk taken from consignments arriving in the city of London were examined by the city analyst and found to contain boric acid in amounts varying from 1.35 to 2.08 per cent. When boric acid is relied on alone for preservative purposes the amount aimed at appears to be 2 per cent. Sometimes, however, common salt up to 10 per cent. is used with a smaller amount of boric acid. It is contended that these large amounts are necessary for effective preservation owing to the length of the voyage and the passage through the tropics.—*Medical Officer* **21**:203 (June 14), 1919.

MISTAKES IN DIAGNOSIS REVEALED THROUGH THOROUGH EXAMINATION *

J. RAWSON PENNINGTON, M.D.
CHICAGO

Today the patient is demanding a more thorough examination than formerly. He is no longer satisfied with having his tongue inspected and being given a recipe for a box of pills. He demands an examination of his urine, blood, blood pressure, diet, etc. When he feels sick and comes to us for help, he expects us to examine his complaint and take an inventory of his general condition. A record of the findings must be kept. The business man keeps his; we should keep ours.

Early last year Mocquot,[1] the Paris surgeon, gave the details of a case showing the importance of such examinations: A soldier sustained a shell wound of the knee, which was treated by excision of the tract and cleansing, and—as the fluid from the joint was negative bacteriologically—by complete closure. Signs of infection developed on the fifth day, despite punctures and injections of ether; suppuration increased, and, in a few days, resembled furunculosis. The joint-fluid now gave a growth of *S. aureus,* and the man said he had often had crops of furuncles. Though other symptoms were absent, diabetes was thought of; but the urine contained no sugar. Hyperglycemia was next in mind, and nearly 3 gm. per liter was found in the blood. Sodium bicarbonate was now given with autovaccines, and after the fourth day improvement began. In six weeks the man was evacuated, completely cured of his hyperglycemia, and with the functions of the knee practically normal.

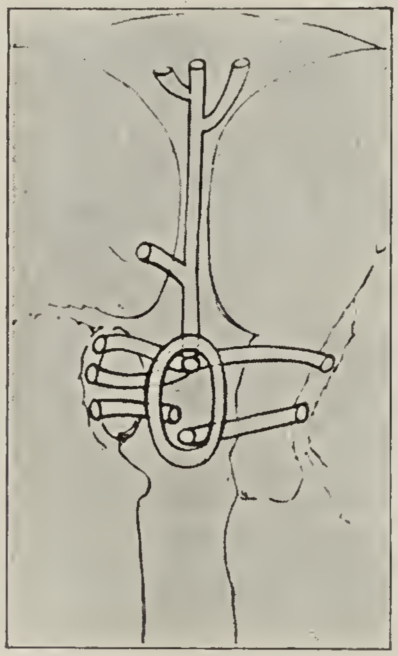


Fig. 1 (Case 1). — Diagrammatic: various rectal fistulas and their internal and external openings.

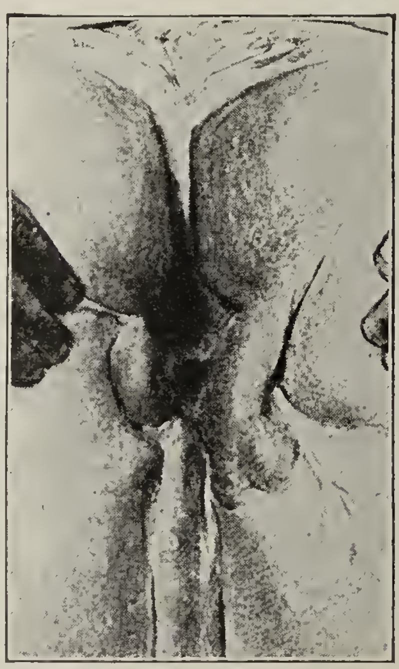


Fig. 2 (Case 1).—Appearance of the wound shown in Figure 1 eight months after the operation.

REPORT OF CASES

Case 1.—Mr. W., aged 40, came to my clinic at the Illinois Post-Graduate School in March, 1916. He had pain and a constant discharge of pus from an ischiorectal abscess which, though opened in July, 1912, had never healed. As the examination revealed a profuse discharge of pus, fistulous openings, perianal infection and decided tenderness over the sacrum, I advised operation, but it was declined.

In April, the patient was again operated on by another and eminent surgeon. A year later Dr. M. Nuta brought him to my office, having discovered a large pocket of pus over the sacrum. This I drained, finding, as surmised at the former examination, necrosis of the sacrum and a sinus into the rectum posteriorly. There were five other fistulas into the rectum, and one into the anal canal (Fig. 1).

Later on, I chiseled away the diseased bone and incised the fistulous tract extending over the sacrum and the coccyx to within about 1 inch of the rectum. The remaining portion of this and the other fistulous tracts were then enlarged and a seton passed through each. All the tracts except one, which is lined with epithelium and not discharging or giving any trouble, are closed. As the sphincters were not divided, the contour and function of the anus are preserved, and the patient has recovered much of the control lost as a result of the former operations (Fig. 2).

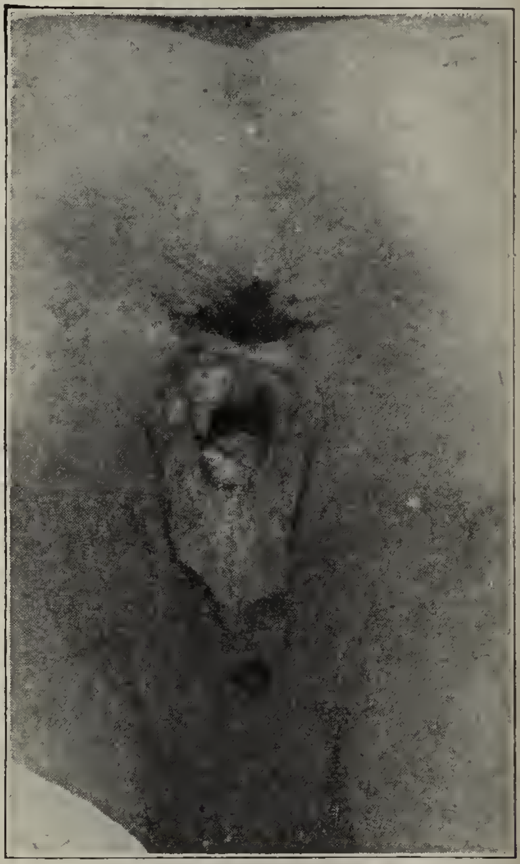


Fig. 3 (Case 2).—Division of rectovaginal septum. Patient has no control whatever over pus and bowel contents.

This report is submitted because the surgeons who had previously operated on the man—"stumbled," as Saint James[2] says—as to the primary cause of the trouble: diseased sacrum.

Case 2.—Mrs. E. M., aged 35, had had syphilitic stricture of the rectum for three years, and was operated on for a rectovaginal fistula in June, 1917. The wound did not heal and was followed by incontinence of feces and pus (Fig. 3).

I saw her first in October, 1917, and made a left inguinal colostomy the next month. A year later the rectum was removed by the abdominoperineal route. A short segment of the friable and syphilitic colon, distal to the colostomy, was closed at the distal end, but not removed on account of the patient's condition. Excrement passed into this segment from the colostomy opening. The reenforced purse string gave way, and the feces and pus escaped into the abdomen out through the perineal incision, and a fistulous tract in the posterior vaginal wall (Fig. 4). The patient had periodic attacks of pain in the region of the stomach, which, because of the history, were diagnosed by myself and others as "gastric crises." Later, I discovered that the "crises" were caused by the accumulation of feces in the perineal incision and the vaginal fistula, and that the pain ceased immediately on the removal of the segment of colon that had opened.

I report this case because of the "stomach pain," its cause, and my error as to the etiology.

Case 3.—Mrs. H., aged 51, was referred to my clinic at the Illinois Post-Graduate School by Dr. Wunderlick, in September, 1916, because of constipation. She had been treated for ulcer of the stomach for the past year and was to be operated on for it in the near future. She was obstinately constipated, complained of loss of appetite, loss of weight, and pain in her stomach. The rectum contained a number of small, tender, cicatricial knots, probably the result of a former hemorrhoidal operation. Following the removal of these knots, her bowels became regular, the stomach pain ceased, her appetite improved, and she gained in weight.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Mocquot, P.: Presse méd. **26** (Feb. 4) 1918.

[2] "For whosoever shall keep the whole law and yet stumble in one point, he is become guilty of all." James (Revised Version) **2**: 10.

Cases 2 and 3 show that anal and perianal irritation may cause pain in the region of the stomach, and that in such cases the rectum should be examined.

CASE 4.—H. W., a man, aged 38, was referred to me by a prominent Chicago surgeon in March, 1918, because of a supposed hemorrhoidal condition. I found he was constipated, had dragging pains in each groin, backache and a very long scrotum, while the rectal trouble was of little consequence.

So he was referred back with the suggestion that the surgeon amputate the scrotum, which was done. No improvement followed. Then I operated on him for the rectal trouble, and this operation, also, gave little or no relief. Later, when a Wassermann test was suggested, he became very indignant, but finally consented. The test gave a positive reaction, and specific treatment relieved him of his troubles.

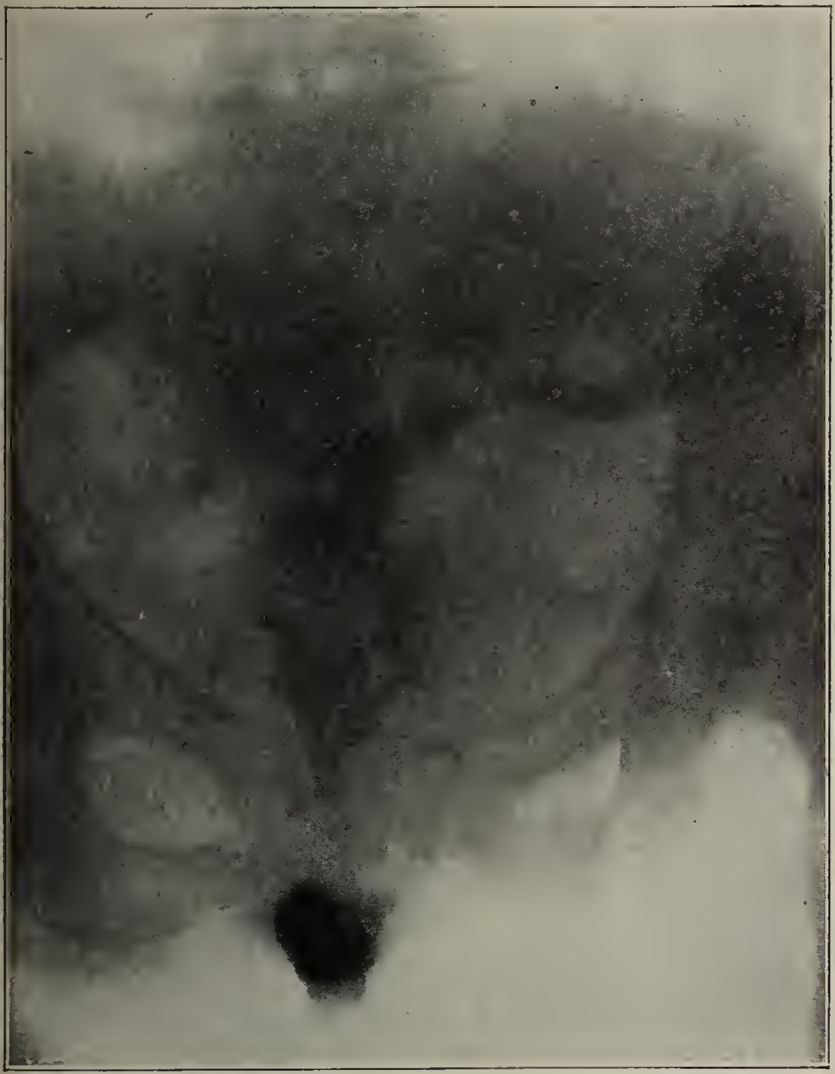

Fig. 4 (Case 2).—Fistulous tract from the sigmoid passing interintestinally and out through the perineal incision, and a fistulous tract through the posterior vaginal wall.

CASE 5.—J. P., a girl, aged 8 years, had been severely constipated since birth, and passed a great deal of mucus with her stools. She also had periodic attacks of abdominal pain, with nausea and vomiting. The pain seemed to be located just to the left of the umbilicus. These attacks, which began early in 1915, usually occurred every month or six weeks, lasting from three to four days; at one time the interval was three months.

Late in 1915 she was very ill, and her condition was diagnosed as "pneumonia" and "hemorrhage of the brain." She became paralyzed on one side during this illness, but the paralysis began to subside after two months. When I saw her, she had been given treatment for the constipation and the mucous colitis; and opiates had been given occasionally during the attacks of pain, in the belief that she was passing renal calculi. Sinapisms had been given for the nausea and vomiting. A blood Wassermann reaction test was positive. Antisyphilitic treatment stopped all attacks, the bowels became regular, and the mucus disappeared.

CASE 6.—J. R., a man, aged 57, complained of hemorrhage and loss of weight. Examination revealed large protruding internal hemorrhoids, which bled on slight provocation. These and a small growth opposite the prostate were removed. He made a very tardy recovery; the bleeding continued.

He was again anesthetized to ascertain the cause of the hemorrhage. It seemed due to slight oozing from the mucosa, though no distinct lesions could be seen. The reaction to a Wassermann test was ++++. Antisyphilitic treatment finally controlled the bleeding, with consequent improvement in the general health.

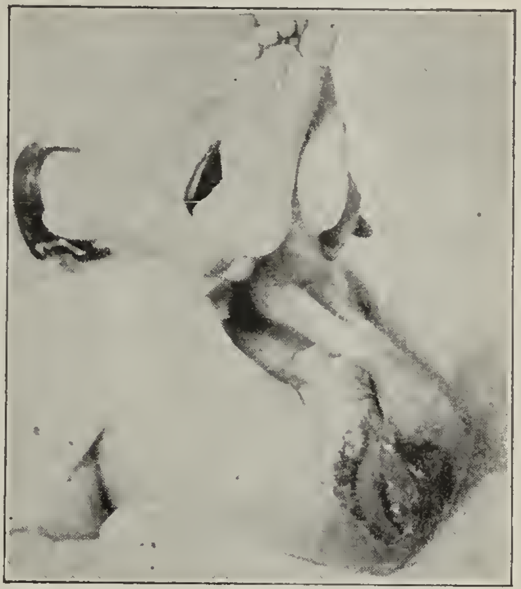

Fig. 5 (Case 7).—Patulous anus and ulceration of the perineal and anal region.

Cases 4, 5 and 6 show the importance of a routine Wassermann test.

CASE 7.—R. P., a boy, aged 2½ years, was greatly emaciated and had a facial expression like that of an old man. In addition to prolapse, he had an eczematous eruption around the anus, penis, scrotum and pubes; and a secondary infection, of the same type, of the nose and mouth, and around the finger nails (Fig. 5). The itching about the anus was intense at times. Cultures from each region produced the same type of bacteria.

CASE 8.—Mr. G. was referred by his family physician to be treated for hemorrhoids, fissure and pruritus. Operations were performed for the first two, but recovery was greatly retarded. On more careful examination, it was found that the patient had a nasal infection, apparently of the same type as that of the anal region (Figs. 6 and 7).

Cases 7 and 8 show that anal infections may be transmitted to the nose or mouth by the hand. Similar conditions have been noted in pruritus ani, of which I shall have more to say in a future article.

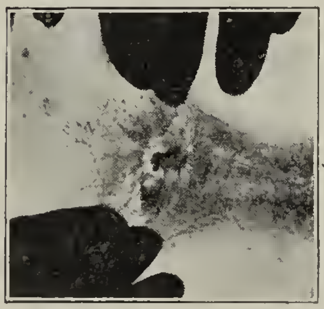

Fig. 6 (Case 8).—Delayed healing six weeks after operation.

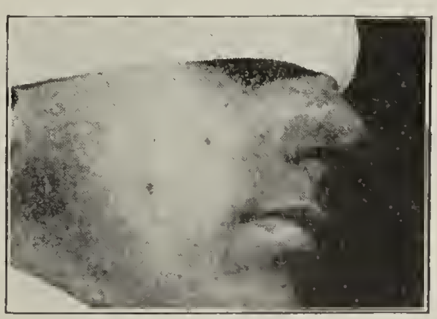

Fig. 7 (Case 8).—Note ulceration of the nose.

CASE 9.—Miss B., aged 44, had a perirectal abscess, which was opened, April 4, 1916, but failed to heal. Five weeks later she had an operation for a fistula; this likewise refused to heal. There was incontinence of feces following the last operation.

I first saw her in September, 1917, when the roentgen ray (Fig. 8) and sigmoidoscopy disclosed a fistula with the internal opening at the rectosigmoidal junction, just above a large hypertrophied rectal valve. This internal opening was approximately 6 inches from the anus. The proctoscope (Fig. 9) was of sufficient length only to reach the distal surface of the valve. It was with difficulty that the sigmoidoscope, seven-eighths inch in diameter (Fig. 9), was passed through the valve strait, which verified the diagnosis.

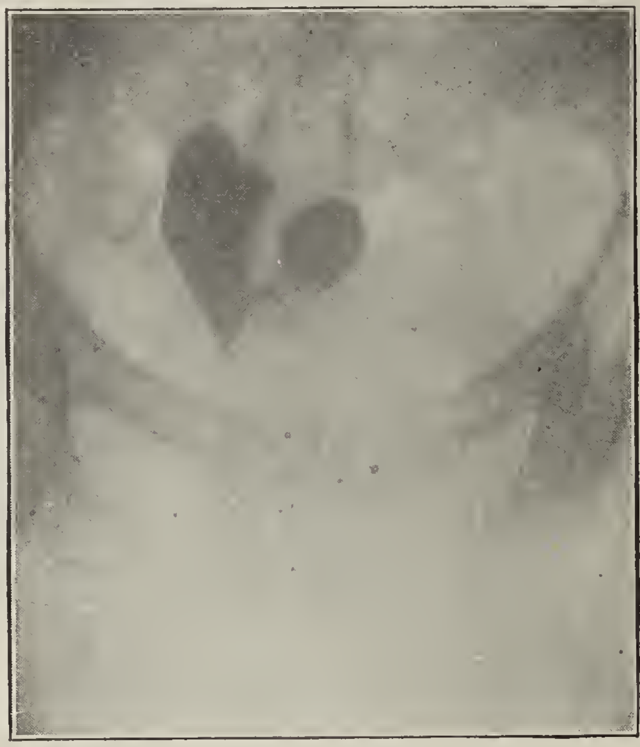

Fig. 8 (Case 9).—Fistulous tract.

December 7, I passed a wire ligature through the fistulous tract, twisted it taut on the intervening tissues, and made a second roentgenogram three days later (Figs. 10 and 12). The final method of dividing the tract is shown in Figure 11. The recovery was uneventful.

This case illustrates the importance of a thorough examination and careful diagnosis before operating for fistula.

Case 10. J. A., a man, aged 59, consulted me in November, 1918, complaining of loss of weight, "tired feeling," loss of appetite and constipation. He was distinctly jaundiced, and there was a boardlike hardness, especially over the gallbladder and pancreas, with tenderness in the left iliac region.

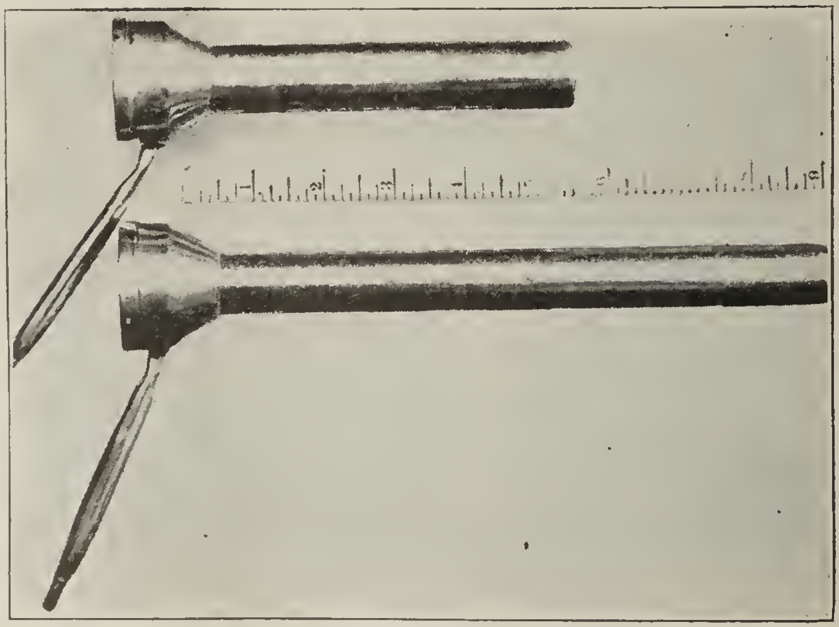

Fig. 9 (Case 9).—A scale and the proctoscope and sigmoidoscope used in examining the patient. The proctoscope, 5¾ inches long, introduced full length, did not reveal the bismuth paste in the bowel. To locate it required the sigmoidoscope.

I referred him to the clinical services of the Northwestern University Medical School, where he was examined and treated. Every known scientific procedure, except examination of the rectum and the sigmoid, was utilized in vain to ascertain the cause.

An exploratory laparotomy was performed by Dr. Cubbins, and the gallbladder was drained. No evidence of malignancy was detected. The patient died, Feb. 11, 1919. A necropsy failed to detect any definite cause of the jaundice. I removed the sigmoid and the rectum; there was a decided narrowing at the rectosigmoidal junction; the sigmoid itself was immensely dilated and the wall very thin.

Did this strictured condition and the resultant constipation cause the jaundice? At any rate, the condition might have been diagnosed during life had my colleagues and myself made a complete examination.

NEED OF MORE THOROUGH EXAMINATIONS

The foregoing and many other examples that could be cited show that while one may limit his practice to a certain specialty or region of the body, his treatment should be based on a thorough and complete examination of the whole body, the patient's habits, etc.

To examine a patient complaining of heart trouble by auscultation, percussion, etc., and not investigate the nose, mouth, throat, rectum and other organs, is to be guilty of neglect. The same is true if the patient complains of stomach trouble, or of appendicitis, and in the case of many other ailments.

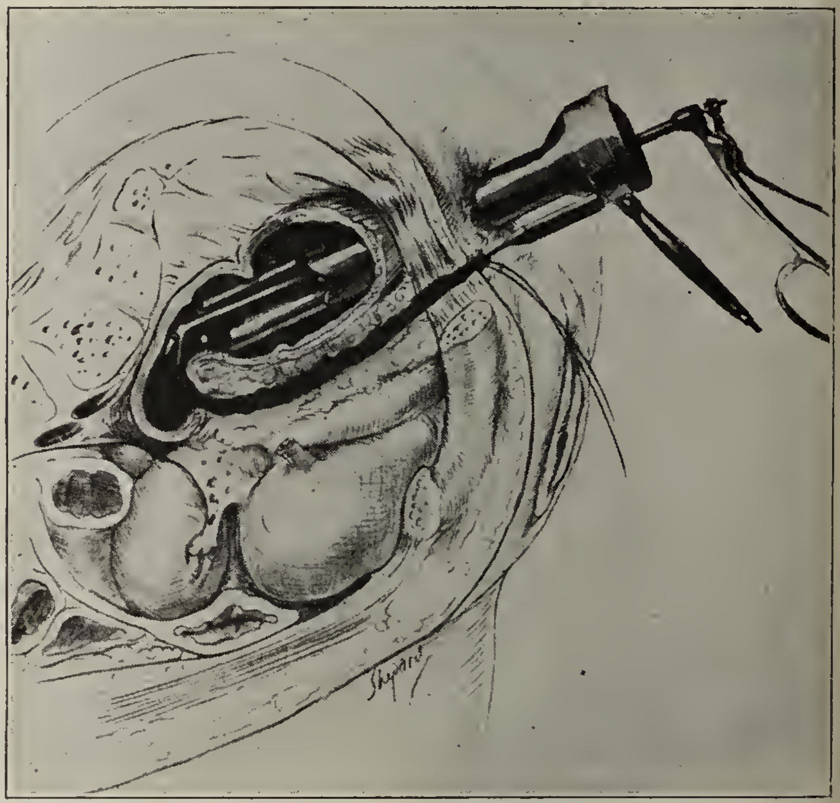

Fig. 10 (Case 9).—Schematic; a probe with an eye in the distal end carries a thread through the fistulous tract. The thread, to which is attached a wire, is grasped by the forceps and pulled out through the rectum. By tension and twisting, the wire was made taut around the intervening tissues. On the sixth day it broke and was replaced with linen ligature, as shown in Figure 14.

Recently, Dr. George H. Weaver[3] reported a case of streptococcus meningitis in a woman, aged 25, with recovery. He says: "The tonsils had been removed a year before" the onset, and that "repeated and thorough examinations of the ears, nose and throat by Dr. Robert Sonnenschein failed to detect any condition that might have been the focus of infection primary to the meningitis." There is no record, however, of a rectal examination in this case. Might not the primary cause have been located in the intestinal tract or rectum?

Captain Armitage[4] reports a case of brain abscess and death following amebic abscess of the liver. He says: "Motile endamebas were found without difficulty; they . . . resembled exactly the endameba seen in . . . dysenteric stools." Furthermore, bacteriologic examinations of pus from the brain abscess showed streptococci, staphylococci and *B. coli-communis*.

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[3] Weaver, G. H.: A Case of Acute Streptococcus Meningitis With Recovery, J. A. M. A. 72: 1362 (May 10) 1919.

[4] Armitage, F. L.: Amebic Abscess of Brain Following Amebic Abscess of Liver, J. Trop. M. 22: 69 (April 15) 1919.

This case shows that infection may be carried from the intestinal tract and rectum to the brain. And it discloses, moreover, that in many diseases of the brain and meninges, these organs should be examined for the primary focus.

A few months ago Desmarest,[5] another surgeon of Paris, stated that he had encountered fifty cancers of the rectum in his wards within three years, a large proportion too far advanced for operation. This was because the previous medical attendants had treated the bleeding and discharge as enteritis, colitis or "piles," and had made neither digital nor instrumental examination.

A gynecologist would not dream of treating disease of the pelvic organs without a vaginal examination through the speculum. It is my firm belief that the use of the proctoscope is equally imperative, and that the gastro-intestinal tract and rectum should be more frequently and systematically examined in constitutional and rectal diseases.

31 North State Street.

ABSTRACT OF DISCUSSION

Dr. Frank C. Yeomans, New York: Sometimes you cannot get the injection through the fistulous tract because the bismuth paste is too thick. If you use an aqueous solution of methylene blue it is more apt to go through and you can then make a diagnosis very simply by recognizing the blue in the rectum. As to the proctoscope: My experience is that the proximally lighted instrument is preferable to those lighted distally for the reasons that (1) feces often covers the distal light and obscures the field, (2) the narrow auxiliary tube for the light carrier is cleaned and dried with difficulty, hence the little bulbs are often shortcircuited and burn out and (3) they cannot be sterilized without injury by frequent boiling as is necessary when examining cases of tuberculosis, syphilis and dysentery. I devised a tube to overcome these defects.

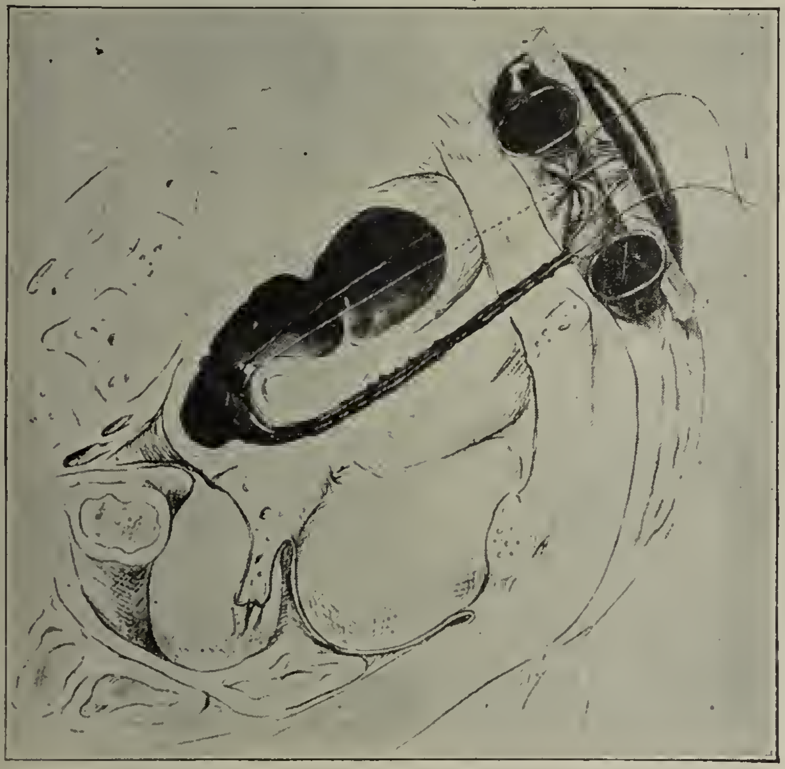
Fig. 11 (Case 9).—Diagrammatic: two ligatures—one for an emergency, the other for immediate use—passed through the fistula and out through the rectum, enclosing intervening tissues. To make tension on the ligature, the free ends are passed through the hole in an inflated vaginal pessary, which rests on the anal region, and wrapped around a flat stick that rests on the elastic pessary.

Dr. John L. Jelks, Memphis: As to Dr. Pennington's operation in that case where he suggests a major silver wire operation, I must differ with his technic. What would be the objection if you would split that area even to the peritoneum and sewed that intestine up and drained that area — not closed it but drained it—as you would any ordinary perirectal infection? You would not put silver wire in the ileum; then why put it here?

Dr. E. G. Martin, Detroit: I would like to suggest one method of examination which does not seem to be in general use (at least it has not been mentioned today), and that is the observation of the barium enema under the fluoroscope during its administration. It is realized that in a multiple fistula one would not expect to observe the bismuth entering the tracts because it would not be forced in there, but in a pathologic anastomosis, of the sigmoid and cecum for instance, it is of great value. In the last case in which I used this method, there had been difficulty in diagnosis; the enema was clearly observed to fill the rectum, and to pass through a little tract filling a part of the cecum; immediately following, the bismuth passed up around the colon and completed the filling of the cecum. That point would not have been demonstrated clearly without the fluoroscopic observation of this enema during its administration. The technic is simple, and the later study of the stereoscopic plates will be made more comprehensive.

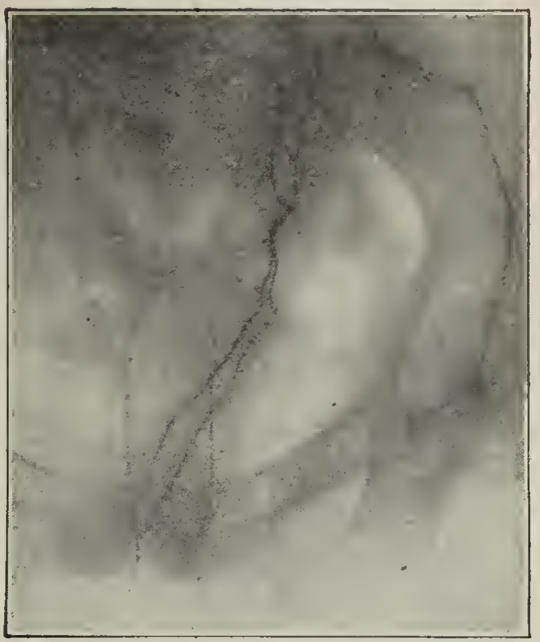
Fig. 12 (Case 9).—Wire ligature through fistula and rectum.

The Symbiotes.—This is the title of a book recently issued by Prof. P. Portier, maître de conférences at the Faculté des Sciences at Paris, professor at the Institut Océanographique. He has coined this term to express certain micro-organisms which live within our cells and supply nourishment to the cell. He says that all the biologic synthesis of the cell is the work of this living symbiote. It is the substratum of all synthesis. If they are lacking, the cell dies as it is unable alone to proceed in the work of repair. These intracellular symbiotes come from without and they have to be constantly renewed. They are killed by a temperature of 120 C. The symbiote in the cell is called by the histologists the mitochondrium, and the globulin in the circulating blood is merely the *symbiotes en voyage*. It is the lack of symbiotes which is responsible for the deficiency diseases, as the symbiotes accumulate in the periphery of grains, for example, and are discarded in the polishings of rice. This is the explanation of the vitamin theory: It is the lack of living symbiotes from which the subject is suffering. By injection of cultures of the symbiote he has saved animals succumbing to deficiency diseases; the paralysis or other disturbance promptly disappeared and the animal was soon as lively as before. A full analysis of Portier's book is given, with some of the illustrations, in the *Presse Médicale*, Feb. 24, 1919, and his views in regard to the participation of the symbiotes in fertilization of the ovum, in cancer, etc. The review concludes, "Portier has opened a new field of bacteriology. True or false, his theory will be the starting point for a host of works on symbiotic bacteriology."

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[5] Desmarest, E.: Arch. de méd. de l'app. digestif, **9**: 43, 1917.

THE ETIOLOGY OF COMMON WARTS

PRELIMINARY REPORT OF AN EXPERIMENTAL STUDY *

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That certain micro-organisms can, by direct implantation, give rise to disorders of keratinization, notably localized hyperkeratosis, is an accepted fact clinically and bacteriologically. Thus, the etiologic rôle of the gonococcus in the production of blenorrhagic keratoses, the tubercle bacillus in its relation to verruca necrogenica, and the gonococcus and pus organisms as causative agents in the production of acuminate condylomas stand out as striking examples of the aforementioned fact.

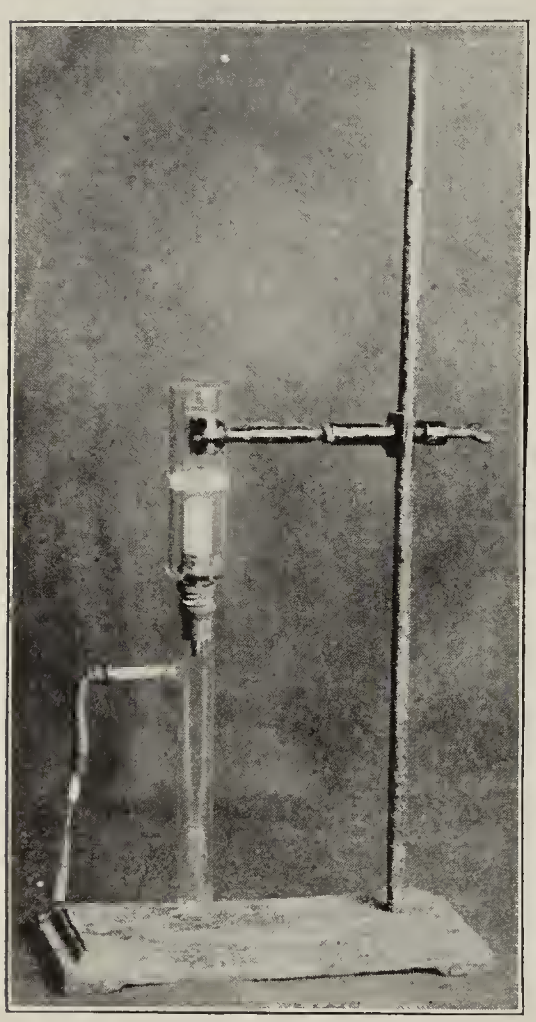

Fig. 1.—Berkefeld filtering apparatus used in experiments. White tape around glass containing filter shows level of paraffin to diminish filtering surface.

HYPOTHESES ENTERTAINED

In explanation of the etiologic factor in the production of common warts there have been advanced at various times the opinions that they are caused by an infecting organism, trauma or a foreign body. There are many clinical examples which stand out in favor of each of these hypotheses. The frequency with which verrucae occur at points of trauma, notably on the hands and feet, would at first glance speak strongly for trauma as the causative agent. In favor of a foreign body as a possible cause are the numerous clinical examples of localized hyperkeratosis following accidental implantation of thorns, thistles, bits of glass and steel. That localized hyperkeratosis of a warty type undoubtedly occurs following such foreign body implantation is, however, in no way conclusive proof of the etiologic moment of the foreign body itself. The injury incident to the entrance of the foreign body can as readily be accepted as the portal of entrance for an infecting organism.

The clinical evidence in favor of an infectious agent in the causation of warts is extremely suggestive. The appearance of so-called daughter warts following the initial appearance of a large wart, the appearance of warts on contiguous and apposing surfaces, so frequently observed, the occasional occurrence in small groups of individual warts in close association, all lend color to this view.

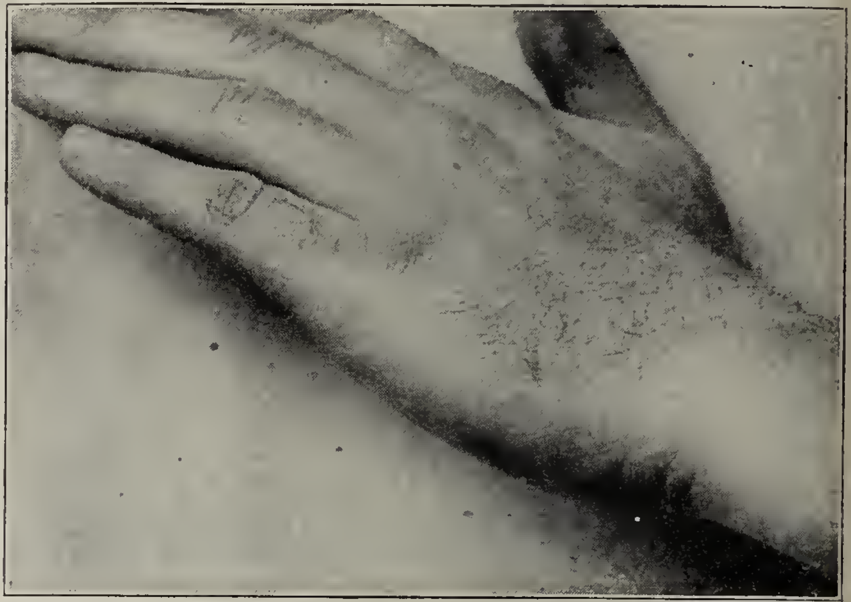

Fig. 2.—Early wart appearing at site of inoculation two weeks after injection of the virus.

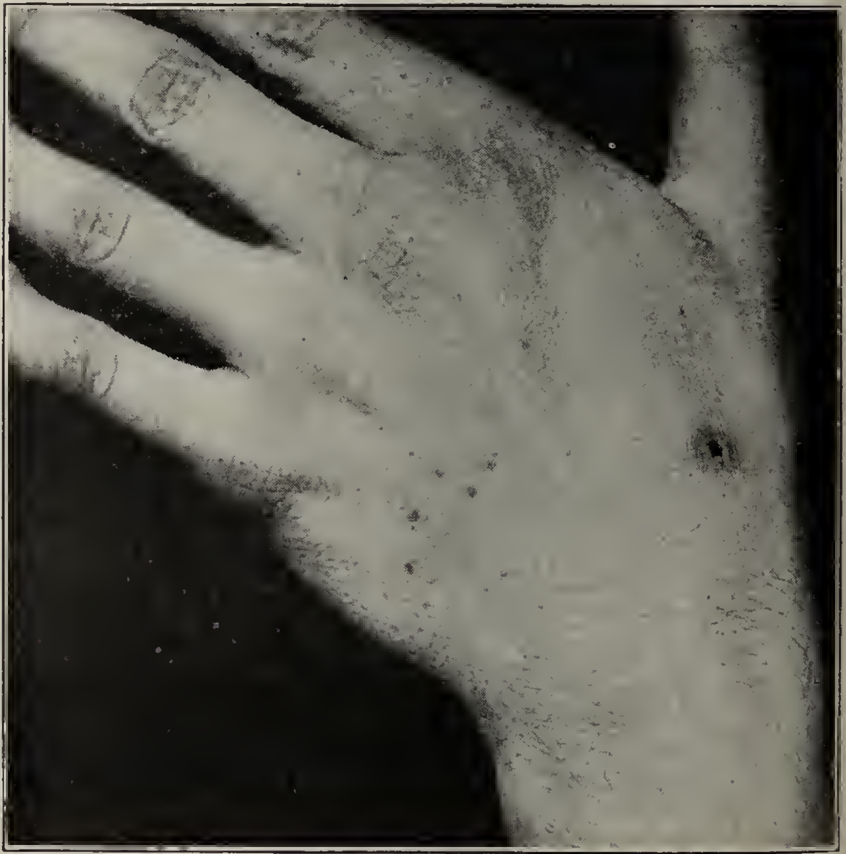

Fig. 3.—Small, flat warts at sites of inoculation; larger wound is site of biopsy.

From the experimental side, of interest in this connection is the observation of Payne,[1] who, after removing the surface of warts on a patient with his thumb nail, subsequently developed typical warts underneath the nail on his own finger. Similar observations are recorded by Lanz[2] and Stelwagon. Fox, Allen and Stelwagon have recorded the coincident occurrence of warts and molluscum contagiosum; and Fox and Allen, at least, are inclined to regard the coincidence as suggestive of an infectious agent.

In 1889, Kuhneman[3] described a bacillus which he found in the epidermis of verrucae. He reports having

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* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Payne: Brit. J. Dermat. **3**: 185, 1891.
[2] Lanz: Cor.-Bl. f schweiz. Aerzte, 1898, p. 264.
[3] Kuhneman: Monatsh. f. prakt. Dermat **9**: 17, 1889.

cultivated the organism, and with cultures to have reproduced wartlike growths in laboratory animals. His results have never been substantiated by other observers. In 1893, Variot[4] inoculated the blood from small verrucae into one of his assistants "with positive results."

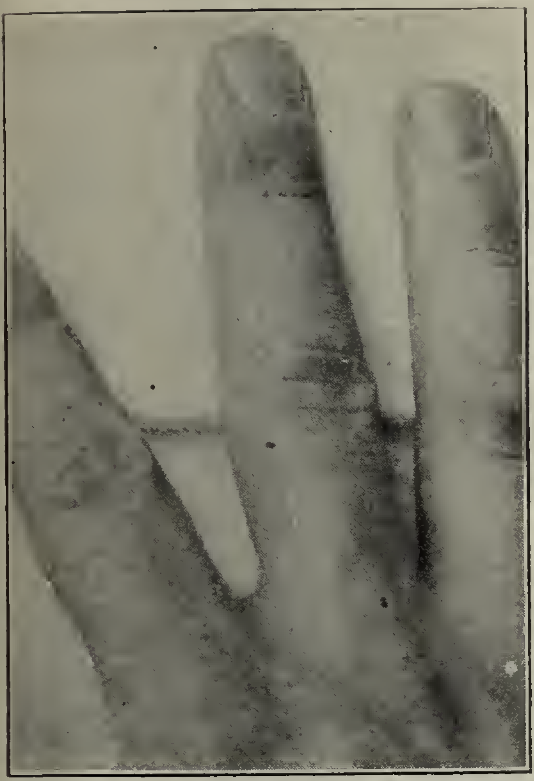

Fig. 4.—Typical verruca vulgaris developing suddenly from a small, flat wart eight weeks after inoculation.

By far the most elaborate experimental study, however, is that of Jadassohn,[5] in 1894. This author implanted small bits of tissue from warts under the epidermis. His experiments, undertaken over a long period of time, included seventy-four inoculations of this type. Of these, thirty-one gave positive results and led to the development at the site of implantation of typical warts. The incubation period of these varied from seven weeks to three months. It is of interest to note that in these experiments none of the warts attained a large size, and all, after persisting for a time, disappeared spontaneously. Histologic studies on excised experimental lesions showed them to be typical verrucae.

Within the last few years, similar studies have been made by Ormsby[6] and others in connection with verrucae plantaris.

During the past year, we have begun an experimental study embodying the attempt to produce localized hyperkeratoses by the injection of a filtrate of wart material. We began this work with the distinct conviction that warts might possibly be caused by a filtrable virus.

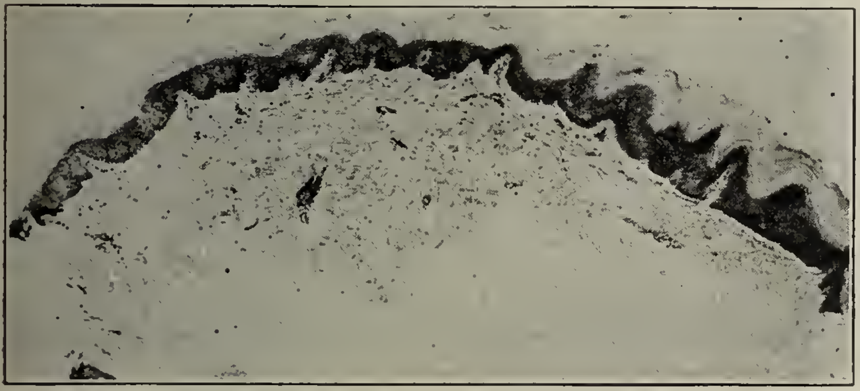

Fig. 5.—Biopsy of one of small warts shown in Figure 3: normal skin at one end of section and beginning hyperkeratosis at other.

REPORT OF EXPERIMENTS

Our experiments were performed in this manner: The wart material was taken by curettement and divided into two portions. One portion was placed in glycerin for a later experiment. The remaining half was immediately ground up in a mortar with an exceedingly small amount of physiologic sodium chlorid solution. This mash was then passed through a small Berkefeld filter, the filtering surface of which had been reduced by sealing all but the upper surface with paraffin (Fig. 1). The resultant filtrate, gathered under negative pressure, was immediately placed on slant agar to test its sterility, which was uniformly negative. It was then injected by means of a fine needle on a tuberculin syringe intracutaneously into the skin of the hands of ourselves and assistants.

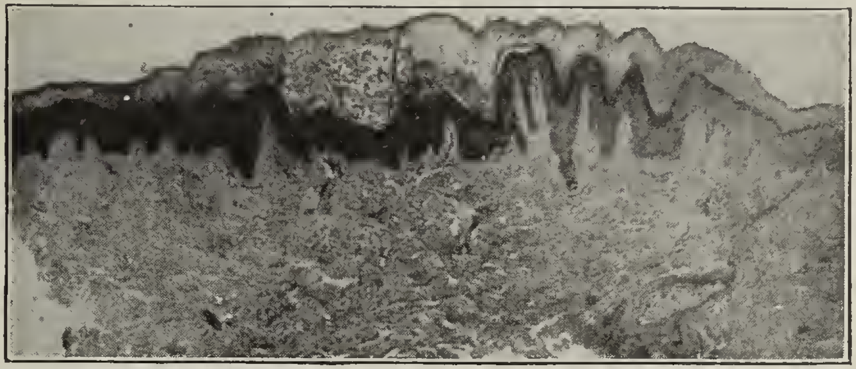

Fig. 6.—Later stage in development of wart, showing proliferation of the papillary tufts and marked hyperkeratosis.

Our first experiment in this way was performed, Feb. 4, 1919. March 5, or approximately four weeks later, small, flat, shining, wartlike lesions were found to have appeared at the sites of inoculation in one of us. Small lesions occurred, March 12, in a second one of us, and, March 26 (Fig. 3), in the third subject of the experiment. The lesions were unaccompanied by any subjective symptoms, and observation showed them to increase slowly in size, taking on more and more the characteristics of flat warts. A certain tendency to spontaneous resolution was noted in some. For the most part, however, warts produced by the inoculations in February are still present on our hands. In only one case did the wart reach a very large size. In this case, at about the eighth week, a small, flat wart on the inner side of the right middle finger suddenly grew until, in a few days, it reached the size of a large pea, with a distinctly warty and papillary surface (Fig. 4). Microscopic examinations of the lesions were made at repeated intervals from the time of their appearance. The first lesions examined (Fig. 5) showed the typical localized acanthosis described by Unna, Auspitz and others as the initial change in warts. In every case in which biopsies were made, small pieces of normal skin were removed from the adjacent areas for comparison. Hypertrophy, elongation and dipping down of the interpapillary tufts were noted in the later lesions.

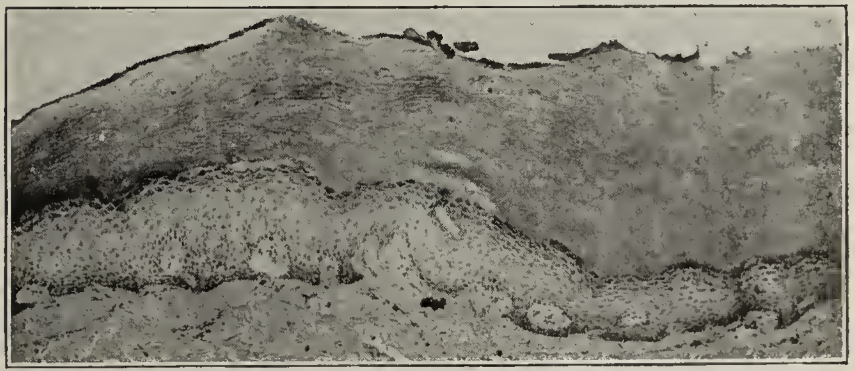

Fig. 7.—Early flat wart: marked hyperkeratosis; obliteration of papillae.

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[4] Variot: J. de clin. et de thérap. inf. **94**: 892, 1893.
[5] Jadassohn: Arch. f. Dermat., 1896, 5th Congress.
[6] Ormsby: Personal communication to the authors.

In the large wart, which was excised about nine weeks after implantation, the typical structure of an old wart was noted (Fig. 10). In this picture, there is not only marked hyperkeratosis with proliferation and elongation of the interpapillary tufts, but also a mild inflammatory reaction to be noted deeper in the corium. As a control experiment, injections were made into one of our staff with a mash made up of small bits of normal epithelium in exactly the same way as was done with the wart material. The control experiments of this nature remained entirely negative.

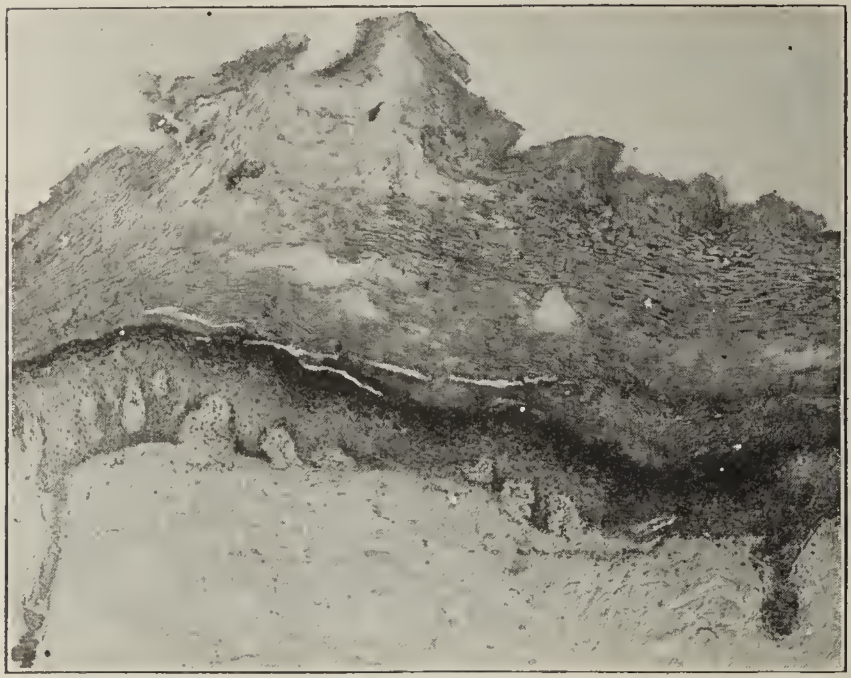

Fig. 8.—Later stage in development of warts, showing transition from flat to papular wart, hyperkeratosis, acanthosis, thickening and dipping down of interpapillary tufts.

Our second experiment, undertaken after the successful outcome of the first, was made to determine the possible retention of virulence of the virus if kept in glycerin. For the purpose of this determination, we been preserved in glycerin. March 12, therefore, a few days after the appearance of our first experimental lesions, we injected two members of our staff in exactly the same places and under exactly similar conditions with the sterile filtrate of the glycerin-preserved material. Thus far the results have been negative.

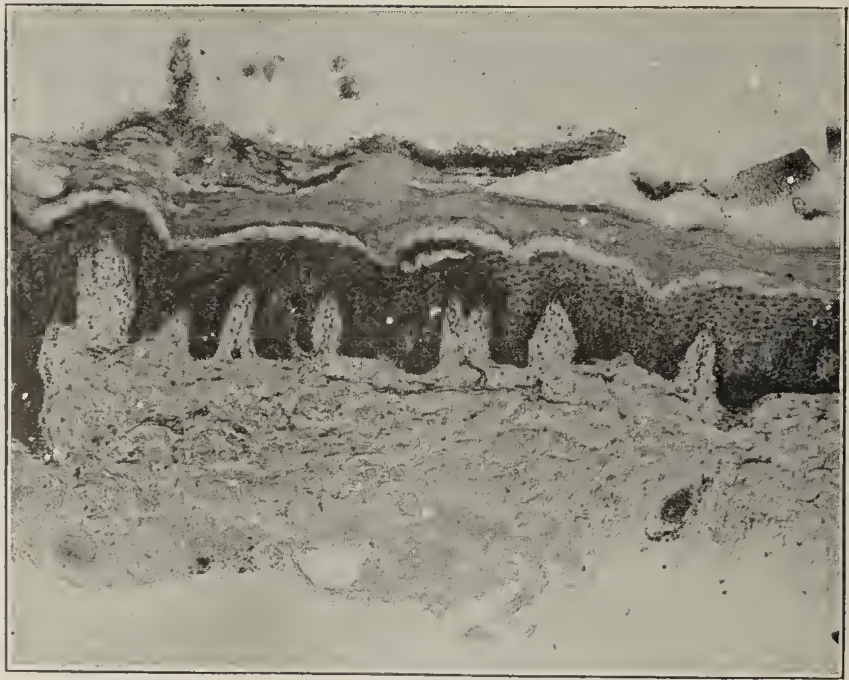

Fig. 9.—Later stage in development of flat wart into papillary wart, showing marked hyperkeratosis, beginning inflammatory reaction in cutis, and prolongation of interpapillary tufts.

As may be seen from the accompanying photomicrographs, the histologic picture as well as pictures of the clinical appearance is typical of that of early warts.

The histopathology of verrucae vulgaris is in no way a matter of dispute, and it is not our purpose here to enter on a discussion of it.

Sufficient time has not elapsed for us to determine the influence of physical changes, such as light, heat and cold, on the virulence of the filtrate which we obtained. It is contemplated that experiments on this basis will be carried out.

The negative outcome of the glycerin-preserved filtrate is by no means conclusive proof, because of the insufficient lapse of time, the insufficient number of experiments, and other factors not determinable. Further experiments along this line will be carried out.

CONCLUSIONS

1. The sterile filtrate of wart material injected intracutaneously is capable of producing localized hyperkeratoses which are clinically and pathologically identical with verrucae vulgaris.

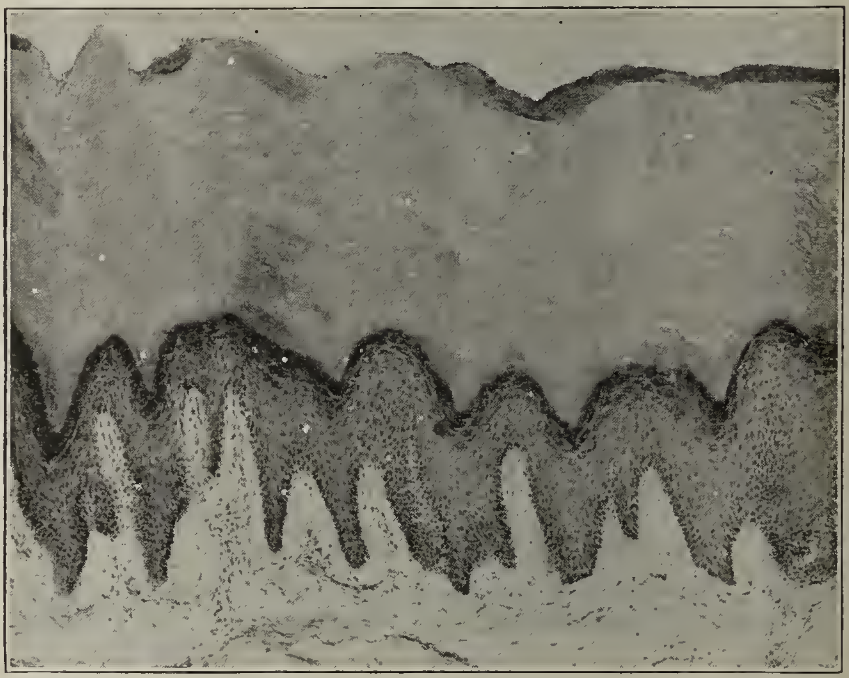

Fig. 10.—Section taken from well developed wart on finger shown in Figure 4, revealing marked hyperkeratosis, increase in stratum granulosum, prolongation of interpapillary tufts, inflammatory reaction in the cutis, and slight vacuolization in the cells of the rete.

2. The initial experimental lesion starts as a flat wart which in no way differs from that seen in verruca plana.

3. Interpapillary hypertrophy, inflammation and marked hyperkeratosis, we believe, occur as secondary traumatic manifestations, and we are agreed with Unna that the initial change consists of an acanthosis and flattening of the papillae.

4. Without denying that it is still possible that localized hyperkeratosis resembling verrucae may be due to traumas or foreign bodies, it is definitely demonstrated that such changes can be caused by a filtrable virus. It is not unlikely that when trauma and foreign bodies apparently are present as inciting factors, they may merely represent the point of entrance of an infectious agent such as has been determined in these experiments.[7]

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[7] In addition to the references already given, the following will be found of interest:
Pollitzer: Brit. J. Dermat., 1890, p. 199.
Schaal: Arch. f. Dermat., 1896. p. 728.
Morrow, Allen and Brownson: J. Cutan Dis.. 1899. p. 183.
Vives: Jour. mal. cutan., 1899, p. 463.
Montgomery, D. W.: The Etiology of Verruca, J. A. M. A. **56**: 1193 (April 22) 1911.
Stern: München. med. Wchnschr. **41**: *2233*, 1912.

ABSTRACT OF DISCUSSION

Dr. William T. Corlett, Cleveland: The subject of warts is a very disagreeable one, because it is so elusive; in fact, everything pertaining to warts seems elusive, except the wart itself which often is most tenacious. We do not know much about the etiology of warts, and their treatment is disappointing. In several instances they have appeared to me to be contagious. In fact, I have seen a number of cases that seem to justify this conclusion. Nothing very definite thus far has been brought out concerning their etiology. I, therefore, wish to congratulate one of the youngest members of the section in attempting to work out, in the laboratory and under the direction of Dr. Wile, this excellent demonstration of the subject which should be regarded as promising and deserving of further and more conclusive study.

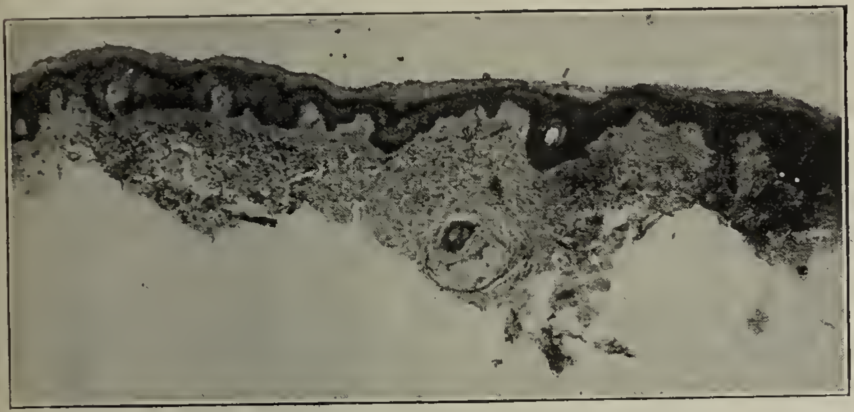

Fig. 11.—Normal skin taken from neighborhood of wart for comparison.

Dr. William C. MacCarty, Rochester, Minn.: I have been very much interested in the doctor's experiments because I am interested in the histogenesis of such organisms. Perhaps you are familiar with the histogenesis of neoplasms and with Smith's work. I have followed his work well, in fact, I was with him up to a month ago. He isolated his organism by producing plant tumors. He carried on these experiments in regard to the parasitic idea of the neoplasms and it was with great difficulty that he worked this out. A year or so ago he produced some similar neoplasms by chemical means, and in plants he produced neoplasms by injuring the water supply and the roots of the plants. I hope that Dr. Kingery will not draw too positive conclusions. We are all interested in this work. Experiments should be made from a physical standpoint, as he has suggested. I wish to express my appreciation as a pathologist of this experimental work and hope that he will not only continue it but that others will carry out the experiments.

Dr. Harry G. Irvine, Minneapolis: I wish to add my appreciation of this contribution of Drs. Wile and Kingery and also of Dr. Kingery's excellent presentation of the subject. It is a very valuable and excellent attempt at arriving at the etiology of this very common disease. In some instances the lesions began as ordinary warts and later became verruca vulgaris. This is interesting because while we have thought that they were more or less alike, we know that one is affected by certain treatment and the other not at all. I think this is especially interesting.

Dr. Udo J. Wile, Ann Arbor, Mich.: In answer to Dr. MacCarty I may say that we knew of Dr. Smith's work and with due allowance for his results, I do not think we have overstated our case. The facts are these: Material from warts passed through a Berkefeld filter produced lesions which were clinically and pathologically identical with warts. Warty growths undoubtedly can be produced by other organisms; thus the tubercle bacillus and the gonococcus undoubtedly produce warty growths. We believe that common warts, however, are produced by this filtrable virus. If a filtrable virus can produce marked epithelial hypertrophy, may not this have a bearing on the growth of epithelium in other tumors, for example, malignant tumors? It is at least suggestive. As to the nature of the virus, we say it can not be cultivated by ordinary methods, but nevertheless it may be an ultramicroscopic organism. We feel that further investigation will prove it to be such.

Dr. Lyle Kingery, Ann Arbor, Mich.: As Dr. Wile has said, we were familiar with Dr. Smith's work. As for producing tumors in plants, he was able to do it with ammonia and copper salts. Whether there was anything mixed with our material, such as small drops of blood, remains to be shown. We hope to do more work on the subject.

A NEW ADHESIVE MATERIAL FOR TRACTION

W. F. CUNNINGHAM, M.D.
NEW YORK

The fixed traction and traction suspension methods of treating fractures have been so widely adopted, and with such satisfactory results, that anything which might increase their application is worthy of a few descriptive lines.

Of the available substances for adhesive traction, Sinclair's glue is undoubtedly the most satisfactory. At times, however, because of the variability of the fish glue from which it is made, it lacks the necessary adhesive force. It is irritating to certain skins; but this may be due, partly, to faulty preparation or to applying it too hot. Salicylic acid has been used as a preservative according to some of the formulas. This should be avoided, as it increases desquamation; thymol is equally effective as a preservative. Frequently, it is necessary to wait some time after it is applied before traction can be made, and a relatively large area of skin must be available for its application.

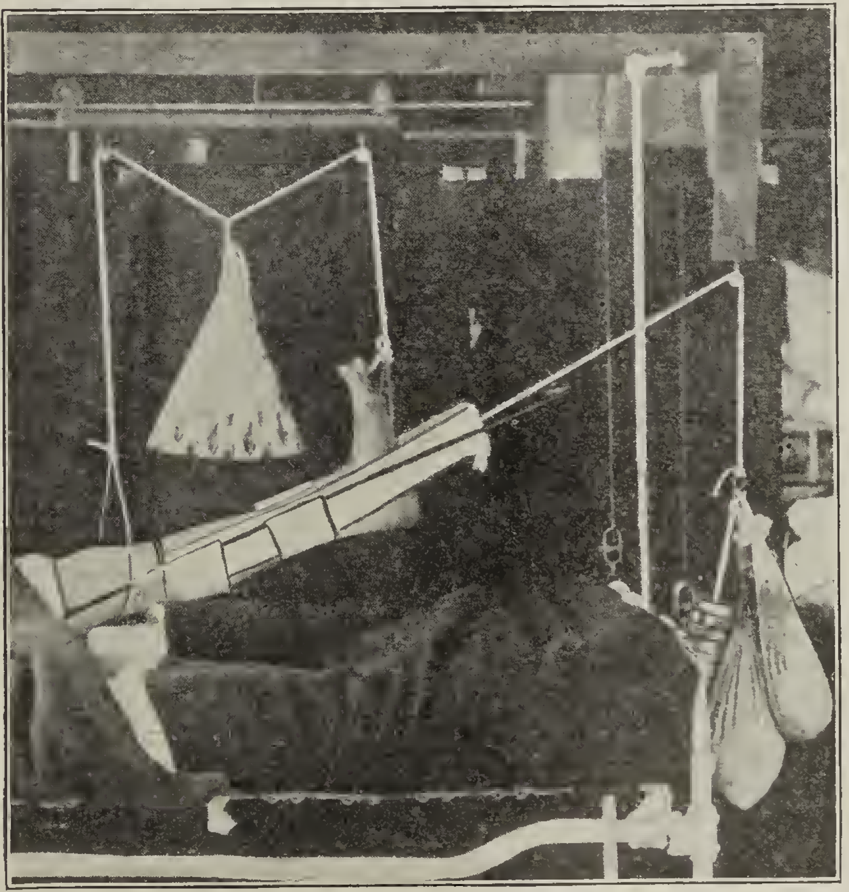

Fig. 1 (Experiment 1).—Traction, suspension apparatus for fracture of femur with 30 pounds of traction applied.

Many of the foregoing disadvantages may be avoided by the use of a solution of celluloid in acetone. For several months past, experiments have been made with a 5 to 10 per cent. solution of celluloid in acetone, and we have found that this makes an excellent adhesive material. Twenty-five applications of this solution have been carefully observed, and it is believed that the scope of traction is increased by its use.

Through the kindness of the American Celluloid Company we secured a supply of celluloid scrap from which an excellent solution may be made. The first experimental work was done with celluloid combs, as it was impossible to obtain celluloid scrap in France.

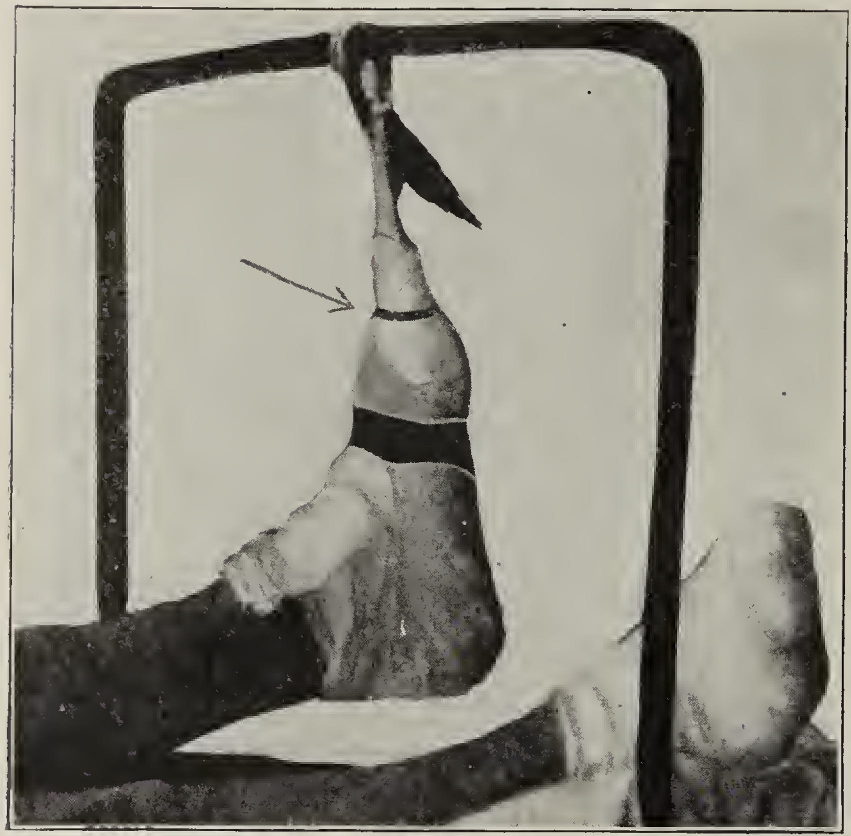

Fig. 2 (Experiment 7).—Suspension of leg for fracture of metatarsus; 10 per cent. solution to dorsal and plantar surfaces of great toe only.

Given a standard adhesive material, experiments should be conducted to determine the relation between the area of surface glued and the amount of traction that can be applied. The skin tolerance for maximum weight should be known. This will vary in different parts of the body, and probably indirectly with movability of the subcutaneous tissues.

PREPARATION

The required amount of celluloid scrap and acetone are placed in a *dry,* clean, wide-mouthed bottle and securely stoppered. The bottle is then shaken or agitated at intervals, and the solution is ready for use in from twenty-four to forty-eight hours. When properly made, it should be an almost clear, homogeneous, syrupy fluid. The experimental solution of combs was often lumpy and contained some acetone insoluble material.

Acetone is very volatile, so precautions should be taken to prevent evaporation. During the war when these experiments were carried out celluloid was difficult to obtain and acetone sold as high as 30 francs a liter; but the antewar selling price of acetone, which is used in the aeroplane industry, was 35 cents a pound. One liter will make sufficient material for from thirty to forty applications.

MODE OF APPLICATION

In the experiments, no careful preparation of the skin was made. It should, however, be absolutely dry; and the preliminary use of a few cubic centimeters of acetone on the region to be employed may aid in this respect, but is not necessary. A layer of celluloid solution is rapidly applied by means of a small, stiff brush. The quantity should be sufficient to soak through the strip on which traction is to be applied, and a thin coating should be applied externally to get out all the wrinkles and air bubbles. Canton flannel is the best material for strips, but a double layer of gauze or muslin that is neither too hard nor too finely woven may be used.

Iodin and also picric acid and alcohol should be avoided as far as possible on areas to which any type of adhesive is to be applied. Both these drugs increase exfoliation, and we well know the reaction of certain skins to the former. We believe, with Sinclair, that the part should not be shaved before adhesive material is applied, for the hairs, if abundant, increase the efficiency of the adhesive, like hair in plaster. If there is delay in putting on the strip, the skin should be recoated, for it drys out in a thin, flexible film in a minute or two. The application of a circular gauze bandage over cotton increases the effectiveness of adhesion and should be used. It is needless to state that the solution is combustible; therefore it should not be heated, and containers should be so labeled.

Flexible metal tubes can be used as containers, direct application being made from them. This type of dispensing could be utilized for emergency use, as this method has proved practicable, but it would add materially to the cost. Muslin strips have been impregnated with the solution, with the hope that it might be used like adhesive plaster, acetone being added when applied; but this method has proved unsatisfactory.

REPORT OF EXPERIMENTS

Experiment 1 (Fig. 1).—An application of a 4.9 per cent. solution of celluloid combs was made to the leg (there was no fracture in this case), 3-inch muslin strips being used, applied over an area of 6 inches. Traction of 30 pounds was applied as soon as the leg could be put up in apparatus and timed just less than ten minutes. Because the patient was so uncomfortable, 10 pounds were removed at the expiration of six hours and 10 more after seven hours. Traction and the strips, which were still holding securely, were removed after seventeen days. There was no irritation of the skin.

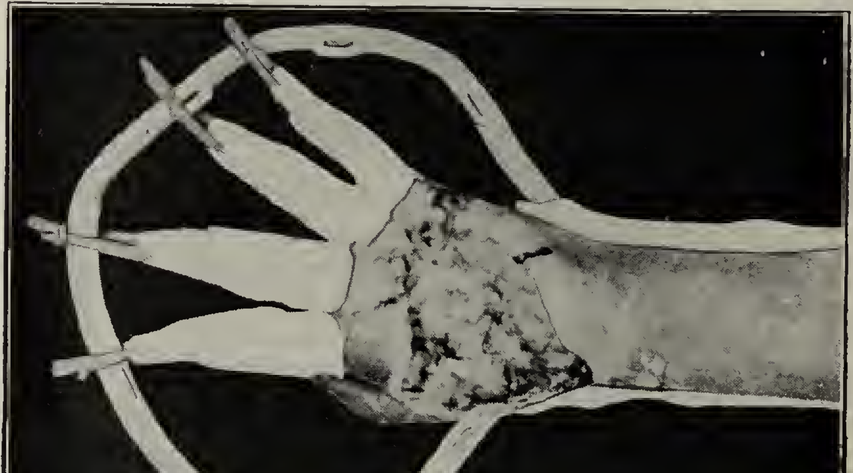

Fig. 3 (Experiment 9).—Traction, countertraction metacarpal splint. Adhesive applied to volar forearm and volar and dorsal aspects of fingers.

Experiment 2.—An application of a 10 per cent. solution of celluloid combs was made to the lower humeral region over an area of 2 by 3 inches, for a fracture of the lower end of the humerus. To this area, with the inclusion of the forearm, Sinclair's glue had previously been applied and the skin was blistered. Immediate traction by the hand was secured and held firmly by a pin in the notches of a Jones splint. An anesthetic was necessary for reduction, so the strip was removed at the end of forty-eight hours. The greater part of the skin had blistered to the vascular layer, and when removed, left multiple bleeding points. The traction was undoubtedly excessive for the skin tolerance.

Experiment 3.—An application of a solution of celluloid combs was made to the anterior two thirds of the plantar surface of the foot for dorsiflexion in traction suspension (fracture of femur). Sinclair's glue had slipped four times, the last time within forty-eight hours. The strip applied with celluloid pulled away spontaneoulsy after thirty-eight days. The inner side. of the muslin was covered by a layer of epidermis, but the skin beneath was without irritation.

Experiment 4.—An application of a 5 per cent. solution of celluloid combs was made to the lower femoral region over an area of 3 by 5 inches for a fracture of the upper one third of the femur. Fifteen pounds traction was immediately applied. One side pulled away after fourteen days, and from its appearance it was concluded that the application had been unsatisfactory. An area of desquamated skin about 1 inch square remained attached to the strip, which did not appear to be holding at other points. The skin was also desquamating from picric acid.

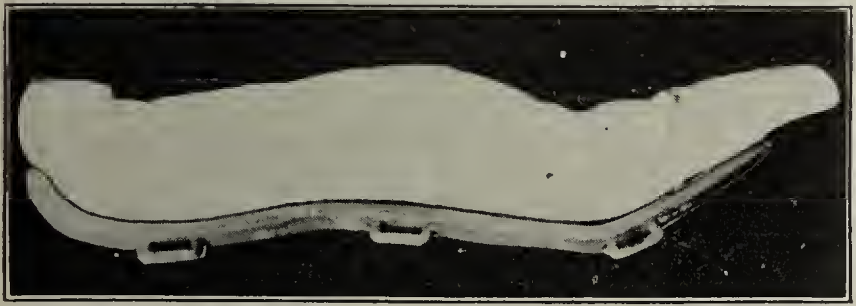

Fig. 4.—Molded sole plate, traction bar in position.

Experiment 5.—An application of a 10 per cent. solution of celluloid combs to the skin was made with a 5 per cent. solution to the overlying muslin strip, in the malleolar regions over an area of 3 by 6 inches, with a pressure bandage over the cotton for a fracture of the lower third of the tibia and fibula. There was a wound 2½ inches above the tip of the malleolus. The foot in this instance was edematous, and there was a pressure sore over the heel. Immediate traction was secured by the hand and held by a heavy rubber tube. The patient was evacuated after twenty-seven days with the strip still holding.

Experiment 6.—An application of a 5 per cent. solution of celluloid combs was made to the forearm over an area of 3 by 5 inches for a fracture of the humerus. A traction of 5.5 pounds was applied. One half of the area had been blistered by a previous application of Sinclair's glue. After seventeen days the strip was removed and it was found that the blister had healed beneath. The patient was put in a plaster.

Experiment 7 (Fig. 2).—An application of a 10 per cent. solution of celluloid combs was made to the dorsal and plantar surfaces of the great toe, distal to the metatarsophalangeal joint, for fracture—dislocation of the tarsometatarsal joint. Suspension of the leg by traction on the great toe, using a muslin strip 1 inch wide and a firm bandage, was secured. The leg was taken down at the end of three days to prepare for an operation. The skin was in excellent condition. About one half of the time the patient was so uncomfortable that the heel was partially supported by a pillow.

Experiment 8.—With a 6 per cent. solution of celluloid scrap applied to the forearm over an area of 1¾ by 6 inches, Canton flannel strips being used, sufficient pull was exerted, three minutes after application, to pull the patient with the hospital bed without casters several feet, and the strip was still holding.

Experiment 9 (Fig. 3).—In a compound fracture of the second, third and fourth metacarpals with extensive laceration, a composite molded plaster and aluminum splint were made fast to the forearm with a 6 per cent. solution. Traction was secured by strips fastened to the fingers and secured by rubber tubes to a frame. The patient was under observation for almost two months, and the splint was still intact.

The celluloid solution was applied with satisfactory results in numerous other cases of fracture of the femur and humerus. Since these cases presented no points of added interest, they need not be described.

SOLE PLATE TRACTION

The subject of sole plate traction has not such a field as it had before Nov. 11, 1918, but occasionally in civil life, in crushing injuries of the lower extremity or compound fractures with badly lacerated soft parts, the method of traction becomes a puzzle. There are cases when traction strips cannot be used, and cases when Steinmann pins, Besley tongs, or Finochietto bands cannot be used without the risk of opening up new foci for micro-organisms to lodge and thereby increase infection.

It was for just such cases that Sinclair devised the "skate." This mechanism was glued to the sole and strips for reinforcement were carried over the dorsum of the foot. In certain cases the skin of the dorsum of the foot is in such condition that strips cannot be applied.

At No. 1 General Hospital, B. E. F., we had many cases of this type, and used an accurately molded sole plate with a 10 per cent. celluloid solution. The plate (Fig. 4) is made as follows: A light plaster impression of the plantar surface of the foot is made of four or five layers of bandage over Canton flannel long enough to extend from just beyond the big toe to the attachment of the Achilles tendon. This is accurately molded by hand and held in position for half an hour by a snug bandage over cotton. This is removed and reinforced by an aluminum strip, which is secured to the impression by a plaster bandage to which are attached traction cords. These should be so placed that the line of pull will pass through the center of the internal malleolus, which position will prevent foot drop. After the mold has been thoroughly dried in an oven, a quantity of the 10 per cent. celluloid is poured into it and the whole is applied to the foot. A bandage over cotton is necessary to hold it in place until thoroughly dried. From one to two hours are allowed for this, and a 12 to 15 pound traction may be used. The sole plate seen in Figure 5 pulled away after 38 pounds had been applied. Several of these with from 9 to 15 pounds of traction have been observed for periods of thirty days and more.

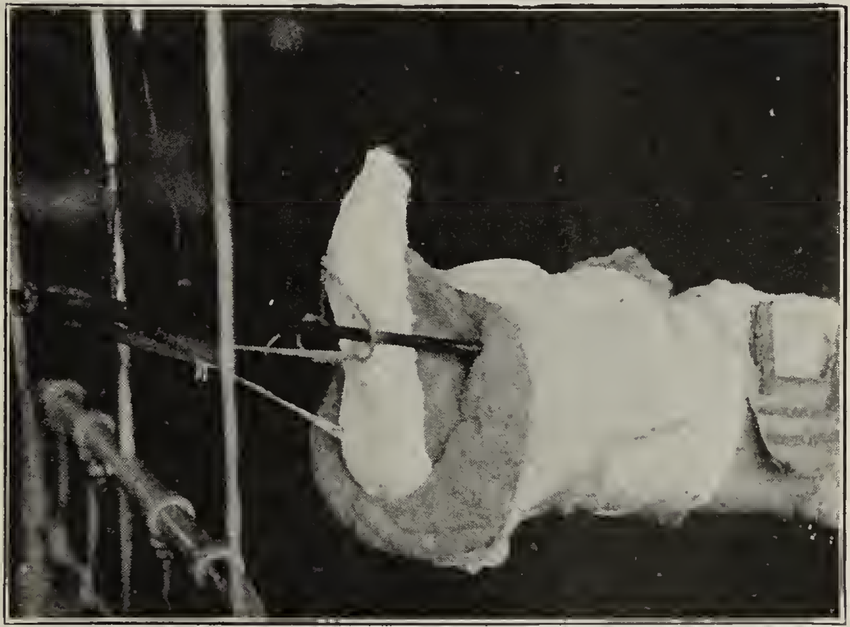

Fig. 5.—Fracture of femur, laceration of leg; molded sole plate completed and mode of traction; breaking stress, 38 pounds.

No attempt has been made in any of these cases to demonstrate the effectiveness of external traction, for this seems to be an accepted fact; but an attempt has been made merely to show that celluloid solution is an adhesive which can be used when other materials fail.

CONCLUSIONS

1. From 5 to 10 per cent. celluloid in acetone makes an excellent adhesive material.
2. Its rapidly volatilizing quality permits of immediate traction.
3. In high concentration it can be used when only small areas of skin are available.
4. It is insoluble in water; hence, it is not affected by perspiration or climatic changes.
5. Solutions which are likely to increase desquamation should not be used prior to the application of adhesive material.
6. The natural process of exfoliation of the epidermis limits the effectiveness of one application to about three weeks; on the plantar surface of the foot, over four weeks.

116 East Sixty-Third Street.

MACROCHEILIA [*]

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AND
KAETHE W. DEWEY, M.D.
CHICAGO

Macrocheilia, or enlargement of the lip, is essentially a hypertrophy or hyperplasia, involving chiefly the lymph vessels. It is therefore generally classed among the lymphangiomas. Very brief and very few are the statements found in textbooks on pathology concerning this abnormal condition of the lips, and little space is generally given it in clinical reports and in journalistic literature dealing with lymphangiomas. It is chiefly since Wegner's[1] investigations on the subject that it has become customary to consider this condition as a lymphangioma or a lymphangiectasis. Sluys[2] calls it a lymphangiomatosis. The blood vessels, however, may be as much involved as the lymph vessels. Occasionally, the blood vessels alone are abnormally developed. One of the most remarkable cases of macrocheilia on record is one of a hemangiomatous macrocheilia, reported by Sonntag.[3] It was associated with a hemangiomatous macroglossia. Cases have also been observed in which the proliferation involved chiefly the connective tissue. An entirely different and rare type of macrocheilia is represented by a few cases in which the enlargement was due to an abnormal development of the mucous glands of the lips. According to Fraenkel,[4] they are either due to purely inflammatory processes, or are genuine, that is, congenital, abnormalities.

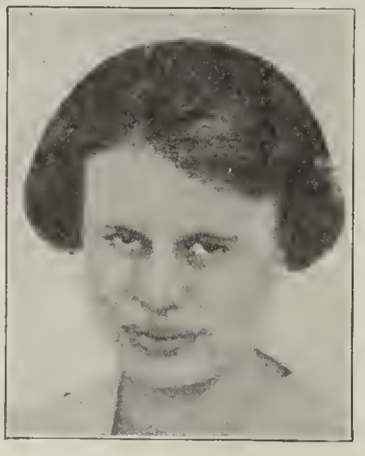

Fig. 1.—Appearance of patient before operation.

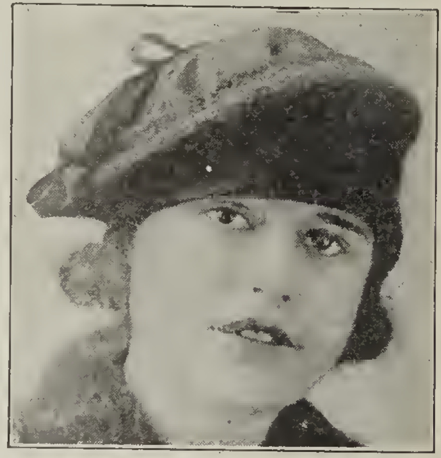

Fig. 2.—Patient after operation

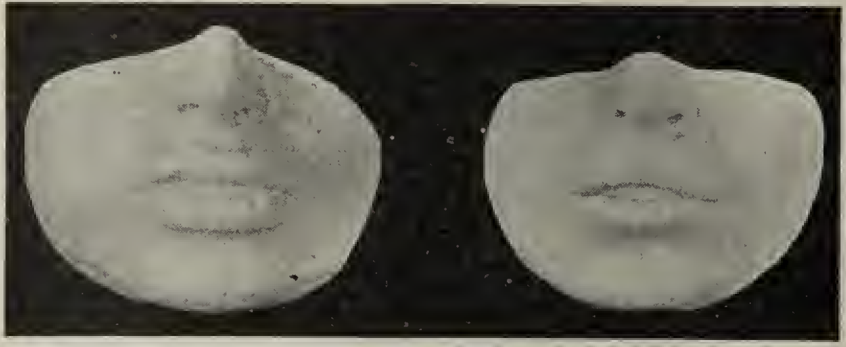

Fig. 3.—Plaster cast before and after treatment.

Macrocheilia is a purely clinical conception, as Eichler[5] states, who defines the malformation as a persisting condition of a uniform swelling, equal in all dimensions. The lip appears twice, thrice and even six times as large as normal. The essential form is, in general, retained, but it is peculiarly clumsy and entirely out of proportion to the other parts of the face. The abnormality has been so marked in some cases that such a mouth has been compared to a snout or a trunk. A circumscribed lymphangiomatous enlargement of the lip is therefore not to be called macrocheilia, nor does any temporary swelling resulting from inflammatory processes belong to this group of malformation. A few cases, however, have been observed in which a true macrocheilia, that is, a persisting uniform enlargement of the lip, developed as a sequel of recurrence of erysipelas.

DEVELOPMENT OF MACROCHEILIA

Macrocheilia is generally congenital; but it may also be acquired. The collective name of lymphangioma, applied to the condition to which this malformation is accredited, includes a large variety of forms, which are difficult to separate into well defined groups. But the congenital form of macrocheilia, together with several similar congenital lymph angiomatous or hemangiomatous hypertrophies of the face and neck, constitutes a fairly well characterized group, namely, that of the tongue (macroglossia), the cheek (macromelia), the skin (nevus lymphaticus) and the palate and the neck (hygroma colli et cervicis congenitum). In the congenital form, the malformation may be present at birth; in these cases the same disproportion of the size of the lip to the rest of the face remains as the child grows. Or there may be a mere suggestion of the malformation in the new-born child, and the disproportionate development occurs later. This is sometimes observed in association with recurrences of inflammatory processes, especially in erysipelas. Generally, the condition appears soon after birth or in earliest childhood. Instances in which it developed late in life are rare; in a case reported by Sonntag, the patient was 47 years old; Sluys reported macrocheilia in a woman, aged 54.

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[*] Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

[1] Wegner, G.: Ueber Lymphangiome, Verhandl. deutsch. Gesellsch. f. Chir. **5**: 256, 1876.

[2] Sluys, F.: Ein Fall von Makrochilie, Strahlentherapie, Orig. **5**: 241, 1914.

[3] Sonntag, E.: Ausgedehntes Haemongioma cavernosum der Unterlippe und Zunge, sowie dessen Behandlung, Arch. f. klin. Chir. **104**: 972, 1914.

[4] Fraenkel, E.: Ueber einen Fall von Makrocheilie durch Adenome der Lippenschleimdrüsen, Arch. f. klin. Chir. **44**: 95, 1892.

[5] Eichler, M.: Zwei Fälle von congenitaler Macrochilie der Unterlippe, Bonn, 1883.

In women, the condition is apt to arise at the beginning of menstruation, during pregnancy or at the menopause. The development is rarely acute; generally it is slow, and in some instances interrupted by long intervals. In the cases in which the macrocheilia appeared late in life, the condition developed suddenly. One lip or both may be involved; macroglossia may be associated with it. In a few cases, alterations in the form of the jaw have been observed; the teeth are also sometimes involved. A remarkable case was one reported by Sonntag in 1914,[3] which occurred in a man, aged 47. The lower lip and the tongue were enlarged to such a degree that the patient was unable to bite or chew, or to keep the tongue within the mouth except by holding it back with the hand. The tumor was a hemangioma; by pressing down on the tongue or stroking backward, the size could be reduced almost to normal. This may be done with some lymphangiomas also—by pressure, the tumor may be greatly reduced. When the pressure is released, there is a return to the former size. The enormous amount of blood thus indicated greatly complicated the operation reported by Sonntag, which, however, was accomplished, giving satisfactory results.

TREATMENT WITH RADIUM

Successful treatment with radium was reported in 1914 by Sluys.[2] The patient was a woman, aged 54. The tumor was very large, of even consistency, and not producing any pain. Ten days after the first treatment the tumor had completely disappeared. Sluys employed the gamma rays—which penetrate the deeper structure, leaving the outer tissues unaffected—with the result that no pigmentation occurred and a fairly well developed mustache, which the woman possessed, remained intact.

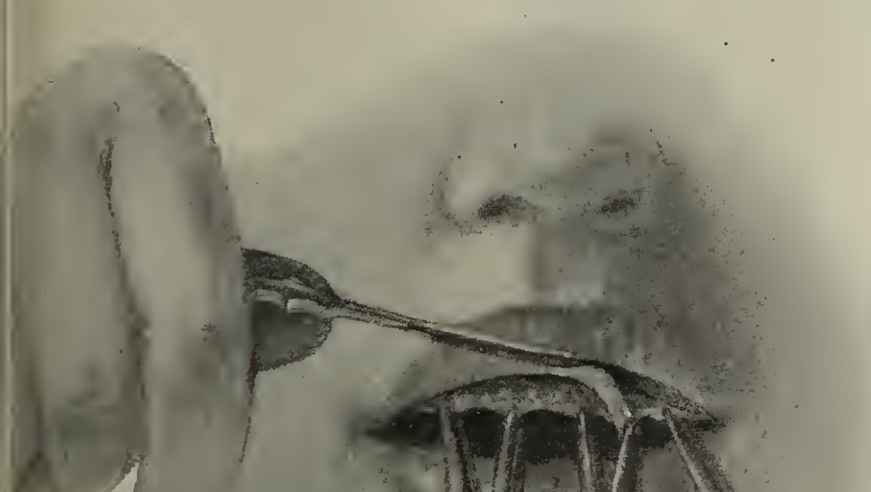

Fig. 4.—Method of opening lip for dissection of excessive lymph tissue.

The abnormal growth in macrocheilia involves chiefly the corium and the subcutaneous tissue. The main feature is dilatation of the lymph vessels. A new formation of vessels is not always demonstrable; the condition is more often one of lymphangiectasis. If the process progresses, the ectasis may develop into a cavernous lymphangioma. The connective tissue, which frequently proliferates simultaneously, is generally rich in lymphocytes and may contain elastic fibers and smooth muscle fibers. Not infrequently, the blood vessels are also abnormally developed. Sometimes blood is found in spaces which are clearly lymph spaces. This observation is explained by the fact that the blood vessels and lymph vessels are often very close together; the former sometimes actually seem to lie within the latter; the slightest injury may therefore lead to an exchange of the contents between lymph and blood vessels.

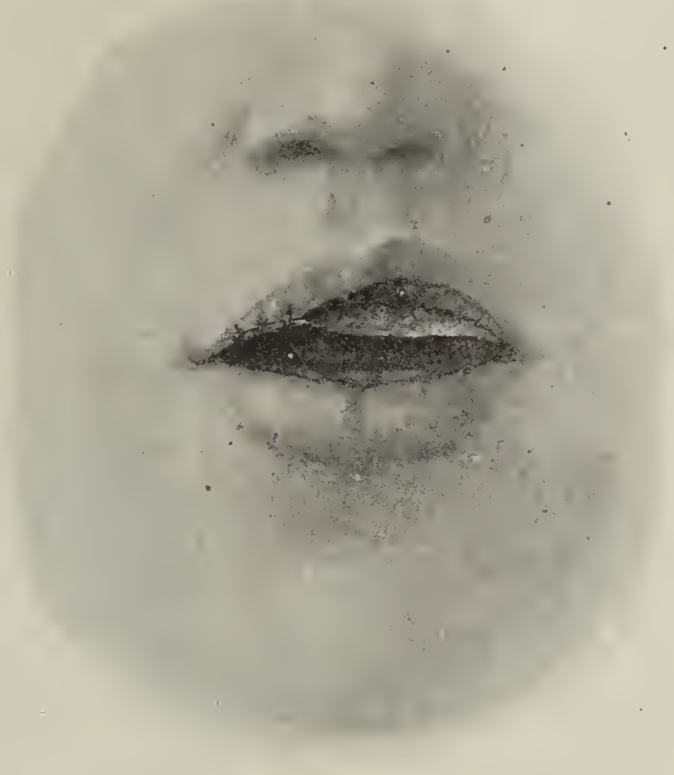

Fig. 5.—Completed dissection and method of closing wound with horsehair suture.

ETIOLOGY

As to the etiology of macrocheilia, several theories have been advanced, but a satisfactory and generally accepted explanation has not yet been given. Virchow's view is that the condition is due to some disturbance in the development of the branchial arches. This may be true in some instances; Eichler[5] believes that in one of his cases there were evidences of such an origin. Nevertheless, we are still entirely ignorant as to the influence which produces the disturbance. Samter[6] expresses the view that probably all congenital lymphangiomas, including those which develop at an early period of life, have an embryonic origin, which consists in the development of lymphoglandular tissue. They occur in the regions in which dermoids are found. Stasis of the lymph is to be considered as the immediate cause of the lymphangiectasis in macrocheilia; this has been explained as being due to obliteration of the lymph vessels in the deeper layers of the skin by proliferation of the endothelium, or, according to Rindfleisch,[7] to hyperplasia of the muscle fibers, impeding the lymph circulation. Wegner, in his classical work on lymphangiomas, discusses three ways in which the stasis of the lymph may be brought about: First, there may be occlusion of the regional, efferent lymph vessels, which may be produced either by a primary fault in the development (vitium prima formationis) or by thrombosis, or by compression and misplacement resulting from local processes of inflammation and scar formation. Secondly, there may be an active proliferation of the endothelium of the lymph vessels, in the course of which solid cell masses are formed. Between these endothelial cell accumulations, hollow spaces develop which, by opening into preexisting lymph vessels, become real, new lymph vessels. This constitutes a homeoplastic neoplasia. A probable third mode is that granulation tissue develops in a connective tissue matrix, and, indirectly, by secondary transformation of this tissue, new spaces containing lymph are formed. This is a heteroplastic neoplasia. Wegner is of the opinion that in the congenital form of macrocheilia, the stasis appears during the fetal period of life, the disturbance occurring in a region involving the lymph vessels; possibly the efferent lymph vessels are occluded because they are primarily not sufficiently developed. According to Borst,[8] there may be at an embryonic period of development an excessive formation of lymph vessels, perhaps associated with a faulty connection between these and the rest of the lymph system, with the result of stasis and ectasis.

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[6] Samter, E. O.: Ueber Lymphangiome der Mundhöhle, Arch. f. klin. Chir. (Langenbeck's) **41**: 829, 1891.

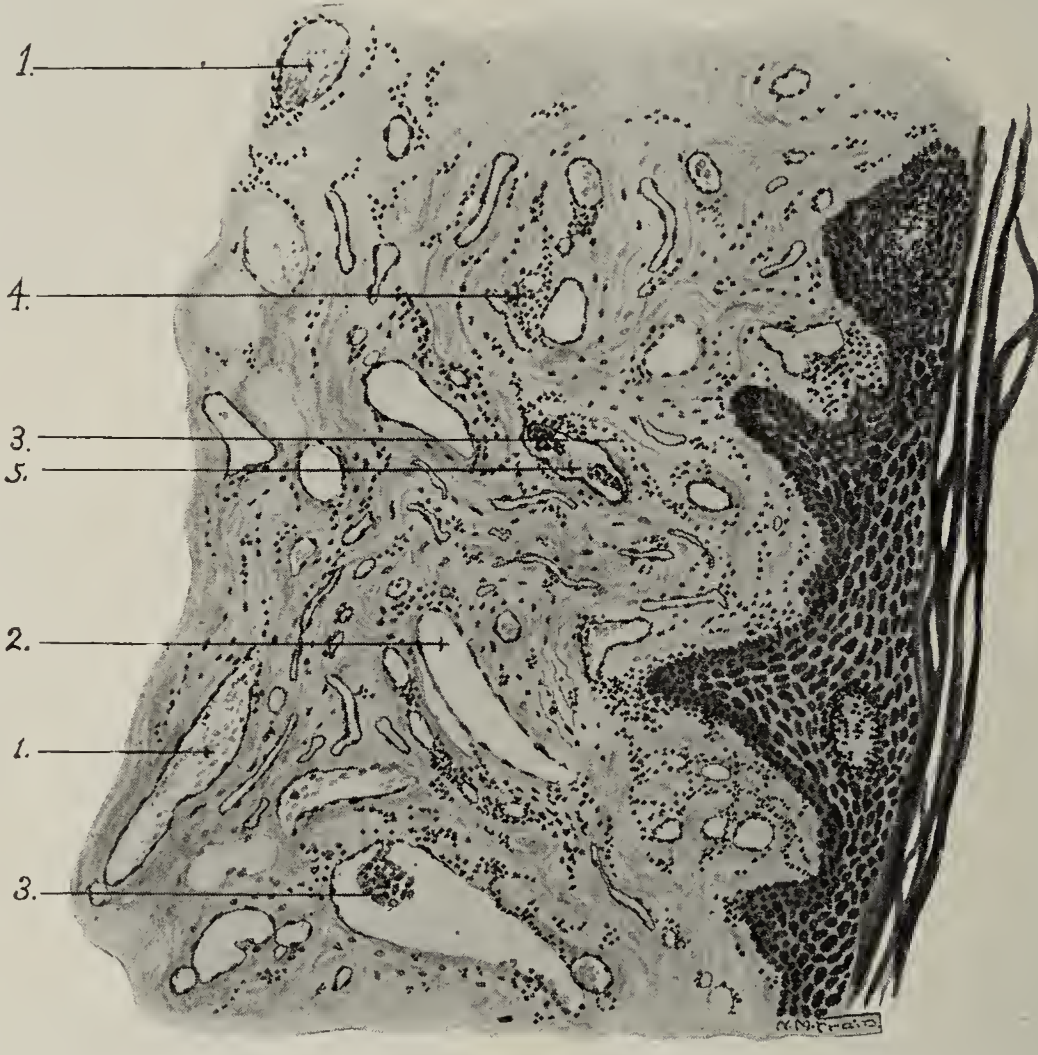

Fig. 6.—Microscopic preparation of the lymphangiectatic tissue removed from the patient. 1. Blood vessels; 2, lymph vessels; 3, papillary proliferation of endothelial cells; 4, small round-cell infiltration; 5, coagulated lymph.

Microscopic examination of the tissue removed from a patient with macrocheilia revealed that the abnormal development involves the blood vessels to the same degree as the lymph vessels. Evidently, they are for the most part dilated capillaries, having only an endothelial wall. The blood vessels often have constrictions and ampulla-like dilatations; they are curved, or form cavernous sinuses. The lymph vessels and spaces surpass the blood vessels in size; they are very irregular in form, and many of them have, like the blood vessels, a cavernous appearance. Two or three may communicate with one another. They are lined with a continuous endothelial layer; sometimes the cells are separated; more rarely, spaces are found which have no cells. This separation of endothelial cells and the more infrequent absence of cells are, of course, the result of the lymph stasis. By the increasing pressure, the thin wall is stretched, and the cells lie farther apart; they are flattened out and finally may disappear entirely.

The hemolymphangioma involves chiefly the corium and the subcutaneous tissue. There are also dilated blood and lymph capillaries between the muscle fibers in the deeper layer of the tissue. There is not a marked general proliferation of the endothelial cells; but interesting and noteworthy are the papillary cell proliferations extending from the wall into the lumen of the lymph vessels. Five or six such intravascular papillae are present in almost every section. These cell collections appear either as small elevations, closely adherent to the inner wall, in the form of darts or nodules, or as larger, globular or berry-like masses, which become pedunculated and finally are entirely detached. They consist of proliferated endothelial cells and small round cells; flat endothelial cells are sometimes found at the periphery, forming a sort of outer lining.

As the process goes on, the proliferating cells assume larger forms; sometimes fusion of the protoplasm of several cells takes place. In the largest villi, regressive changes have set in; the protoplasm is disintegrated, and the nuclei have disappeared. These changes are always most marked in that portion which is nearest the vessel wall, while toward the lumen the cells are well preserved. Sometimes cell proliferations extend like bridges from one side of the wall to the opposite one. These papillae occur only in lymph vessels. They are not thrombi; polymorphonuclear leukocytes are absent in them. The larger number of lymph vessels and lymph spaces are empty; in others there are masses of coagulated material, which is precipitated lymph. Sometimes, a finely granular, yellowish brown pigment is found within coagulated masses along the inner border of the vessel wall, sometimes also just outside the wall; there is no evidence that it is derived from the blood. These precipitated masses are the result of the stasis of the lymph. Wegner described them first and called them lymphthrombi; he observed all forms of transitions in the regressive changes. Cellular lymphthrombi, however, which he mentions, are not present in our sections; only rarely a polymorphonuclear leukocyte or a red cell is engulfed in the precipitated mass. Occasionally, an entire small vessel, content and wall, is converted into one mass, resembling huge giant-cells; in some of them the nuclei of the proliferated endothelial cells have remained at the periphery, in others they are grouped eccentrically or lie in the center.

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[7] Rindfleisch, E.: Lehrbuch der pathologischen Gewebelehre, Bonn, 1871.

[8] Borst, M.: Pathologische Anatomie (L. Aschoff), Jena, 1913, **1**: 695.

The blood vessels are, outside the normally existing arteries and veins, dilated capillaries, the walls of which are as thin as those of the dilated lymph vessels. They are recognized by the presence of blood. Sometimes, a few blood corpuscles are also found in lymph vessels. Their presence is easily explained. Lymph vessels and blood vessels lie close together; the latter seem sometimes to invade the former. Communication between blood and lymph vessels is not unusual in lymphangiomas. Through pressure from the continued stasis, the thin wall may be so overdistended as to yield at one point or another to the higher pressure from an adjoining blood vessel, and blood then passes into the eroded lymph vessel. Thrombi may form at these places, which close the opening; but in the course of regressive changes they may be canalized again. When several vessels communicate, there is generally proliferation of the endothelial cells at the place of confluence.

There is only a moderate degree of proliferation of the connective tissue, while there is a noteworthy increase of smooth muscle fibers. Infiltration with small round cells is present, more or less, throughout the corium. They collect especially around the vessels. There are regions in which the lymphangiectasis is in the background; here the tissue consists largely of lymphocytes and innumerable minute vessels. Here and there are denser collections of lymphocytes, which resemble lymph follicles. There are areas of small and large hemorrhages in all stages of regressive changes.

In the case of macrocheilia shown in Figure 1, there was a cavernous hemolymphangioma, which was probably of a congenital origin. The abnormal development did not consist of an angiectasis only, but obviously a new formation of blood and lymph capillaries had also taken place. An interesting feature was the papilla-like intravascular proliferations of the endothelial cells. Indications that they might be sprouts which develop into new lymph capillaries were lacking. A perceptible lumen was nowhere found. The regressive changes which they undergo also speak against such a supposition.

OPERATIVE TECHNIC

The operation for correcting macrocheilia is not difficult. Unless, however, it is intelligently performed, deformity may result. The lips are clamped with a lip-clamp to prevent hemorrhage, which is profuse. The mucous membrane is opened by two parallel incisions the entire length of the lip, and a small section of tissue is removed. By careful dissection, the excessive lymph tissue is removed until the lip has been reduced to normal. The wound is closed with a figure eight horsehair suture, the first loop closing the deep structures and obliterating dead spaces, and the second loop closing the mucosa. If horsehair is used in this fashion, buried sutures are not necessary, and scar formation is reduced to a minimum.

ABSTRACT OF DISCUSSION

Dr. Vilray P. Blair, St. Louis: Too often talks on the result of surgery of the face are merely descriptive of technic, and the result is sometimes not what you want. The question of this lymph enlargement is one of the most difficult things we have to deal with in surgery. I have always been held down a little bit, possibly, by the fetish of Butlin, that if you burn these things or irritate them, you possibly may get some reaction toward sarcomatous formation. I cannot say that I have ever seen it, but I have always thought it deserved some attention. I have tried radium. Other people have found it a success, but I have not had very good results. The way we have handled them is to pick out blocks of tissues where it could be done with the least possible deformity resulting. The whole thing appeals to me as one of the meanest conditions in surgery, unless you can take it out as a whole.

Dr. M. I. Schamberg, New York: The paper of Dr. Moorehead is interesting, and the most important part of the paper to my mind is the fact that he called attention to the differentiation between the two cases of macrocheilia and those cases where there is a localized hemangioma or hematoma within the lip, or other types of inflammatory disturbances of a transient character. Often, as the result of injury, the lip may swell temporarily with the absorption of the inflammatory products, or the blood which may have extravasated into the tissue. I have had a number of lip cases within the past ten or twelve years that were intensively interesting. One was in a member of my own family, an infant born with a large hematoma of the lip. This was readily removed with a very nice result. The great tendency is to remove insufficiently the amount of the growth in these cases of hemangioma. In the case of lymphangioma the growth is more nearly uniform, and the lip is enlarged throughout. It is important to differentiate between those cases in which there is a localized growth within the lip, those which are distinctly inflammatory or transient, and those in which there is a true hypertrophy. There is one other type of lip condition that sometimes resembles a macrocheilia and that is the so-called double lip, or what I prefer to call prolapse of the lip, which is much like the prolapse of the anus. These cases can be handled in very much the same way. I am fully in accord with the view that it is necessary during the operation to be sure that you have removed sufficient of the lip by approximating the edges, and that the best results are not seen within a week or two after the operation. It takes a little time for the lip to reestablish the disturbed circulation, and to cause absorption of the edges of the wound, which are rather stiff as the result of the operation.

Dr. Thomas L. Gilmer, Chicago: It seems to me that the term macrocheilia is not the best name for the conditions described. It means simply an enlarged lip, and since we have so many different conditions which cause enlarged lips, we should be more specific in differentiation. I have had better success in the treatment of enlarged lips due to prolapse of the mucosa than in cases of lymphangioma of the lips. I have had but one case of the latter, and in this, the success was not as good as I had hoped for. I dissected out the enlarged lymphatics in the lip as thoroughly as it seemed desirable, even making the lip smaller than it should be, but in the course of a few months, the lip was enlarging again. I have had the same fears as expressed by Butlin and also by Dr. Blair today of the possibility that changes to malignancy may result from surgical interference.

Dr. Frederick B. Moorehead, Chicago: Dr. Blair has raised the question of malignancy, and it is interesting to note that a careful review of the literature does not reveal a single case of malignancy in connection with the lesion under discussion. The use of radium in these cases is more or less experimental as it is elsewhere. I have not had enough experience in the use of radium to make any definite statement about its application.

Medicine as a Business.—If business men, looking at the practice of medicine as a "business proposition," have seen the advantage of organization, may not the time come when medical men who see the practice of medicine as a high and noble profession will grasp the opportunity to join with one another in developing efficient centers of group medicine? —M. M. Davis, *Am. J. Pub. Health* **9**:361, 1919.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE GALLBLADDER AND BILIARY DUCTS

PRELIMINARY REPORT ON A NEW METHOD

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Two years and a half ago a paper was published by S. J. Meltzer[1] of the Rockefeller Institute which carried at the end this footnote:

> In experiments with magnesium sulphate I observed that the local application of a 25 per cent. solution of that salt on the mucosa [of the duodenum] causes a completely local relaxation of the intestinal wall. It does not exert such an effect when the salt is administered by the mouth, that is, when it has to pass through the stomach before it reaches the intestines. The duodenal tube, however, apparently has reached an efficient practical stage. I make, therefore, the suggestion to test in jaundice and biliary colic the local application of a 25 per cent. solution of magnesium sulphate by means of the duodenal tube. It may relax the sphincter of the common duct and permit the ejection of bile, and perhaps, even permit the removal of a calculus of moderate size wedged in the duct in front of the papilla of Vater. Twenty-five c.c. of the solution as a dose for an adult will bring no harm. For babies the dose should not exceed 4 c.c. The procedure could be developed into a practical useful method.

This simple footnote served as an inspiration for a clinical experimental study on human beings, at first with magnesium sulphate and later with other solutions. I believe that the experimental observations on animals, as conducted by Meltzer, have borne fruit and have opened up a new method of diagnosing diseases of the gallbladder and of the biliary ducts.

This study, conducted for fifteen months in France on men of the U. S. Navy in Base Hospital No. 5, for six months in the clinic of the Jefferson Hospital, in the wards of the Methodist Episcopal Hospital, and in the author's private practice, is a study which has now been made of more than 100 cases, with a total of nearly 1,000 observations. We have proved and are now in a position to demonstrate that Meltzer's assumption is correct—the instillation directly into the duodenum of magnesium sulphate, in solution of various strengths and in various amounts, is followed shortly afterward (within from two to fifteen minutes in most cases) by the evacuation of bile into the duodenum, which can be aspirated by the syringe or the vacuum bottle. Magnesium sulphate appears to be a chemical messenger (hormone) which has the ability not only to relax the sphincter of the common bile duct and thereby drain the bile in the ducts, but also, simultaneously, to cause the gallbladder to be compressed and to empty its contents. Our observations have convinced us of the soundness of the theory of Meltzer's law of contrary innervation as applied to the gallbladder and biliary passages.

Magnesium sulphate, however, is not the only chemical excitant which is capable of producing this action of the biliary apparatus. Our studies have shown that there are others which are capable of a similar action and which will be reported later on. The procedure has gradually taught us that it is possible to segregate and study, cytologically and bacteriologically, not only bile from the gallbladder, but also bile freshly secreted from the liver itself. It has taught us that we can differentiate within reasonable certainty between diseases of the various components of the biliary system, that is, that we can make a differential diagnosis between cholecystitis, cholelithiasis and choledochitis in a more scientifically accurate manner than by any other method yet advanced.

CAUSE OF INFECTION

For some years we have been aware that the gallbladder or the bile ducts may become infected with pathogenic organisms through several routes: by ascending infection of the common duct directly from the duodenum; by infection by way of the portal vein, and possibly by infection directly from the systemic circulation. All these theories as to the portal of entrance can be attractively argued, but we have been impressed in our study by the frequency with which infection by the avenue of direct ascending infection from the duodenum can be proved. We believe that in the larger number of instances the sequence of events is: a primary source of infection in the mouth (gums [pyorrhea alveolaris]; teeth [apical abscesses]), nasal sinuses and respiratory tract (lungs [pneumonia, especially of the lobular, mixed infection type], capillary bronchitis, etc.), and bronchial tree (simple catarrhal or purulent—large tube—bronchitis), with the swallowing of infected saliva, which sets up, under favorable circumstances, an infective gastritis (this can be proved) or which passes by the stomach, leaving it unharmed, to produce an infective duodenitis (which can be proved) and, ascending thence through the ampulla of Vater, infects the common duct and obtains final lodgment in the gallbladder. The gallbladder, once infected, provides an excellent culture medium for continued bacterial development.

Recognition of this chain of infection was forced home on me by observation, in French waters, of sixteen cases of catarrhal jaundice in American sailors, whose gastric, duodenal and biliary secretions were studied, and the patients treated, by the method herein outlined. Parenthetically, it may be said that the course and duration of these cases of catarrhal jaundice was shortened from an average of thirty-five days in nine cases (treated in the usual symptomatic manner, with bed rest, restricted diet, cholagogues and hexamethylenamin) to an average of seventeen days in seven cases in which topical treatment of the duodenum was undertaken. These cases will be reported later on.

METHOD OF ASPIRATION

After considerable experimenting, we are using at present this method of studying suspected gallbladder and biliary duct cases:

The patient is examined in the fasting stomach state; the mouth is rinsed thoroughly with any good antiseptic solution. We prefer potassium permanganate, 1 grain to 2 ounces of water, followed by a rinse with a weak solution of zinc chlorid. A sterile duodenal tube, fitted with any one of the later modifications of the original metal tip,[2] is passed into the stomach; the fasting gastric residuum is aspirated into a sterile vessel, is measured and grossly observed for consistency, mucus, etc., and then is cultivated and studied chemically for acidities, for bile and for occult blood.

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[1] Meltzer, S. J.: Am. J. M. Sc. **153**: 469 (April) 1917.

[2] All the special apparatus used in this method will be fully described in a later article.

Microscopically, we pay especial attention to *endogenous* epithelium, to polymorphonuclear leukocytes, with or without digested protoplasm, and to the general amount and the morphology of the bacterial flora, differentiating between these and findings which are similar but of *exogenous* origin. With care and the enlargement of personal observation, this differentiation can be made with a reasonable degree of certainty, and it is later checked up by other methods. The stomach is then thoroughly rinsed and the patient is given a glass of water to drink while *slowly* swallowing the tube to the duodenal point, and while lying on the right side, with a pillow or a sandbag elevating the hips.

The tube usually passes into the duodenum within fifteen to forty-five minutes. When it has done so the fact can be determined by the duodenal "tug," the character of the aspirated fluid, and the failure to recover immediately by vacuum aspiration material (water, broth, etc.) which the patient swallows by mouth. Difficulty is occasionally encountered in entering the duodenum because of vagotonic states, or local pylorospasmic states (a reflex from duodenal ulcer, cholecystitis or chronic appendicitis) which can be overcome by an injection of atropin sulphate or by several days' use of belladonna or benzyl benzoate. Once it is sure that the tube is in the duodenum, a barrelful of air is introduced from a 1 ounce capacity syringe to balloon out the duodenal walls from the metal tipped tube (to prevent traumatism of the duodenal mucosa); a connection is made with the *first* sterile aspirating vacuum bottle, and gentle aspiration of the duodenum is begun.

In the fasting duodenal state, and when the physiologic condition is normal, the sphincter of the common bile duct should be closed, and the duodenal contents should be bile free, pearly gray, of syrupy and stringy consistency, fairly transparent, and should have a relatively small amount of flocculent or flaky sediment. In states of duodenitis the gross appearance, the microscopic sediment and the chemical tests differ widely from the normal. When bile is found in the fasting duodenum in sufficient quantities to be grossly visible, we believe that there is either a disturbed physiologic condition (following the analogy of Meltzer's law of contrary innervation) or a pathologic lesion of group organs physiologically related to this intestinal zone.

The first bottle is detached and with its contents of aspirated fluid set aside for bacteriologic, cytologic and chemical examination. We now introduce, by means of a sterile syringe or by the gravity method from a sterile container, from 50 to 100 c.c. of a sterile, 25 per cent. saturated solution of magnesium sulphate, and connect up the tubing to the *second* sterile aspiration bottle and start gentle aspiration. Usually, within from two to ten minutes, bile begins to be recovered, staining light yellow the magnesium sulphate solution still in the duodenum. When the color deepens to a pronounced yellow, the material already collected in the second bottle is decanted into a sterile glass container; the bottle is reattached, and biliary drainage is continued.

It will be observed that the bile flows intermittently, somewhat after the manner in which urine is secreted from the ureters into the bladder in patients in whom cystoscopy and catheterization of the ureters have been performed. Especially is this intermittent flow observed after the bile already in the ducts and in the gallbladder has been drained and bile is being collected as it is secreted from the liver capillaries. We believe that the first bile aspirated is the bile present in the bile ducts—probably only the common duct—because it is lighter yellow, more likely to be transparent, and much less mucoid than the bile seen later. This first bile may be from 10 to 20 c.c. in amount and may require from one to three minutes to aspirate, when a sudden transition appears (seen first in the glass window of the tube) and the bile becomes darker, more viscid and more concentrated and, in normal gallbladders, remains transparent, but is more of a molasses yellow. We believe this type of bile to be that stored up in and delivered from the gallbladder, and when it appears first in the glass window the second sterile bottle is detached and replaced by a *third* sterile collecting bottle into which the bile is allowed to flow until all of this darker bile (more viscid, transparent or turbid) has been collected and is being replaced by a lighter yellow, thinner and usually transparent bile which is aspirated much more slowly and intermittently, and which we believe to be bile freshly secreted from the liver. When this second transition appears, the third bottle is detached and a *fourth* sterile bottle attached to collect the liver bile.

Thus, we believe we are able to collect separately bile from different parts of the biliary apparatus and, by receiving them in separate containers, to study each sample chemically, bacteriologically and cytologically. We have found the bile from the gallbladder to vary in amount from 30 to 100 c.c.; in one case the amount was 166 c.c., the largest quantity in our experience. We believe that the high normal probably should not exceed 75 c.c. (2½ ounces). This variation in amount is to be expected, and would depend somewhat on the length of time since the gallbladder had last emptied itself, partially or completely, in response to normal digestive needs; on mechanical factors that prevent its ready emptying of itself unassisted, such as inflammatory adhesions, or thick, viscid, sluggishly flowing bile caused by catarrhal conditions of the gallbladder; or the variation may be dependent on the tonicity of the gallbladder musculature, for it is readily conceivable that in overdistended, dilated gallbladders the muscle wall has been so stretched as to possess insufficient tone to propel the contents easily through the cystic and into the common duct.

THE BILE IN PATHOLOGIC CONDITIONS

In pathologic states of the gallbladder, the appearance and the character of the bile are quite different from those in the normal bile described above. We have seen these types:

A. *Choledochitis.*—In choledochitis, the bile first collected is definitely pathologic. It is more viscid, with an excess of flaky mucus, is usually turbid and usually "off" color; cytologically, it contains pus cells enmeshed in mucus, epithelial cells and, occasionally, red blood corpuscles; bacteriologically, cultures may show pathogenic organisms. This type has been encountered in choledochitis with cholecystitis. We have frequently seen choledochitis alone in "simple" catarrhal jaundice, and, in these instances, the usual picture has been of an infection of a lower grade than when the gallbladder is also involved.

B. *Cholecystitis.*—In cholecystitis without choledochitis, the first bile collected is relatively normal, grossly and cytologically, and culturally does not contain pathogenic organisms. But the second bile is grossly pathologic; it is more viscid than normal gallbladder bile; it is turbid, with a flaky or stringy mucus; cytologically it will show inflammatory elements, pus cells, red blood cells (occasionally) and desquamated epithelium, and, bacteriologically, cultures will show pathogenic organisms. Thus far, we have "recovered" streptococci of various strains, staphylococci, *Bacillus pyocyaneus, B. typhosus* and *Micrococcus catarrhalis.* In some cases the cultural findings have been negative, but the catarrhal elements have been pronounced. The viscosity, color and general appearance of the bile in pathologic conditions of the gallbladder will alone suggest the diagnosis. The color varies from a deep, golden yellow, to a dark, molasses yellow, transparent or turbid; to a light, mustard yellow, always turbid, and occasionally streaked with slimy mucus of a greenish color; to various shades of green or greenish black, and, in one case, was of such a tarry consistency as to make aspiration very slow and difficult.

C. *Cholelithiasis.*—In cholelithiasis we find the evidence of cholecystitis, but in two instances we have noted in addition that the bile contained a sediment that was "gritty" or sandlike in consistency, which was seen, microscopically, to be made up of crystals of bile salts. In one case, that of a Filipino mess-attendant with jaundice, we succeeded, by the local use of magnesium sulphate, in recovering three small, faceted gallstones. Later, this patient was operated on by Dr. Robert G. Le Conte, who found and removed one very large calculus, about the size of an English walnut, which was blocking an enormously enlarged common duct, and several small stones, still remaining in the gallbladder.

We have yet seen no instances in which bile freshly secreted and collected from the hepatic ducts after the gallbladder bile has been expressed has given us positive bacteriologic or cytologic findings suggestive of an infection involving or originating in the liver. It may prove possible later to submit differential proof of such a state. It is very likely that the bile freshly secreted from the liver carries a higher bacteriologic potentiality than that from any other part of the biliary apparatus.

The demonstration of biliary stasis (due primarily to functional disorders of the gallbladder, if there are such, and shown in the recovery of bile that is not pathologic beyond being increasedly viscid and concentrated) may, in addition to the organic conditions described, help us better to understand the primary causes of conditions we now call "biliousness" or "bilious attacks."

FUTURE POSSIBILITIES

So much now for the question of diagnosis by this method. In a subsequent paper I shall attempt to enlarge this sketchy preliminary report and to contribute further to our knowledge of the physical properties of bile in its relation to biliary diseases, and to show that there are chemical messengers, other than magnesium sulphate, that will stimulate the flow of bile.

This method of direct access to the biliary apparatus opens up a new field of rational medical treatment for diseases of the gallbladder and of the bile ducts, and in a paper soon to be published I shall report our therapeutic experiences of the past two and a half years.

Considerable success has been achieved in the treatment of cholecystitis, choledochitis, catarrhal jaundice and infective duodenitis by this method of direct medical drainage of the biliary apparatus, and direct disinfection of the duodenum and intestine by the use of various germicidal solutions.

THE INFLUENCE OF INFLUENZA ON MENSTRUATION, PREGNANCY AND PUERPERIUM *

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During the first influenza epidemic of 1918, I observed two cases of premature labor in the course of influenza in the Philippine General Hospital. The patients were at first admitted to the medical department and were later transferred to the department of obstetrics. I could not attribute the interruption of pregnancy in these two cases to any causes other than influenza and quinin. Quinin was considered as a possible cause, because the patients, while in the medical department, were given massive doses of the drug which, according to various authors,[1] strongly stimulates the contraction of the uterus, and is even credited with producing abortion.

TABLE 1.—INTERRUPTION OF PREGNANCY DUE TO INFLUENZA IN TWENTY-SEVEN CASES

No. of Cases	Month When Pregnancy Was Interrupted
2	Within the fourth
2	Between the fifth and the sixth
4	In the seventh
19	Between the eighth and several days before the expected date of confinement

During the three months beginning with October of 1918, when the largest epidemic of influenza broke out in the Philippine Islands, thirty-six cases of influenza were admitted to the department of obstetrics. In nine cases, the disease was contracted in the course of the puerperium, and in the remaining twenty-seven it occurred as a complication of pregnancy. The disease was not complicated by bronchopneumonia or lobar pneumonia in five of the former and in seven of the latter cases.

Quinin was not used with any of the twenty-seven pregnant patients, but in spite of this precaution, pregnancy was interrupted even in seven cases in which influenza was not complicated by bronchopneumonia or lobar pneumonia. The elimination of quinin in the treatment limits the possible causes of the interruption of pregnancy in these cases to influenza and makes it highly probable that the disease was the exciting cause of premature labor in my first two cases.

This observation does not, therefore, coincide with the finding of Bar and Boullé,[2] and of Ahlfeld.[3] It confirms the conclusion of Felkin[4] and Müller[5] that influenza exerts a very pernicious influence on pregnancy, and shows that this it does independently of bronchopneumonia and lobar pneumonia which frequently complicated the disease during the last epidemic.

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* Read at the annual meeting of the Manila Medical Society, Jan. 13, 1919.

[1] Kurdinowsky: Arch. f. Gynäk. **78**: No. 3, 1906. Lieb, C. C.: Am. J. Obst. **69**::21, 1914. Mäurer, A.: Deutsch. med. Wchnschr. **33**: 173, 1907.

[2] Bar and Boullé: L'Obstétrique **3**: 193-214, 1898.

[3] Ahlfeld: Ber. u. Arbeiten **2**: 131, 1885.

[4] Felkin: Tr. Edinburgh Obst. Soc. **17**: 12, 1892.

[5] Müller, R.: München. med. Wchnschr. **42**: 952, 1895.

A question of scientific interest is, How is the interruption of pregnancy produced by influenza? Is pregnancy interrupted by the cough and asphyxia that are usually associated with the disease, or does the toxin of the Pfeiffer bacillus act as an ecbolic? The fact that coughing and asphyxia were not prominent symptoms in some of the cases tempts me strongly to believe that the toxin acts directly on the uterus. Its selective action on this organ is further supported by the early appearance of menstruation when the women contracted the disease. I have frequently observed this effect of influenza in the last epidemic.

TABLE 2.—HIGH MATERNAL MORTALITY OF INFLUENZA DUE TO BRONCHOPNEUMONIA AND LOBAR PNEUMONIA

	Cases with Bronchopneumonia		Cases with Lobar Pneumonia		Cases without Complications		Total Number of Deaths
	Fatal	Non-Fatal	Fatal	Non-Fatal	Fatal	Non-Fatal	
Influenza in pregnancy.....	0	3	13	4	0	7	13
Influenza in puerperium....	2	0	1	1	0	5	3

The maternal mortality of influenza in my series of thirty-six cases was excessively high. This was due exclusively to bronchopneumonia and lobar pneumonia, because without any of these complications the disease did not cause a single maternal death. In this series the bronchopneumonia complicating the puerperium, and the lobar pneumonia in pregnancy, were fatal in 100 and 76.4 per cent., respectively. The frequent incidence of lobar pneumonia and its high mortality make influenza a grave complication of pregnancy. According to the record of the Philippine General Hospital for 1918, it was more fatal than eclampsia or malaria and typhoid fever in pregnancy.

Influenza also exerted a deleterious effect on the fetus. Among the twenty-seven pregnant women, I had one case of hyperpyrexia in a newly born baby, and seven deaths. The latter includes cases of intra-uterine deaths and those which were born within the period of viability and died several hours after birth.

TABLE 3.—MORTALITY OF INFLUENZA, ECLAMPSIA, MALARIA AND TYPHOID FEVER IN PREGNANT PATIENTS ADMITTED TO THE PHILIPPINE GENERAL HOSPITAL IN 1918

	Influenza	Eclampsia	Typhoid Fever	Malaria
Mortality	48.1%	41.1%	16.6%	0%

SUMMARY

1. Influenza exerted a pernicious influence on pregnancy. This pernicious influence was direct and independent of the bronchopneumonia and lobar pneumonia complicating the disease.
2. Influenza caused untimely appearance of menstruation.
3. Lobar pneumonia complicating influenza was responsible for the high mortality of this ordinarily benign disease in pregnancy.
4. Bronchopneumonia produced by influenza caused 100 per cent. mortality when it occurred in the course of the puerperium.
5. Influenza caused a deleterious effect on the product of conception.

THERAPEUTIC APPLICATION OF THE ALTERATION OF BRAIN VOLUME

BY THE INTRAVENOUS INJECTION OF GLUCOSE

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The brain and spinal cord lie within a space of fixed capacity formed by the closed cranium and the spinal canal. The pressure within the meninges is determined by two factors, the amount of cerebrospinal fluid present and the volume of the brain. The removal of spinal fluid by lumbar puncture is commonly employed in controlling intraspinal pressure in a large number of conditions. If there is a very marked increase in the bulk of the brain, however, the intraspinal pressure may still be high, even after the maximum amount of spinal fluid has been drained off. It is also true that the withdrawal, when the high pressure is due to the increased volume of the brain, may cause a herniation of the base of the brain through the foramen magnum, with resulting collapse and death.

The one medical condition in which we are most interested in intracranial pressure is cerebrospinal meningitis. The marked increase in pressure in this disease is certainly one of its most serious aspects. There is an increase both in the amount of spinal fluid and in the direct volume of the brain. The increased pressure is often the factor determining the outcome of the disease.

It has long been recognized that lumbar puncture and drainage of the spinal fluid cause, alone, a marked decrease in the mortality rate. This is unusually well shown in the recent report by Olitsky[1] of an epidemic in China in which only a small amount of immune serum was available for treatment. In 104 cases, in which no treatment of any kind was given, the mortality was 84.6 per cent.; in 346 cases in which lumbar puncture and drainage of the spinal fluid were the only treatment, only 54.1 per cent. of the patients died. The removal of bacteria and toxic material must certainly have had some effect, but it seems most probable that the greatest good was due to the necessary fall of intracranial pressure resulting from the withdrawal of spinal fluid.

The power to control the volume of the brain should be of the greatest help in the treatment of meningitis. The spinal fluid removed must be replaced, in part at least, by immune serum, thus nullifying the good effects of the reduced pressure resulting from the removal of the fluid. In those cases of meningitis in which patients develop block, either at the base of the brain or at some point along the spinal cord, they quickly show the effect of increased intracranial pressure, and we have had no way of decreasing the pressure except by occipito-atlantoid puncture.

Recently, some experiments have been reported by Weed and McKibben[2] which show that the bulk of the brain can be controlled by a change in the concentration of certain elements in the blood stream. These observers have shown that the intravenous injection of hypertonic solutions of certain electrolytes and crystalloids causes a transient rise in the pressure of the spinal fluid, followed by a marked fall, which persists for a considerable period of time. On the other hand, the use of hypotonic solutions of the same substances causes a persistent rise in the intraspinal pressure. The injection of isotonic solutions causes no change in pressure.

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[1] Olitsky, P. K.: Experiences with a Recent Epidemic of Meningococcic Meningitis Among a Chinese Civil Population, Arch. Int. Med. **23**: 380 (March) 1919.

[2] Weed, L. H., and McKibben, P. S.: Am. J. Physiol. **48**: 512 (May) 1919.

The substance of election for intravenous administration in this connection is glucose. This can be used in very concentrated form, is cheap, and is not toxic. In addition to its use for changing the osmotic value of the blood, it is utilized by the tissues as a food, and also acts as diuretic. Litchfield[3] has emphasized the value of glucose administered intravenously in various diseased conditions. He shows that it combats dehydration, supplies energy and spares nitrogen. It seems probable that the immediate effect produced by the intravenous administration in the cases reported by Litchfield was due to the relief of cerebral edema and to the consequent decreased intracranial pressure brought about by the hypertonic solution.

Case 1, recorded below, is reported because the intravenous injection of a 25 per cent. glucose solution was probably a factor determining the outcome. And the vital thing was presumably the decrease in the intracranial pressure brought about by a change in the bulk of the brain.

We have used a 25 per cent. solution of glucose, but a 40 per cent. solution can be used perfectly well. Any pure glucose may be used. It should be made up in freshly distilled water and autoclaved or boiled. It is not necessary that a fresh solution be made up each time it is given. A stock solution will keep a considerable length of time. The injection should be made slowly, so that one hour is consumed in administering 250 c.c. of a 25 per cent. solution.

The first case reported was the last case of epidemic meningitis in which treatment was given at this hospital. We had planned, if other cases occurred, to treat them as a routine with glucose solution; but we did not have the opportunity. We suggest as a plan of treatment the intravenous injection of 25 per cent. glucose solution every twelve hours, from the onset of the disease until there is no longer any evidence of increased intracranial pressure, these injections to be in addition to the specific treatment, of course. If immune serum is given intravenously, the glucose solution may be given at the same time.

REPORT OF CASES

Case 1.—A man, aged 21, white, admitted to the hospital, February 10, for epidemic cerebrospinal meningitis, was very ill from the onset. He at first improved under treatment, and was given 485 c.c. of immune serum intraspinally and 300 c.c. intravenously. February 21, the spinal fluid, which up to this time had flowed freely, could be obtained only drop by drop, a total of 5 c.c. being obtained. The rigidity of the neck increased, and the patient became irrational and incontinent. The next day he was in coma, and had epistaxis, rapid stertorous respiration and an irregular, rapid pulse. It did not seem possible that he could live more than a few hours. He was given 50 c.c. of immune serum, with 200 c.c. of 25 per cent. glucose solution, intravenously. There was very marked improvement. The next day he was given a total of 550 c.c. of glucose solution without serum. He became rational and made an uneventful recovery without further treatment of any kind.

In conditions other than meningitis, cases have been observed in which the intravenous administration of glucose has evidently had a direct cerebral action. In severe toxemias with marked general depression, a cerebral edema of varying degree is likely to develop. In the following case the abrupt change in the mental condition of the patient during the course of glucose administration could hardly be due to other than a change in the brain tissue.

Case 2.—A man, aged 22, white, was admitted to the hospital, July 14, 1918, for measles. His temperature on admission was 103.3, pulse 88, and respiration 20. The examination of his lungs was negative. He coughed excessively, but showed no signs of a localized infection until the 18th, when there was a pulmonic consolidation at the right base. The same night the patient became delirious, and remained so the next day. On the 21st he lay in bed in a stupor, and would not answer when spoken to. The signs in his chest had become very diffuse. It did not seem possible that he could recover. His temperature had continued high from the onset until the 18th, but on the 19th and 20th was subnormal. His pulse was recorded as above 100 only once, and the respirations averaged 20. The afternoon of the 21st, as a last resort, he was given 300 c.c. of 25 per cent. glucose solution intravenously. After the injection had proceeded for one hour, he began to arouse, and by the time the injection was finished he was clear mentally, was oriented and answered questions readily. He made an uninterrupted recovery except for an intercurrent otitis media. He had no further treatment.

SUMMARY

1. Increased intracranial pressure is a very important factor in certain diseases, especially meningitis.

2. The alteration of brain volume of intravenous injection of hypertonic glucose solution can be made use of to control the pressure.

3. The intravenous injection of 25 per cent. glucose solution seems advisable as a routine measure in the treatment of meningitis.

4. In the two cases reported, the direct cerebral action of the glucose seems demonstrated.

HORSE ASTHMA FOLLOWING BLOOD TRANSFUSION

REPORT OF CASE

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Although the experimental demonstration of passive anaphylaxis has been clearly established by Nicolle, Otto, Friedmann, Richet and others, I wish to call attention to its importance in actual practice and suggest the necessity of including, in the routine examination of a prospective donor for blood transfusion, questions relative to the various anaphylactic manifestations.

REPORT OF CASE

H. T., man, aged 35, waiter, white, born in Greece, who had been five years in this country, underwent blood transfusion for primary anemia. He had never had asthma, hay-fever, bronchitis, urticaria, angioneurotic edema, or any other condition which might indicate a hypersensitiveness to some foreign protein. The family history was negative.

Two weeks after receiving 600 c.c. of blood, the patient left his home and went for a carriage ride in Central Park; almost immediately on entering the open carriage, he experienced some difficulty in breathing which within five minutes developed into a definite, clear-cut attack of bronchial asthma. The patient returned to his home, where a physician administered epinephrin hypodermically, bringing the paroxysm to a rapid end. That evening he coughed considerably, but feeling quite well in the morning, ventured for a short walk in the park. He was again seized with a severe attack of asthma.

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[3] Litchfield, Laurence: Glucose Intravenously as a Therapeutic Measure, J. A. M. A. **71**: 503 (Aug. 17) 1918.

It was after this attack that I first saw the patient and tested him against a large number of food and bacterial proteins, pollens, etc., with negative results, finally, however, obtaining a positive reaction to horse dandruff, measuring 1.5 cm. in diameter and reacting as high as a 1 : 20,000 dilution.

On learning of the transfusion which occurred but two weeks previously, and his negative previous history, I located the donor, who readily admitted being subject to a persistent and long-standing asthma and bronchitis. On testing the donor I obtained a reaction to horse dandruff measuring 6 cm. in diameter, and reacting as high as a 1 : 50,000 dilution.

COMMENT

1. The transmission of anaphylactic or reaction bodies should be borne in mind in choosing a donor for blood transfusion.

2. The presence of these "anaphylactic bodies" in the donor's blood caused no untoward effects on the recipient during or immediately following the transfusion.

3. This phenomenon did not occur in another patient to whom this donor had previously given blood, although a larger quantity of blood was injected (800 c.c.).

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GENERAL HEALTH ACTIVITIES AND THEIR EFFECT ON TUBERCULOSIS MORTALITY *

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In preventive medicine, it is generally assumed that the discovery of the causal organism and the means of transmission of a communicable disease will be followed by a definite reduction in its prevalence and mortality, and that this reduction is greatly increased by an intensive campaign of popular education. This has been our experience with typhoid fever, yellow fever, malaria, diphtheria and other diseases, and it was the experience contemplated in dealing with tuberculosis. It has now been almost forty years since the identification of the tubercle bacillus, and almost thirty years since the first organization was created to combat the disease by means of popular education. For fifteen years that educational campaign has been intensified by the National Tuberculosis Association, which, with its affiliated societies, has become the largest and strongest extragovernmental health agency the nation has ever known. It is interesting at this time to consider what progress has been made in dealing with this most widespread of diseases and to attempt to determine, if possible, the means by which the very striking results have been accomplished.

Experience has taught us that tuberculosis cannot be measured by the standards which apply to other contagious and infectious diseases. The attempts to develop preventive and curative vaccines or serums from the tubercle bacillus, such as we have produced in diphtheria and typhoid fever, have resulted in failure and disappointment. We have been forced to conclude that active tuberculous disease is not the result of a simple infection. Likewise, our efforts to control the disease by the restriction of public spitting, based on the fact that bacilli are commonly found in the sputum, have not given results which inspire any high degree of confidence. Tuberculosis has resisted our efforts to deal with it as a simple question of infection or contagion.

The relationship between infection and disease has been shown to be very remote. It is accepted that acute tuberculosis is not caused by any single organism acting alone. Dormant infection is so general that perhaps 80 per cent. of adults may be classified as "tuberculosis carriers." The development of the disease, after infection, is dependent on some factor or factors which reduce individual resistance, and these factors are to be found in every phase of the social life of the individual or of the community. Obviously, in the light of our present knowledge, victory over tuberculosis cannot be expected to result from warfare against the tubercle bacillus, however thoroughly that warfare may be conducted. Our present belief must be that success will come through our learning how to live with the tubercle bacillus rather than in striving to avoid initial infection.

I do not mean to convey the idea that we should abandon in any way the means we are now employing to prevent the spread of infection. Open cases should be isolated, coughing and spitting should be restricted, and increased pains should be taken to protect children from contact. I am profoundly impressed that by these means alone we shall not master the disease, and I am frankly doubtful if such means have been the important factors in achieving the success which has crowned the efforts of tuberculosis agencies in the past.

As to the success in the past, there can be no doubt. During the twenty years following the establishment of the first volunteer tuberculosis association, tuberculosis mortality decreased from 238 per hundred thousand of population to 166 per hundred thousand, or a decrease of 30.25 per cent., while a comparison of five-year periods during the past fifteen years shows a tuberculosis decrease of 22.2 per cent.—a more gratifying showing than that of any other communicable disease for which science had not provided a specific preventive, with the single exception of scarlet fever. With such a showing, the battle against the germ, which has characterized our avowed program in the past, seems to have fully justified itself.

But, a further observation of statistics causes us to become somewhat skeptical. During the twenty years from 1872 to 1891, the twenty years preceding the nation-wide educational movement and including ten years preceding the discovery of the tubercle bacillus, the mortality from tuberculosis decreased from 339 per hundred thousand of population to 245 per hundred thousand, or a decrease of about 27.5 per cent. In fact, Hoffman has pointed out, from such statistics as were available, that tuberculosis mortalities have steadily decreased for a period of over a hundred years, from 1812, when the rate in New York, Boston and Philadelphia was close to 450 per hundred thousand. This steady decrease in mortality, which had assumed interesting proportions years before the discovery of the bacillus, obviously cannot be attributed to the battle against the germ, and yet it seems readily

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* Read before the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

explainable and in perfect harmony with our present conception of the tuberculosis problem.

It is now generally agreed that tuberculous disease in the adult is usually due to childhood infection and that infection may remain relatively harmless throughout life unless the resistance of the individual is lowered. In short, tuberculous disease is the result of infection plus some other factor of lowered vitality or impaired health. Hence, the causal factors of tuberculous disease become myriad in number and every factor which tends to promote individual or community health becomes a definite factor in the prevention of tuberculosis. With this idea in view, we can reasonably account for the decrease in tuberculosis mortality, extending throughout the past century and assuming more gratifying proportions during the past few decades.

For a hundred years living conditions have steadily improved. Means of cleanliness have become readily available, fear of fresh air and night air have been abandoned together with our more absurd superstitions. Sewage disposal, water supply, safe milk and food supplies, ventilation and basic factors in health have gradually come to receive serious consideration. Childhood, the crucial point in health control, has been safeguarded by better obstetrics, better care of mother and infant and more recently by school sanitation and health activities among children based on the sane doctrine that sound bodies are as essential as cultivated minds.

Intelligent efforts in the prevention and suppression of communicable diseases—some of them notorious forerunners of tuberculosis—have made a decided impression on the mortality of the disease, as have activities in the field of housing, the prevention and relief of poverty, and other kindred health and social movements.

Thus, it appears that improved personal and community life, and general health and social activities which have gradually gathered momentum during the past century, have had more to do with reducing the tuberculosis death rate than the attack we have made on the bacillus. In fact, I am ready to believe that the improvement of general health through better milk supplies has done as much to stay the ravages of tuberculosis as anything we have done to control bovine infection, and that the effect of the general improvement of housing has been more far-reaching than our efforts to prevent disease by supervision of premises infected by the tubercle bacillus.

In attributing this gratifying showing in reduced tuberculosis mortality to the efforts made in general health, and social fields, we must not infer that the antituberculosis organizations have in any way failed. In fact, national, state and local tuberculosis associations have not only done their part in their own special field, but they have contributed to general health to an astonishing extent. In thousands of instances, these tuberculosis associations have been the pioneers in all health activity and, while they have placed proper emphasis on their own problem, which had been so long neglected, they brought with them the first public health nurses, the first child-welfare work and the first popular interest in health which served to stimulate activities in other lines, and to strengthen the hold of the governmental agencies on the public. If their policy of a battle against the germ was narrow, it was no narrower than that of others in a day of bacteriologic enthusiasm, and their practical performance has been big and broad and helpful.

In conclusion, I should like to have it understood that I am dealing with only one phase of a tremendously big subject; that I am questioning, as every student is questioning, the various factors which have played a part in the most complex of medical and social problems, and that I do not minimize the importance of the special tuberculosis activities or the unquestioned good which has resulted from such agencies as dispensaries, sanatoriums, better medical training and the specialized educational campaigns which must always be employed in a successful warfare against the disease.

ABSTRACT OF DISCUSSION

Dr. L. L. Lumsden, Washington, D. C.: I am impressed with the position which I understand Dr. Palmer takes in regard to our most effective attack on the great problem of tuberculosis being through the application of general health activities. One of the large life insurance companies a few years ago made a careful statistical study of the incidence of certain diseases among its policy holders and found from the data that among persons under comparable conditions, economical, social, age and so on, those who had had typhoid fever were in the five-year period following the attack of typhoid fever much more likely to develop obvious tuberculosis than were those who had not had typhoid fever within the same period. It appears highly probable that in preventing other diseases such as typhoid fever, hookworm disease and malaria, which may be controlled by general sanitary measures, we are apt to make a definite impress on the tuberculosis rate. Economic conditions appear to influence, almost in mathematical ratio, the tuberculosis rate. Carefully compiled statistics in recent years showed that among government employees the tuberculosis rate was inversely proportionate, with remarkable regularity, to the salary scale. In the field of health activities it seems to me that more may be accomplished for immediate reduction of the tuberculosis rate through general hygienic measures and specific measures for the control of other infections than through measures directed specifically toward the control of tubercular infection itself.

Dr. Juan Guiteras, Havana, Cuba: It would be worth while to take into consideration the development of the idea of contagion in the times preceding the discovery of the tubercle bacillus in the matter of contagion. The idea of contagion and the possible transmissibility of tuberculosis did not begin at the time of the discovery of the tubercle bacillus, and it is possible that the gradual elimination of this disease for years back began with the more or less popular idea that it is contagious, and it is worth while finding out whether this did not decrease the number of cases, or result in a diminution of the mortality in those countries in which the idea of contagion was more prevalent. I would suggest that a study be made of the statistics concerning tuberculosis in Italy, which was one of the countries in which the idea of the transmissibility of the disease, or its contagious nature, manifested itself early.

Dr. John P. Davin, New York: In connection with the theory concerning the scale of wages, the earnings and the decrease of tuberculosis as the result of a raise in wages: The better paid workman is on this account better able to provide for his needs, and the better able he is to do this the better he can live and the better citizen he should become. I have been greatly impressed by the members of the American Federation of Labor whom I have met. They are as a body a very high class of men, but the great trouble they have to overcome today is that an increasing price of the necessities of life invariably goes in excess of an increase in wages. Unless we can correct this disproportion so that an increased wage will produce or purchase something more than what it does today, we are just as badly off as we were before wages were raised. Under these circumstances I think that in addition to studying the surroundings and improving the living conditions of the wage earner, and in attempting to eliminate tuberculosis by improving such earnings and such living conditions, we must study as well their sources of supplies; how much they have to pay for rent, how much they have to pay for food; and how much they have to pay for clothing and other necessities of life.

Dr. W. C. Woodward, Boston: Apropos of the relation of wages to tuberculosis, we have to bear in mind that the men who receive the higher wages are presumably physically and intellectually the more capable men, and the question is not altogether whether the higher wage enables a man to avoid tuberculosis but also whether tuberculosis does not prevent him from earning the higher wage.

Dr. A. T. McCormack, Bowling Green, Ky.: The problem presented here, that of tuberculosis, and the solution suggested by Dr. Palmer, is extremely gratifying to everybody interested in this subject. I think it is the history of all definite movements for the relief of a definite condition in public health matters that those interested approach it, first, as experts in the particular line, and then gradually spread out over more territory and begin to take in collateral problems until eventually every worker is interested in the general problem. In Panama we found out early that respiratory disease of the laborers was one of our greatest problems. A very interesting phase of the matter was the relative incidence of the respiratory disease, which was well known in the old Spanish towns, a section of the old residential part of the Canal where the houses had not been torn down until last year. They were occupied by very poor, squalid inhabitants, and were very bad quarters, a very large number of individuals being housed in one room as compared with the newer quarters built under the plans suggested by General Gorgas, and where really decent quarters were provided. These people all received the same wages. Yet, the respiratory diseases of old Spanish towns were 900 times as frequent as in the modern town. The individuals worked together on the locks and in the mechanical division, had the same kind of work and bought their food largely from the same commissary. In approaching this problem in Kentucky, where 23 per cent. of our rejections in the draft were on account of tuberculosis, we realized that it would be impossible to have enough sanatoriums to accommodate half of the cases of tuberculosis. We are attempting to approach the problem under the supervision of the county officers and with the general assistance in every county of the local medical organization, the establishment of regular hours in a tuberculosis dispensary and having a trained public health nurse follow up the cases, using the comparatively small number of beds in our sanatoriums as schools for the tubercular and attempting at the same time to broaden the education in such a way that all the individuals will be taught the ordinary lessons of how to prevent tuberculosis. I have been very much interested in the model Lincoln School in Lexington where they are opening free air schools on the top of the schoolhouse for children who are tuberculous, or for those who have shown symptoms of tuberculosis. It is rather poor policy that we are only taking care of those who have defects and permitting the well to be in the same class rooms and school rooms with the affected ones, and not giving them the benefit of fresh air.

Dr. George Thomas Palmer, Springfield, Ill.: Dr. Lumsden and Dr. Woodward have pointed out a very important question in the handling of the tuberculosis problem. As physicians and health officers, I believe that we feel a little jealous at times of the invasion of our field by social agencies and yet when we consider the social aspects of the disease and particularly the relationship between wage and tuberculosis, we realize that we can never make big progress in the solution of the problem without a closer touch with charity organizations and with social agencies generally. As a matter of fact, I think that one of the most important steps in the solution of the tuberculosis problem is to bring about a closer appreciation on the part of physicians and health officers of the intricate social problems involved and on the other hand to develop a closer conception on the part of social workers of the difficulties encountered in meeting the medical side of the problem. Tuberculosis is largely a social problem. In its solution we have to consider proper food supplies, proper housing, the comfort and happiness of the individual. Freedom from worry and care and anxiety necessitated a very much closer relationship than now exists between social agencies, public health officials and the medical profession. I was very glad, indeed, to have Dr. McCormack call attention to the lack of facilities for the care and protection of the well child. In our public health work and particularly in tuberculosis, we will not secure satisfactory results by making provision only for the physically deficient child and neglecting the individual in whom disease can be prevented. In dealing with tuberculosis, perhaps more than with any other disease, we realize that disease prevention is more important than disease suppression and that health promotion is an infinitely more important matter than either.

Dr. W. C. Woodward, Boston: I hope that nothing I have said is going to connect tuberculosis with charity. A man who has tuberculosis or any other disease, and needs relief, ought to be able to get relief without being looked on as a mendicant or a pauper. As a citizen of the commonwealth or a person within the protection of the commonwealth, he is entitled to relief as a matter of moral right—or else our boasted civilization is a sham and a pretense.

New and Nonofficial Remedies

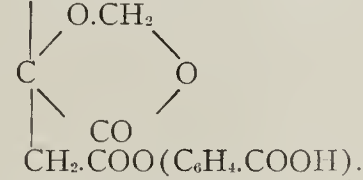
THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.
W. A. PUCKNER, SECRETARY.

CHLORAZENE (See New and Nonofficial Remedies, 1919, p. 137).

The following dosage form has been accepted:

Chlorazene Surgical Gauze.—Gauze impregnated with and containing approximately 5 per cent. chlorazene.

NOVASPIRIN.—Methylene-Citrylsalicylic Acid.—



A compound of anhydro-methylene-citric acid and salicylic acid.

Actions and Uses.—See New and Nonofficial Remedies, 1919, p. 250, under Acid Derivatives of Salicylic Acid (Acetylsalicylic Acid Type).

Dosage.—1 Gm. (15 grains) several times daily.

Manufactured by the Winthrop Chemical Company, New York City. U. S. patent No. 858,142 (June 25, 1907; expires 1924). U. S. trademark No. 62.613.

Novaspirin is prepared by the action of methylene citric acid dichloride on salicylic acid.

Novaspirin is a grayish-white odorless, crystalline powder, permanent in the air, having a faint acidulous taste. It is almost insoluble in water; soluble in alcohol; less soluble in ether or chloroform. On heating Novaspirin with caustic alkalies, salicylate is formed, and on adding diluted acid to the alkaline solution, crystals of salicylic acid are separated. On long standing in presence of water or more quickly with alkalies, Novaspirin is split into its components. When heated in a dry test tube Novaspirin melts, and at higher temperatures formaldehyde and salicylic acid are liberated. The salicylic acid sublimes and is deposited on the cooler portions of the tube. Novaspirin when decomposed yields 62 per cent. of salicylic acid. After drying over sulphuric acid to constant weight, Novaspirin melts at 153-154 C. A saturated, aqueous solution of Novaspirin (prepared without heat) does not produce a violet color with ferric chloride solution.

Incinerate 1 Gm. of Novaspirin; not more than 0.1 per cent. of ash remains.

Dry 1 Gm. of Novaspirin over sulphuric acid; not more than 5 per cent. of loss results.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 27, 1919

NEW OBSERVATIONS ON LIPOIDS

The existence of a group of complex fats or fatlike compounds, long ago recognized in lecithin and more recently designated as phosphatids or phospholipins, has been the occasion for much speculation and even some semiscientific therapy in relation thereto. The facts that certain of these chemically obscure organic phosphorus compounds seem to be present in every living cell, that they abound in the nervous structures in large proportions, that they appear to play a part in fat metabolism and transport, that they are concerned in hemolysis and coagulation of the blood—such information has tended to fix attention on the word phosphatid and what it represents.[1] It is not surprising, therefore, that a widespread search has been made to locate and identify the phosphatids in different tissues and structures of both animal and vegetable origin.

The outcome of these investigations has been to make it seem more than probable that at least two well defined groups of these lipoids exist. In the type represented by the word lecithin, the earliest to be recognized as a chemical entity, the molecule is believed to represent a structure in which fatty acid radicals, glycerol, phosphoric acid and the nitrogenous base cholin are bound together in organic union. The hitherto isolated components of kephalin, a closely related lipoid, are phosphoric acid, glycerol, aminoethyl alcohol, and stearic and linoleic acids. Under the name cuorin Erlandsen[2] described what he believed to be a third specific lipoid; and the list of claims is by no means exhausted with this enumeration.

If one may judge from the history of medical biochemistry, etymological investigations are more easily conducted than chemical research. At any rate, the introduction of descriptive names has proved to be a readier means of disposing of a difficult problem in identification than is the structural analysis that leads to a positive result. The lipoids have heretofore been classed largely according to their solubility, with the result that many products of unlike composition have been obtained.

Largely through the labors of Levene and his co-workers it has been demonstrated that instead of a multiplicity of lipoids varying in composition with the variation of the organ which furnishes them many of the nondescript phosphatid products are in reality composed of a mixture, in varying proportions, of lecithin and kephalin, each having the structure required by theory. Levene and West[3] have shown that the so-called lecithin of the egg yolk is a mixture of lecithin and kephalin. Levene and Komatsu[4] have recorded a similar finding in the case of the lipoids of the heart muscle; and they[5] have furnished evidence that so-called cuorin is presumably a mixture of kephalin and fragments of the latter. There is reason to believe that the supposedly characteristic phosphatids from other sources in the body will be similarly resolved into lecithin, kephalin and their derivatives or mixtures of them. If so, the results of such painstaking researches will dispose of the contention, essentially supported by continental biochemists,[6] that individual organs of the same animal contain specific phosphatids and that the same organs of different species also contain distinct phosphatids. We are, rather, prepared to believe with Levene and Komatsu[4] that the number of individual lipoids will be found to be rather limited, and that practically all animal organs contain the same lipoids.

ELIMINATION OF THE PHYSIOLOGIC PRODUCTS OF MUSCULAR WORK

Although the physiology of exercise has long interested scientific investigators, its importance has become greatly augmented of late through the demand for greater personal efficiency and a larger industrial output. Fatigue sets a limit to work. Greater working capacity can be attained only through an understanding of the nature of fatigue, so that it can be decreased as far as possible. For many years it has been understood that muscular activity is attended with the production of substances of an acid nature. When they accumulate in the contractile tissues, the efficiency of the muscle is soon impaired; and the satisfactory continuance of muscular performance depends on the removal or the destruction of the acid "fatigue products."

In view of this aspect of muscular activity, it is conceivable that hard work will result in the discharge of acid products into the circulation to an unusual degree. How are they disposed of? Are they oxidized, or neutralized, or excreted as such? It is now known that the blood maintains a constant reaction within very narrow limits, thanks to the remarkable devices for the preservation of neutrality in the organism. Marked alterations in the acid or base forming properties of the diet do not essentially affect the reaction of the blood. Hastings[1] has noted that, although exercise may produce a diminution of the bound carbon dioxid of the blood plasma, the depletion does not progress to such a point, ordinarily at least, that the reaction of the plasma is significantly altered.

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[1] The history of the subject is detailed by H. Maclean in his volume: Lecithin and Allied Substances: the Lipins, Monographs on Biochemistry, New York, Longmans, Green & Co., 1918.

[2] Erlandsen, A.: Ztschr. f. Physiol. Chem. **51**: 71, 1907.

[3] Levene, P. A., and West. C. J.: J. Biol. Chem. **35**: 285, 1918; **34**: 175, 1918.

[4] Levene, P. A., and Komatsu, S.: Lipoids of the Heart Muscle, J. Biol. Chem. **30**: 83 (Aug.) 1919.

[5] Levene, P. A., and Komatsu, S.: Cephalin, VI, The Bearing of Cuorin on the Structure of Cephalin, J. Biol. Chem. **39**: 9 (Aug.) 1919.

[6] Fränkel, S., and Linnert, K.: Biochem. Ztschr. **24**: 270, 1910.

The real response to muscular activity is to be observed in the respiratory exchange and in the urine. The output of carbon dioxid through the lungs is an immediate outcome of work. The kidneys excrete the excess of acids of nonvolatile character. In his recent studies, Hastings[1] has found that the urine of men engaged in manual labor tended to be of a slightly higher acidity than that of men at rest. The urine of physically strong men was regularly slightly more acid after work than before. The urine of physically weak men showed wide variation in its reaction from day to day. When the muscular activity was such that the subject was intensely fatigued, there was invariably an increase in the hydrogen-ion concentration of the urine.

Talbert[2] has recently reported a similar change in the reaction of the perspiration during exercise. Hence the conclusion seems inevitable that vigorous muscular activity results in the production of acid products of such a kind or in such degree that they call on some mechanism other than the carbon dioxid excreting power of the lungs to eliminate them and preserve the physiologic reaction of the tissues intact.

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[1] Hastings, A. B.: An Investigation of Changes in the Blood and Urine Resulting from Fatigue, Pub. Health Rep. **34**: 1682 (Aug. 1) 1919.

[2] Talbert, G. A.: Am. J. Physiol. **49**: 127 (June) 1919.

THE PROBLEM OF PROTEIN

Ever since the war threatened the integrity of the world's food supplies, the advocates of physiologic economy in nutrition have found a more sympathetic hearing than in the olden days of peace and plenty. Some of the most energetic opponents of the "low protein" diet, at one time advocated by Chittenden, have almost completely reversed their judgment on this subject. They had seemingly found their fears dissipated by the experience of thousands of persons who were compelled by the dire necessities of food shortage to live on scant rations, particularly so far as the foods richest in protein were concerned. The reports from Germany and the central empires regarding the effect of the stringent regimen on the health and morale of the people had an encouraging ring in the early years of the great conflict. Furthermore, the extensive experiments on undernutrition which Benedict and his collaborators conducted on volunteers from the International Y. M. C. A. College at Springfield, Mass., have been interpreted to indicate a surprising adjustment of the depleted human individual to a lower level of metabolism.

Some of these contentions have already been commented on in THE JOURNAL. English physiologists have inclined, during the war, to accept Bayliss' dictum: "Look after the calories and the proteins will look after themselves." Nevertheless, the Food (War) Committee of the Royal Society of London has been cautious in its published conclusions. As a rule, the British report notes, one may say that the protein in the diet of the "average man" should not fall below 70 or 80 gm. (from 2½ to 3 ounces) a day. The protein should be derived from a mixed diet and should include, if possible, a certain amount of protein of animal origin.[1]

The basis for many of the deductions regarding the effect of parsimony in diet has been derived from metabolism experiments on man or from statistical and other reports regarding the "general health" of large groups of persons. More recently, a novel prominence has been given to experiments concerning nutrition conducted on the smaller animals. Some of these, like the rat, have a comparatively short span of life, so that the various phases of growth and adult existence can be observed within a period of months rather than years. Through the aid of this modern mode of physiologic dietary analysis, the adequacy or debilitating effect, respectively, of various regimens can be observed at different periods in the life cycle. When months correspond with years of human existence, the basis for observations is somewhat safer than that furnished by a few days' or weeks' records of man. McCollum and his collaborators[2] who have had large experience in this domain insist that the results of experiments with grown men restricted to experimental diets for a few weeks or months do not form a safe basis for drawing conclusions as to the quality of the foods employed. Certain deductions may be warranted from general observations on children living on faulty diets, and important deductions may safely be drawn from the experiences of large groups of people living on more or less restricted lists of foodstuffs. Beyond this, it is maintained, we must be guided in human nutrition by the results of animal experimentation, in which the conditions can be made sufficiently rigid to bring into stronger contrast the faults of certain types of diets as contrasted with others.

If the validity of this standpoint, which so many interesting recent researches have tended to substantiate, is admitted, we may be prepared for McCollum's conclusion regarding the debated protein factor. He says:

> All our experience with diets of low protein content have indicated that animals do not remain in a state of optimum

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[1] Report on the Food Requirements of Man and Their Variations According to Age, Sex, Size and Occupation, Food (War) Committee, Royal Society, London, March, 1919, 19 pp.

[2] McCollum, E. V.; Simmonds, N., and Parsons, H. T.: A Biological Analysis of Pellagra-Producing Diet, VI, Observations on the Faults of Certain Diets Comparable to Those Employed by Man in Pellagrous Districts, J. Biol. Chem. **38**: 113 (May) 1919.

> well being even when the content of protein is sufficiently high to maintain in certain individuals the initial body weight over as much as 10 per cent. of the normal span of life. We believe that health and vigor are promoted by a liberal intake of protein of good quality better than by any diet in which there is a tendency toward parsimony with respect to this dietary factor. It should not be lost sight of, however, that there are other factors in nutrition which are of equal importance with protein, and that if the optimum well being is to be attained the diet must be rightly constituted with respect to all its parts. In addition to this the prompt elimination of the fecal residues is essential and is a great relief to the tissues of the entire body.[2]

This is a sane hypothesis for the dietary program of the reconstruction period on which the civilized world is now entering.

RELATION OF SPINAL PUNCTURE TO THE PRODUCTION OF MENINGITIS

It has become an accepted practice to make lumbar puncture in suspected cases of meningitis. Meningeal symptoms often occur in acute infectious diseases, and it is not uncommon to make diagnostic puncture in such cases. In general it has seemed advisable that spinal puncture should be made at the earliest possible moment, without any hesitancy, even when there may be some reason for doubt as to the presence of meningitis. There are many reasons assigned for such action: Thus, it is generally assumed that spinal puncture can do no harm, and that examination of the spinal fluid offers a ready and trustworthy means of diagnosis, while symptoms cannot always be relied on. Furthermore, experience has demonstrated that meningitis treated early promises a better outcome than when treated late. Consequently it is not uncommon to inject serum intraspinally at the same time the diagnostic puncture is made. Spinal puncture is often made, of course, in what seem unmistakable cases of meningitis, and yet the spinal fluid may prove to be normal, but in such cases actual meningitis sometimes develops after the puncture. The question has therefore been raised by Weed, Wegeforth, Ayer and Felton[1] whether the withdrawal of cerebrospinal fluid during a septicemia is a factor in the production of meningitis. These observers found that in animals the removal of cerebrospinal fluid during an artificial septicemia may be followed by a localization of the infection in the meninges. According to a recent report by Wegeforth and Latham,[2] fifty-five of ninety-three cases, in which meningitis was suspected, and in which lumbar puncture was done, yielded a clear fluid; among these patients, however, were six who at the time of puncture gave positive blood cultures, five of whom subsequently developed meningitis.

The close analogy between the clinical and experimental observations cited indicates that there may be dangers in lumbar puncture which should restrain physicians from routine punctures in acute infections. Wegeforth and Latham recommend that careful blood cultures be made before the puncture, and "that in acute diseases, in the absence of definite signs of irritation of the central nervous system, lumbar puncture should be avoided unless it is first shown that the blood is free from infection." In cases of meningococcus sepsis, they are of the opinion that the logical procedure is to treat the blood infection by intravenous administration of serum, and to avoid spinal puncture until signs of involvement of the meninges are present. Under ordinary circumstances, however, the recognition of meningococcus sepsis is rather difficult, and since delay is dangerous the rational procedure would be to combine the intravenous and intraspinal treatment. The objection to the intraspinal introduction of serum in cases in which the spinal fluid is not pathologic is based on the observations of Flexner and Amoss[3] on poliomyelitis, and of Austrian[4] on meningococcus sepsis, to the effect that the introduction of serum favors the localization of the blood infection in the meninges; but then again this has been recently disputed by Amoss and Eberson.[5]

The precautions recommended by Wegeforth and Latham are of importance in acute general infections. Nevertheless, until we have better means of differentiating between the various forms of meningitis, it would not appear advisable to delay spinal puncture unduly.

Current Comment

SOME LESSONS FROM THE EXPERIENCES WITH COMMUNICABLE DISEASES IN THE ARMY

We must all appreciate that the experience of our medical officers and epidemiologists in the world war will be productive of educational benefit when the observations have been correlated and interpreted. Diseases once the terror of armies have been conquered by scientific medicine, but new maladies have replaced them and presented new problems for solution. During the Spanish-American War, typhoid was an ever-present source of worry, but was almost completely eliminated in the recent warfare.. On the other hand, it is well known that during 1918 civilian communities suffered greatly from the influenza and pneumonia invasion, but that the death rate was higher among the soldiers in camp than among the civilians. One out of every four men had influenza; one out of every twenty-four men encamped in this country had pneumonia; one out of every sixty-seven died.[6] Vaughan and Palmer remind us[6] that, compared with epidemics for which we have fairly accurate statistics, the death rate at Camp Sherman in the fall of 1918 is surpassed only by that of plague in London in 1665 and that of Philadelphia in 1793. The plague killed 14 per cent. of London's population within seven months. Among the lessons that already are emerging from the details of the army medical experience of last year, the factor of the natural susceptibility of individual persons takes a conspicuous place. The army experts have ascertained that disease was in general more prevalent in the army in this country than among our soldiers abroad. The exceptions to this were dysentery, meningitis and scarlet fever. Vaughan and Palmer conclude that "there is more disease in this country because the men are more susceptible. The home army is more susceptible because it contains a greater proportion of new men. The new, unseasoned recruit is therefore responsible for more sickness than is caused among seasoned men by undergoing the hardships of physical and mental fatigue and exposure of combat." A further highly important lesson concerns the importance of prosecuting more vigorously than ever before the effort to learn the etiology of the respiratory diseases that have proved so unexpectedly menacing. Smallpox, typhoid, tetanus and diphtheria have yielded to the investigator's persistence. We may confidently expect a comparable success against the ravages of influenza, pneumonias, scarlet fever and measles when once their true causation has been adequately elucidated.

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[1] Weed, L. H.; Wegeforth, P.; Ayer, J. B., and Felton, L. D.: The Production of Meningitis by Release of Cerebrospinal Fluid, J. A. M. A. **72**: 190 (Jan. 18) 1919.

[2] Wegeforth, Paul, and Latham, J. R.: Lumbar Puncture as a Factor in the Causation of Meningitis, Am. J. M. Sc. **158**: 183, 1919.

[3] Flexner, Simon, and Amoss, H. L.: Chemical Versus Serum Treatment of Epidemic Meningitis, J. Exper. M. **23**: 683, 1916.

[4] Austrian, J. R.: Experimental Meningococcus Meningitis, Bull. Johns Hopkins Hosp. **24**: 183, 1918.

[5] Amoss, H. L., and Eberson, F.: Experiments on the Mode of Infection in Epidemic Meningitis, J. Exper. M. **24**: 605, 1919.

[6] These statistics and others here referred to are taken from Vaughan, V. C., and Palmer, G. T.: Communicable Disease in the United States Army During the Summer and Autumn of 1918, J. Lab. and Clin. Med. **4**: 587 (July) 1919.

THE THERMAL DEATH POINT OF TRICHINA LARVAE

Parasitic organisms are not uncommon as constituents of certain animal tissues: trichinae, the larvae of *Trichina spiralis,* occur not rarely in pork, and calves and sheep may also be infected. The meat is not rendered unfit for human consumption on this account, for any procedure that will destroy the life of the parasite without rendering the flesh unfit for dietary use permits conservation of food products. The cooking of trichinosed meats has long been looked on as accomplishing this result. In view of the fact that enormous quantities of pork products are handled every year in this country on a factory scale under conditions to which household methods of cooking do not apply, it has become desirable to know with considerable accuracy what the limits of viability of trichinae in flesh are. According to a recent investigation at the Bureau of Animal Industry,[1] the vitality of the larvae of *Trichina spiralis* is quickly destroyed by exposure of the parasites to a temperature of 55 C. (131 F.), gradually attained, the result apparently of irreversible coagulation changes in the protoplasm. This temperature may be considered the thermal death point. The experiments further indicate that when exposed to temperatures in the neighborhood of 50 C. (122 F.), trichina larvae die if the application of heat is sufficiently long continued, apparently as a result of exhaustion following excessive activity to which they are stimulated by the heat. From a practical standpoint, the continuous heating at temperatures below the lethal point has very little importance. From the standpoint of public hygiene, however, it is important to know that the rules enforced in connection with the federal inspection of meat products include a certain margin of safety. The Bureau of Animal Industry has selected a temperature of 137 F. (58.33 C.) as the minimum temperature to which pork and products containing pork are required to be heated when cooked in establishments operating under its jurisdiction. Smaller establishments free from such careful inspection are frequently derelict with respect to the necessity of heating uninspected pork products. Sausages are particularly liable to careless treatment when they are prepared in small, irresponsible establishments. Not a few of the cases of trichinosis still encountered in clinical experience may be traced to such negligence.

THE CALDER BILL—A VICIOUS MEASURE

Senator Calder of New York has recently introduced a bill that would make practically all products that now come under the purview of the federal Food and Drugs Act immune from state laws. The bill provides, in effect, that no state or city law relating to the adulteration or misbranding of foods, drugs or medicines, "or regulating the branding thereof," shall apply to, or interfere with, the sale of any foods, drugs or medicines in package form which have been transported in interstate commerce and are not adulterated or misbranded under the provisions of the federal law. The effects of such a bill, should it become a law, would be utterly vicious. It would mean that when a state has a law that offers greater protection to the public than the federal law offers, the state law would be rendered inoperative. For instance, the severe setback, which the glucose interests received at the hands of the state of Kansas a few months ago, could never have happened if the Calder bill had been a law. Our readers will remember that Kansas requires the manufacturers of syrup-mixtures to declare definitely on the label the percentages of each ingredient. The Corn Products Refining Company sold a syrup-mixture which was found to contain 85 per cent. glucose, 10 per cent. molasses and 5 per cent. sorghum. The company did not declare the proportions of the ingredients on the label; the Kansas authorities, under the state law, successfully proved the right of the state of Kansas to enact and enforce the ingredient-percentage requirement of its law. Another instance of what the Calder bill would do if it became a law can be understood by recalling the case of Nebraska against "Hall's Catarrh Cure." This nostrum, put out by a power in the "patent medicine" world, was still labeled a "cure" years after the federal authorities had forced less influential concerns to remove the word "cure" from their labels. Nebraska, under its own food and drugs law, prosecuted the Hall concern and won. As a result, it is now "Hall's Catarrh Medicine." Louisiana, as

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[1] Ransom, B. H., and Swartz, B.: Effects of Heat on Trichinae, J. Agric. Res. **17**: 201 (Aug. 15) 1919.

The Journal recently pointed out, has a law prohibiting the sale of venereal disease remedies except on the written prescription of a licensed physician. This has stopped the sale in that state of the vicious and dirty nostrums sold for the self-treatment of syphilis and gonorrhea. Should the Calder bill become a law, a manufacturer of a disgusting and dangerous "patent medicine" of this type (provided he lives outside of the state of Louisiana) could sell his stuff in Louisiana and, figuratively speaking, put his thumb to his nose at the state authorities. While Mr. Calder's motives in introducing this bill are doubtless of the best, The Journal is convinced that the effects of the bill, should it become a law, would be altogether bad. Such a law would, in effect, enable unscrupulous manufacturers of food products and medicines to enjoin the various states of the Union from passing any laws, or enforcing any laws already passed, that are stricter than the federal law. Powerful interests might find it easier—and less expensive—to control legislation in Washington than in forty-eight individual states.

SECRET REMEDIES AND THE PRINCIPLES OF ETHICS

Many hundreds, possibly thousands, of inquiries are received each year by The Journal from physicians asking for information on, or an opinion of, certain proprietary remedies. In many instances the preparations in question are essentially secret in composition, although advertised to the profession under a fair-seeming exterior of apparent frankness. There are on the market today—and used by members of the American Medical Association—dozens, yes scores, of widely advertised proprietaries that are, to all intents and purposes, secret. The physicians who prescribe them do not know and cannot know what they are giving their patients. On this point Section 6 of Chapter II of the Principles of Medical Ethics of the American Medical Association says:

> ". . , it is . . . unethical to prescribe or dispense secret medicines or other secret remedial agents, or manufacture or promote their use in any way."

The inherent and basic reasonableness of the various requirements of the Principles of Medical Ethics needs no exposition or defense. A large number of proprietary remedies which at present degrade medicine would be wiped out of existence or, at any rate, go over to the "patent medicine" class, where they belong, if physicians would live up to Section 6, Chapter II, of the Principles.

Vivisection in England During 1918.—The Home Office return for last year shows that the total number of vivisection experiments amounted to 77,601, being 22,066 more than in 1917. . . . Twenty-nine thousand investigations were undertaken on behalf of government departments and public health authorities, and 37,000 for the preparation, standardizing and testing of serums, vaccines and drugs. Cancer research work involved 6,027 experiments; of these, all but 137 were carried out without requiring the use of an anesthetic under the act. In England and Scotland twenty-three new places, mostly laboratories connected with military hospitals or municipal establishments, were registered for the performance of experiments during the year. The total number of licenses granted was 701.—*The Medical Press.*

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Sanatorium Opened.—Pine Lodge Sanatorium, located a little west of Colfax, was opened and dedicated early in August. The building is a two story structure finished in gray stucco. It will accommodate nineteen patients, and is under the charge of Dr. Robert A. Peers, Colfax.

CONNECTICUT

Personal.—Dr. Daniel Cantarow, Hartford, sailed for England, September 12.

Reunion at Gaylord Farm.—Gaylord Farm Sanatorium, Wallingford, the first county tuberculosis sanatorium in America, and one of the oldest in the country, held a homecoming reunion, September 13, at which about 300 of the 1,200 graduates were present.

Tuberculosis Association Receives Allotment.—The National Tuberculosis Association has sent to the Connecticut State Tuberculosis Comission a check for $13,690.16, the final allotment from the fund guaranteed by the American Red Cross to the National Tuberculosis Association for giving up the sale of Christmas seals. This brings the total amount received by the state commission to $43,710.02.

State Fight on Tuberculosis.—The Connecticut State Tuberculosis Commission announces that it is putting into effect a plan to fight tuberculosis in its incipiency, utilizing the information obtained from army records of the rejection of many men from the service because they were suffering from early forms of the disease. Tuberculosis organizations in every city and large town in the state will take cognizance of the list of rejects and endeavor to place them under treatment. It is believed that 60 per cent. of the incipient cases will respond to treatment and that a large proportion will be restored to normal activities by the recommended courses of exercise, rest and appropriate nourishment. Of the total number of drafted men from the state, 1,024 were rejected on account of tuberculosis. Of these, 127 were from New Haven, 121 from Bridgeport, 112 from Hartford and 106 from Waterbury.

GEORGIA

Examining Board Reappointed.—The governor, August 29, announced the reappointment of the following members of the state board of medical examiners: Drs. Alfred F. White, Florilla, Henry W. Terrell, LaGrange, and Harold F. McDuffie, Atlanta.

Personal.—George A. Traylor, Lieut.-Col., M. C., U. S. Army, Augusta, has returned and has resumed practice after an absence of two years in military service.——Dr. Will L. Wood, Atlanta, has been elected health commissioner of Fulton County.——Dr. Claude A. Smith has resigned as city bacteriologist of Atlanta, and has been succeeded by J. E. Acker, assistant city chemist and bacteriologist.——Dr. Walter E. Barber, Atlanta, has been reappointed a member of the health board of Fulton County.

ILLINOIS

Hospital Founder Dies.—Mr. F. M. Elliott, founder, and for twenty years president of the Evanston Hospital, died suddenly at his home in Evanston, September 16.

Sanatorium for Kane County.—The board of supervisors of Kane County, at a meeting held in Geneva, September 19, appropriated $100,000 for a county tuberculosis sanatorium.

New Sanatorium.—The new tuberculosis sanatorium for McLean County, Fairview, located just north of Normal, is now in full running order; almost all of the beds are occupied, and many patients are already showing improvement and increase in weight.

Presentation to Base Hospital Commander.—The enlisted men of Base Hospital No. 12 recently sent their commanding officer a hand hammered sterling silver platter engraved with the following inscription: "Presented to Major Payson L. Nusbaum, Chicago, commanding officer at Base Hospital No. 12, by the enlisted men of that organization on completion of twenty-two months of active service in France as a token of their esteem and regard."

Illegal Practitioners Fined.—H. C. Crabtree of Freeport and Samuel Leonard of Shannon, Carroll County, were arrested by the Illinois Department of Registration and Education for practicing medicine without a license and were fined, respectively, $50 and $100 and costs. The public school nurses of Carroll County aided the department in securing the necessary evidence against Leonard.——Mrs. Anna Zeolkowski, Chicago, is said to have been fined $25, September 16, for practicing medicine without a license.——J. G. Biemas, Chicago, September 16, is said to have pleaded guilty to having set a broken leg, and to have been fined $5.

Personal.—George G. Davis, Lieut.-Col., M. C., U. S. Army, Chicago, has recently been discharged from military service and has returned home.——John A. Hornsby has returned to Chicago.——Dr. Harry E. Mock, Chicago, has again been commissioned colonel, M. C., U. S. Army, and appointed delegate to the International Conference to be held in Rome, next month.——Clarence L. Wheaton, Major, M. C., U. S. Army, Chicago, was honorably discharged from military service at Camp Grant, September 19, after twenty-two months of continuous service at the camp in charge of the tuberculosis work.

Chicago

Attend Chemical Exposition.—About 15,000 visitors are attending the Fifth National Chemical Exposition. Meeting in conjunction with the exposition are a number of technical societies. Dyes, pharmaceuticals and machinery constitute the major portion of the exhibit, but other phases are adequately represented, such as the resources of America and Canada, the public safety work of the Bureau of Mines and accomplishments of the Chemical Warfare Service.

IOWA

New Sanatorium.—St. John's Hospital Farm, near Riverton, is to be a tuberculosis sanatorium auxiliary to St. Joseph's Hospital, Springfield. The farm contains 500 acres and buildings are to be erected from time to time as necessary. A sanatorium building is practically complete, and buildings are to be erected for a hospital for crippled children, and one for nervous diseases.

Personal.—David S. Fairchild, Jr., Col., M. C., U. S. Army, Clinton, formerly chief surgeon of the Forty-Second (Rainbow) Division, and now on duty at the Surgeon-General's Office on war combat medical histories, has been cited and has received a personal letter from General Pershing commending his work and expressing his appreciation of the valuable services rendered to the American Expeditionary Forces as division surgeon.——Dr. R. H. Sylvester, clinical psychologist at the Iowa State University, Iowa City, has been selected as chief of the health center at Des Moines, with headquarters in the court house.——Dr. Walter L. Bierring, Des Moines, returned home, August 29, after two months spent in Europe in the interests of the National Board of Medical Examiners.

KANSAS

Personal.—Dr. J. McLean Moulder has been selected as head of the Methodist Hospital, Kansas City, for another term.——Dr. J. Carroll Montgomery, Manhattan, has been placed in charge of the work of the United States Public Health Service in Cherokee County with headquarters at Columbus.

MARYLAND

Meetings.—The Maryland Psychiatric Society and the Baltimore County Medical Association held a joint meeting on September 17, at Middle River, as the guests of Dr. J. W. Harrison. Following a luncheon, addresses were delivered by Capt. Hubert C. Knapp and Dr. Richard F. Gundry of Catonsville.

Typhoid is Epidemic.—At Hagerstown, typhoid fever has reached an epidemic stage. The total number of cases reported so far is thirty, and the Red Cross is preparing to bring nurses to the city from other cities if the situation does not improve. The county health board is in consultation with the state board of health regarding the situation. So far all cases are traceable to milk furnished by one dairyman, who had used infected water from two wells and a spring on his farm. All milk, as well as the city water and wells and springs, in the community, will be tested for typhoid bacillus. Antityphoid inoculation is being used to check the disease.

Aid for the Backward.—Provision for the care and training of boys and girls unable to advance in the public schools will be considered at a conference called at the request of Dr. Francis Lee Dunham of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital. One of the suggestions offered is that some arrangement be made by which these children may spend part of their time in school and part in industrial training. Mr. Fox of the state board of labor and statistics has pointed out that since October 1, last, when the new law dealing with delinquent children became operative, the state board has handled cases involving 260 retarded boys. Twenty-six of the boys were hard to handle and fully 75 per cent. of the total number had juvenile court records. It has also been suggested that the school survey commission devote special attention to the training of backward and mentally deficient boys and girls and include in its recommendation some system of training them. Under the law, children between the ages of 14 and 16 years are not permitted to work, and cannot be forced to attend school. The result is that many of them drift into the juvenile court or are sent to institutions. All this can be overcome through the cooperation of proper officials and others interested in the development of children.

Personal.—Ernest D. Everett, Capt., M. C., U. S. Army, Lakeview, Ore., who has been on duty as ophthalmologist and otorhinolaryngologist at U. S. General Hospital No. 21, Carlisle, Pa., since his return from France in June has been separated from the service and located at Frostwood.——John F. Keenan, Brentwood, has been appointed medical referee of the Pension Bureau, Washington, D. C., succeeding Dr. Thomas Featherstonbaugh, resigned.——Capt. E. P. Dameron, Medical Corps, has been transferred from U. S. Army General Hospital No. 2, Fort McHenry, to Jefferson Barracks, St. Louis, where he will be assistant to former Lieut.-Col. Blair, who had supervision of the maxillofacial cases of the entire army until recently. Captain Dameron came to Fort McHenry from U. S. Army General Hospital No. 11, Cape May, N. J.——Col. Thomas J. Leary, U. S. Army, has arrived at U. S. Army General Hospital No. 2, Fort McHenry, to succeed Lieut.-Col. Junius H. McHenry. Colonel Leary recently returned from France, where he was in command of Evacuation Hospital No. 5. With him come five medical assistants of the regular army to assist Major Gavin Hamilton in the surgical work.——Dr. William S. Thayer, professor of medicine in the Johns Hopkins University, has returned to Baltimore after two months spent in France in recuperating from the strain he was under during the war. Dr. Thayer was chief medical consultant of the American Expeditionary Forces.——Dr. H. W. Wheaton, who recently returned from service overseas, has accepted a position in the neurologic department of the Sheppard and Enoch Pratt Hospital, Towson.——Dr. Frank E. Shipley, Savage, has been appointed resident physician at the Maryland House of Correction by the state board of prison control and Dr. Corbin Street, Baltimore, has been appointed visiting physician.

MICHIGAN

Typhoid Fever in Detroit.—During July, there were twenty-nine cases of typhoid fever in Detroit and these were probably directly due to contact with lake and river waters in the vicinity of the city, where pollution by sewage is said to exist without interruption.

Tuberculosis Clinic Opens.—A free clinic, under the direction of the Michigan Anti-Tuberculosis Association, was opened at the Spies Library, Menominee, September 10, and will continue for three days under the direction of Dr. Edwin R. VanderSlice, Ann Arbor, and Dr. William R. Vis, Grand Rapids.

Personal.—Victor H. DeSomoskroy, Capt., M. C., U. S. Army, Flint, has been offered the rank of Lieutenant-Colonel in the Polish Army and has gone to Poland as a member of the American Commission for the relief of the typhus situation in that country.——Dr. Leon B. Harris has been appointed city physician of Saginaw, succeeding Dr. Fred W. Edelmann.——The Houghton County Medical Society gave a banquet, September 1, in honor of Dr. Joseph

E. Scallon, Hancock, who is entering on his forty-fifth year of medical practice in the copper country.

MINNESOTA

Personal.—Dr. I. Pemberton P. Hollingsworth, St. Paul, has been appointed assistant health officer for Sioux Falls, S. D. ——Dr. G. Booker Granger, Rochester, has resigned as assistant city health officer of Rochester and will be succeeded by Dr. Walter F. Bleifuss, Elgin.

Clinic Organized.—The Pipestone Clinic has been organized by Drs. William J. Taylor, Eugene G. McKeown and W. E. Robertson, on the second floor of the Pipestone National Bank Building. The temporary hospital located at South Kenwood Street will be ready to receive patients, October 1.

Conviction Confirmed.—The Minnesota Supreme Court is said to have confirmed the conviction of Dr. Clarence D. Whipple, Minneapolis, on the charge of selling habit-forming drugs to a drug addict in violation of the law. Dr. Whipple obtained a thirty-day stay of sentence, August 23, and was released on bail of $2,500.

Health Association Work.—The St. Louis County Health Association has sent out an appeal to all health officers and others engaged in health work calling for their cooperation. There is at present about $4,000 available for expenditure and it is proposed that this shall be devoted to antituberculosis educational work in the county.——The annual meeting of the Goodhue County Public Health Association was held in Redwood, September 8, to elect officers, receive reports of work, and to determine the program and budget for the coming year.

MISSOURI

Typhoid in Lafayette County.—Typhoid fever is reported to be epidemic in the southeastern part of the county where more than twenty cases with three deaths have occurred. Samples of milk and water have been sent to the state university for analysis. Several cases have already developed around Houstonia and Concordia.

Treatment of Narcotic Addicts.—The Kansas City Board of Health has established a system of licensing reputable physicians to treat narcotic addicts and is placing restrictions on all physicians in prescribing and administering narcotics. All addicts are required to register with the board and will be assigned for treatment to the physicians especially licensed to do this work.

Neurologic Department for Hospital.—The Springfield Hospital at Springfield has purchased and is operating as a neurologic department the hospital established by the late Dr. Samuel A. Johnson for the treatment of mental and nervous diseases. The board of managers has also purchased additional property costing several thousand dollars which will be converted into a home for the nurses. Another improvement is the establishment of a modern laboratory which will be under the direction of Dr. Murray C. Stone, Springfield.

Clinical Section of Society Organized.—Members of the St. Louis Medical Society have formed a clinical section of that body for the purpose of organizing and systematizing the clinical material in St. Louis so that visiting physicians may have the opportunity to benefit by attendance. A daily bulletin will be issued to those physicians who register with the secretary of the clinics, giving the location of the hospitals where clinics will be held and the character of the work to be done. For the present no charge will be made for registration.

Personal.—Dr. Ota S. Wilfley, formerly of Webb City, has accepted the position of examining medical officer for the Federal Board of Vocational Education for District No. 9, with headquarters at St. Louis. He has accepted a commission in the United States Public Health Service under which service the vocational education is being directed.——Dr. Nathaniel Allison, St. Louis, who served in the Medical Corps of the Army during the great war and was recently honorably discharged with the rank of colonel, has again entered active service in the Army with the rank of colonel and has been ordered to Rome as American representative at the International Congress of Surgery, which will be held in Rome in October. Dr. and Mrs. Allison sailed for Rome, September 17, on one of the government transports.——Dr. William L. Hoagland, Kansas City, has been attached to the General Hospital Ambulance Service.——Dr. Morris S. McGuire, Arrow Rock, met with an accident, August 8, which confined him in the Boonville Hospital for a month, and necessitated the amputation of all the toes on his right foot.

NEBRASKA

Personal.—Dr. James F. Edwards, Pittsburgh, who was chief surgeon at Camp Mills, N. Y., until his discharge from the government service, September 1, has taken over his new duties as health commissioner of Omaha, succeeding Dr. Ernest T. Manning, resigned.——Dr. Samuel J. Stewart, Hastings, has been appointed superintendent of the State Institution for the Feebleminded, Beatrice, and will assume his new duties, November 1.

NEW YORK

New York City

Personal.—Dr. Sidney R. Burnap has been appointed associate dean of the College of Physicians and Surgeons of Columbia University. This is the first time the university has had an associate dean.

Well-Known Chemist Decorated.—Dr. L. H. Baekeland, New York, honorary professor of chemical engineering in Columbia University, has been decorated by King Albert, with the Order of the Crown of Belgium.

Conference on Prevention of Influenza.—A conference was held in this city during the past week which marks the beginning of a federal, state and municipal effort to prevent the threatened recurrence of influenza. Dr. William H. Park, director of the laboratories of the department of health; Dr. George W. McCoy, director of the laboratories, U. S. P. H. S.; Dr. M. J. Rosenau, professor of hygiene and preventive medicine in Harvard University, and Dr. E. O. Jordan, professor of bacteriology in the University of Chicago, were present at the conference and agreed to unite their efforts in forestalling an epidemic. Following the conference Dr. Copeland announced that circulars of warning and instruction will be distributed through the schools. He also urges physicians to report every case of influenza and announces that the department of health is prepared to give a vaccine to physicians and to administer it at the board of health clinics.

Scholarships Open to Negroes.—According to an announcement made by the General Education Board of the Rockefeller Foundation, through its secretary, Abraham Flexner, Julius Rosenwald of Chicago has offered six scholarships of $1,200 each to pay the expenses of especially qualified negro students doing postgraduate work in such fundamental medical sciences as pathology, bacteriology, physiology, pharmacology, physiologic chemistry, etc. The committee in charge of the awards will consist of Dr. William H. Welch, Baltimore, Dr. David L. Edsall, Boston, Dr. Victor C. Vaughan, Ann Arbor, Mich., and Abraham Flexner. Appointments will be made in 1920, toward the close of the year's session, to be effective for the succeeding academic year. Applications may be made to the secretary of the General Education Board by individuals or by institutions in behalf of individuals, and should contain a full account of the education—general and professional—of the applicant, including a transcript of his entire record in the medical school.

OHIO

Health Department Moves.—The state board of health moved, September 9, from the Ohio State University to the Clinton Building, Columbus.

New Officers.—The Tenth District Medical Society at its annual meeting held in Marysville, September 5, elected Dr. James E. Holmes, Columbus, president; Sylvester Goodwin, Circleville, secretary, and the presidents of the various county medical societies, vice presidents. The next meeting will be held in Chillicothe.

Appointment Rejected.—The board of directors of the University of Cincinnati, September 9, is said to have rejected the appointments of the faculty of the industrial medicine and public health department made by Dr. Carey P. McCord. This department is not directly associated with the University of Cincinnati, although the board of directors is authorized to make appointments. The financing of the department is by subscription of business men of Cincinnati.

Second Councillor District Medical Society Holds Medical Chautauqua.—A "Medical Chautauqua" was held by the Second Councillor District Medical Society, September 22 to 26, at Dayton. The meetings are designed to furnish physicians an opportunity to obtain postgraduate lectures and clinics at a minimum expenditure, each physician paying a fee of ten dollars to defray the expenses of the lectures.

Among those delivering clinics and lectures during the present session were Drs. Richard C. Cabot, Boston, Harold N. Cole, Boston, A. E. Sterne, Indianapolis, H. Brooker Mills, Philadelphia, W. D. Porter, Cincinnati, M. H. Fischer, Cincinnati and G. W. Crile, Cleveland.

Agree on Sale of Sanatorium.—The county commissioners of Summit, Portage, Columbiana, Trumbull and Stark counties, at a meeting held at the Springfield Lake Tuberculosis Hospital, September 12, agreed to a proposition made by Summit County for the purchase at cost of the interests of the four counties owning the hospital. By this agreement Summit County will pay each of the other counties the amount of money invested in land and property. The original cost of the institution was $298,000 with about $25,000 additional taken from the maintenance fund for equipment and alterations. The share of Stark County is said to be $80,011.21. Stark County proposes to unite in a single group the county workhouse, county infirmary and county tuberculosis sanatorium, financing the plan by the sale of the present infirmary site of 311 acres which is estimated to be worth $1,000,000.

Personal.—Major Guthrie McConnell has accepted a position as director of the research institute of the National Dental Association, Cleveland.——Dr. J. Edward Pirrung, Cincinnati, has been elected surgeon-general of the National Army and Navy Union.——Dr. John H. Berry, Lima, has been appointed superintendent of the Athens State Hospital, succeeding Dr. Ora O. Fordyce, Athens, who was recently transferred to the Toledo State Hospital.——Dr. Valloyd Adair has succeeded Dr. Charles R. Meek as health officer of Lorain.——L. H. Van Buskirk, for six years in the engineering department of the state board of health and for the last four years director of the division of laboratories, has resigned to join the teaching force of the Medical College of the State University of Ohio, Columbus.

PENNSYLVANIA

District Meeting.—The thirteenth annual meeting of the Fifth Censorial District, consisting of Adams, Cumberland, Franklin, Fulton and York counties, was held at the Colonial Hotel, York, July 24, and the following officers were elected: president, Dr. Theodore H. Weagly, Franklin County; vice presidents, Drs. John C. Felty, Adams County; Samuel E. Mowery, Cumberland County, and Joseph C. Atkins, York County; and secretary, Dr. James P. Dalbey, Adams County.

Philadelphia

First Aid Course.—Public school pupils will learn emergency first aid as part of their regular class room study when the junior American Red Cross begins its first aid course in the schools, October 1. The course will include, beside first aid, accident prevention and home hygiene.

Personal.—Dr. John H. Gibbon will sail for France, October 8, to represent the United States government in the interallied surgical conference to be held in Paris.——Dr. J. Torrance Rugh, professor of orthopedic surgery, delivered the introductory address at the ninety-fifth annual session of the Jefferson Medical College of Philadelphia in the clinical amphitheater of the Jefferson Hospital, September 22.

VIRGINIA

Sanatorium in Danville.—A campaign is under way this month in Danville to raise $60,000 for the erection of a new tuberculosis sanatorium, the buildings for which will be erected on the tract of land donated to the city by Mr. R. L. Dibrell.

Professional Building.—A twelve story building is to be erected at Freemason and Duke streets, Norfolk, to be known as the Medical Building, and to be occupied by physicians and dentists. The building and site will represent an outlay of approximately $400,000. The first floor of the structure will be given over to stores, and the twelfth floor will be arranged for assembly and conference rooms for the local medical organizations, the rest of the building being used for offices.

Personal.—Dr. Charles V. Carrington, Richmond, is reported to be seriously ill in St. Elizabeth's Hospital.——Dr. George W. Schenck, Norfolk, has returned from France, and has resumed his duties in the Woman's Hospital, New York City.——Dr. Edgar C. Harper, whole-time health officer for Prince William County, is in charge of the county health campaign for which funds were raised last spring. The campaign will last one year, and will include school inspection, examination of schoolchildren and a sanitary survey of the county.

Hospitals Chartered.—The Providence Hospital Association has been incorporated at Danville with the object of establishing and maintaining a benevolent and charitable hospital. Messrs. G. W. Goode and J. Alexander Valentine, and Drs. Albert L. Winslow, Frederick W. James and Abel E. West, all of Danville, are the incorporators.——An amendment to the charter of the Johnston-Willis Sanatorium, Richmond, to increase the capital stock from $100,000 to $250,000 has been approved. The increase is to allow for the erection of a modern hospital building at Kensington Street and the Boulevard. Dr. A. Murat Willis is the president, and Dr. J. McCaw Tompkins, secretary, of the institution.

WISCONSIN

Dinner to Service Men.—The Milwaukee County Medical Society gave a dinner in honor of its 120 members who were in the military service and have returned therefrom, September 11, at the Milwaukee Athletic Club. Dr. Gustav J. Kaumheimer was toastmaster, Dr. H. Manchester Brown gave the address of welcome and Col. Gilbert E. Seaman responded for the service men.

Clinic Course at State University.—During the last year 247 physicians of the state have been enrolled in courses given in ten cities of Wisconsin by the bureau of postgraduate medical instruction of the University of Wisconsin, Extension Division. These courses were given by Drs. Frederick C. Rinker and Hugh P. Greeley, Madison, under the direction of Dr. L. Rock Sleyster, Waupun.

Antituberculosis Association in New Home.—The September issue of the *Crusader,* the monthly publication of the Wisconsin Anti-Tuberculosis Association, was issued from its new building, known as the Health Service Building on Jefferson Street. This building is now the headquarters of the organized fight against tuberculosis and preventable diseases, and for better health in Wisconsin.

CANADA

Banquet to Service Men.—The members of the Academy of Medicine, Toronto, will give a complimentary banquet to 150 of its Fellows who have served overseas, September 30. The Academy opens its regular session in October under the presidency of Dr. Edmund E. King, Toronto.

Six Years' Course Required. — With the opening of the session 1919-1920 of the medical department of the Western University, London, Ont., the course of medical studies will be six years, excepting that those matriculants who left for overseas service will be on the five-year plan. Toronto and Queen's Universities now pursue the same plan.

Personal.—Major W. Harley Smith, Toronto, has returned from overseas. In his three years' service he spent most of the time in the Orpington Military Hospital, but latterly had been with an R. A. M. C. hospital in France.——Col. George G. Nasmith, Ph.D., C. M. G., chief of laboratories in the department of health, Toronto, has resigned and will engage in consulting practice with a Toronto firm of sanitary engineers.——Mr. Horace L. Brittain, Ph.D., who has been superintendent of the Toronto General Hospital for two or three years, has resigned. Mr. Brittain was engaged on the resignation of Dr. Charles K. Clarke, Toronto, to place the management on a business basis.

GENERAL

Southern Medical Association Meeting.—The annual meeting of the Southern Medical Association will be held at Asheville, N. C., November 12 and 13, with headquarters at the local Y. M. C. A.

Antimalaria Conference.—The American Anti-Malaria Association will hold a convention at Florence, Ala., October 15, having as its object the launching of a campaign to eradicate malaria from the United States. Senator O. W. Underwood will be chairman of the convention.

Valley Physicians Meet.—At the seventeenth annual meeting of the Cumberland Valley Medical Association held at Hagerstown, Md., September 4, under the presidency of Dr. Percy D. Hoover, Waynesboro, Pa., Dr. Jeptha E. Pitsnogle, Hagerstown, Md., was elected president; Dr. David W. Van Camp, Plainfield, Pa., vice president; Dr. John J. Coffman, Scotland, Pa., secretary (reelected), and Dr. John K. Gordon, Chambersburg, Pa., treasurer.

Medal to Dr. Noyes.—At a reception and dinner given by the Chicago Section of the American Chemical Society, September 26, the William Gibbs Medal, founded by William A. Converse, was presented to Dr. William Albert Noyes, director of the chemical laboratory of the University of Illinois. The presentation address was made by the president, William H. Nichols, and the Willard Gibbs address on "Positive and Negative Valences," by Dr. Noyes.

Roentgenologists Elect Officers.—At the recent annual meeting of the American Roentgen-Ray Society held at Saratoga Springs, N. Y., September 3-6, the following officers were elected: president, Dr. James T. Case, Battle Creek, Mich.; vice presidents, Drs. William P. Burnham, San Francisco, and Stanton Heck, Salem, Ohio; secretary, Dr. George W. Grier, Pittsburgh; treasurer, Dr. William A. Evans, Detroit; editor, Dr. Harry M. Imboden, New York City, and associate editor, Dr. Percy E. Brown, Boston.

Obstetricians and Gynecologists Elect Officers.—At the thirty-second annual meeting of the American Association of Obstetricians and Gynecologists held in Cincinnati, September 15 to 17, under the presidency of Dr. John F. Erdmann, New York, the following officers were elected: president, Dr. George W. Crile, Cleveland; vice presidents, Drs. Palmer Findley, Omaha, and David Hadden, Oakland, Calif.; secretary, Dr. E. Gustav Zinke, Cincinnati (reelected), and treasurer, Dr. Herman E. Hayd, Buffalo. The next meeting will probably be held in Atlantic City, N. J., September 13 to 15, 1920.

Mississippi Valley Medical Association to Meet.—The forty-fourth annual meeting of the Mississippi Valley Medical Association will be held in Louisville, October 21 to 23, under the presidency of Dr. Francis M. Pottenger, Monrovia, Calif. The address in medicine will be given by Dr. Frank Smithies, Chicago, on "Cardio-Respiratory Manifestations of Gassing in Returned Soldiers," and the address in surgery by Dr. W. Wayne Babcock, Philadelphia. There will also be held symposiums on pneumonia, empyema, neuropsychiatry, surgery of bones, reconstruction problems, the treatment of the tuberculous soldier after his return to civil life, general surgical problems, the medical reserve officers in the war, and tuberculosis of the kidney.

Electrotherapeutists Hold Meeting.—The twenty-ninth annual meeting of the American Association of Electro-Therapeutics and Radiology was held in Philadelphia, September 16 to 19, under the presidency of Dr. William L. Clark, Philadelphia. The program included symposiums on dermatology, induced catabolism, metabolism, the cardiovascular system, roentgen therapy, digestive disturbances, orthopedics, reconstruction following war injuries and physiotherapy. The following officers were elected: president, Dr. William Martin, Atlantic City, N. J.; vice presidents, Drs. William T. Johnson, Philadelphia; Virgil C. Kinney, Wellsville, N. Y.; S. St. John Wright, Akron, Ohio; Mary L. H. Arnold Snow, New York, and John H. Burch, Syracuse, N. Y.; treasurer, Dr. Emil Heuel, New York (reelected), and secretary and registrar, Dr. Byron Sprague Price, New York.

Label on Denatured Alcohol.—A recent circular, issued by the commissioner of internal revenue as a treasury decision, notifies revenue officers concerning a new ruling relative to the labeling of packages of completely denatured alcohol. This has been made necessary to protect ignorant users of these preparations. The notice states:

> In view of the grave and extended abuses of the use of completely denatured alcohol reported, it is deemed necessary to print upon the labels affixed to wholesale and retail packages a further and more specific warning as to its use than is shown on the present required label.
>
> In addition to the present matter on the labels there will be required on all new labels hereafter the printing in large letters in red ink under the skull-and-bones symbol the word 'Poison,' and at the bottom of the label there will be printed the following statement:—
>
> "Completely denatured alcohol is a violent poison. It cannot be applied externally to human or animal tissue without seriously injurious results. It cannot be taken internally without inducing blindness and general physical decay, ultimately resulting in death."
>
> Until the present stocks of labels are exhausted this additional matter may be affixed to the containers on a separate label pasted above the present required label.

Hygiene of Maternity and Infancy.—A bill to encourage instruction in the hygiene of maternity and infancy has been introduced in the United States senate by Senator Joseph T. Robinson of Arkansas. The bill provides that the children's bureau of the department of labor is to have general supervision of the work, which will be directed by the federal government and carried on largely through state cooperation. The bill carries on appropriation of $480,000, of which $10,000 is to be granted to each state of the union for necessary expenses in carrying out the provision of the act, with larger appropriations for the next three subsequent years to be expended whenever any state offers to appropriate money for this work, the federal contribution being equal to that of the state. The state agency is to be the state board of maternity aid and infant hygiene, and after 1924 an annual sum of $2,000,000 is provided. The general dissemination of information on maternity and hygiene is to be the chief function of the proposed enterprise. The bill has been referred to the senate committee on education and labor.

International Conference of Women Physicians.—This conference opened its sessions at the headquarters of the Y. W. C. A., New York City, September 15. The conference was assembled in response to new conditions created by the war under which good health became an asset to every woman as never before. Women physicians came to feel that they had a special contribution to make toward the development of the health of women and children. They have come to recognize that women must possess greater physical stamina if they are to make an effective contribution to industry and business without injury to the oncoming generation. With this idea in mind the subjects are being discussed by the conference, not from the research point of view, but from that of their practical bearing on the problem of the development of a more vigorous and responsible type of woman. The conference will continue with intermissions until October 15, when the results will be presented in condensed form to a convention of delegates from various women's organizations in this country and a proposed plan, by means of which women may bring to pass changes in social conditions affecting their lives as outlined in the previous program, will be discussed. During the intermissions, hospitals and institutions in and near New York will be visited and a trip to Boston has been arranged. Among the subjects discussed during the first week of the conference were "Health and Personality," "Physical Examinations as a Means of Health Education," "Exercise—Most Neglected Health Habit," "Dress as an Index of the Position of Women," "National Food Economics," and "Vitamins," the latter subjects being presented by Drs. Graham Lusk, New York, and E. V. MacCullom of Baltimore.

FOREIGN

Bard Called to Strasburg.—Prof. L. Bard, who for twenty years has been the incumbent of the chair of clinical medicine at the University of Geneva, has accepted a corresponding position at the University of Strasburg. He has published much personal research and deductions, his more recent works having been on the "sense of gyration," nystagmus, etc.

Germany's Losses in the War.—The *Deutsche medizinische Wochenschrift* of May 29 gives the total losses of Germany as 6,873,415. This includes the 615,922 soldiers held prisoners of war in other lands, and the 4,207,023 wounded. The dead numbered 1,676,696, and the missing, most of whom are presumably dead, 373,770, a total of 2,000,000 killed in the war.

Congress Number of the "Medicina Ibera."—The *Medicina Ibera* has issued a special number in honor of the First National Medical Congress in Spain. It gives full summaries of all the communications in the general meetings and the sections, with photographs of most of the speakers, and of operations, exhibits, etc. It also gives the resolutions adopted in the different sections and general meetings. The price is 5 pesetas. The daily papers of Madrid devoted large space to the congress, reproducing in full the principal addresses.

Typhus Fever in Spain.—In connection with the prevalence of typhus in Spain, it is stated that an epidemic of this disease developed in the provinces of Granada and Almeria in southern Spain. It was found that no delousing was being practiced, and that the disease was being spread by beggars traveling around. The Superior Board of Health sent a commission to those towns to organize the sanitary measures to be taken. Among these were the establishment of places to isolate these patients and of delousing plants, and the division of the affected provinces into two districts, each in charge of the representative of the Superior Board of Health. Since this campaign was begun, the number of cases and deaths caused by the disease has decreased.

Overcrowding of the Profession at Vienna.—A letter in the *Deutsche medizinische Wochenschrift* for April 24 states that there are now 4,000 physicians in Vienna, while the highest number before the war was 2,800. In 1914, there were 6,223 deaths from tuberculosis; the record was 11,728 in 1918. The letter states further that the German Austrians lost 212 per thousand men between 19 and 53, while the Austrians of races other than German lost only 90 per thousand. The writer adds that every one in Vienna is hungry except the "Rote Garde." They are allowed 4,500 calories a day while the rest of the populace has to be content with 1,500 or 1,600. Even in the hospitals and other institutions no more than this is obtainable. There are still 30,000 dogs in Vienna, it is said, but there were 80,000 at the onset of the war; most of the others were stolen and eaten.

School Notes from England.—At a recent meeting of the London County Council Education Committee, it announced that three new open-air schools would be opened shortly, that sites had been acquired for seven such schools and that more are still contemplated. It was agreed that all schools shall be furnished with baths.——The committee has also under view the arrangements for the supply of spectacles for school-children.——The official return of the number of London children of the elementary school class shows a decrease of 41,994 in the last four years. The greatest proportionate decrease, 17,155, is in children between 3 and 5 years of age. For this abnormal decrease the outstanding reasons are said to be the decline in the birth rate during the past decade; the largely increased death rate during the year ended March, 1919; the migration of large families because of air raids and inability to return by reason of lack of housing accommodation and their replacement by smaller ones; the conversion of residential property into business premises; the fact that many families, owing to better financial prosperity, occupy more rooms than formerly, and the decrease in the East End alien population, owing to the restriction on immigration.

Government Services

Personnel of the Medical Department

For the week ending September 19, there were 6,242 officers in the Medical Corps, a decrease of 356 from the previous week. The Medical Reserve Corps contained 3,414. The total number of physicians discharged since the beginning of the war is 25,660.

Major-General Ireland Honored

Major-Gen. Merritte W. Ireland, Surgeon-General of the United States Army, has been made an honorary fellow of the Royal College of Surgeons of Edinburgh, Scotland. At the termination of the war the college offered honorary fellowship to one representative of each group of the medical forces of the British Empire and its allies, Major-General Ireland being selected as the American representative. Major-General Ireland has also been invited to deliver the "Ether Day" address, October 17, at the Massachusetts General Hospital.

Pensions for Civil War Nurses

All army nurses of the Civil War who are receiving a pension or who are entitled to it, would receive the sum of $30 a month, under the terms of a bill introduced in the United States Senate by Senator James Curtis of Kansas.

Legislation to Commission Reserve Officers in Regular Corps

A bill to commission officers of the Medical Reserve Corps in the permanent Medical Corps of the regular army, provided the officers entered active service previous to April 6, 1917, and were within the prescribed age limit at that time and served honorably, has been introduced in the United States Senate by Senator Charles L. McNary of Oregon. A similar measure was recently introduced in the House of Representatives. The permanent commissions would date from the date of the reserve officer's entrance into active service.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA
San Diego—O'Neill, B. J.

CONNECTICUT
New London—Soltz, T.

DISTRICT OF COLUMBIA
Washington—Norris, L. B.

GEORGIA
Atlanta—Irvin, I. W.
Reynolds—Fountain, J. A.

ILLINOIS
Waukegan—Rankin, I. A.
Turner, W. R.

INDIANA
Indianapolis—Hughes, H. G.

KENTUCKY
Louisville—Todd, G. C.

LOUISIANA
New Orleans—Howell, F. A.
Metz, W. R.

MASSACHUSETTS
Quincy—Fernell, C. H.
Springfield—Blair, O. R.

MINNESOTA
Minneota—Larson, G. A.

NEW HAMPSHIRE
Franklin—Child, H. T.

NEW YORK
Bay Shore—Garben, L. F.
Brooklyn—MacEvitt, J. C.
New York—Goodbody, E. J.
Kaplan, H. E.
Walker, A. S.

OHIO
Cleveland—Sibila, A. O.

OREGON
Baker—Blakely, C. L.
Portland—Pomeroy, R. E. A.

PENNSYLVANIA
Braddock—Gardner, C. C.
Philadelphia—Bert, J. B.
Phillips, A. W.

RHODE ISLAND
Providence—Morrissey, J. H.

TEXAS
Galveston—Flautt, J. A.
Meridian—Grimland, G. A.

WISCONSIN
Sawyer—Rogne, C. O.

Foreign Correspondence

MEXICO LETTER

Mexico, Sept. 14, 1919.

Classes of Clinical Medicine

The governor of the state of Puebla, De Cabrera, ordered the closing of the state college, in which one of the subjects taught was medicine. On this account, the students requested the director of the Military Hospital of that city to allow the teaching of clinical medicine in that institution. The director endorsed the request, and after being approved by the War Department, these classes have begun. It is probable that they will continue to be given as long as the state college remains closed.

Morbidity and Mortality

Judging from the report relating to the month of July, published by the state council, sanitary conditions in this city are satisfactory. There were recorded only 1,061 deaths, of which 309 were due to gastritis and enteritis, 62 to bronchopneumonia, 69 to tuberculosis, 51 to pneumonia and only 3 to typhus fever.

In the district known by the name of La Huasteca, which includes part of the states of Tamaulipas, Vera Cruz and San Luis, malaria has developed in an alarming way, attacking chiefly the soldiers fighting in that region. Typhoid fever has also made its appearance among the soldiers, and as the matter is very important from a military standpoint, the sanitary bureau of the War Department is devoting much attention to the eradication of these diseases.

According to newspaper reports there have been several cases of smallpox in the city of Vera Cruz.

Yellow fever is still present in the peninsula of Yucatan, although there is no definite information as to the number of new cases, or the deaths that have so far occurred.

Personal

Dr. Gregorio Leal died in the city of Managua, Nicaragua, where he had been sent by the Mexican government to establish a Pasteur Institute.——Dr. J. A. Gaxiola, who has the rank of general in the Mexican Army, has been visiting in Mexico City from Los Angeles, where he is now located.——Dr. E. Aragón, professor of legal medicine in the School of Medicine, has been sent by the government to Spain to represent Mexico in the *Fiesta de la Raza*, which will be held in Madrid on October 12.——Dr. C. Hidalgo has been elected president of the senate, and Dr. A. Méndez will act as speaker of the house of representatives during the present month.

Lymphocytosis Among the Syphilitic

Dr. T. G. Perrin has just published in pamphlet form an essay on the above subject presented by him on his admission to the Academy of Medicine. This work contains some original observations, based on the study of 216 cases, in which there were made a white cell count and classification and the Wassermann, Jacobsthal and Kaplan reactions. Those cases in which the seroreaction is positive according to the first two procedures, or either of them, are considered syphilitic regardless of the clinical data. After recapitulating the conclusions reached on this subject by Patiño, Mayer and Gourdy in the essay presented by them to the Academy of Medicine of Buenos Aires in 1915, and published afterward in *Los Progresos de la Clínica,* and those published by Blumberg in the *American Journal of Syphilis* in October, 1918, Perrin presents his conclusions, which are not in agreement with those of previous workers. In 79 of the 216 cases, the result of the serologic examination was positive, and negative in 137. Among the 79 with the positive reaction there was lymphocytosis only among 49. Among the 137 cases in which the serum reaction proved negative, 81 presented lymphocytosis. The author says that he publishes his conclusions, even if they do not show anything new, because they serve to show the exaggerated dependence placed on anatomopathologic data which may lead to error.

LONDON LETTER

London, Aug. 27, 1919.

Medical Arrangements in the Afghan War

No sooner have the medical arrangements of the great war passed out of discussion than the question of those for one of the frontier wars, of which this country has had so much experience, has sprung up. The unexpected and unprovoked Afghan aggression led to mobilization of a large force, and the operations have revealed a considerable amount of unpreparedness with regard to medical arrangements. A serious feature was an outbreak of cholera, of which there were 1,663 cases at the end of July. There were 0.59 cases per cent. among the British troops and 0.88 among the Indian troops. There is no indication as to the place where the arrangements for water supply were defective. There were six separate lines of operations covering a front approximately 500 miles long. The local water supply was often by means of open irrigation channels, but piped water supply was installed in recognized camps. Cholera is endemic in the civil population in the whole area, and there were large numbers of recently enlisted transport and other followers without any water discipline or ideas of sanitation, and there was absence of supervision owing to shortage of experienced British officers. Arrangements for immediate supply of pure water in such a terrain were impossible to supervise in the case of troops compelled to march in conditions of abnormal heat. Yet the incidence of disease was very small among the British troops. Protective measures were initiated before the outbreak. A supplementary piped water supply was commenced, but the work was hampered by shortage of pumps and pipes demanded from England, Mesopotamia and elsewhere. Water for the troops was chlorinated. The wounded appear to have been well cared for. The majority of those wounded on Khyber line were in the Station Hospital Peshawar, within a few hours of the action. At no time was there shortage of rations. It must be remembered that the Afghan outrage came on us at a time when the personnel and munitions of war in India had been reduced to the narrowest margin of safety to support the forces in the Near East and France. The desertion of the frontier militia and the threat of a rebellion in Peshawar deprived us of the measure of security on which we counted to cover our concentration. Consequently, instead of being able to proceed on a deliberate system of rapid concentration we had at once to send troops to every part of the frontier and reverse our prearranged plan which provided that the dispatch of stores and equipment should precede that of troops. As regards hospitals, there are no public buildings on the northwestern frontier of India capable of immediate occupation. There was no alternative but the evacuation of barracks and their conversion into hospitals. This had been planned in peace time, but could not be rapidly carried out, especially during the hot weather. The medical service appears to have done everything possible in the midst of difficulties for which it was in no way responsible. There were, of course, discomforts in the rapidly improvised hospitals. The loss from sickness was very low considering the trying climate. The total admissions from May 15 to August 9 were at a rate per thousand of 4.98 British and 20.97 Indian. The manner in which the cholera was suppressed is claimed as a triumph; 100,000 men were inoculated in one fortnight.

German "Science"

Mr. Adolphe Smith, a journalist who has represented the *Lancet* at many international medical congresses, has contributed to the *Times* a series of articles on the Pan-German Internationale. Since 1882 he has acted as official interpreter at all the social congresses called the "Internationale" and, therefore, writes with the authority of an eye witness. He shows that as the military caste of Germany worked for world dominion by arms, so Marx and his subordinate Engels worked for a similar end by obtaining control over the labor organizations of the world. To delude the foreigner, the German socialists declared themselves the enemy of militarism. But the war has shown that, with few exceptions, they supported German war aims while at the same time endeavoring to weaken the nations opposing Germany by fostering socialism among them. Mr. Smith found at the international medical congresses the same motives at work. At the International Medical Congress in London, in 1881, the Germans took a proper share as representatives of a nation of the first rank. There the great men were Pasteur, Lister, Paget, Bigelow and Virchow. But at the subsequent congresses the German professors became more and more overbearing, and their methods conflicted with the free spirit of scientific discussion. Mr. Smith writes thus: "It has been my privilege to attend nearly all the international congresses of hygiene, and several of the international congresses of medicine, of the medical press, of the war against tuberculosis, and of other kindred movements. Here, among members of the liberal professions as in working class congresses, the German delegation acted with the same military discipline. The science which they represented was a secondary consideration; the interests of Germany, the advertising of German achievements, not to say German goods, was the first object. In all fields of action the German as an internationalist needs to be studied with far greater care than as yet has been bestowed on him. We must no longer be deceived by the nominal purpose of a congress; the political interests that are hidden behind must be fathomed. Science is supposed to recognize neither frontier nor private interests, but to be devoted to the pursuit of truth. To the German it would appear as if the sole mission of science is to serve Germany. And this is pan-Germanism, not internationalism." Referring to the question of tuberculous meat, Mr. Smith puts the action of the Germans in a very sinister light. He writes: "The danger or otherwise of consuming tuberculous meat was of very material importance to the German agrarian party, for a large proportion of German cattle was known to be tuberculous. This party held office when at a great international scientific congress it was my good fortune to discover and to denounce intrigues that had for their purpose the adoption of a resolution exonerating the specific germ of bovine tuberculosis. This maneuver had been promoted by the German delegation and the official representatives of the German government." Mr. Smith is referring to the International Congress on Tuberculosis held at Washington in 1908, and his protest was published in the *Lancet* at the time. Commenting on his present series of articles, the *Lancet* recalls the sensation made by Koch's statement at the British Congress on Tuberculosis that the infection of human beings by bovine tuberculosis is very rare, and his pronouncement: "I should estimate the extent of infection by the milk and flesh of tuberculous cattle, and the butter made from their milk, as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it." The *Lancet* adds: "It was charitably supposed that the distinguished scientist had slipped into error. No doubt he had; but we may perhaps be forgiven for wondering if the exact nature of the error was correctly diagnosed at the time."

Marriages

Heinrich Edmond Franck, Sacramento, Calif., to Miss Anna Theresa Heiligers of Aachen, Germany, August 15.

Theodore Higgins Sweetser, Minneapolis, to Miss Marion I. Morrow of Davenport, Iowa, September 3.

Victor Bayard Seidler to Miss Eleanor Dickson, both of Montclair, N. J., September 6.

Albert Zingher to Miss Anna L. Cherey, both of New York, September 7.

Anson M. Cameron to Miss Alta Stevens, both of Chicago, September 20.

Deaths

Benjamin Buck Wilson, Philadelphia; University of Pennsylvania, Philadelphia, 1850; aged 90; who at the outbreak of the Civil War, organized a military company in the village of Bustleton, was captain of U. S. Volunteers; organizer of the Alexander Hospital, New Orleans, and then in charge of the Stanton Hospital, Washington, D. C.; and was mustered out of the service at the close of the Civil War with the rank of lieutenant-colonel; from 1867 to 1883 surgeon to the Woman's Hospital, and professor of surgery in the Woman's Medical College of Pennsylvania, Philadelphia; for ten years surgeon to the Howard Hospital, and for more than thirty years a member of the surgical staff of the Jewish Hospital, Philadelphia; a member of the Association of Military Surgeons of the United States; died at his home, August 28.

Fred Perkins Lierle, Marshalltown, Iowa; Rush Medical College, 1894; aged 47; a member of the Iowa State Medical Society; and once secretary of the Marshall County Medical Society; a specialist in diseases of the eye, ear, nose and throat; consulting oculist to the Iowa State Soldiers' Home; oculist and aurist to St. Thomas' Hospital, Marshalltown; formerly local surgeon of the Illinois Central system; health officer of Marshalltown, and coroner of Marshall County; died in the Kenilworth (Ill.) Sanitarium, September 10, from pernicious anemia.

Joseph Aloysius Kenefick ⊕ New York City; Harvard University Medical School, 1890; aged 58; a member of the American Laryngological, Rhinological and Otological Society, American Otological Society and New York Academy of Medicine; formerly assistant surgeon to the Manhattan Eye, Ear and Throat Hospital; assistant laryngologist to Cornell University; aural surgeon to the New York Eye and Ear Infirmary, and otologist and laryngologist to the New York Foundling Hospital; died in Lawrence, Mass., September 10.

Henry Hooper ⊕ Chicago; Harvard University Medical School, 1869; aged 75; for half a century an esteemed and beloved practitioner of Chicago; emeritus professor of obstetrics in the Chicago Policlinic; obstetrician to Passavant Hospital, and St. Mary's Maternity Hospital for many years; treasurer of the Policlinic and Henrotin hospitals; died at his home, September 17.

Jay Hobart Egbert ⊕ Willimantic, Conn.; Dartmouth Medical School, Hanover, N. H., 1891; aged 50; oculist and aurist to St. Joseph's Hospital, Willimantic; assistant surgeon to the eye department of Cornell University Medical College, New York; a member of the medical staff of the United Fruit Company; died in Lima, Peru, S. A., August 27, from ptomain poisoning.

Howard Kennedy Hill, Philadelphia; University of Pennsylvania, Philadelphia, 1903; aged 40; a member of the Medical Society of the State of Pennsylvania, and a specialist in pediatrics; a noted athlete and secretary of the Athletic Association of the University in 1907; died in the Presbyterian Hospital, Philadelphia, September 11.

Charles E. Congdon, Jamestown, Calif.; University of Louisville, Ky., 1894; aged 54; a member of the Medical Society of the State of California; formerly health officer of San Francisco County; died at San Francisco, September 6.

William Thomas Breeland, Allendale, S. C.; Medical College of the State of South Carolina, Charleston, 1856; aged 87; surgeon in the Confederate service during the Civil War; died at the home of his daughter in Laurens, S. C., August 20.

Ambrose Kasson, Bath, N. Y.; University of Buffalo, N. Y., 1873; aged 70; a member of the Medical Society of the State of New York; a specialist on diseases of the eye, ear, nose and throat; died at his home, September 1.

Job E. W. Smith, Waycross, Ga.; Vanderbilt University, Nashville, Tenn., 1882; aged 64; for several years chairman of the board of education of Waycross; died at his farm near that city, September 6, from cerebral hemorrhage.

Didymus Thomas, Oldtown, Tenn.; Hospital College of Medicine, Louisville, Ky., 1890; aged 50; died at his home, September 13, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent.

Clark T. Hamilton, Huntington, N. Y.; New York Homeopathic Medical College, New York City, 1865; aged 87; for nearly forty years a practitioner of Brooklyn; died at the home of his son in Huntington, September 11.

Edwin E. Allison, Hammondton, N. J.; University of Pennsylvania, Philadelphia, 1895; a member of the local board of education; died in the Lankenau Hospital, Philadelphia, August 27, a week after a surgical operation.

John Milton Garratt ⊕ Buffalo; University of Buffalo, 1897; aged 54; a specialist in roentgenology; consulting roentgenologist to the J. N. Adam Memorial Hospital, Perrysburg, N. Y.; died at his home, September 6.

Christian Christensen ⊕ La Crosse, Wis.; University of Christiania, Norway, 1879; aged 66; one of the founders of the Lutheran Hospital, La Crosse; died at his home, September 7, from carcinoma of the stomach.

Grove Heman Rathbun ⊕ Fremont, Neb.; University of Nebraska, Omaha, 1902; aged 38; who was honorably discharged as capain, M. C., U. S. Army, Dec. 23, 1918; died in Clarkson Hospital, Omaha, September 5.

Arthur Vincent Fray ⊕ Chicago; Jenner Medical College, Chicago, 1906; aged 55; a specialist in diseases of the eye, ear, nose and throat; died in St. Luke's Hospital, Chicago, September 7, from carcinoma.

John Richard McMurdo, San Francisco; University of California, San Francisco, 1891; aged 64; a member of the Medical Society of the State of California; died at his home, in August, from myocarditis.

Frank Morgan Storer ⊕ Wilkinsburg, Pa.; University of Pittsburgh, 1899; aged 48; a specialist in surgery; assistant professor of anatomy in his alma mater; died at his home, September 9, from diabetes.

Levy Pierce Hammond, Rome, Ga.; New York University, New York City, 1880; aged 63; a member of the Medical Association of Georgia; died in St. Joseph's Hospital, Atlanta, Ga., August 25.

James Burris Wood, Oakland, Calif.; University of Pittsburgh, 1892; aged 51; a member of the Medical Society of the State of California; died at his home, September 9, from pneumonia.

David Gootenberg ⊕ Staten Island, N. Y.; Cornell University Medical College, New York City, 1908; aged 32; died at his home in Stapleton, S. I., September 13, from heart disease.

Juliet H. Severance, New York City; New York Hygeio-Therapeutic College, New York City, 1857; aged 86; died at the home of her daughter in New York City, September 2.

James C. Cooper, Baltimore (license, Maryland, years of practice); aged 52; a practitioner for twenty-five years; died, August 20, on a yacht at Crisfield, Md., from acute gastritis.

Theodore S. Thomas ⊕ Cuba, N. Y.; University of Buffalo, 1882; aged 58; at one time health officer of Allegany County; died at his home, September 1, from heart disease.

Thurston H. Rowles, Bellaire, Ohio; Ohio Medical University, Columbus, 1896; aged 68; died at the home of his sister on Wheeling Island, September 6, from pneumonia.

Joseph A. Burgoon, Pittsburgh (license, Elk and Clarion Counties, Pa., 1877); aged 78; for fifty-six years a practitioner; died at his home, September 9.

Edwin Jay Fisk, Troy, N. Y.; Albany (N. Y.) Medical College, 1871; aged 70; city physician of Troy for eight years; died at his home, August 31.

Emma A. Whitney, Muncie, Ind.; Cleveland University of Medicine and Surgery, 1886; aged 64; died at her home, May 29; from carcinoma of the rectum.

John C. Helper, Woodriver, Ill.; Eclectic Medical Institute, Cincinnati, 1881; aged 61; died at the home of his daughter in Abilene, Kan., September 1.

George S. Gunderson, Milwaukee; Marquette University, Milwaukee, 1916; aged 32; died at his home, August 10, from cerebral hemorrhage.

William Steele Moat, Philadelphia; Hahnemann Medical College, Philadelphia, 1876; aged 79; died at his home, September 5, from peritonitis.

William O. Skeels, Alliance, Ohio; University of Wooster, Cleveland, 1875; aged 60; died at the home of his son in Alliance, September 10.

James C. Alderson ⊕ Wausau, Wis.; Rush Medical College, 1897; aged 46; died at his home, August 17, from tubercular laryngitis.

T. B. Weir, Dayton, Tenn. (license, Tennessee, 1889); aged 63; died at his home near Dayton, August 16.

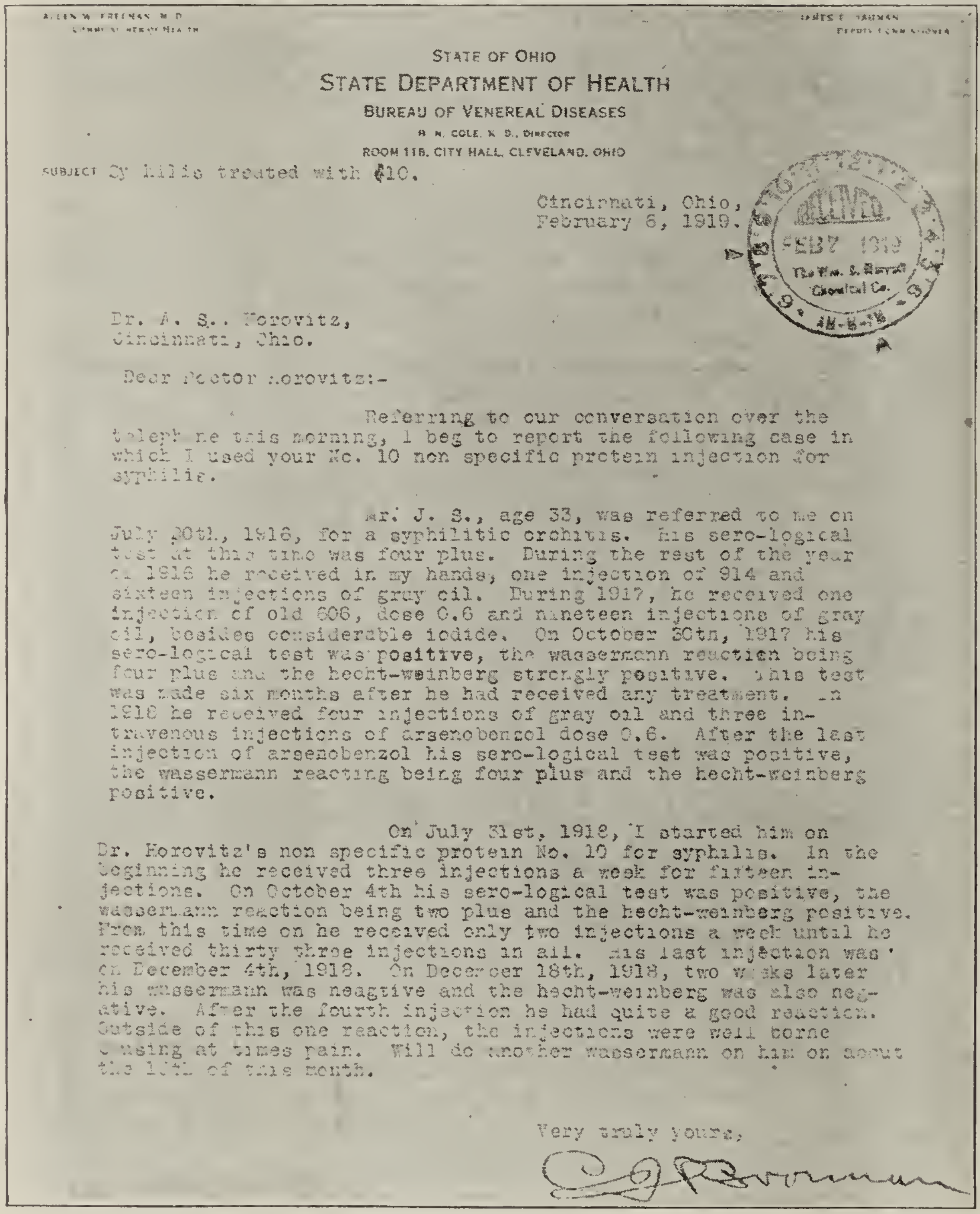
⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

"PROTEOGENS"

Our readers will remember the recent correspondence published in The Journal of July 26 and August 13, by Dr. A. W. Freeman, Commissioner of Health of the State of Ohio and the Wm. S. Merrell Co. The letters dealt with the use that had been made by the Wm. S. Merrell Co. of a letter, written on the official stationery of the Bureau of Venereal Diseases of the State Department of Health of Ohio, puffing one of the company's proprietary remedies—Proteogen No. 10.



STATE OF OHIO
STATE DEPARTMENT OF HEALTH
BUREAU OF VENEREAL DISEASES
R. N. COLE, M. D., DIRECTOR
ROOM 11B, CITY HALL, CLEVELAND, OHIO

SUBJECT Syphilis treated with #10.

RECEIVED FEB 7 1919 The Wm. S. Merrell Chemical Co.

Cincinnati, Ohio,
February 6, 1919.

Dr. A. S.. Horovitz,
Cincinnati, Ohio.

Dear Doctor Horovitz:-

Referring to our conversation over the telephone this morning, I beg to report the following case in which I used your No. 10 non specific protein injection for syphilis.

Mr. J. S., age 33, was referred to me on July 20th, 1916, for a syphilitic orchitis. His sero-logical test at this time was four plus. During the rest of the year of 1916 he received in my hands, one injection of 914 and sixteen injections of gray oil. During 1917, he received one injection of old 606, dose 0.6 and nineteen injections of gray oil, besides considerable iodide. On October 30th, 1917 his sero-logical test was positive, the wassermann reaction being four plus and the hecht-weinberg strongly positive. This test was made six months after he had received any treatment. In 1918 he received four injections of gray oil and three intravenous injections of arsenobenzol dose 0.6. After the last injection of arsenobenzol his sero-logical test was positive, the wassermann reacting being four plus and the hecht-weinberg positive.

On July 31st, 1918, I started him on Dr. Horovitz's non specific protein No. 10 for syphilis. In the beginning he received three injections a week for fifteen injections. On October 4th his sero-logical test was positive, the wassermann reaction being two plus and the hecht-weinberg positive. From this time on he received only two injections a week until he received thirty three injections in all. His last injection was on December 4th, 1918. On December 18th, 1918, two weeks later his wassermann was neagtive and the hecht-weinberg was also negative. After the fourth injection he had quite a good reaction. Outside of this one reaction, the injections were well borne causing at times pain. Will do another wassermann on him on about the 10th of this month.

Very truly yours,

Reproduction (reduced) of one of the photographic copies sent out by the Wm. S. Merrell Co. to its Proteogen detail men to be shown to physicians. While the letter is a private one, it was written (without authority) on official stationery. Some physicians were misled into thinking that it was an official endorsement of Proteogens. The Merrell concern denies any intention to mislead and claims that it was interested only in the *contents* of the letter!

Dr. Freeman wrote to The Journal calling the attention of the profession to the use of this letter and explaining that the letter was merely the expression of opinion of an individual, and not an expression from the State Department of Health. The Wm. S. Merrell Co. took exception to certain inferences made in Dr. Freeman's letter and in the course of a letter to The Journal regarding this, incorporated the contents of the testimonial letter. The Journal in publishing the Merrell letter omitted this testimonial on the ground that the *contents* of the letter had no bearing on the question under discussion.

We have now received a letter from the company protesting against this omission. The Journal, therefore, takes this opportunity of briefly restating such facts as it has been able to get regarding the entire matter and publishing the letter. The facts are as follows:

1. In February of this year a Cincinnati physician, Dr. C. J. Broeman, wrote to Dr. A. S. Horovitz relative to alleged results with Proteogen No. 10. The letter was written—without authority—on the official stationery of the Bureau of Venereal Diseases of the State Department of Health of Ohio.

2. The Wm. S. Merrell Co. had linen mounted photographs made of Dr. Broeman's letter and distributed them to their Proteogen detail men. Accompanying these photographic copies was a communication to these detail men describing the photographed letter as one written by:

> ". . . a Cincinnati physician who is now Acting Assistant Surgeon U. S. Public Health Service, cooperating with the Bureau of Venereal Diseases of the Department of Health of the State of Ohio."

3. The right-hand top corner of the official stationery as can be seen by the reproduction on this page, bore the name of "James D. Bauman, Deputy Commissioner." Dr. Broeman's signature was rather illegible and could easily be mistaken, by those not knowing the handwriting of either man, for the signature of Deputy Commissioner Bauman. In at least one instance it was so mistaken, and the physician who was misled wrote to the Director of the Bureau asking whether the testimonial for Proteogen No. 10 which had been shown him by the Merrell detail man was really an official communication.

4. On May 15, 1919, Commissioner of Health Freeman wrote to the Merrell Co. stating that he had been informed that one of the Merrell representatives was using as an advertisement a letter bearing the letterhead of the Bureau of Venereal Diseases of the State Department of Health and what purported to be a report signed by "Mr. Bauman, Deputy Commissioner."

5. On May 19 the Wm. S. Merrell Co. wrote Dr. Freeman that he was certainly mistaken in regard to the use of any "report signed by Mr. Bauman." Dr. Freeman then sent to the company the letter he had received from the physician who had mistaken Broeman's letter for an official letter by Bauman. Although it would seem that this letter and Commissioner Freeman's protest should have made plain to the Wm. S. Merrell Co., the fact that the letter, incorrectly referred to as Mr. Bauman's was in reality Dr. Broeman's, the company remained silent regarding its use of the Broeman letter and, on May 22, merely reiterated that there had been "no letter circulated by this company containing a testimonial of your Mr. Bauman." On May 28 (six days later) the Merrell company sent to its Proteogen detail men another general letter, "for personal use of agents," in which it again called their attention to the "photographic copy mounted on linen" of Dr. Broeman's letter. This communication to the detail men also declared that it "has been suggested that the further use of Dr. Broeman's letter might antagonize the State Department of Health" and,

therefore the detail men were told to "discontinue using the photographic copy in question" and to return the photographs to the head office.

Here, briefly, are the bald facts in the case. The essential point at issue is whether these photographic copies of Dr. Broeman's letter would or would not be likely—whether or not they were so intended—to mislead physicians into believing that the endorsement was an official one by the State Board of Health rather than an individual one. One can but wonder why, if, as the Merrell company so vehemently asserts, there was no intention of misleading physicians on this point, the company should have gone to the trouble and expense of *photographing* the entire letter, including the letterhead, rather than making typewritten or mimeographed copies of the *contents* of the letter.

THE DIRECT SALES COMPANY

During the past four or five years, The Journal has had inquiries similar in effect to this, just received from Dr. E. P. Jewett of Gardner, Mass.:

> "Will you kindly inform me regarding a drug manufacturing company by the name of the Direct Sales Company, Buffalo, New York? Are their products standard and reliable so far as you know?"

The Direct Sales Company, Inc., Buffalo, has according to its letterheads, the following officers:

Geo. J. Dotterweich, President and Treasurer,
C. K. Dotterweich, Vice-President,
Louis B. Seufert, Secretary.

This concern circularizes physicians and emphasizes that it sells "Only by Mail." It also features a "profit sharing rebate" scheme whereby purchasers receive a coupon representing 10 per cent. of the invoice value of each purchase. After $100 worth of merchandise has been purchased the $10 worth of coupons when "presented for redemption at one time" will be "honored as cash"—presumably on the purchase of additional goods.

The Direct Sales Company catalogues have, for some years, carried a guaranty, which reads, in part:

"We absolutely guarantee all preparations to be in exact accordance with the National Pure Food and Drugs Act, June 30, 1906.

"We also absolutely guarantee all preparations bearing our label to be equal, if not superior, to any on the market."

In one of the *Quarterly Bulletins* of the State Board of Health of New Hampshire, issued last year, this paragraph appeared:

"The Direct Sales Company, Inc., Buffalo, N. Y., is a pharmaceutical concern which until recently has done business direct with New Hampshire physicians. In two or three instances complaints have been received by this department that the preparations sold seemed to be lacking in potency. Sometime ago a physician sent us a specimen of codein sulphate tablets, one-fourth grain, concerning which he was suspicious, admission being made that the price paid was very much less than current quotations. The amount of codein sulphate actually found per tablet proved to be but one-sixteenth grain. Later on, having subsequently received a new lot from this source, the same physician sent us a second sample, the composition of which was found to be practically identical with the first. Acting under the federal law, 500 lot packages of the following preparations were next purchased of the company direct, the analytical results indicating serious deficiency in every case, as follows:

"Tablets salicylic acid, 5 grains . . . 1.72 grains found.

"Tablets acetylsalicylic acid, 5 grains . . . 2.31 grains. found.

"Tablets acetanilid, 3 grains . . . 1.88 grains found.

"Tablets codein sulphate, ¼ grain . . . 1/15 grain found.

"Tablets nux and pepsin No. 2, claiming pepsin 1 grain, extract nux vomica, 1/10 grain, found to have a gross average weight per tablet of only 1.17 grains, 0.54 grains of which was represented by sugar and other medicinally inert material.

"Tablets Infant's Anodyne (Waugh), showed serious discrepancy from formula."

The *Bulletin* added the statement that, as the company could not be reached under the New Hampshire laws, the federal authorities were appealed to. The result of this appeal appeared in *Chemical Supplement 54,* issued Aug. 21, 1918, by the Bureau of Chemistry of the U. S. Department of Agriculture. This government bulletin contained Notice of Judgment No. 6193, which describes cases of adulteration and misbranding of some of the drugs put out by the Direct Sales Company. Briefly, it may be said that some 2 grain acetanilid tablets sold by this concern were found by the government chemists to contain, roughly, about 1⅔ (1.61) gr.; some ¼ grain calomel tablets were found to contain only about ⅙ (0.163) gr.; some 1 grain quinin sulphate tablets were found to have only about ⅔ (0.63) gr.; some 2½ grain salol tablets contained only about 1⅓ (1.39) gr.; some 5 grain sodium salicylate tablets contained less than half that amount (2.32 gr.). In addition, the federal chemists found that some Elixir of Iron pyrophosphate Quinin and Strychnin (*Elix. Ferr. Pyrophos. Quin. et Strych. N. F.*) fell considerably below the standard of strength laid down by the National Formulary by having less than ⅛ the amount of quinin sulphate which the official standard calls for, and only about ⅕ the amount of sugar, saccharine, which is not a normal ingredient of the official preparation, having been substituted for part of the sugar. The chemists found, too, that some hydriodic acid sold by the same concern, instead of containing, as the label declared and as the United States Pharmacopeia requires, 1 per cent. of absolute hydriodic acid, contained less than one half of 1 per cent. The Direct Sales Company pleaded guilty in this case and was fined $700.

Correspondence

PNEUMONIA AMONG PORTO RICAN LABORERS

To the Editor:—It was with interest that I read in The Journal, July 19, 1919, an article entitled "Type I Pneumococcus Among Porto Rican Laborers." The summary states that "Porto Ricans under favorable conditions are susceptible to lung infection by the Type I pneumococcus. The disease pursues a typical course, accompanied by a bacteremia in about the same proportion as among white persons."

Do the authors of the article wish to exclude all Porto Ricans from the white race, or may we take it as a lack of information? Mr. Fred K. Fleagle, dean of the University of Porto Rico some years ago, who has lived in this island for a number of years, has said: "The island of Porto Rico, covering an area of 3,500 square miles, had in 1910 a total population of 1,118,012. The population is as follows: pure white persons, 65.5 per cent.; mulattoes, 30 per cent.; black, 4.5 per cent. It is 98.9 per cent. native and 1.1 per cent. foreign born." I here add that the Porto Rican laborers who availed themselves of the magnificent opportunity to go to the expedition and that were fortunate enough to be treated medically by the writers were for the most part negroes or mulattoes. Concerning the white part of the population, they are thoroughbred, and the best Spanish blood runs through their veins; many are of noble descent.

I object to the generalization, and beg that a correction be made.

C. M. del Valle, M.D., Santurce, San Juan, Porto Rico.

"ABDOMINAL SURGERY UNDER LOCAL ANESTHESIA"

To the Editor:—In The Journal, Sept. 6, 1919, Dr. Lucius F. Herz of New York criticized the pneumatic injector that I devised for the introduction of local anesthesia. He asks why such a "complicated" apparatus as mine is necessary, and he furnishes an illustration of an apparatus which he states will obtain the same results. He then asks "what could be simpler or what can be more beautifully efficient" than the apparatus he illustrates. In answer, I would say that many years of careful experimentation and practice have shown that a pressure of from 30 to 75 pounds is necessary to introduce local anesthesia solutions into the various tissues through a long, fine needle.

Dr. Herz states that this can be done with his instrument. In order to do so, I believe he would have to substitute for his ounce bottle filled with mercury at least a keg of nails. Briefly, the apparatus which he illustrates was the first model used by me some fifteen years ago. It was discarded, not because it was too simple, as simplicity is much to be desired, but for the reason that it was inefficient.

Robert Emmett Farr, M.D., Minneapolis.

DR. NOGUCHI AND THE WASSERMANN TEST

To the Editor:—On page 635 of The Journal, Aug. 23, 1919, appears a statement credited to me to which I should like to invite attention because as it stands it is very misleading. The statement should read: "I have been able to increase the sharpness of the reaction nearly four times by using a slowly mixed (turbid) emulsion of acetone insoluble lipoids as antigen."

Hideyo Noguchi, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VACCINE AS A PROPHYLACTIC IN INFLUENZA

To the Editor:—I am chief surgeon for a large steel industry in Canton, and desire to do all in my power to prevent the threatened recurrence of influenza. What is the status of the various vaccines as a preventive or prophylactic measure? Would you advise their use as a preventive measure, to immunize the workers in the industries?

M.D., Canton, Ohio.

Answer.—The status of vaccine therapy as a prophylactic for influenza may be ascertained from the two articles appearing in The Journal, Aug. 9, 1919: that of E. C. Rosenow and B. F. Sturdivant entitled "Studies in Influenza and Pneumonia: Further Results of Prophylactic Inoculations," and that of G. W. McCoy, director, Hygienic Laboratory, U. S. Public Health Service, on "Status of Prophylactic Vaccination Against Influenza." In brief, the conclusion of Rosenow and Sturdivant is: "It appears from all of the facts at hand that by the use of a properly prepared vaccine it is possible to rob influenza of some of its terrors." On the other hand, McCoy states: "The general impression gained from uncontrolled use of vaccines is that they are of value in the prevention of influenza; but, in every case in which vaccines have been tried under perfectly controlled conditions, they have failed to influence in a definite manner either the morbidity or the mortality." To make a conservative statement: The use of vaccine as a prophylactic in influenza is an experiment.

PASTEUR LABORATORIES RAT VIRUS

To the Editor:—Can you give me information as to the organism found in the raticide known as Danysz virus or the similar preparation put out by the Pasteur Company? I have been unable to find references to this method of exterminating rats in the literature at my disposal.

D. H. Downey, Columbus, Ohio.

Answer.—We presume by "Pasteur Company" our correspendent means the Pasteur Laboratories of America, a New York concern which advertises a preparation for the scientific extermination of rats and mice, stating: "It is distributed on bait and causes a contagious and mortal disease that only affects rodents. Both the virus and disease are harmless to domestic animals, pets, game, poultry and man."

According to Jordan ("General Bacteriology," 1918, p. 295), Danysz (*Ann. de l'Inst. Pasteur,* 1914, p. 1943) isolated this organism from an epidemic among harvest mice. The organism belongs to the colon typhoid group of bacilli. Under the name of Danysz virus it has been widely used in attempts to exterminate rats. The virus does not seem to be readily transmitted from rat to rat under natural conditions, and Jordan believes that its practical value is not so great as often claimed. It cannot be said to be altogether harmless to man. McFarland ("Pathogenic Bacteria and Protozoa," 1916, p. 630) states that this organism "is, however, too uncertain in action to be relied upon for destruction of rats."

GASOLINE INTENSIFIERS—TANKII TABLETS

To the Editor:—I am enclosing an advertisement which I want to bring to your notice and wish you would reply in The Journal as to the value of these preparations. Kindly omit name.

C. K. J., Burlington, Vt.

Answer.—The advertisement carries the statement that "Tankii contains neither acid, alcohol, ether or camphor" and tells how "Dr. F. T. Kidder" received much power from the gasoline in which he used Tankii. Several years ago, the North Dakota chemists analyzed these tablets and found them "to consist essentially of naphthalene perfumed with oil of citronella" (Gasoline Savers, the *Druggists Circular,* July, 1916, p. 416). Naphthalene is also the essential constituent of other tablets for addition to gasoline, among them being "cheap gas" and "Inajiffi" (The Journal, Sept. 16, 1916, p. 897). In *The Chicago Chemical Bulletin* (July, 1918, p. 143) an abstract of the annual report of the director of the Bureau of Standards concerning gasoline intensifiers, stated:

> There are a number of materials on the market known as gasoline intensifiers for which the claim is made that when added in small quantities to gasoline, an increased engine efficiency is secured. Six of these materials were tested with a six cylinder automobile engine driving an electrical absorption dynamometer. A sample of gasoline alleged to be treated by a secret electrochemical process was tested in the same way. The apparatus used was very sensitive and capable of indicating small differences in power developed, but in no case was there any noticeable increase in power or efficiency of the engine when using the treated gasoline, as compared with its performance when using straight gasoline under the same operating conditions.

As The Journal has stated previously, naphthalene, because of its high carbon content, when dissolved in gasoline, does add some energy; but its solubility is so low that the gain is negligible. Certainly the addition of the few tablets recommended is so small that the effect would not be noticeable. Furthermore, if the addition of the small quantity did produce appreciable augmentation of energy, why not buy naphthalene in the form of "moth balls"? A further disadvantage of naphthalene in explosion engines was pointed out by F. W. L. Tyderman (The Journal, Oct. 14, 1916, p. 1174).

DRESSING FOR LABORATORY TABLES

To the Editor:—Some time ago, if I am not mistaken, there appeared in this department of The Journal a description of a method for finishing the tops of laboratory desks. Can you supply me with the formula?

D. W. Carter, Jr., M.D., Dallas, Texas.

Answer.—As considerable time has elapsed since we published the formula for an ebonizing preparation to render laboratory tables resistant to staining or corroding chemical reagents we repeat it herewith:

Solution A:	
Copper sulphate and potassium chlorate, each	125 gm.
Water	1,000 gm.
Boil till salts are dissolved.	
Solution B:	
Anilin hydrochlorid	150 gm.
Water	1,000 gm.
or:	
Anilin	120 gm.
Hydrochloric acid	180 gm.
Water	1,000 gm.

Two coats of Solution A are applied while hot, the second as soon as the first has dried. Two coats of Solution B are applied, and the wood is allowed to dry thoroughly. Next a coat of raw linseed oil is rubbed in by means of a cloth to give a polish. In the treatment with the oil, the deep black color is partially brought out, but this does not uniformly appear until the table has been thoroughly washed with hot soapsuds. The latter treatment removes superfluous chemicals. To keep the table in condition, it is said to be necessary only to wash off occasionally with soap and water and then to rub with oil. The amount is sufficient for 10 square yards of surface.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

Arkansas: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Eclectic Board, Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

California: Sacramento, Oct. 20-23, Sec., Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.

Colorado: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport.

District of Columbia: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Georgia: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.

Kansas: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.

Louisiana: New Orleans, Nov. 4. Sec. Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Machesa Bldg., New Orleans.

Maine: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Michigan: Lansing, Oct. 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.

Montana: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Nebraska: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.

Nevada: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

New Jersey: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

South Carolina: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Utah: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

West Virginia: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Wyoming: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

California March Examination

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the oral and written examination held at Los Angeles, March 17-20, 1919. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 59 candidates who took the physician's and surgeon's examination, 26, including 12 osteopaths, passed, and 33, including 8 osteopaths, failed. Three candidates were licensed on Army and Navy credentials. One hundred and four candidates were licensed through reciprocity. Five candidates were granted osteopathic reciprocity licenses. Two candidates were granted drugless healer licenses, two candidates received drugless healer reciprocity licenses, and one candidate was granted a license to practice chiropody. In the physicians's and surgeon's examination the following medical colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
California Eclectic Medical College	(1918)	75
College of Phys. and Surgs., San Francisco	(1918)	75.5
Hahnemann Medical College of the Pacific	(1918)	86.7
Leland Stanford Jr. University	(1918)	88.9
University of Illinois	(1918)	89.3
New York Homeopathic Medical College	(1917)	86.4
Johns Hopkins University	(1917)	91
Jefferson Medical College	(1918)	81.9, 90.8
University of Pennsylvania	(1916)	86.9
Queen's University	(1908)	80.3
University of Toronto	(1906)	92.5
National School of Medicine, Mexico	(1911)	*
Tokyo Imperial University	(1913)	76.9
FAILED		
College of Phys. and Surgs., San Francisco	(1918)	68.5
College of Phys. and Surgs., Los Angeles	(1916)	72.6
Tufts College	(1918)	47
Chiba Special Medical School	(1903)	49.7
Kyoto Perfecture Special Medical School	(1905) 62.1; (1912)	66.9
Meiji Medical College †	(1904)	45.3
Nippon Special Medical School	(1910)	71.3
Okayama Special Medical School	(1906)	67.4
Tohoku Imperial University	(1915)	67.3
Tokyo Charity Hospital Special Medical School	(1898)	42.4

* No grade given.

† Not included in the official list of the medical colleges of Japan.

The following failed in the oral examination.

Denver College of Medicine	(1886)	53
Chicago Medical College	(1886)	56
College of Phys. and Surgs., Keokuk	(1877) 67, (1882)	63
Sioux College of Medicine	(1899)	70
Kansas Medical College	(1900)	39
Kentucky School of Medicine	(1898)	55
Detroit College of Medicine	(1896)	48
St. Louis College of Physicians and Surgeons	(1897)	41
University of Missouri	(1898)	71
Long Island College Hospital	(1893)	51
Eclectic Medical Institute	(1901)	58
University of Nashville	(1886)	53
University of Tennessee	(1894)	45

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Arkansas	(1910)	Arkansas
College of Phys. and Surgs., San Francisco	(1914)	Nevada
Denver and Gross College of Medicine	(1908), (1909)	Colorado
Gross College of Medicine	(1902)	Washington
Yale University	(1907)	Connecticut
Columbian University	(1903)	Dist. Colum.
Chicago College of Med. and Surgery	(1913, 2) (1917)	Illinois
Chicago Hospital College of Medicine	(1917)	Illinois
College of Physicians and Surgeons, Chicago	(1881)	Colorado, (1902), (1907) Illinois.
Hahnemann Medical College, Chicago	(1903)	Iowa
Hering Medical College, Chicago	(1904)	New Mexico
Loyola University	(1916)	Illinois
Northwestern University Medical School	(1903)	Illinois, (1904) Washington.
Rush Medical College	(1891). (1896), (1903), (1906)	Illinois, (1906) Montana.
Indiana Medical College, Indianapolis	(1907)	Indiana
Indiana University	(1913)	Indiana
Medical College of Indiana	(1902)	Nevada
Drake University	(1910)	Iowa
Keokuk Medical College	(1906)	Iowa
Sioux City College of Medicine	(1909)	Iowa
State Univ. of Iowa Coll. of Homeo. Med	(1903)	Iowa
State Univ. of Iowa College of Med	(1902), (1917)	Iowa
Coll. of Phys. and Surgs., Kansas City, Kan	(1896)	Nebraska
University of Kansas	(1910)	Kansas
Hospital College of Med., Louisville	(1903)	Colorado, (1904) Massachusetts.
University of Louisville	(1875)	Kentucky, (1892) Indiana. (1907) Utah, (1909, 2) Kentucky.
Tulane University	(1905)	Texas
College of Physicians and Surgeons, Baltimore	(1913)	Utah
University of Maryland	(1913)	Arizona
Boston University	(1906)	Hawaii
College of Physicians and Surgeons, Boston	(1901)	Mass.
Tufts College Medical School	(1898)	Florida
Grand Rapids Medical College	(1907)	Michigan
University of Michigan Homeo. Medical School	(1879)	Indiana
University of Michigan Medical School	(1901)	New York, (1902) Washington, (1917) Michigan.
Univ. of Minn. Coll. of Homeo. Med. and Surg	(1908)	Minnesota
University of Minnesota Coll. of Med. and Surg	(1902)	Minnesota
American Medical College	(1910)	Missouri
Kansas City Hahnemann Medical College	(1908)	Kansas
Kansas City Homeopathic Medical College	(1897)	Utah
Kansas City Medical College	(1892)	Missouri
Marion-Sims College of Medicine	(1896)	Montana
Nat. Univ. of Arts and Sciences	(1913) Tennessee..(1915)	Missouri
St. Louis College of Physicians and Surgeons	(1895)	Oregon, (1908) Illinois, (1909) Iowa.
St. Louis University College of Medicine	(1916)	Missouri
University Medical College of Kansas City	(1899)	Arkansas
Washington University Med. School	(1903) Illinois, (1904)	Nebraska (1906) Missouri, (1907) Washington.
John A. Creighton Medical College	(1903) Iowa, (1912)	Nebraska
University of Nebraska	(1909) (1912)	Nebraska
Bellevue Hospital Medical College	(1886) Illinois, (1898)	New York
Coll. of Phys. and Surgs. in the City of New York	(1884)	New York
Columbia University	(1912)	Tennessee
Eclectic Medical College of the City of New York	(1906)	New York
Long Island College Hospital	(1910)	New York
New York Homeo. Med. College and Hospital	(1905)	New York
Ohio State University College of Medicine	(1915)	Ohio
Pulte Medical College	(1905)	Ohio
Starling Medical College	(1905)	Ohio
Starling-Ohio Medical College	(1912, 2)	Ohio
Medical College of Ohio	(1899)	Indiana
Western Reserve University	(1915)	Ohio
Jefferson Medical College	(1888) Illinois, (1903)	Penna.
Medico-Chirurgical College	(1912)	Tennessee
University of Pennsylvania	(1906)	Penna.
Western Pennsylvania Medical College	(1902)	Penna.
Woman's Medical College	(1899) Penna., (1909)	District of Colum.
Meharry Medical College	(1901) Oklahoma, (1915)	Georgia
Memphis Hospital Medical College	(1901)	Arizona
University of Nashville	(1904)	Tennessee

Vanderbilt University	(1917)	Tennessee
Marquette University	(1913)	Wisconsin
Nippon Special Medical School	(1909)	Oregon
McGill University	(1888)	Ohio

College LICENSED BY ENDORSEMENT OF CREDENTIALS	Year Grad.	Certificate from
Columbia University (1904) U. S. Navy,	(1913)	U. S. Army
University of Michigan Medical School	(1908)	U. S. Army

Book Notices

The Chemistry of Synthetic Drugs. By Percy May, D.Sc., F.I.C. Second edition. Cloth. Price, $3.50. Pp. 250. New York: Longmans, Green & Co., 1918.

Since the first edition of this book appeared in 1911, great advances have been made in our knowledge of the pharmacology of synthetic chemicals, especially in the relationships which certain groups of atoms (organic radicals) bear to physiologic effects. This has led to new therapeutic applications for chemical substances already well known, and to a search for new substances whose therapeutic properties, like their physical characteristics, might be predicted to a considerable extent from the theoretical composition. Before the opening of the world war, most synthetic medicinals were made in Germany, and soon after the war began, a serious shortage in supplies of synthetic drugs developed. This shortage soon stimulated an interest in their manufacture and perfection both in Great Britain and in the United States. The results are reflected in the new edition of this book, which describes many drugs not mentioned in the earlier one. Among these are acriflavine and proflavine; anesthesin; cincophen (atophan); brilliant green; procain and surgical solution of chlorinated soda (Dakin's solution). Also new nonproprietary names are used in place of the German proprietary titles. Examples are barbitone for veronal (barbital, N. N. R.) and kharsivan for salvarsan (arsphenamin, N. N. R.). The chemical nature and method of preparation for many synthetics are described, and attention is given to the reactions taking place between the living organism and the drug wherever these can be traced. The relations between the chemical character of a substance and its pharmacologic action are discussed. Physicians, teachers and students in pharmacology will find this an excellent reference work.

Intravenous Injection in Wound Shock: Being the Oliver-Sharpey Lectures Delivered Before the Royal College of Physicians of London in May, 1918. By W. M. Bayliss, M.A., D.Sc., F.R.S., Professor of General Physiology in University College, London. Cloth. Price, $3 net. Pp. 172, with 59 illustrations. New York: Longmans, Green and Co., 1918.

The importance of the problem of surgical shock as the result of surgical procedure in time of peace has long been recognized. Renewed interest in an experimental study of its causation and treatment was the result of the past war. Clinicians made a careful study of the abundant material, while laboratory workers searched anew for its cause and devised measures to combat the condition. The results of the latter investigations are incorporated in the present volume in the form of two lectures by Professor Bayliss, chairman of the Special Committee for the Investigation of Surgical Shock and Allied Conditions. Whereas Bayliss admits that the primary cause is still unknown, he feels certain that the most obvious sign of the condition, namely, the low blood pressure and the consequences that result therefrom, must be combated by the best means available after other factors that contribute toward its production (cold, absorption of tissue poisons, deficiency of oxygen) have been counteracted. To counteract the progressively sinking and fatal drop in the general arterial blood pressure the transfusion of human blood is of the greatest value; but since human blood is not available in large quantities (especially during battle) and must be previously tested for its compatibility with the recipient, he turns to the various types of artificial solutions that have been used, and the collected experimental evidence as to their efficacy in cases of surgical or wound shock in which they were tried. The major portion of the first chapter deals then with an evaluation of ordinary saline, Ringer's solution, hypertonic salt solutions, calcium salts, solutions of sodium bicarbonate, and solutions of glucose. Finding them all of no lasting value in raising the arterial blood pressure and maintaining it at a raised level, he turns (Lecture II) to various solutions containing colloid; and finding certain of these solutions of colloid inefficient or even dangerous, he finally presents at great length the wonderful efficacy of gum arabic in physiologic sodium chlorid solution in shock and low blood pressure from other causes. From the perusal of this book it would appear that a most powerful antidote to combat the low blood pressure and its results had been discovered in the appropriate transfusion of gum solutions. Unfortunately, not all surgeons are agreed on the efficacy of such transfusions; for one clinician (Bernheim) has recently stated in a discussion appearing in The Journal (July 19, 1919, p. 181) that he had "never found a man who had any good to say of it. There are men in this audience whose experience with it proved disastrous. Certain men here have seen deaths from it. It not only did not help, it killed men." If Bernheim reflects the conviction of a great many men who have used gum solution, the chief treatment for shock about which a book was written must be subjected to further experimentation by investigators other than those whose studies, according to Bernheim, "were, apparently, not carried out with an open mind, that overwhelming evidence against the solution was not sufficient to cause its abandonment, instead of promoting futile efforts to improve it" (p. 173). At any rate, a very good outline of the past and present views as to the causation of shock is admirably presented. Aside from the value of the gum treatment of the condition, every surgeon will find the book interesting and instructive. It furthermore contains the most important bibliographic references on the subject.

The Whole Truth About Alcohol. By George Elliot Flint. With an Introduction by Dr. Abraham Jacobi. Cloth. Price, $1.50. Pp. 294. New York: The Macmillan Company, 1919.

In spite of the title, which promises by suggestion an impartial discussion of the entire alcohol question, we soon find that our author, the son of Dr. Austin Flint and himself a layman, needs to learn considerably more plain everyday human physiology and also the specific pharmacology of alcohol, before he can begin to discuss his chosen subject. The book certainly contains every talking point that has been raised in favor of the moderate consumption of alcohol. Furthermore, it is plain that on every controversial point the author mentions only evidence favorable to his standpoint. Finally, he sometimes quotes confidently as fact what is absolutely not true. It is the half truth about alcohol presented by one outspokenly in favor of its moderate use. The arguments are often based on incorrect premises leading the educated layman (for whom it was probably written) to accept the false conclusions. The author either lacks the fundamental physiologic and pharmacologic training and knowledge necessary really to discuss his theme as he proposes it in his title, or he avoids using them. The book is written in short, snappy paragraphs, which sustain the interest to the end.

A Treatise on Orthopaedic Surgery. By Royal Whitman, M.D., M.R.C.S., F.A.C.S., A Director of Military Orthopaedic Teaching. Sixth edition. Cloth. Price, $7. Pp. 914, with 767 illustrations. Philadelphia: Lea & Febiger, 1919.

This edition of Whitman fully maintains the high character that we have learned from previous editions to associate with this work, and quite justifies the imposing inverted typographic trapezoid on the title page containing the list of titles, positions and affiliations attached and subjoined to this distinguished author's name. The conventional classification used in former editions is also used in this one with the addition of a new chapter, No. XXIV, on military orthopedics. This chapter gives very fully the rules of selective service governing orthopedic disabilities, and then takes up the official list of conditions belonging to the orthopedic service mapped out and practiced during the war and subsequent reconstruction. Besides this new chapter practically every section has new and added information. There is no better textbook on orthopedic surgery in any language. The publishers' work is up to their usual high standard.

Social Medicine, Medical Economics and Miscellany

THE AMERICAN MEDICAL ASSOCIATION DESCRIBED FOR ITALIAN READERS

The *Riforma Medica* for June 21 contains an interesting letter from its New York Italian correspondent, most of which is devoted to the medical profession of the United States, but especially to the American Medical Association and its work. From the letter we quote:

". . . In the medical field, all the intelligence, high grade character and worth of the physicians of the United States has taken concrete form in the institution of the largest and most powerful organization of professional men known in any land. It is not possible to study any medical happenings or any medical manifestation in America without seeing evidence everywhere of the marvelous work accomplished by this Association. In fact, it is difficult to find words to express in a fitting manner all that the American Medical Association has accomplished. Those who conceived the broad plan of the Association, who effected its organization, and who have since maintained it on an ever higher level, deserve not only most enthusiastic and sincere praise, but the gratitude as well of the medical profession of every country, for the great good that the American Medical Association has done and will do in the future, exerting a beneficent influence throughout the world.

"In succeeding letters I will speak more in detail of the work of the Association, but I trust that this brief outline will bring home to the readers of *La Riforma Medica* the great significance of this American organization and to give them some insight at least into the peculiarly ingenious methods which have been employed by it in exerting its enormous influence for good. At present I merely give an account of the fight which has been waged against the 'patent medicine' evil and for the improvement of American schools of medicine."

He then describes the unrestricted production of nostrums in America and the blatant advertising, and tells how the American Medical Association bought samples in the market and had them examined and tested, and accused the manufacturers of fraudulent practices as the medicines or the apparatus proved to be different from what was announced in the advertisements and failed to produce the results claimed. "Manufacturers now cannot advertise their promised miraculous cures without being liable to penalty. They have to keep their statements within bounds, and they do not attract the attention of the public as formerly. A large part of the stock of remedies, electric belts, and the like emigrated from America and invaded the European market."

"Of a higher order, from a constructive standpoint, though none the less radical, has been the campaign which has been carried on so vigorously for the improvement of medical education. In another article, at no distant date, I will show that certain of the American schools of practical medical science are models, such as can be found in no other country. There were formerly in America an enormous number of so-called medical schools that were absolutely unworthy of the name. They existed solely for the benefit of a few exploiters. . . . To have organized a campaign in the direction of bringing about a modification of the existing laws so as to bring pressure to bear on these institutions would not have been prudent, for the reason that it might have given the impression that certain schools were trying to monopolize medical instruction to the detriment of other schools and of science in general.

"The American Medical Association adopted a more effectual and a more ingenious system which, besides demonstrating a marvelous spirit of cooperation, showed that the Association was not inspired by a desire for forcible measures no matter how well justified, but merely wished to appeal to the scientific sense and the honest judgment of American medical men. It began by organizing a council of unprejudiced men, who, by their mental attainments, personal culture, and knowledge of conditions in foreign countries, gained by comparative study, were competent for the task before them. This council formulated a standard to which all medical schools should measure up. According as the various medical schools and colleges corresponded to the standard adopted, they were classified as A, B and C schools, and changed to higher grades as they came to conform to the standards. . . . By this means, while upholding the principle of absolute liberty, the Association, in a few years, accomplished the most marvelous results, succeeding in doing away, to a great extent, with the low-standard schools. Of course, it is impossible to destroy utterly an evil which is so solidly entrenched while the public is heedless. . . . I want the Italian medical profession to know that here in America there is a very powerful medical organization which is animated by the highest and most helpful ideals, the American Medical Association. It is always on the alert and always ready to strike, using the weapons of science, with the vigorous support of the honest medical press, and, above all, of The Journal of the American Medical Association, in case the tentacles of the octopus try to work into action again."

Editorial comment on the letter mentions that one of the tasks proposed by the recently organized Federazione generale medica italiana is to keep up this same continual vigilance over the standards in the medical departments of the Italian universities. Many question whether the state and the nation will permit any interference with official educational methods, but the editor declares that the state and nation will be compelled to permit it when the entire body of medical men in the country in one powerful organization demand it and their demands are backed up by the universal recognition of the exalted motives for their action.

RAT EXTERMINATION

In Public Health Bulletin 103, published by the United States Public Health Service, arguments are presented for the elimination of the rat, and methods are given for its destruction. Investigation of the habits of the rat fail to show any justification for its continued existence in civilized communities. In other ages and under different sanitary conditions than now exist, it may have been of some service as a scavenger; but today it would seem to be of little, if any, use even in this capacity. It is impossible to do more than guess at the rodent population of the United States, but a conservative estimate is that there are as many rats in the United States as there are human beings, or over a hundred million. The cost of maintenance is estimated at half a cent a day each, or about $1.82 a year per rat, so that the annual board bill of our rodent population would approximate $182,000,000. This estimate, we presume, does not include property damage.

There are three varieties of rats in American cities, the most common of which is the brown rat, variously known as the Norway rat, barn rat, sewer rat and gray, or wharf rat. The other two varieties are the black rat and the roof, or Alexandrian rat. Owing to the antagonism and the superior fighting quality of the brown rat, however, the two latter species are rarely found in the United States except at seaports. Rats are not native to the United States. They are very prolific, the female rat producing from three to five litters a year, averaging eight to a litter. They are essentially burrowing animals, and live and breed by preference in excavations. They will burrow through any kind of soil and almost through any kind of building material except cement.

Articles damaged by rats include all kinds of grain before and after harvest; eggs and poultry; fruits and vegetables, both growing and stored; flowers, bulbs and shrubbery; all kinds of staples in bags or boxes; all food products in pantries, groceries, meat markets, bakeries, stables and general markets. In addition to food articles, rats also destroy leather goods, books, papers, clothing and fabrics. Some depredations committed by rats are almost unbelievable. Lantz, in Public Health Bulletin 30, reports an Iowa farmer who lost in one winter 500 bushels of corn; another farmer who lost in one summer between 300 and 400 chicks; and a Washington merchant from whose stores rats in a period of two weeks carried away seventy-one dozen eggs. Rats are transmitters of bubonic plague, tapeworm, trichina and other diseases.

Rat destruction can be successfully carried out in a large city only by the compulsory rat proofing of buildings. They can be destroyed by trapping or poisoning or by the use of cats and dogs. Most authorities agree that all methods except rat proofing are of doubtful value, as partial destruction produces only more favorable conditions for propagation. In rat proofing any building, complete protection of the entire building must be observed, as the smallest opening will permit any building to become badly rat infested. Buildings may be rat proofed either by elevating the structure with open underpinning or by sinking marginal walls of concrete, stone or bricks laid in cement mortar 2 feet into the ground, fitting flush with the floor above. Rat proofing by elevation is applicable only to small buildings. In addition to rat proofing walls, all light shafts, ventilators and open windows should be wire screened, garbage should be kept in a metal water-tight can having a closely fitting lid, and the ground around the building should be kept clean and free from rubbish and devoid of rat harborage in the form of plank walks and plank covering. Rat proofing laws to be effective should provide explicitly the kind of concrete, thickness of floors and other details, as an ineffective rat proofing ordinance is more dangerous than no regulation, since it leads to a feeling of security without adequate protection.

MENTALLY DEFECTIVE CHILDREN IN SUSSEX COUNTY, DEL.

The U. S. Public Health Service and the Children's Bureau have completed a medicopsychologic and social study of mentally defective children in Sussex County, Del., the results of which appear in Pamphlet 7 of the Dependent, Defective and Delinquent Classes Series, Bureau Publication 48. The Public Health Service made mental examinations of children in the schools and of all inmates of the county almshouse. The Children's Bureau made a general survey for the purpose of locating mentally defective children not in the schools, and a social study of the conditions surrounding the children who were diagnosed as mentally defective.

The population of Sussex County for 1910 was 46,413, including 38,475 white persons and 7,938 negroes. The white population consisted chiefly of Americans of English descent. The population is scattered and rural in character. The leading industry is agriculture, the chief products being cereals, vegetables and fruits. The percentage of illiteracy is high, being 10.6 for the county as compared with 8.1 for the state. The county poor house is the only public institution. No outdoor relief is given. Of the thirty-five inmates of the county poorhouse, only three were found to be normal mentally, ten being diagnosed as feebleminded. Six thousand and four white and 855 colored schoolchildren were examined. Sixty-seven, or 1.1 per cent., of white children were found to be mentally defective, and twenty-nine, or 3.4 per cent., of colored children. Nineteen white children and fifteen colored children not in the school were found to be feebleminded, giving a total of eighty-six white and forty-four colored mental defectives. One hundred and eighty-one persons were found mentally defective in addition to those found in the schools and the poorhouse. In all, 257 cases of mental defect were identified. Of the children, 14 per cent. were unable to attend their own personal wants; 60 per cent. were able to help themselves and had no physical handicap. The remainder presented varying degrees of disability. One hundred and fifty, or 78 per cent., of the children lived with their own families, while 22 per cent. were cared for by relatives, foster parents or the public authorities.

Regarding the economic status of the families, fifty-four of the seventy-three white fathers were farmers, two-thirds of them being tenants or farm laborers. Practically all of the colored fathers were tenants or farm laborers. The mentality of the parents varied. In seven families having thirteen mentally defective children, one or both parents were feebleminded. In twenty-eight families, eighteen white and ten colored, one or both parents were classed as illiterate. These twenty-eight families had forty-seven feebleminded children. Thirty-nine per cent. of the white children and 55 per cent. of the colored were capable of doing work under supervision, although the work performed was unskilled and simple in character. Of 144 mental defectives between 12 and 20 years of age, sixty-five were doing independent work or working under supervision. A number of the boys were working at farm labor and were capable of doing good work. Eighteen per cent. of the mentally defective children had exhibited tendencies toward wrong doing or social delinquency in some form. Eleven per cent. were illegitimate.

The conclusions of those in charge of the survey are that almshouses are not suitable places for the care of mentally defective persons; that the care of such persons in rural communities is neglected and little understood; that for many defective persons institutional care is necessary; that the state should make proper provision for such care and for suitable instruction for those children capable of profiting by it, and that public protection demands recognition of the relation between defective mentality and pauperism, degeneracy, crime, alcoholism and other social ills.

Medicolegal

Must Pay for Damage to Property by Pesthouse

(*Oklahoma City v. Vetter (Okla.), 179 Pac. R. 473*)

The Supreme Court of Oklahoma affirms a judgment in favor of the plaintiff for $1,100 for damages sustained by her by the depreciation of the market value of real estate alleged to be suitable for residential and home purposes and damaged by the defendant by the erection on adjacent property of pesthouses or hospitals for the confinement and treatment of malignant, contagious and infectious diseases. The court says that the contention of the city was that, as the pesthouses were located under statutory authority, they could not be deemed a nuisance, and for that reason the plaintiff had no cause of action against the city. The question was whether the location of the pesthouses "damaged" the plaintiff's property in the sense in which the term is used in the provision of the state constitution that "private property shall not be taken or damaged for public use without just compensation." The conclusion of the court is that depreciation of the value of real property caused by establishing a hospital for contagious diseases, commonly known as a pesthouse, on adjacent land, although under statutory authority, constitutes a damaging of private property for public use, for which compensation must be made, within the meaning of the constitution. That the city, in erecting and operating a hospital for contagious diseases, was exercising a lawful governmental function did not warrant its exercise in violation of the constitutional guaranty to the citizen that private property should not be damaged for public use without just compensation.

Liability for "Felony of Abortion"

(*State v. Hawkins (Mo.), 210 S. W. R. 4*)

The Supreme Court of Missouri, Division No. 2, affirms a conviction of the defendant, a physician, under Section 4458 of the Revised Statutes of Missouri of 1909, of the "felony of abortion," for which he was sentenced to imprisonment in the county jail for sixty days and to pay a fine of $800. The court says that the defendant corroborated the prosecutrix as to her visit to him, her statement to him of her pregnancy, his examination of her person to ascertain that fact, and his treatment of her; but he denied the use of any hard, pencil-shaped instrument on her person. He further testified that she was not pregnant, but that she was suffering when he treated her merely from delayed menstruation and a relaxed condition of the muscles of the womb and of the ligaments which support it. He admitted the insertion into her parts of what he called "wool," but he said this was to support the womb, and, inferentially, not to stanch a flow of blood. To a physician called in by the prosecutrix on the second day after the operation, she said she disclosed only that she had suffered a miscarriage, whereupon he asked to be allowed to examine the fetus, and, being shown it, remarked, "That's it all right," as to which declaration the prosecutrix was corroborated by the testimony of her mother; but the physician, testifying for the defendant, denied that he found any evidence of a miscarriage, or of the prosecutrix's former pregnancy, and denied stating that when he examined the alleged fetus he admitted its identity as such. He said the prosecutrix was merely suffering from delayed menstruation. The court finds no error in the trial meet for reversal, and holds that, while the prosecutrix was impeached for that, her reputation for chastity was shown to be of the worst, and by divers contradictions, there was yet substantial proof, since the credibility of the witnesses was for the jury, and not for this court.

The provisions of Section 4458 apply not alone to physicians, but to all persons who may commit the offenses therein denounced. The only reference made in the section to physicians is that which makes it a defense if an abortion be committed by a duly licensed physician, or on the advice of a duly licensed physician, when such abortion is necessary to save the life of the woman, or of an unborn and quick child. It was not necessary to charge that the defendant was a licensed physician, if, as was done, it was charged that the abortion was not necessary to save the life of the woman, or the life of an unborn child, and that the defendant had not been advised by such a physician of such necessity for the act charged. If the pleader had charged that the defendant was a licensed physician, then it would not have been necessary either to charge or to prove that he did not act under the advice of a physician.

Section 4458 defines and denounces two crimes: (1) manslaughter in the second degree; and (2) the "felony of abortion." Both of these offenses are committed by identical means; they are differentiated solely by the result. If the woman die, or if, being with a quick child, such child die, the crime is manslaughter in the second degree. If the woman is not in fact pregnant, or if, though pregnant, the child or fetus is not quick, and the woman does not die, the crime is the so-called "felony of abortion." The count of the information on which the defendant was convicted followed the language of the statute, which was sufficient, presenting a sufficient charge of the "felony of abortion" in a case of pregnancy wherein the fetus had not quickened.

Liability of Husband for Medical Services

(Bryant v. Lane (Ala.), 81 So. R. 364)

The Court of Appeals of Alabama says that this action was brought by plaintiff Lane, a physician, to recover for necessary medical attention rendered to the defendant's wife during childbirth and to his minor children, one of whom was the child of which the mother was delivered. It was found by the court that the defendant and his wife were temporarily apart, but were not divorced, and that the defendant had requested the plaintiff not to render any medical attention on his account; that the services rendered were necessary. There was no contention but that the defendant would be liable if the wife had not abandoned him without cause, and the court of appeals holds that the holding of the trial court in the finding of fact that the separation was temporary did not amount to an abandonment. It would be monstrous to lay down a rule that where a woman, in the nervous state incident to pregnancy, leaves her husband who is responsible for her condition, and goes temporarily to the sympathetic care of her mother, she will thus be deprived of the necessities of life due her by her husband, or be forced to accept them from some one not bound by law to contribute. This case was tried in the justice court, and the justice found for the plaintiff. It was tried anew in the circuit court, and the judge of that court, acting without a jury, found for the plaintiff; and, on the same state of facts, this court affirms his judgment.

Closing of Moving Picture Shows for Influenza

(Alden v. State (Ariz.), 179 Pac. R. 646)

The Supreme Court of Arizona affirms an order that denied the application and dismissed the petition of Alden for a writ of habeas corpus, sought on the grounds that the local board of health was without constitutional authority to enact valid rules and regulations which would compel him to close his place of business. The court says that the petitioner was arrested on a warrant issued by a justice of the peace on a complaint charging the petitioner with the offense of wilfully, maliciously and unlawfully conducting and carrying on a moving picture show at Globe, in violation of the published rules and regulations of the local board of health, then in force to prevent the spread of Spanish influenza, a dangerous, contagious or infectious disease then raging in epidemic form in the city of Globe and Gila County. The particular rule that the petitioner was charged with having violated was as follows:

> Rule 7. That it shall be unlawful for any person, persons, association, company or corporation to open, run, conduct, carry on, give or operate any pool room. theater, motion picture show, dance, or other amusement or entertainment in the city of Globe or vicinity.

Rule 17 provided:

> That these rules and regulations shall be in full force and effect immediately upon their being published and posted in accordance with law, and shall remain in full force and effect during the continuance of the present epidemic of Spanish influenza in the city of Globe and vicinity, and until the further order of the city health board.

Paragraph 4403, Revised Statutes of Arizona of 1913, declares that a violation of the rules, regulations and measures of the local health board, that have been published or of which the party violating has actual knowledge, is a misdemeanor and punishable as therein prescribed.

The questions of the power of the local health board to promulgate the particular rules and regulations here involved were considered by this court in *Globe School District No. 1, etc.*, v. *Board of Health, etc.*, 179 Pac. R. 55, and reported in the Medicolegal Department of The Journal, June 21, 1919, under the heading: "Board of Health Closing Schools for Influenza." The supreme court concluded in that case that the rules and regulations adopted were within the power of the local board and were enforceable during the period of the existence of the epidemic, as a reasonable measure to prevent the spread of the disease. The court will not again enter into a discussion of the questions there discussed and decided.

It appeared in the present case that, at the time the petitioner was alleged to have opened his moving picture show, the Spanish influenza was raging in epidemic form; the facts in this respect appeared in the Globe School District No. 1 case, and may not be repeated. In the circumstances admittedly existing, the petitioner was subject to prosecution and therefore arrest, if, as a fact, he wilfully and knowingly violated the health rules by opening his said moving picture show and place of entertainment at that particular period of time. Consequently his arrest was lawful, and the judgment of the lower court is affirmed.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Public Health Assn., New Orleans, Oct. 27-30.
Assn. of Military Surgeons of the U. S., St. Louis, Oct. 13-15.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Medical Assn. of the Southwest, Oklahoma City, Oct. 6-8.
Minnesota State Medical Assn., Minneapolis, Oct. 2-3.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
New Mexico Medical Society, Albuquerque, Oct. 3-4.
Southern Medical Association, Asheville, N. C., Nov. 10.
Vermont State Medical Society, Burlington, Oct. 9-10.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

July, 1919, **76**, No. 1

An Administrative Ideal in Public Welfare Work. O. Copp, Philadelphia.—p. 1.
Developments In Illinois. H. D. Singer, Urbana, Ill.—p. 15.
Functions of Psychopathic Hospital. J. V. May, Boston, Mass.—p. 21.
*Neuropsychiatry in Army Camps. G. E. McPherson, Medfield, Mass. —p. 35.
Experiences in the Immediate Treatment of War Neuroses. E. A. Strecker, U. S. Army.—p. 45.
Psychopathic Reactions to Combat Experiences in the American Army. J. H. W. Rhein, Philadelphia.—p. 71.

Neuropsychiatry in Army Camps.—During the months from May to September, 1918, inclusive, 54,000 recruits were examined at Camp Upton, N. Y. Of this number 1,050, or 2 per cent., were rejected for nervous and mental disorders. At Camp Gordon in four months, July to October, inclusive, 58.850 men gave a rejection of 1,225, or 2.8 per cent., for similar diseases and conditions. At Camp Upton drug addicts constituted 17 per cent. of the rejections for mental disease, while at Camp Gordon they made up 3.27 per cent. of such rejections. A survey of 100 drug addicts gave them a mental age rating of twelve years. Large numbers of epileptics entered camps, later to be discharged when their disabilities became apparent. Probably about 3.5 per cent. of 1,050 rejections were because of this disease. Thirty per cent. of rejections for nervous and mental disabilities were for mental deficiency, about 0.6 per cent. of all cases examined. Manic-depressive psychoses were present in very small numbers. The alcoholic psychoses were not numerous. Neurosyphilis contributed many cases for rejection, taken in the aggregate. In one draft of 800, these cases amounted to 0.7 per cent. of men examined. Emotional instability, inadequate personality, and sexual psychopathics were classified.

Archives of Neurology and Psychiatry, Chicago

Sept. 1, 1919, **2**, No. 3

*Peripheral Nerve Injuries Concomitant to Gunshot Wounds. I. J. Spear and W. W. Babcock, U. S. Army.—p. 253.
*Bulbar Paralysis or Amyotrophic Lateral Sclerosis? G. B. Hassin, Chicago.—p. 261.
Lethargic Encephalitis. J. B. Neal, New York.—p. 271.
*Psychoses Associated with Influenza. II. Specific Data. An Expository Analysis. K. A. Menninger, Topeka, Kan.—p. 291.
Sensory Changes in Peripheral Nerve Injuries. L. E. Grimberg, New York.—p. 338.

Peripheral Nerve Injuries Result of Gunshot Wounds.—On the basis of neurologic examinations, supported by subsequent operative findings, Spear and Babcock are of the opinion that from 60 to 75 per cent. of the patients with nerve injuries seen by them at Base Hospital No. 6 would not recover lost function without operative interference. The operative cases have not been under observation a sufficient length of time to arrive at a more than tentative conclusion as to ultimate outcome. The neurolysis and hersage cases have shown a considerable number of improvements, but measureable, objective improvement in the suture cases has been very limited.

Bulbar Paralysis.—A case is cited by Hassin which he believes demonstrates the identity of amyotrophic lateral sclerosis and chronic bulbar paralysis.

Psychoses of Influenza.—Menninger aims to illustrate the forms of psychoses associated with influenza by the presentation of representative cases. Influenza apparently acts on the brain in three ways: to create psychoses, to precipitate psychoses in predisposed subjects, and to augment or alter their form where already existent.

Boston Medical and Surgical Journal

Sept. 11, 1919, **81**, No. 11

State Clinics for Treatment of Venereal Diseases. E. R. Kelley, Boston.—p. 309.
Duty of Hospital Trustee and Relation to Staff. C. H. W. Foster, Boston.—p. 313.
Reconstruction Hospitals, Military and Civil. F. J. Cotton, Boston. —p. 322.
Case Records and Histories in Smaller Hospitals. H. P. Stevens, Cambridge.—p. 324.
Venereal Disease and the Public Health. G. G. Smith, Boston.—p. 329.
Gaseous Exchange with Unpracticed Subjects and Two Respiratory Apparatus Employing Three Breathing Appliances. M. F. Hendry, T. M. Carpenter and L. E. Emmes, Boston.—p. 334. To be Cont'd.

California State Journal of Medicine, San Francisco

September, 1919, **17**, No. 9

Technic for Removal of Dead Teeth. J. Novitzky, San Francisco. —p. 314.
Specialty of Obstetrics; Its Present Status; Its Possibilities and Its Importance. H. P. Newman, San Diego, Calif.—p. 318.
Case of Pregnancy After Uterine Suspension. L. A. Emge, San Francisco.—p. 320.
Infections of Oral Cavity and Their Relations To Systemic Diseases. H. C. Bagby, Santa Barbara, Calif.—p. 323.
*Epidemic of Filaria Onchocerca. W. T. Fee, Guatemala.—p. 327.
Increased Spinal Fluid Pressure as an Indicator of Meningeal Disease. H. G. Mehrtens, San Francisco.—p. 328.
*Rapid Administration of Digitalis in Cardiac Decompensation. W. E. Kay, San Francisco.—p. 329.
Nephrolithiasis: Report of Case. W. B. Dakin, Los Angeles.—p. 331.
Schematic Method for Estimating Health Status of Runabout Child. C. E. Cater, Los Angeles.—p. 332.
Economic Aspects of State Hospital Discharges and Paroles. M. J. Rowe, Talmage, Calif.—p. 337.
*Camphor as a Stimulant and Pneumococcicide in Pneumonia. F. F. Gundrum, Sacramento.—p. 339.
Focal Infections and Nerve Reflexes as Related to the Eye. C. E. Ide, San Diego.—p. 341.
Will the War Influence the Practice of Medicine, as a Business? J. C. King, Banning, Calif.—p. 346.

Epidemic of Filaria Onchocerca.—There has been discovered in the Republic of Guatemala, by Dr. Rodolfo Robles, a new disease of parasitic origin, hitherto unknown in the American continent, commonly called erysipelas of the coast; produced by infection by a parasite—filaria onchocerca. The clinical history of this affection is described in detail by Fee.

Rapid Administration of Digitalis in Cardiac Decompensation.—In the wards of the medical clinic at the Stanford medical school, in selected cases, from 20 to 28 c.c. of a standardized tincture of digitalis are given within from twenty-four to thirty-six hours in treating this affection. Of this amount from 12 to 16 c.c. are administered on the afternoon of admission, and 4 c.c. after each of the three meals on the following day. The administration is then stopped and is not resumed until clinical or electrocardiographic observation indicate a decline in the effect of the drug. This usually occurs after from three to five days. The usual dose of from 1 to 2 c.c., three times a day, is then given. In favorable cases a striking improvement may be obtained within twenty-four hours, by the rapid oral administration of digitalis in large doses. This improvement is shown by a slowing of the pulse rate, by a reduction of difference between apex and radial rates in auricular fibrillation, by the removal of edema (a sudden fall in body weight) and by the relief of symptoms. Serious toxic effects were not observed.

Camphor in Pneumonia.—In 100 cases of lobar pneumonia Gundrum injected 15 c.c. of a 20 per cent. solution of camphor in olive oil, twice daily, for the purpose of determining its value. He found that it had no demonstrable effect on the circulation or on the course of the disease. The mortality from lobar pneumonia was 21 per cent.; bronchopneumonia, 41 per cent.; untreated pneumonia, 58 per cent.

Canadian Journal of Mental Hygiene, Toronto

July, 1919, **1**, No. 2

*State Programs for Care of Mentally Defective. W. E. Fernald, Mass. —p. 103.
Mental Hygiene in Relation to Social Hygiene. A. H. Desloges, Quebec.—p. 111.
Physician's Part in Preventing Mental Disorder. W. H. Hattie, Halifax, N. S.—p. 118.
Problem of Mentally Defective in Province of Quebec. G. S. Mundie. —p. 123.
Immigration, Past and Future. W. G. Smith, Toronto.—p. 130.
Montreal Local Council of Women and Mental Hygiene. C. M. Derick, Montreal.—p. 141.
The Right to Marry. What Can a Democratic Civilization do About Heredity and Child Welfare? A. Meyer, Baltimore.—p. 145.

Community Responsibilities in Treatment of Mental Disorders. W. L. Russell, New York.—p. 155.
*Supervision of Feebleminded in the Community. J. Taft, New York. —p. 164.
First Annual Meeting of the Canadian National Committee for Mental Hygiene.—p. 172.
Special Auxiliary Classes. W. E. Groves, Toronto.—p. 182.
Mental Deficiency in Relation to Venereal Disease. A. F. Tredgold. —p. 188.

State Programs for Mentally Defective.—The program which Fernald believes to be a feasible one includes the mental examination of backward schoolchildren, the mental clinic, the traveling clinic, the special class, directed training of individual defectives in country schools, instruction of parents of defective children, aftercare of special class pupils, special training of teachers in normal schools, census and registration of the feebleminded, extra-institutional supervision of all uncared for defectives in the community, selection of the defectives who most need segregation for institutional care, for such care, increased institutional facilities, parole for suitable institutionally trained defectives, permanent segregation for those who need segregation, mental examinations of persons accused of crime and of all inmates of penal institutions, and long continued segregation of defective delinquents in special institutions.

Supervision of Feebleminded.—Taft urges that a system of community supervision of the feebleminded in connection with the school system is absolutely necessary for a term of years: (1) in order to deal with the problem of control and prevention of feeblemindedness while segregation and sterilization are as yet inadequate; (2) in order to get facts regarding the feebleminded who can and those who cannot be adapted to life outside an institution; (3) in order to determine whether there is anything better than the colony plan for utilizing the labor of the feebleminded; (4) in order to educate the community to an understanding of the problem; (5) in order to justify the existence of special or ungraded classes and render them really useful; (6) in order to provide an opportunity for the study of the individual cases not *a priori* delinquent or belonging to the group obviously requiring segregation.

Illinois Medical Journal, Oak Park

September, 1919, **36**, No. 3

Some Phases of War Surgery. N. M. Percy, Chicago.—p. 113.
Illinois School for the Blind. A. L. Adams, Jacksonville.—p. 118.
Infections of Gall Ducts and Their Treatment. P. F. James, Peoria. —p. 123.
Epidemic Encephalitis. S. S. Winner, Chicago.—p. 126.
Local Health Officer and His Problems. E. W. Weis, La Salle.—p. 131.
Habitat and Distribution of Dangerous Streptococci in Body. D. J. Davis, Chicago.—p. 134.

Journal of Immunology, Baltimore

July, 1919, **4**, No. 4

*Bactericidal Action of Whole Blood of Rabbits Following Inoculations of Pneumococcus Bacterins. G. D. Heist and S. Solis-Cohen, Philadelphia.—p. 147.
*Rôle of Bacillus Influenzae in Clinical Influenza. F. M. Huntoon and S. Hannum, Glenolden, Pa.—p. 167.
*Bacteriology and Selective Action of B. Influenzae (Pfeiffer). C. Roos, Glenolden, Pa.—p. 189.
Immunologic Disparities of Spore and Vegetative Stages of B. Subtilis. R. R. Mellon and L. M. Anderson, Rochester, N. Y.—p. 203.
*Studies in Protein Intoxication. III. Visceral Lesions in Rabbits with Chronic Protein Intoxication. T. H. Boughton, Chicago.—p. 213.
Mechanism of Anaphylaxis Reaction in Rabbit. A. F. Coea, Ithaca, N. Y.—p. 219.
*Experiments with B. Influenzae; Its Toxin and Antitoxin. A Preliminary Report. N. S. Ferry and E. M. Houghton, Detroit.—p. 233.

Bactericidal Action of Blood of Rabbits.—The most general conclusion, and the most important one, drawn by Heist and Solis-Cohen from their work on the bactericidal activity of whole blood in vitro is that such blood, before it coagulates, possesses bactericidal properties which can be investigated and measured with considerable accuracy, properties which do not become apparent when blood serum alone is examined. The production, by suitable inoculations, of specific bactericidal activity in the blood of rabbits, for pneumococci of one type, is accompanied by the production of slight bactericidal activity for other types. A bacterin prepared from pneumococci washed from the peritioneal cavity of a rabbit dying of pneucococcal infection is more powerful as an immunizing agent for rabbits than one prepared from pneumococci grown on artificial culture mediums.

Rôle of Bacillus Influenzae in Clinical Influenza.—The experimental evidence obtained by Huntoon and Hannum showed that *B. influenzae* is capable of producing a toxic substance; that this substance when introduced into the circulation, produces congestion of the respiratory tract with hemorrhages into the alveoli. Certain conditions of symbiotic growth intensify the liberation of the toxin. As an effect of the action of the poison the lungs show a predisposition to invasion by various organisms, with the production of secondary lesions. Live bacilli introduced at a remote point probably affect the lungs through the action of a liberated toxin. There is nothing in the serologic evidence to preclude the consideration of this organism as an important factor in the causation of clinical influenza.

Bacteriology and Selective Action of B. Influenzae.—Roos says that *B. Influenzae* can be found in every case of true clinical influenza. To isolate this organism, which is most abundant in the earlier stages of the disease, it is necessary to exercise care on obtaining a suitable specimen, and since growth requirements of this organism are quite rigid, special selective culture media, such as those suggested by Avery and also by Fleming, carefully prepared and adjusted to reaction are essential for successful work. The various strains of *B. influenzae* apparently do not differ in kind. The toxic substances of *B. influenzae* show a marked action on the bronchorespiratory tract, thereby predisposing these organs to extensive invasion by the organism itself or to secondary infections. No marked increase in virulence of *B. influenzae* has been obtained by passages through laboratory animals. No bacteremia is produced by *B. influenzae* in laboratory animals by a dose approximating a minimum lethal dose regardless of the mode of injection chosen. The pathologic lesions in the rabbit, gross and microscopic, in many respects resemble those of influenza in human beings as observed during the past pandemic. The injection of *B. influenzae* into the rabbit intravenously results in a rapid and marked decrease in the polymorphonuclear cells.

Studies in Protein Intoxication.—The animals used by Boughton in his experimental work were sensitized by three doses of egg white: one subcutaneous, one intraperitoneal and one intravenous, at intervals of from one to three days. The animals were given the first toxic injection about three weeks after the last sensitizing injection. The later doses were given at varying intervals, and the size of the dose was gradually increased with the purpose of giving each animal as many anaphylactic shocks as possible, without killing the animal, on the one hand, and, on the other hand, without producing the refractory stage. Repeated injections produced pathologic lesions of the kidney, heart, liver, spleen and lung. These lesions consist of degeneration and necrosis of the parenchymatous cells, round cell infiltration, fibrosis and edema and thickening of the walls of the smaller arteries. The parenchymatous lesions were present in practically all the kidneys, but only a few hearts and livers. The infiltration was present in nearly all the kidneys, hearts and livers, and was most prominent in the kidneys and least prominent in the hearts. The vascular lesions were most frequent in the spleen, lung and heart, but were not severe in any case.

B. Influenzae: Its Toxin and Antitoxin.—Ferry and Houghton point out that irrespective of the etiologic relationship of the Pfeiffer bacillus to influenza it is an interesting fact to know that a soluble toxin can be produced which will stimulate the formation of an antitoxin. It is, also, of great scientific importance to know that this antitoxin cannot only neutralize the toxin in vivo as well as in vitro, but it can also protect against bacterial infection of the guinea-pig with *B. influenzae*. Two outstanding facts are emphasized; namely, the extreme congestion following an injection of guinea-pigs with *B. influenzae*, and the profound prostration in rabbits, due to a toxemia, following the injection of the toxin, which very closely simulates the early stages of influenza in the human subject.

Journal of Industrial Hygiene, New York

September, 1919, **1**, No. 5

Toxemic Anemia from Arseniuretted Hydrogen Gas in Submarines. S. F. Dudley, Portsmouth, England.—p. 215.
Practical Study in Industrial Fatigue. H. C. Link.—p. 233.
Study of Fifty Workers in Trinitrotoluene. T. J. Putnam and W. Herman.—p. 238.
Syphilis, An Inestimable Factor in Industrial Inefficiency. E. A. Oliver, U. S. Army.—p. 246.
Industrial Medicine and Surgery—A Résumé of Its Development, Scope and Benefits. Part II. H. E. Mock, Chicago.—p. 251.
Protective Garments in the War Gas Industry. H. C. Bradley, U. S. Army.—p. 255.

Journal of Infectious Diseases, Chicago

September, 1919, **25**, No. 3

*Fermentation Reactions of Certain Streptococci. XLII. Studies in Bacterial Metabolism. A. I. Kendall, A. A. Day, A. W. Walker and M. Ryan, Chicago.—p. 189.
*Is Hemoglobin Antigenic? C. L. A. Schmidt and C. B. Bennett, Berkeley, Calif.—p. 207.
*Mouse Pathogenic Pneumococci and Streptococci in Sputum in Pulmonary Tuberculosis. H. J. Corper and J. J. Enright, New Haven, Conn.—p. 213.
*Diphtheria Bacilli from Postoperative Empyema Wounds. J. S. Simmons and G. H. Bigelow, Ft. Sam Houston, Texas.—p. 219.
Influence of Antigen Dilution on Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 224.
Nitrogen Metabolism of Bacteria. A. G. Benton, Minneapolis.—p. 231.
*Effect of Thorium X on Active Anaphylaxis in Guinea-Pig. H. J. Corper, Chicago.—p. 248.
Antibodies in Chick. H. W. Sherman, Chicago.—p. 256.
Hemolytic Streptococci in Throat of Dog. H. W. Sherman, Chicago.—p. 259.
*Rapid Hydrogen Electrode Method for Determination of Hydrogen Ion Concentration in Bacterial Cultures or in Other Turbid or Colored Solutions. H. M. Jones, Chicago.—p. 264.
Frozen Complement in Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 269.

Fermentation Reactions of Certain Streptococci.—It is claimed by Kendall et al. that the classification of bacteria, including the streptococci, therefore, on the basis of fermentation reactions makes it possible to separate them into convenient and distinct groups which have divisional value. There is no clearly discernible relationship, however, between cultural grouping based on carbohydrolysis and pathogenesis.

Is Hemoglobin Antigenic?—Hemoglobin was prepared by Schmidt and Bennett by three methods, one by crystallization from ammonium sulphate as described by Schulz, and the other two by precipitation as oxyhemoglobin (with and without addition of alcohol) at low temperatures and resolution by reduction. Each of the three preparations was recrystallized a number of times. Rabbits were immunized with each of the above preparations and both fixation and precipitin tests carried out. These were negative. In the serum of these rabbits no sensitizer was found, which, in the presence of alexin, cause a hemolysis of dog cells. Agglutinins were likewise not produced. Hemoglobin failed to sensitize guinea-pigs for the anaphylaxis reaction. The authors believe that the conclusion that hemoglobin is nonantigenic seems warranted. Doses of hemoglobin very much larger than the amount of globin which will cause toxic symptoms were injected both intravenously and intraperitoneally into guinea-pigs and toxic symptoms were not shown. Combination of toxic globin with hematin as occurs in hemoglobin renders it nontoxic, but does not, as in the instance when globin is combined with casein, give, when rabbits are immunized, antibodies for itself.

Pathogenic Cocci in Tuberculous Sputum.—Corper and Enright studied the sputum in fifty-seven cases of pulmonary tuberculosis by injecting it into mice (intraperitoneally) and culturing and typing directly from the peritoneal fluid, and then comparing these results with those previously obtained by cultural methods. The organisms from the sputum of open cases of pulmonary tuberculosis obtained by intraperitoneal injection of mice were mainly pneumococci of types III and IV, and a few of type II, the types which are considered saprophytic by Pritchett and Stillman in contradistinction to the pneumococcus I and certain strains of type II. A few hemolytic streptococci and *Streptococcus viridans* were also found in the sputum. As a whole, the organisms found in the sputum from open cases of pulmonary tuberculosis by mouse inoculation differed little from those found in the saliva of the same cases and in the sputum and saliva of normal individuals. These results are corroborative of previous results by direct culture methods from which it was concluded that the organisms in the sputum in pulmonary tuberculosis ordinarily play an insignificant part in the pathogenesis of this disease. As far as the presence of these organisms in the lung are concerned, the authors claim that they are to be considered more as would their presence in any nontuberculous disease, and as indicating a condition of lowered local resistance which makes possible a saprophytic residence of such bacteria. Just why the so-called parastic types are not found remains to be discovered, as does also the infrequent occurrence of pneumococcus pneumonia in pulmonary tuberculosis.

Diphtheria Bacilli in Empyema Wounds.—An organism corresponding morphologically to the diphtheria bacillus was found by Simmons and Bigelow in a culture from a healing postoperative empyema wound. Cases showing this organism increased in number until a short time later sixty of the empyema wounds were infected. Of the strains isolated, 17.8 per cent. were virulent for guinea-pigs, and all of these strains failed to produce acid when grown in saccharose broth cultures for eight days. The degree of virulence among saccharose negative strains was variable. The morphologic characteristics presented by both virulent and avirulent strains were the same. All cultures contained a mixture of Wesbrook's type A, C and D, with the subtypes. There was no evidence of the development of specific agglutinins, precipitins or complement fixing substances for diphtheria bacilli (virulent or avirulent) in the serum of the infected individual. Apparently there was no invasion of the blood stream by the diphtheria bacilli in the wounds. All methods of treatment tried proved unsatisfactory, due probably to the growth of bacilli deep in the wound granulations. As a rule, the carrier state continued until complete healing of the wounds had taken place.

Thorium X and Anaphylaxis.—The object of the experiments made by Corper was to obtain a method applicable to the study of one of the problems in tuberculosis—that of allergy. He found that thorium X, given in about one and one half the lethal amount seven days before or coincident with the primary injection of egg white, normal horse serum or milk proteins, or seven days before or with the second injection of these proteins, had no appreciable effect on the severity of the anaphylactic symptoms in guinea-pigs or reinjection of protein sixteen to eighteen days after the primary injection. Likewise, the repeated administration of smaller doses of thorium X, sufficient to maintain a leukopenia as low as 2,000 leukocytes per cubic millimeter throughout the entire interval of sixteen to eighteen days between the first and second injections, or very small repeated injections not appreciably affecting the number of peripheral leukocytes, had just as little effect on the severity of the anaphylactic symptoms. There was no direct relation noted between the anaphylactic symptoms and the leukocyte counts as affected by thorium X. In the larger doses the effect observed seemed to be due to the combined action of two toxic substances: the thorium X, a chronic poison, and the anaphylatoxin, an acute poison.

Rapid Determination of Hydrogen Ion Concentrations.—A new apparatus for determining the dilution of hydrogen ion in bacterial cultures and other fluids is described by Jones. As compared with the colorimetric method, the apparatus here described has wider application, is more accurate, less cumbersome and only slightly less rapid. The hydrogen electrode vessel described was designed with two objects, chiefly, in mind: (1) to provide a vessel accurate at least to 0.01 p_H and (2) to provide a vessel giving rapid saturation with hydrogen gas, and yet one which is easily constructed. A rapid and labor saving technic combining the indicator, and the gas-chain methods is described, which obviates the difficult task of preparing standard solution for the former methods, and of making needless repetitions by the latter.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August, 1919, **13**, No. 5

*Effect of Morphin on Alkali Reserve of Blood of Dogs Gassed with Fatal Concentrations of Chlorin. A. M. Hjort and F. A. Taylor, New Haven, Conn.—p. 407.
*Action of Epinephrin on Spleen. F. A. Hartman and R. S. Lang, Toronto.—p. 417.
*Comparative Activity of Local Anesthetics. VI. Difficultly Soluble Anesthetics on Mucous Membranes. T. Sollmann, Cleveland.—p. 429.
*Pharmacology of Local Anesthetics. C. Eggleston, and R. A. Hatcher, New York.—p. 433.
Application of Kjeldahl Method to Compounds of Brucine, Brucine Salt of a New Nucleotide. W. Jones, Baltimore.—p. 489.
*Iodin: Effect on Fibrous Nodules. T. Sollmann, Cleveland.—p. 495.

Effect of Morphin on Blood of Gassed Dogs.—Hjort and Taylor found that morphin sulphate administered subcutaneously to normal dogs in doses of 10 mg. per kilogram causes an increase in the alkali reserve which is maintained at a high level for many hours. Concentrations of approximately 0.08 per cent. by volume of chlorin gas produce within from two to seven hours a rapidly advancing condition of acidosis. This may be preceded by a temporary increase in the alkali reserve. In dogs gassed with this concentration of chlorin, morphin, in the 10 mg. per kilogram doses, may temporarily prolong the maintenance of a high alkali reserve level; these doses, however, exert, if anything an unfavorable influence on the ultimate outcome. An external temperature of 33 C. appears to affect unfavorably the course of the alkali reserve in gassed dogs that had been treated with morphin previously.

Action of Epinephrin on Spleen.—According to Hartman and Lang dilatation of the spleen is caused by the action of epinephrin on the twelfth and thirteenth dorsal root ganglia, the semilunar ganglion or on some terminal structure in the spleen itself. Constriction can result from the response of a mechanism in the dorsal root ganglia or from a structure in the spleen.

Comparative Activity of Local Anesthetics.—The efficiency of the difficulty soluble local anesthetics for mucous membranes, according to Sollmann may be demonstrated on the cornea of rabbits or on the gums of human subjects. An approximate estimate of their relative efficiency may be obtained by comparing dilutions made with talcum powder. On the cornea, anesthesin, cycloform, orthoform-new and propraesin appear to be practically equivalent. They are certainly effective in concentrations of 10 per cent.; uncertain at 5 per cent. and practically ineffective at 2.5 per cent. The anesthesia persists for from ten to fifteen minutes with 10 per cent.; from fifteen to thirty minutes with 25 to 100 per cent. On the gums a greater variation was noted. The minimum concentrations giving almost complete anesthesia were as follows: Cycloform, less than 2.5 per cent.; anesthesin, from 2.5 to 5.0 per cent.; propaesin, from 5.0 to 10.0 per cent.; orthoform-new, from 10.0 to 25.0 per cent.

Pharmacology of Local Anesthetics.—The more important literature of acute intoxication in man from the local anesthetics is reviewed by Eggleston and Hatcher and cases are cited to show the close similarity between the symptoms produced in man and in the lower animals, especially the cat. The phenomena of acute intoxication in the cat, following the intravenous injection of the local anesthetics, are described, and the similarity of the phenomena produced by different members of the group is emphasized. The maximum toxicity for each of the members of the series has been determined by rapid intravenous injection in the cat, and the relative toxicities of the several drugs are represented graphically. The several different local anesthetics are shown to be mutually and quantitatively synergistic, so far as their fatal actions are concerned. The capacity of the cat to withstand the intravenous injection of several times the fatal vein dose of any of the local anesthetics, except cocain and holocain, has been shown by repeated injections of large doses, or the continuous injection of relatively dilute solutions. The toxicity of the local anesthetics for the cat, after subcutaneous injection, has been shown to depend on the ratio between the rate of absorption and that of elimination, and the local anesthetics can be divided into two classes with reference to that ratio. Five, or more than five, times the minimal fatal vein dose of alypin, aopthesin, beta-eucain, nirvanin, procain, stovain and tropacocain can be injected subcutaneously in the cat without causing death, while four, or less than four, times the fatal vein doses of cocain and holocain similarly injected prove fatal. The simultaneous subcutaneous injection of epinephrin with the local anesthetics materially reduces the toxicity of the latter by delay in the rate of their absorption, but this reduction is much less marked in the cases of cocain and holocain than with the other members of the series, and is referable to their much slower "essential" elimination. The absorption of several of the local anesthetics from the mucous membranes of the nose and pharynx of the cat has been shown to be no more rapid than from the subcutaneous tissues, and the urethra, bladder and vagina resist the absorption of these drugs to a great extent. The elimination of the local anesthetics in the cat has been demonstrated to be due to their rapid destruction by the liver, and this takes place in the excised, perfused organ as well as in the liver of the intact animal. All of the local anesthetics have been shown to be synergistic with epinephrin on the blood pressure in a manner analogous to cocain. The employment of artificial respiration, combined with stimulation of the heart by the intravenous injection of epinephrin is capable of saving cats from death following the intravenous injection of as much as twice the average fatal dose of the local anesthetics. Stimulation of the heart by the previous injection of ouabain permits the cat to recover from intravenous injections of nearly twice the average fatal dose of the local anesthetics, when the temporary paralysis of the respiratory center is combated by the use of artificial respiration. The success of the last two measures depends on the rapid destruction of the local anesthetics by the liver.

Effect of Iodin on Fibrous Nodules.—Intradermal fibrous nodules, produced by intracutaneous injections, were treated by Sollmann with local applications of iodin to test its absorptive efficiency. Very definite effects were obtained by daily applications, continued at least eight days, and pushed to considerable irritation of the skin. Treatment over shorter periods was inefficient, even when the dosage and the irritation were greater.

Medical Record, New York

Sept. 6, 1919, **96**, No. 10

Souvenirs of An Old New York Practitioner of Medicine. B. Robinson, New York.—p. 399.
Pityriasis Rosea. W. P. Cunningham, New York.—p. 403.
Acute Purulent Otitis Media and Acute Mastoiditis at the Base Hospital, Camp Stuart, Va. J. D. Kelly, New York.—p. 408.
*Whispered Voice Sound; An Aid to the Early Diagnosis of Pneumonic Consolidation. H. H. Lissner, Los Angeles, Calif.—p. 412.
A Needle Carrying A Continuous Suture. A. Kahn, New York.—p. 412.
Absence of Prostate. Report of Case. J. H. Dowd, Buffalo.—p. 413.
Trench Fever. R. D. Rudolf.—p. 414.

Whispered Voice Sound.—At the base hospital, Camp Pike, Ark., it was noticed that bronchophony was a constant accompaniment of every case and it was felt that this physical sign was merely an expression of transmission of sound through the bronchi to the chest wall, due to increased lung infiltration. These sounds coming to the ear in exaggerated form, led to the thought that the whispered voice sound would be as evident, and it was found that small areas of patchy consolidation which were not demonstrable by percussion and over which bronchial breathing was not determinable, were brought out and could be defined sharply by this method. Carrying this idea further, it was found that the entire lung surfaces could be examined systematically in a short space of time with the ordinary bell of a Bowle's stethoscope, by going from ring to ring as marked on the chest wall and by this method the areas of consolidation could be outlined sharply and nicely differentiated from the uninvolved area immediately adjoining it. The point or place of the whispered voice sound Lissner says is not new in physical diagnosis but its application to the diagnosis of early pneumonic consolidation is a new departure and gives to this particular sign an added value.

Sept. 13, 1919, **96**, No. 11

- *Pulmonary Suppuration. C. A. Hedblom, Rochester, Minn.—p. 441.
- Spastic Paralysis in Children. J. Grossman, New York.—p. 453.
- *Tuberculin Therapy in Children. R. C. Newton, Montclair, N. J. —p. 459.
- Headache and Dyspituitarism in the Light of Therapeusis. J. A. Glassburg, New York.—p. 461.
- Paroxysmal Nasal Hydrorrhea Based on Dyspituitarism. S. G. Strauss, New York.—p. 463.
- Treatment of Purulent Pleural Effusions. T. Tuffier, Paris, France. —p. 464.

Pulmonary Suppuration.—Up to 1919, seventy patients have been operated on at the Mayo Clinic for pulmonary suppuration. The combined mortality from all causes, including bronchiectasis, was 33.3 per cent. Hedblom's study is concerned chiefly with fifty-four cases in which operation had been done since 1910. There are included also two cases that progressed to a spontaneous cure and twenty-four necropsy cases. In seventeen of the twenty-four necropsy cases abscess occurred as a postoperative complication; in sixteen the abscesses were multiple. In seven instances the patients were either moribund on admission or the condition was not recognized clinically. Hedblom is convinced that primary suppuration of the lung is rare. Suppuration occurs on a preceding inflammatory basis, or the infection is carried to the lung tissue through the bronchus, the blood stream, or by direct extension. A persistent productive cough is the most characteristic symptom. The sputum is usually purulent, and often foul. Other clinical features of suppuration are present in varying frequency and degree. Localized dulness to percussion and a circumscribed roentgen-ray shadow are the most constant physical findings. Pulmonary suppuration is probably frequently mistaken for phthisis. In 33 per cent. of the cases reported by Hedblom symptoms were suggestive of tuberculosis. The treatment of localized suppuration is early free drainage. Prolonged expectant treatment or inefficient drainage greatly increases postoperative morbidity and mortality. Local and regional anesthesia is safe and in most cases very satisfactory. The abscess should be drained only through the adherent pleura or after the pleural cavity has been walled off by suture of the lung to the parietal pleura. A two-stage operation allowing a few days for adhesions to form around the suture line Hedblom says is probably the best safeguard against empyema, which is a frequent and the most dangerous complication.

Tuberculin Therapy in Children.—Newton reports seven cases, nearly all of which showed very perceptible improvement from comparatively small, or very small doses of tuberculin. Of four cases of peritoneal tuberculosis, three patients were brought under treatment within a few weeks of the appearance of the ascites and the improvement was prompt and gratifying; while one patient gave much more trouble and took much longer to recover, and this in spite of the fact that he had been removed from an unfavorable environment in the slums of a great city to a markedly salubrious one in the country. Newton also claims to have achieved excellent results in the tuberculin treatment of three cases of pulmonary tuberculosis that had come under treatment within a few months of the beginning of active pulmonary lesions, while cases of longer standing, although improving for a time, under tuberculin, have failed to show a permanent arrest. Newton emphasizes that, generally speaking, tuberculin must be used early if it is to be of permanent benefit.

Michigan State Medical Society Journal, Grand Rapids

September, 1919, **18**, No. 8

- Administration of Concentrated Arsphenamin and Its Relation to Nitroid Crisis. R. S. Morrish, Flint.—p. 467.
- Diseases and Treatment of Prostate. E. S. Judd, Rochester, Minn.—p. 469.
- Flight Surgeon's Relation to Flyer. G. E. Frothingham, Detroit. —p. 473.
- Intraocular War Injuries. R. D. Sleight and W. Haughey, Battle Creek. —p. 477.

Minnesota Medicine, St. Paul

September, 1919, **2**, No. 9

- Surgical Treatment of Jacksonian Epilepsy. R. Earl, St. Paul. —p. 325.
- *Blood Picture in Exophthalmic Goiter. W. A. Plummer, Rochester. —p. 330.
- Priniciples of Foreign Protein Therapy. W. P. Larson, Minneapolis. —p. 332.
- Ectopic Pregnancy. C. B. Lewis, St. Cloud.—p. 334.
- *Abscess of Lung: Treatment. C. A. Hedblom, Rochester.—p. 337.
- *Therapeutic Effects of Overfeeding in Pernicious Anemia. T. A. Peppard, Minneapolis.—p. 344.
- Fractures of Head of Radius. L. E. Daugherty, St. Paul.—p. 350.
- Illeocecal Catheter Drainage of Intestine in Diffuse Septic Peritonitis. H. C. Cooney, Princeton.—p. 352.

Blood Picture in Exophthalmic Goiter.—The claim made by some observers that anemia of the chlorotic type is a characteristic of exophthalmic goiter is not borne out by Plummer's findings based on an examination of the blood of 578 patients. An anemia, when present, is neither the result of, nor necessarily coincident with, hyperthyroidism, but is due to secondary changes. The real status in regard to the number of leukocytes in patients with exophthalmic goiter is that there is a wider variation, probably dependent on the neutrophils, than among normal counts, and while there are more counts showing a decrease in leukocytes there is an equally large number showing a slight increase. Plummer has not been able to demonstrate that a leukopenia is more frequently present in the early stages of the disease. In the majority of the cases there is a relative and absolute mononucleosis; and when a leukopenia is present the decrease takes place at the expense of the neutrophils; but the converse is true to a lesser degree. The eosinophils show some variation, but the total averages give no increase. In the mortality statistics of the Mayo Clinic the relative lymphocyte count is a few points under the average for the entire series but it is not sufficient to be of value in prognosis. The differential count is of limited value in diagnosis. Except for a polymorphonuclear leukocytosis immediately following operation, and during tonsillitis and other acute infections, Plummer has been unable to determine any factor which influences the characteristic blood picture.

Abscess of Lung: Treatment.—In sixteen cases of lung abscess treated in the Mayo Clinic the apparent etiologic factors were as follows: pneumonia (postoperative), four cases; teeth extraction, three cases; tonsillectomy (operation elsewhere under general anesthesia), two cases; gastroenterostomy for ulcer, grip and trauma (followed by pneumonia), one case each; questionable, four cases. All the patients were operated on regardless of the fact that several were desperately ill and, therefore, were very poor surgical risks. Three patients died; a mortality of 18.7 per cent. All of the remaining thirteen are improved. In three of these the operation is too recent to classify as to the permanent result. Two have bronchial fistulas that will probably require plastic operation. Seven are cured in the sense that there is no sinus and they have no symptoms referable to the pulmonary lesion. The treatment consisted of drainage.

Therapeutic Effects of Overfeeding in Pernicious Anemia.—Three cases of pernicious anemia have been studied by Peppard with reference to the effect of forced feeding. In two cases, possibly in all of them, a positive nitrogen balance was secured without difficulty. During the gain in weight symptomatic improvement took place and there was a distinct betterment in the blood picture. A diet allowing from sixty to sixty-five calories per kilogram (approximately double the minimum requirement) is recommended, this to be given in proportions of portein, 16 per cent.; fat, 42 per cent., and carbohydrotes, 42 per cent.

Modern Hospital, Chicago

September, 1919, **13**, No. 3

- Cincinnati General Hospital: Its History and Present Aspect. C. R. Holmes, Cincinnati.—p. 161.
- Maintaining Balance in Hospital Administration. B. B. Lyons, Wilmington, Delaware.—p. 166.
- Morale Work in U. S. Army. J. F. Bresnahan, U. S. Army.—p. 168.
- Metabolism Clinic of Royal Victoria Hospital, Montreal. J. J. Walker, Montreal.—p. 170.

Walter Reed Military Hospital New Swimming Pool. E. L. Heck, Takoma Park, D. C.—p. 173.
Rural Hospital from a Rural Point of View. F. E. Sampson, Creston, Ia.—p. 174.
New York Diagnostic Clinic and Its New Building. J. J. Weber, Chicago.—p. 178.
Training of Specialists to Administer Anesthetics. J. C. Oliver, Cincinnati.—p. 181.
Superintendent's Responsibility for Obtaining Postmortems. R. E. Castelaw, Kansas City, Mo.—p. 182.
How Can Teaching In Hospital Best Be Organized? G. Dock, St. Louis.—p. 184.
Organization of a Children's Dispensary on Basis of Appointments for Patients. E. A. Park, Baltimore.—p. 185.
Management of Contagious Disease Hospitals. D. L. Richardson, Providence, R. I.—p. 190.
Lessons from Reconstruction Hospitals. L. A. Pechstein, Boston, Mass.—p. 194.
Some of Newer Proprietary Foods. J. P. Street, New Haven.—p. 244.
Aluminum Cooking Utensils. L. Graves, Ithaca, N. Y.—p. 247.
Preparing Statistics in Venereal Disease Clinics. M. M. Davis, Jr., and B. C. Lowell, Boston.—p. 252.

New York Medical Journal

Sept. 13, 1919, **110**, No. 11

Relation of Immunizing Procedures to Latent Infections. B. M. Randolph, Washington, D. C.—p. 441.
Emotions and Their Mechanism in Warfare. T. A. Williams, Washington, D. C.—p. 447.
Cerebrospinal Syphilis with Special Relation to Optic Nerves. M. J. Schoenberg, New York.—p. 452.
Influenza and Its Sequels. T. F. Reilly, New York.—p. 454.
An Intestinal Tube. M. Einhorn, New York.—p. 456.
Description of a Fetal Monster. J. Guidote, Leyte, Philippine Islands.—p. 459.
What the War Has Taught Us; Compound Fractures. J. A. Miller, New York.—p. 460.

Public Health Journal, Toronto

September, 1919, **10**, No. 9

Public Health Officer and his Relation to Public Health in Toronto. S. E. L. Thompson.—p. 393.
Work of Red Cross Organization in Relation to Preventive Medicine of Future. A. Newsholme.—p. 402.
Some Opportunities for Health Service from a Volunteer's Point of View. H. R. Y. Reid.—p. 409.
Plan for More Effective Federal and State Health Administration. F. L. Hoffmann.—p. 419.
Preliminary Study in Bacteriology of Jellied Meat Products. J. A. Allen.—p. 429.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 16, 1919, **2**, No. 3059

Cortical Localization of Vision. G. Holmes.—p. 193.
Case of Symmetrical Gangrene (Raynaud's Disease). E. Goodall.—p. 199.
*Effects of a Scorbutic Diet on the Suprarenals. R. McCarrison.—p. 200.
*Sudden Detachment of Aortic Intima (So-Called Dissecting Aneurysm). C. Walker and L. Walker.—p. 200.
Liver Abscess. C. Gibson.—p. 202.

Effects of a Scorbutic Diet on Suprarenals.—A pronounced reduction in the amount of epinephrin in the suprarenal glands was found by McCarrison to result in guinea-pigs from a scorbutic dietary of crushed oats and autoclaved milk.

Sudden Detachment of Aortic Intima.—The Walkers cite the case of a man, 65 years of age, apparently in good health, who fell down suddenly and nearly died; he recovered somewhat, and complained of intense substernal pain and of pain and paresis of the left leg. About thirty-eight hours later he died suddenly. The postmortem examination disclosed the greater part of the aortic intima lying free in the lumen. The aorta was extensively atheromatous. The mechanism of the process, and of the so-called dissecting aneurysm, is discussed. It is maintained that in the absence of bulging of the outer coats, static considerations alone do not provide an adequate explanation, but that the motion of the blood is a significant factor.

Aug. 23, 1919, **2**, No. 3060

Applications of Experience Gained by the War to the Problems of Civil Medical Practice. W. H. White.—p. 227.
Disturbances of Visual Space Perception. G. Holmes.—p. 230.
*Criticism of Certain Recent Claims to Have Discovered and Cultivated the Filter Passing Virus of Trench Fever and of Influenza. J. A. Arkwright.—p. 233.
A Thomas Arm Splint with A Flexible Elbow. W. J. Foster.—p. 237.
Leucine: Its Occurrence and Significance in the Urine. R. W. Allen.—p. 238.

Viruses of Trench Fever and Influenza.—Arkwright has been unable to confirm any of the experimental results reported by other investigators on the bacteriology of trench fever and influenza. He has been unable to distinguish macroscopically or microscopically between tubes inoculated with trench fever or influenza virus and control tubes at any period between their first inoculation and three weeks later, or over a longer period. The culture tubes showing a considerable amount of deposit or turbidity of the serum broth have, when examined, always proved to be contaminated by bacteria, as shown by subculture and microscopic examination. Two tubes selected by Wilson from his own culture after macroscopic and microscopic examination as good examples of growth of (*a*) trench fever and (*b*) influenza virus proved to be grossly contaminated by large staphylococci and appeared to Arkwright to contain no other organisms. Of three films shown as typical of the trench fever virus from different cases of trench fever and showing organisms of similar morphology, two appeared to be undoubtedly films of a diphtheroid bacillus irregularly stained, the third film also contained diphtheroid bacilli and in addition large numbers of a small bacillus of different appearance. Other tubes regarded by Wilson after macroscopic and microscopic examination as examples of cultures of trench fever, which did not contain ordinary bacteria, showed in Arkwright's opinion only appearances which were also found in control tubes. The forms claimed by Bradford, Bashford and Wilson as the micro-organisms of trench fever and influenza appear to Arkwright to be of two kinds: (*a*) Bacteria of the size of a staphylococcus or a diphtheroid bacillus, but only partially stained (polar or central staining). (*b*) Smaller or larger granules of precipitated protein which stain much more feebly than (*a*) and are also found in control tubes. Some of Wilson's films appear to contain both and some only the latter forms. In Arkwright's opinion Wilson has been misled by the appearances in films of bacteria feebly stained with methylene blue, in which only partial, for example, polar, staining is seen, and in the case of cultures from which bacteria have been absent he has been deceived by the diplococcus like or dumbbell shaped forms often seen in protein precipitates, and has regarded these granules as organisms. That Bradford, Bashford and Wilson should have been so misled in their researches appears to be due to the following causes: 1. The conditions under which they worked in isolation from other bacteriologists, conditions which would scarcely have obtained in times of peace. 2. A tendency to place undue reliance on the efficacy of filters and glycerin for removing or killing bacteria. 3. A misconception as to the size of the bodies seen in their films. 4. Inadequate staining. 5. Insufficient use of subculture on to ordinary mediums as a test for bacterial contamination.

Aug. 30, 1919, **2**, No. 3061

Education of Graduates. A. MacPhail.—p. 261.
*Cases of Rapidly Fatal Spinal Caries. J. R. Collins.—p. 265.
*Comparative Value of Novarsenobillon by Intravenous and Intramuscular Methods. Treatment and Prevention of Syphilis. L. G. Leonard.—p. 266.
Disordered Action of Heart in Mesopotamian Forces. A. H. Gosse.—p. 269.
*Perithelioma Simulating Pancreatic Cyst. R. E. Smith.—p. 270.
Avoidance of Relapse in Gonorrhea by Electrolysis. C. Russ.—p. 270.

Cases of Rapidly Fatal Spinal Caries.—Each of the three men whose illness is reported on by Collins appeared robust and gave a good previous health report, with the exception that one patient gave a history of pains in his back. The first patient was of a quite exceptionally fine physique, and said he had always enjoyed excellent health. The illness of the first patient lasted six days, that of the second fifteen days, that of the third nine days. The onset in each case was swift and without warning. The first patient, to his surprise, found himself unable to walk to the medical hut; the other two patients found one day, when in hospital, that they had become powerless in their legs. The first patient had six months' service, the second one year and five months, and the third two years and three months. There was no history of trauma in any of these cases. The patients died. A necropsy report is submitted in each case.

Relative Value of Intravenous and Intramuscular Injection of Arsphenamin.—On the basis of clinical results obtained in a large number of cases, Leonard favors the intramuscular method of administering arsphenamin, although good results were also obtained from the intravenous method. He emphasizes the importance of early treatment, and that quackery—advertised "remedies" and counter prescribing—should be dealt with more rigorously in order to prevent serious delay in commencing proper treatment.

Perithelioma Simulating Pancreatic Cyst.—In Smith's case the pseudocyst of the pancreas so closely simulated a true cyst of that organ that it was only at the necropsy and by tissue section that the true pathologic condition was determined. The growth had no definite capsule, except some feeble granulation tissue. The mass and its contents showed numerous blood spaces lined by large malignant cells radially arranged and spreading in solid masses from the blood spaces. There was much degeneration at the points distant from the spaces. The malignant cells were large with deeply staining cytoplasm; nuclei large, pale, and showing an active mitosis. The growth was a perithelioma or an encephaloid carcinoma with degeneration at the points remote from the blood spaces.

Edinburgh Medical Journal

August, 1919, 23, No. 2

*Treatment of Acute Gonorrhea: With Special Reference to Vaccine Therapy and Value of Detoxicated Vaccines and Complement Deviation Test in Acute and Chronic Cases. D. Lees.—p. 83.
A Field Ambulance in Gallipoli, Egypt, Palestine, and France. J. Young.—p. 106.

Treatment of Acute Gonorrhea.—Lees reviews the various plans of treatment followed for this disease and expresses himself strongly in favor of detoxicated vaccines.

Lancet, London

Aug. 23, 1919, 2, No. 5008

*Fracture of Femur. J. Driberg.—p. 311.
Perverted Functional Activity in Production of Jaw Deformities. D. M. Shaw.—p. 316.
*Antiscorbutic and Growth Promoting Value of Canned Vegetables. M. E. D. Campbell and H. Chick.—p. 320.
*Antiscorbutic Value of Some Indian Dried Fruits. H. Chick, E. M. Hume and R. F. Skelton.—p. 322.
*Comparison Between Antiscorbutic Properties of Fresh, Heated, and Dried Cow's Milk. R. E. Barnes and E. M. Hume.—p. 323.
*Immunized Skin Grafts. A. Yates.—p. 324.
Mucus Deposit of Urine. S. G. Billington.—p. 325.
Five Cases of Spontaneous Fracture Occurring in Serving Soldiers. C. Noon.—p. 326.
Effects of Exposure on Terminals of Hands and Feet. F. Jeeves.—p. 328.
Keratodermia Blennorrhagica. C. S. Dyke.—p. 328.
*Cryptopodia: An Undescribed Disease. E. C. Bousfield.—p. 329.

Aug. 30, 1919, 2, No. 5009

Educational Number.

Fractures of Femur.—Driberg points out that by the use of any one of the methods described by him a perfect result can be obtained in the vast majority of fractured femurs, but, success depends, in large part, on the exercise of constant care and attention to detail. The adjustment of the slings, the maintenance of the extension, the movements of the knee joint, the correct suspension with slight eversion of the limb, the prevention of foot drop, massage, and the upkeep of general health and nutrition of the patient—each of these plays its allotted part in the attainment of perfection; and if any one is neglected the seeker after perfection is apt to be disappointed.

Antiscorbutic and Growth Promoting Value of Canned Vegetables.—Previous investigators have shown that canned vegetables suffer considerable deterioration in antiscorbutic value owing to the high temperature to which they are exposed in the process of preparation. Campbell and Chick did some experimental work to obtain an accurate estimate of what that loss might be. Cabbage and green (runner) bean pods were selected as suitable vegetables for the experiment. The experiments consisted essentially in estimating and comparing the minimal amounts of these vegetables, (*a*) when raw, and (*b*) after canning, which must be added daily to a basal scurvy producing diet in order to protect young guinea-pigs from scurvy over a period of three months. It was learned that in the process of canning vegetables the greater part of the original antiscurvy value of the raw vegetable is destroyed. In the case of runner bean pods the loss is estimated at about 90 per cent. of the original value; in the case of cabbage at about 70 per cent. of the original value. This loss is primarily due to the destruction of antiscurvy material occurring during the heating involved in the process of canning. A further loss may be expected to take place during the period of storage. This canned cabbage was examined two weeks after preparation and the canned beans three months afterward. In the case of green leaf vegetables which possess, in addition to the antiscurvy vitamin, the "fat-soluble" growth promoting accessory factor, the latter substance is also lacking in the canned material unless the liquor be also taken. Therefore, the value of canned vegetables as regards antiscurvy and growth promoting properties must be regarded as negligible.

Antiscorbutic Value of Some Indian Dried Fruits.—Chick and her associates state that dry tamarind, cocum and mango possess a definite but small antiscorbutic value. This value is greatly inferior to that of raw cabbages, swedes, germinated pulses, orange juice, lemon juice, but equal or superior to that of carrots, beet roots, cooked potatoes, raw meat juice —reckoned weight for weight in the natural condition.

Antiscorbutic Properties of Fresh, Heated and Dried Cow's Milk.—The antiscorbutic value of cow's milk, fresh, heated and dried, was determined by Barnes and Hume by means of quantitative nutritional experiments with guinea-pigs and monkeys. Cow's milk, even when fresh, was found to be a foodstuff comparatively poor in antiscorbutic properties, and large daily rations, 100 to 150 c.c. daily for guinea-pigs and 125 to 175 c.c. daily for monkeys, were needed to protect these animals from scurvy, when on a diet otherwise devoid of antiscorbutic material. Dried milk was found inferior to raw milk in this respect. Even with material of quite recent manufacture the authors were unable to protect guinea-pigs from scurvy with any amounts that it was found possible to administer. In case of monkeys the minimum protective dose was found to be approximately from 20 to 300 c.c. daily; in other words, about half the original antiscorbutic value of the fresh milk had been destroyed in the process of drying. "Scalded" milk was found distinctly superior to dried milk. These facts form a strong argument for the desirability of adding an extra antiscorbutic to the diet of infants nourished on dried milk. The most suitable substances for this purpose are raw orange juice, raw swede juice, or juice of tomatoes, raw or canned. Grape juice and carrot juice are also useful but less valuable, as, being inferior in potency, correspondingly large doses are required. Potatoes, cooked and mashed, can be employed in cases where starchy foods are not considered unsuitable. Some evidence was obtained showing that winter milk is inferior to summer milk in antiscorbutic properties, corresponding to the differences in the cow's diet at these different seasons. In this connection the suggestion is made that the value of winter milk in this respect might be raised if swedes were employed for winter feedings in place of mangolds, where possible. No significant difference was detected in the growth promoting properties of raw and dried milk, respectively, and this was true with both guinea-pigs and monkeys. In both cases growth declined with the onset of scurvy symptoms, but until this occurred the growth made on diets containing dried milk was equal to that obtaining when equal rations of fresh milk were substituted.

Immunized Skin Grafts.—The method which Yates says was used by German surgeons during the war consists of placing the dressing, which has been in contact with the surface of the wound it is intended to treat and which is therefore soaked in the discharges of the wounds, on an area of skin suitable for obtaining grafts by the Thiersch method and allowing this dressing to remain in position for twenty-four hours, after which it is replaced by another dressing removed from contact with the wound. Applied with these precautions, the skin with which the wound discharges were brought in contact, was found to redden and to show on the third day of the application a slight prominence of the papillae. It was necessary to watch the skin carefully at this point in the treatment as it is of considerable importance to guard against the occurrence of a violent reaction. When the skin showed a marked elevation of the papillae and slight reddening, the treatment of the area was stopped for a day, but in most cases it was possible to treat the skin in this way for a period of seven days, after which the graft was ready for removal.

Cryptopodia.—Bousfield's patient, a woman, 44 years of age, first noticed enlargement of the feet at the age of 15, coming on during the day and disappearing during sleep. She appears to have continued in service, though with increasing difficulty, until her twenty-fifth year, when she was attacked by rheumatoid arthritis, which left her hands crippled, and since then the feet have got steadily worse, so that for ten years she has not been able to walk. The suggestion is that of elephantiasis, but the fact that the toes are not involved in the tumor, and the great separation of the hair follicles, indicating distention, not hypertrophy, together with the translucence of the tumors, negative the idea of that disease. The swelling extends from about 3 inches below the knees, and involves the whole of both legs and the dorsum of the feet, but stops absolutely short at the margins of the soles, or rather folds over about half an inch higher all around. Around each ankle there is a well marked collar, with protuberances not coinciding with any anatomic structures. The skin pits deeply on pressure, but there is neither pain nor tenderness. Heart, lungs and kidneys are sound. A blood count showed 32 per cent. polymorphonuclear leukocytes, 17 per cent. transitionals, 51 per cent. small lymphocytes, but neither large mononuclears nor eosinophils. The red cells were very irregular in size, varying from 0.5 to 1.5 of the normal, but poikilocytes were few in number. Numerous specimens of blood taken at night failed to show evidence of filaria. The only suggestion as to the nature of the case was that it might be a variant of Milroy's disease, but there is an entire absence of hereditary element.

Archives des Maladies de l'App. Digestif, París

July, 1919, **10**, No. 4

*Lamblia Enteritis. A. Cade and A. C. Hollande.—p. 193.
*Mucous Gastric Catarrh. L. Pron.—p. 223.
*Gumma in Cecum. D. Giordano.—p. 236.

Intestinal Lambliosis.—Cade and Hollande describe with minute detail ten cases of chronic diarrhea in which *Giardia* (Lamblia) *intestinalis* was found. Its exclusive pathogenic rôle was demonstrated in these cases. Fairise and Jannin even found the parasite burrowing deep in the bowel wall, but there is a possibility in their case that the patient may have had a preceding dysentery. The parasites ensconced in the walls escape the action of drugs by the mouth. Experience and review of the literature seem to show that neoarsphenamin by the vein is the most effectual treatment known to date. The predominant symptom is diarrhea, and it may develop gradually or with an acute onset resembling dysentery. Formed stools are extremely rare, but there is little subjective disturbance even during the exacerbations. The liver is not enlarged, but the colon is somewhat tender and the left "colonic cord" is distinct. The patients are usually thin and pale but not enough to harmonize with the long duration of the affection. The temperature may keep normal over long periods, but they often noted slight evening rises, and in one case there was high fever at times. There are no striking blood changes, and they never found pus in the stools with lambliosis. No improvement was noted in two of three cases under hydrochloric acid, but in the third case the benefit was pronounced, and the cysts of the lamblia disappeared from the stools (two examinations). From 1 to 1.5 gm. of the hydrochloric acid was taken daily in "albuminous water" for twenty or thirty days. (The *eau albumineuse* of the French Codex is made with the whites of four eggs beaten up in 1 liter of water, flavored with orange-flower water.)

Mucous Gastric Catarrh.—Pron emphasizes that continuous or exaggerated secretion of gastric juice is not all that comes under the heading of gastric catarrh. When splashing can be heard in the stomach twelve or fourteen hours after the last meal, and a thick alkaline, neutral or only slightly acid fluid can be aspirated then from the stomach, there is evidently mucous catarrh alone. Saliva floats on the stomach content and does not blend with it, and mucus from the esophagus is more fluid and clearer; it filters readily, and the chlorid content is small, differing widely in these respects from gastric mucus, which looks more like a thick solution of acacia. On centrifugation it yields a thick clot formed exclusively of ricelike granules which are dissolved by acetic acid. He has encountered 21 cases of this mucous catarrh, including 7 in which there was accompanying slight acid hypersecretion. Some of these patients present the clinical picture of continuous hypersecretion, others of hyposecretion with little appetite. and oppression after dinner. Some complain of pain in the bowels in the morning, probably from difficulty in passage of the thick mucus through the bowel. Vomiting of mucus was known in only 4 of his 21 cases. The other symptoms are those of ordinary gastric disturbance except that there was enterocolitis in 7 of the 21 cases. The excessive secretion of mucus interferes with digestion in the stomach, it weighs down the organ and by modifying the concentration of the stomach contents retards the opening of the pylorus. The aim in treatment is to keep the mucus dissolved, and for this alkalines are required, such as half a glass of Vichy water taken tepid before breakfast. Sodium carbonate, 0.5 gm. in water, at the close of meals, has proved useful in some but not in all cases. In infants, Gautheley was successful in the graver forms with rinsing out the stomach with Vals mineral water three times a day. The diet should exclude soft foods like purées, milk, etc., which only augment the mechanical disturbance. Salt, condiments and carbonated mineral waters help in the evacuation of the stomach, and a correctly applied band to sustain the sagging organs, and also hydrotherapy may be useful. The diet should differ according to the type of reactions; when they are sluggish and gastric secretion is low, meat, with salt and condiments may stimulate the stomach, aided perhaps by hydrochloric acid, 10 drops in half a glass of water at the beginning of the meals, supplemented by nux vomica to promote the evacuation of the stomach. With a lively reaction, meat and condiments should be avoided, giving the preference to fish, green vegetables and eggs, taking hot sage tea in the morning, fasting, and giving belladonna to soothe the stomach mucosa, and after meals a tablespoonful of a mixture of 3 gm. each of sodium sulphate, sodium phosphate and sodium bromid in 300 gm. distilled water.

Gumma in Cecum.—The gumma was discovered during an appendicectomy, and Giordano removed the segment of the cecum along with the appendix.

Archives Médicales Belges, Liége

April, 1919, **72**, No. 4

Nervous Disturbances after Industrial Accidents. R. Verhoogen.—p. 385.
Evaluation of Disability Pensions for Mental Disturbances in Soldiers. H. Hoven.—p. 408.
*Calculi in the Urethra. Van den Branden.—p. 427.
Electrons and Radiant Energy in Therapeutics. Van de Maele.—p. 432. Conc'n.

Calculus in Urethra.—Van den Branden reports a case of acute recent gonorrhea with pain on urination, and about the fifth day a hard tender tumor was palpated 2 cm. from the meatus. The tumor was treated on the assumption of an acute inflammatory process in Littré's glands, which the palpation findings seemed to indicate. They persisted unmodified for two weeks. Then endoscopy revealed the tumor to be a calculus, 1 by 1.5 by 0.5 cm. Strictures had developed at this point during these two weeks. There never had been any symptoms from the urinary apparatus before the gonorrhea, and the assumption of an acute littritis seemed unquestionable, until the calculus was discovered.

Archives de Médecine des Enfants, Paris

August, 1919, **22**, No. 8

Some Special Features of the American Red Cross Dispensary at Havre. E. A. Park.—p. 393.
*The Urea Content of Blood. J. A. Van der Starp.—p. 414.
*Phimosis and Disturbance in Micturition in Children. J. A. Phélip and C. de Galard.—p. 424.
Erythema Nodosa and Acute Endocarditis in Boy of Eight. De Meuron.—p. 428.

Urea Content of Blood of Children.—Van der Starp has modified the Ambard ureometer so that it can be used with only 1 c.c. of blood. The blood is drawn directly into 3 c.c. of a 0.1 per cent. solution of potassium oxalate. The whole blood is used, and it is drawn into this hemolyzing and coagulation-preventing fluid, and the ureometer is graduated for hundredths of cubic centimeters. No centrifugation is required, and the whole procedure is so simple and easy, he declares, that the busy practitioner can thus conveniently inform himself in regard to the work of the kidneys, even in infants, applying the Ambard formula from the ureometer findings. The ureometer is based on the alkaline bromid reaction, which he regards as the most reliable test. This method has hitherto had to contend with the drawback that 20 c.c. of blood were required for it. An illustrated description is given of the modified ureometer which works with only 1 c.c. of blood.

Phimosis in Infants.—Phélip and Galard have been reexamining recently 51 children who had been operated on for phimosis some time before. In every case in which there had been balanoposthitis, it promptly healed after the operation for the phimosis. With incontinence of urine, the operation was followed by a complete cure only in 7 of the 18 cases but some improvement was manifest in 5 others. In one case showing no improvement, an operation on adenoids later was followed by improvement. With incontinence, other possible causes aside from the phimosis should be sought. If the meatus is unduly narrow, this is easily corrected as a rule by mechanical dilatation.

Archives Mens. d'Obstét. et de Gyn., Paris

February, 1919, **8**, No. 2, Pub'd July, 1919

*Abdominal Cesarean Section. P. Bar.—p. 49.
*Breech Presentation with Fetus in Hyperextension. A. Laffont.—p. 62.

Abdominal Cesarean Section.—Bar draws the balance sheet of high cesarean section, his conclusion being that it is almost certain to be a success for the mother and is absolutely certain for the child when the woman is not threatened with infection and the environment can be counted on and the simple technic is applied by not unskilful hands. The indications for it are when the bones or soft parts offer an obstacle that renders natural delivery improbable, and when circumstances compel rapid evacuation of the uterus while the os is still undilated. Its most promising field is as a prophylactic measure, early in labor or before labor has begun.

Breech Presentation with Hyperextension.—The child lived only two days, and necropsy showed that the bending of the head back on the spine during the course of the development of the fetus had prevented the normal development of the corresponding dura mater and spinal cord. The sudden straightening of the head during delivery had caused the dura mater to rupture at this point. Nothing was found to explain this hyperextension of the fetus before labor. Laffont compares with this case the few instances of fetal hyperextension on record, nearly all with breech presentation. Infants born with breech presenting are dolichocephalous in about 20 per cent. or more of the cases, from the pressure of the wall of the uterus on the head. The hyperextension predisposes to breech presentation. Slow delivery is the safest; rapid delivery, suddenly straightening the neck, is liable to rupture the dura or do other damage. A certain number of instances of paralysis of the brachial plexus may be traceable to some injury from forcible straightening when there has been breech presentation.

Bulletin de l'Académie de Médecine, Paris

July 29, 1919, **82**, No. 29

Venous Stasis from Tight Leggings as Factor in Trench Foot. Dopter.—p. 95.
Acute Appendicitis. Témoin and others.—p. 97.
*Rubber Implants to Substitute Bone. P. Delbet, Girode and Contremoulin.—p. 110.
*Surgical Correction of Wrinkles. R. Passot.—p. 112.
*Serotherapy of Traumatic Shock. P. Bouchet.—p. 115.
Medical Inspection of Country Schools. L. Azoulay.—p. 117.
*Actinomycosis of the Heart. M. Letulle and Hufnagel.—p. 120.
Local Arterial Blood Pressure in Diagnosis of Varicose Conditions and in Control of Treatment. L. Mabille.—p. 148.

Reenforced Rubber Endoprosthesis.—Delbet and his co-workers have previously reported their experiments with rubber implants to replace lost segments of bone, and they here give the details of two successful clinical cases. The gap in the radius crippled the men completely. The stumps were fitted each with a cover, and an adjustable reenforced rubber interpiece was fitted in between these covers. The bone recovered its normal length and strength at once. The results seventy and eighty-eight days to date are perfect both from the orthopedic and functional points of view, aside from a preexisting paralysis in one case.

Surgical Correction of Wrinkles.—Practically the same article was summarized recently, July 5, 1919, p. 70.

Serotherapy and Traumatic Shock.—Bouchet lauds the efficacy of a polyvalent antiserum (LeClainche and Vallée) both in prevention and in treatment of traumatic shock. No shock developed in 75 gravely wounded men treated with it, and the symptoms of established shock retrogressed in twelve others.

Actinomycosis of the Heart.—Letulle and Hufnagel describe in minute detail a case of actinomycosis of the entire heart and pericardium, inducing extensive lesions. The patient was a man of 34 and the actinomycosis seemed to have started first in the esophagus and spread thence to the heart and secondarily to the right pleura and base of right lung. The case confirms that wherever the actinomyces proliferates, it destroys all the tissues and organs in its way, whatever their structure.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 27, 1919, **43**, No. 22

*Lethargic Encephalitis. J. Lhermitte and De Saint Martin.—p. 607.
*Death in Influenza. M. Renaud.—p. 613.
*Acute Yellow Atrophy of the Liver. M. Garnier and J. Reilly.—p. 622.
*Malaria and Diarrhea. E. Job and L. Hirtzmann.—p. 629.
Traumatic Hemiatrophy. d'Oelsnitz and L. Cornil.—p. 634.
*Seasickness. P. Cazamian.—p. 638.
Committee Report on Isolation of the Tuberculous.—p. 641.

Lethargic Encephalitis.—Lhermitte and Saint-Martin report a case, with recovery, of what they call primary poliomesocephalitis with narcolepsy, or ophthalmoplegic encephalitis with narcolepsy. The mesocephalic region seems to be primarily affected, and the usual term, lethargic encephalitis, is too broad. They comment on the remarkable absence of any changes in the fundus in their numerous cases of this kind, also the absence of albuminosis and of pleiocytosis in the spinal fluid, the absence of the Argyll Robertson sign and the negative Bordet-Wassermann reaction. They treated all these patients with hexamethylenamin by the mouth and there were no deaths in their series. The case here reported was exceptionally severe, and they gave, besides, three daily intravenous injections of 1 or 1.25 gm. of hexamethylenamin, at the same time withdrawing 6 c.c. fluid by lumbar puncture just before the third injection. The secretion of the choroid plexuses is assumed to be activated by this, and thus to allow more of the drug to pass into the cerebrospinal fluid. Be this as it may, the patient's condition improved notably at once and the procedure seemed absolutely harmless. The first intravenous injection had been supplemented only by a dose of 1 gm. of the same drug by the mouth. The first symptoms had been noted ten days before.

Death in Influenza.—Renaud's analysis of the lesions in the fatal cases of influenza and of the mechanism of death has convinced him that instead of speaking of "influenza in a pulmonary form" we should define it as "a pneumococcus infection of the lung, epidemic and contagious." This conception entails the practical conclusion that every case of influenza, even the mildest form, should be regarded as potentially grave and should be treated accordingly (bed rest, baths, preventive digitalis). It shows further the futility of all the measures when applied late, after the inevitably fatal process is well under way. It assures us, moreover, that treatment will be effectual in the immense majority of cases. In his service, treatment based on these premises and applied with increasing confidence brought the mortality down from 7 per cent. (May-December, 1918) to 2.5 (December-March, 1919) and to 0.2 per cent. (February-April), although the proportion of grave pulmonary forms was highest in the latest series. These premises also justified the simultaneous injection by the vein of epinephrin and antipneumococcus serum which brought on without fail a crisis identical in every respect with the salutary crisis of frank pneumonia, all the twenty-seven thus treated recovering rapidly and completely although they were the gravest cases in a series of 130. "The disease is in the lungs but the outcome depends on the heart." Multiple and extensive foci of hepatization in the lungs were found in all the fatal cases. This entails asphyxia, and heart failure completes the vicious circle. Treatment should be based on physiology. Even in threatening cases, simple hygiene and dieting, with a few cold packs often aborted the disease in two days.

Acute Yellow Atrophy of the Liver.—Garnier and Reilly report four cases of infectious jaundice which differed in many respects from icterohemorrhagic spirochetosis, although occurring under similar conditions. No micro-organisms could be discovered, but necropsy revealed typical acute yellow atrophy of the liver. The men died in from two to four days after the first appreciable symptoms. The jaundice from spirochetosis seldom proves fatal before the eighth to the thirteenth day and the symptoms are more from the kidneys than from the liver.

Malaria and Diarrhea.—Job and Hirtzmann warn that malarial diarrhea is not uncommon but may be mistaken for dysentery. The laboratory excludes the latter, and the way in which the diarrhea subsides under quinin confirms the malarial origin, or the aggravation of a preexisting enteritis by the malaria.

Seasickness.—Cazamian is the chief medical officer on the cruiser *Jean-Bart,* and he has made a special study of fifty cases of seasickness during the last two years. This has convinced him that the abnormal sensations and stimuli induced by the movements of the ship act on the nervous system of the vegetative life (autonomic and sympathetic nerves). The sympathetic nervous system thus becomes irritated. Its hyperexcitabity is manifested in the higher blood pressure, tachycardia, inversion of the oculocardiac reflex, and dilation of the pupils. The symptoms suggest excessive production of epinephrin at first. Then the suprarenals become exhausted, and the blood pressure drops. During the first phase there is a sympatheticotonic paroxysm; during the second phase the clinical and pathogenic phenomena are like those of shock. Persons inclined to sympatheticotony are peculiarly predisposed to seasickness while the vagotonic escape. In the second phase, epinephrin by the mouth (6 mg. in three doses at half hour intervals), gives good results, but it is of course directly contraindicated during the first phase, the hyperepinephrin stage. During this phase, he has obtained absolutely constant excellent results, both in prevention and in curing the seasickness, from hypodermic injections of neutral sulphate of atropin in doses varying from 0.001 to 0.002 gm. As we know of no drug that will check the functioning of the sympathetic nerve, the next best thing is to act on the antagonist nervous system. By influencing the vagus in this way with atropin, we thus indirectly control the sympathetic. The question whether epinephrin or atropin is called for in the individual case is easily answered by the oculocardiac reflex. His experience indicates that with one or the other of these two drugs we can ward off and cure seasickness, he reiterates in conclusion.

Journal de Radiologie, Paris

August, 1919, **3**, No. 7

Radioscopy of the Aorta. Cerné.—p. 289.
Cure under Roentgen Treatment of Enormous Angioma on Face of Little Girl. Funck and L. Hauchamps.—p. 294.
*Case of Hemophilia of the Joints. F. Escande and J. Tapie.—p. 298.
Localization of Foreign Bodies in the Eye. P. Perol and G. Bazin. —p. 303; Id. H. Fraudet.—p. 310.
Electric Treatment of Segmentary Edema after War Wounds. M. Berthomier.—p. 312.
*Radiotherapy of Brain Tumors. S. Nordentoft.—p. 314.
Estimation of Depth of Foreign Bodies. Guilbert and Cimbert.—p. 316.
Condensing Osteitis. L. Moreau.—p. 318.
*Roentgen Picture of Filaria. Delort.—p. 320.
Errors in Interpretation of Roentgen Picture of Stomach. A. Laquerrière.—p. 321.
Roentgen Picture of Projectile Passing from Inferior Vena Cava into the Right Ventricle. F. Menuet.—p. 323.

Hemophilic Joints.—Escande and Tapie analyze the roentgen findings in the knees of a hemophilic boy of 9. The tendency to purpura and joint affections was noted from the age of 4 and 16 months. The recurring hemarthritis of the knees had crippled the boy from the resulting chronic panarthritis which at first suggested tuberculosis. Addition of an emulsion of normal blood corpuscles to the boy's blood corrected the delay in the coagulation, confirming the assumption that the blood in hemophilia is lacking in certain ferments of leukocyte origin. No tendency to hemophilia could be detected in other members and branches of the family but the blood findings are of the familial type, suggesting that this boy is the first of a line of bleeders. The roentgen findings in the joints differ with each case, but in this boy all the features of the other cases on record seem to be combined.

Radiotherapy of Brain Tumors.—Nordentoft has now a record of eighteen cases of brain tumors given roentgen treatment since February, 1915. Nine of these patients are living and in good health, except hemianopsia in one case, and that vision is rather poor in another case in which the patient had been almost completely blind before the radiotherapy. (A previous communication from him on this subject was briefly summarized in these columns, May 18, 1918, p. 1510.) He describes here two especially striking cases, one in a young lawyer who had become imbecile, with incontinence of both stools and urine. It proved impossible to localize the assumed tumor, which was supposed to be a diffuse glioma, presumably in the frontal lobe, and the entire head was submitted to cross-fire exposures, brow, parietal and temporal regions, omitting only the occiput as this was so difficult to reach. The aluminum filter was 10 mm. thick and the rays were applied until depilation was complete. Improvement was evident by the fifth or sixth day, and recuperation was soon complete, so that the patient was able to resume the practice of law. In two cases of cerebellar tumors the permanent cure was soon realized; a third in this group died, and the fourth did not seem to improve except that the course of the tumor was arrested. An operation some time later revealed a cyst in the cerebellum, and the patient recovered after the cyst had been drained. There is a possibility that the cyst had developed in the space left by the healing of a tumor under the preceding roentgen treatment.

Roentgenogram of Guinea-Worm.—The roentgen picture of the leg shows very clearly a long narrow, dark mass which feels under palpation like the intestine with the bismuth suspension. The only explanation possible, Delort says, is that the shadow is cast by an old calcified *Filaria medinensis.* The patient is a native of the tropics.

Lyon Médical

July, 1919, **128**, No. 7

Pneumococcus Meningitis Consecutive to Contusion of the Skull without Fracture. S. Bonnamour and A. Macrygenis.—p. 321.
Ileus from Gallstones; Five Cases. M. Guérin.—p. 325.
Pathogenesis of Fever. Widmann.—p. 331. Conc'n.
Life at Liége During German Occupation. Henrijean.—p. 363. Conc'n.

Paris Médical

Aug. 9, 1919, **9**, No. 32

*The Arterial Pressure During Bombardment. G. Etienne and G. Richard.—p. 109.
*Chemistry of the Intestines. R. Gaultier, Roche and Baratte.—p. 115.

Blood Pressure During Bombardment.—Etienne and Richard write from Nancy: "Several years of medical observation in a bombarded city have attracted our attention to the rôle which war emotions may play in respect to the state of the arterial tension." Since they began to study it (January, 1916), a number of communications on this subject have appeared, but they all related to soldiers, that is, to healthy young men. Their Nancy report deals with 100 subjects of all ages, many examined repeatedly during the years of bombardment as they sought shelter in a certain cellar. The findings confirm that every violent emotion modifies the arterial pressure, usually sending it up for five or ten minutes and then it drops below normal for from a few minutes to two or three hours. Exceptionally, and only in the young, there is primary hypotension with tachycardia. The blood pressure returns to normal in the young under repeated or continued emotional stress much sooner than in the elderly. The latter may still show hypotension months after the danger is past. The data accumulated in this research confirm that very intense fear has an inhibiting or even a destructive action on the suprarenals, but less intense emotional stress has merely a stimulating action on them, inducing excessive production of epinephrin. With recurring fear, as in a bombarded town, the suprarenals are kept in a chronic state of excessive production of epinephrin, and this keeps up a chronic overstimulation of the sympathetic system with all that this implies for the whole endocrine and vasomotor systems.

Chemistry of the Intestines.—The duodenal juice was examined separately and the findings were compared with those from analysis of the stools. Gaultier and his co-workers tested the duodenal juice for bile pigments with Fauchet's reaction and the stools for pancreatic juice by titration with commercial pancreatin. They tabulate the findings in five normal persons and in eight with various gastro-intestinal disturbances. They found that the coprologic examination usually gave results that harmonized with the duodenal juice findings, thus completing the oversight of bowel functioning. But analysis of the stools was far more instructive than of the duodenal juice as the information it imparts bears on the sum total of the digestive activities, instead of the partial information which is all that can be learned from the duodenal content.

Aug. 16, 1919, **9**, No. 33

*Treatment by the Mouth of Chronic Amebiasis. P. Ravaut and Charpin.—p. 125.
*Undulant Fever from Hidden Diseased Glands. P. Harvier.—p. 130.
*History of Traumatic Commotion. R. Benon.—p. 137.

Treatment of Chronic Amebiasis.—Ravaut and Charpin expatiate on the necessity for varying the treatment of rebellious chronic amebiasis to conform to current conditions. They have obtained gratifying results with a paste made of charcoal, bismuth and ipecac, alternating this with neo-arsphenamin. This treatment, entirely by the mouth, is well tolerated; it soothes the intestinal disturbances and seems to act rapidly on the parasites. It does not depress the appetite, which is very important, as the patient is saved if he eats, assimilates and increases in weight. Small enemas of neo-arsphenamin usefully supplement other measures, using not more than 0.15 or 0.30 gm. in 50 or 100 gm. of water, so that it will be retained. The paste mixture they use contains 100 gm. each of pulverized wood charcoal, bismuth subnitrate, simple syrup and glycerin, with 4 gm. of pulverized ipecac. This is 0.1 gm. of ipecac to the teaspoonful, and from two to ten teaspoonfuls are taken during the twenty-four hours. If there is violent diarrhea, with pains, they add 0.80 gm. of pulverized opium to the above mixture. This paste is taken for one day, the second day one or two capsules of 0.10 gm. neo-arsphenamin (novarsenobenzol); the third day the paste again, and the fourth neo-arsphenamin, and so on alternately. In the five cases described, the men bore this treatment without nausea or colic, and one increased 5 kg. in weight in five months and another gained 2.2 kg. in forty-five days. A marked influence on the parasites was evident in three cases but not in the two others, although the men were gaining in weight and strength, weighing 6 and 10 kg. more in two months, and the stools were frequently although not always free from the parasites.

Fever from Deep-Seated Glandular Disease.—Harvier gives charts from three cases in which a wavelike fever suggested Malta or undulant fever. There were afebrile periods in three, lasting for two to five days. One patient had eight of these waves, each from nine to fourteen days long. In three others the temperature did not drop quite to normal in the intervals. The spleen was enlarged in all but the liver seemed to be normal. There was also moderate anemia, but no change in the leukocyte numbers or formula, and no pathologic peripheral glands. Necropsy in three cases described in detail revealed a severe glandular process deep in the abdomen or mediastinum. In one of these cases, the primary mediastinal adenopathy had been followed by other lesions of other glands in the groin and elsewhere. As each of these glands became involved, a new wave of fever was observed. Undulant fever, therefore, should suggest a possible deep-seated adenopathy which raying might reveal.

Traumatic Commotion.—Benon reviews the earlier works on railway spine, railway brain, traumatic asthenia, citing as the pioneers Dupuytren in France (1832), Ericksen in England (1886) and Knapp in America (1888). In Dupuytren's work we find the exact description of transient or prolonged traumatic asthenia just as it is encountered today.

Presse Médicale, Paris

Aug. 11, 1919, **27**, No. 44

*Indications with Wounds of the Unopened Thorax. J. Ducuing.—p. 437.
Principles for Functional Prosthesis for Radial Paralysis. J. Privat.—p. 439.

Wounds of the Chest.—Ducuing expatiates on the recent broadening of the indications for operative intervention in cases of penetrating wounds of the chest with the chest cavity closed.

Revue Neurologique, Paris

March, 1919, **26**, No. 3

Nystagmus of Rotatory Origin in Normal Subjects. L. Bard.—p. 177.
*The Babinski-Nageotte Syndrome. P. Descomps and Quercy.—p. 187.
*Reflex Phenomena from Distention of Tendons. Noïca.—p. 196.
Rarefaction of the Bones in a Case of Progressive Spinal Muscular Atrophy. A. Barbé.—p. 201.

The Babinski-Nageotte Syndrome.—Descomps and Quercy describe another case of the set of symptoms from disorder of the posterior inferior cerebellar artery, with certain special features.

Reflex Phenomena from Distention of Tendons.—Noïca analyzes and groups the organic signs which characterize a lesion of the pyramidal tract, but instead of eliciting the tendon phenomena by percussing the stretched tendons he seeks to distend them.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 31, 1919, **49**, No. 31

*Pregnancy with Diseased Heart, Lungs or Kidneys. P. Hüssy.—p. 1145.
*Functions of the Cerebellum and Adjacent Organs. E. Rothlin.—p. 1161. Com'd in No. 30, p. 1113.
*Respiration Curve at the Apex. F. Stirnimann.—p. 1171.

Outcome of Heart, Lung and Kidney Disease After a Pregnancy.—Hüssy states that of the 15,352 parturients delivered at the Basel Women's Hospital in the ten years ending with 1917, 35 had heart disease and 9 per cent. of these died at delivery and 18 per cent. not long after. In 40 per cent. the disease had evidently been aggravated by the pregnancy, and only 50 per cent. seemed to bear the pregnancy and delivery without harm. In 17 per cent. the condition became aggravated during the pregnancy, and abortion had to be induced. Of the 76 parturients with manifest pulmonary tuberculosis, 6 per cent. succumbed at delivery and 10 per cent. soon after; 17 per cent. had the condition aggravated during the pregnancy, but 66 per cent. passed through the pregnancy apparently unharmed by it although in this group 8 per cent. showed an aggravation during parturition. Of the 15 women with chronic nephritis, 20 per cent. died at delivery and only 48 per cent. passed through the pregnancy without aggravation of the kidney disease. His figures show further that very few of the women with mitral stenosis survived their pregnancy, some dying before delivery. On the other hand, latent pulmonary tuberculosis did not seem to be much influenced by the pregnancy, and even in the manifest forms the condition seemed to improve. The women may succumb a few years afterward to the aggravation of the condition by the propagation of the bacilli at the time of the delivery; the pregnancy in itself does not seem to entail aggravation. With chronic nephritis, the primary mortality was high, but after delivery the condition seemed to improve. Hüssy compares these experiences with those of others in this line.

The Functions of the Cerebellum.—Rothlin's extensive experimental research and clinical experience confirm Bolk's statements as to the localization of certain motor centers in the cerebellum. When the anterior lobe of the cerebellum is irritated with curare, the symptoms observed are not traceable to the cerebellum, as Pagano insists, but to the action of the poison on the adjacent organs, especially the fourth ventricle.

Respiration Curve at the Apex.—Stirnimann refers particularly to the curve in children and youths recorded with the Jaquet sphygmocardiograph and three Marey drums, one for each apex and one for the chest expansion. These three simultaneous and symmetrical curves show always in health well defined high peaks, nearly symmetrical. The difference is striking in the pathologic cases, even with incipient disease. He gives typical curves, and commends this method as very instructive in detection of the earliest phases of apical disease in the young.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 20, 1919, **40**, No. 58

*To Combat Demineralization. U. Baccarani.—p. 586.

July 24, 1919, **40**, No. 59

Valvular Defect from Chronic Traumatic Endocarditis. G. Cappello.—p. 601.

July 27, 1919, **40**, No. 60

Laryngeal Abscess in Influenza. E. Peretti-Griva.—p. 611.

Remineralization of the Organism.—Baccarani insists that mineral salts in the form of drugs are utilized far less than the mineral salts found in certain plants, seeds, etc. These he calls "living mineral salts" and urges their systematic use in therapeutics, but does not specify what seeds or amounts he gives in the mixture he uses.

Rivista di Clinica Pediatrica, Florence

July, 1919, **17**, No. 7

*Esophagoscopy. A. Orlandini.—p. 337.

Appendicitis Secondary to Scarlet Fever. A. F. Canelli.—p. 362.

Esophagoscopy.—Orlandini used a small straight spatula tube, perforated, with a right-angled handle, for direct esophagoscopy in two children recently, and it worked like a charm. One child was 2½ years old and the other 18 months, and no anesthetic was used. The subject sits in a low chair, only 15 cm. high, with back and arms and a horizontal extension 1.30 meters long, with adjustable crossbar for the feet to brace against. The physician sits on a high chair, 70 cm. high, that straddles the low extension and the patient's legs. The patient is thus restrained from moving while his head is held from behind by a nurse. This arrangement is peculiarly advantageous for anesthesia and for various operations as the patient is comfortable as if sitting up in bed, while the arms of his chair hold his trunk and pelvis firm and his legs are held between the legs of the tall chair and the physician's legs as the latter sits in the high chair the seat of which tilts forward a trifle. When the patient is a small child, the nurse sits in the low chair holding the child.

In the 2 year old child the tube was passed safely down to below 13 cm. but then the child suffocated, and the tube had to be withdrawn and artificial respiration applied for ten minutes. When all was in order again, the tube was passed easily down beyond this point, but was then arrested by the bulging mucosa. The probe gave the impression of a foreign body below this. A smaller tube was then introduced through the first tube, and this passed the obstacle with a sudden jerk as if a solid foreign body had been dislodged. The lumen filled up at once with thick mucus, slightly blood streaked, and a scrap of a chestnut was found in it. The larger tube could then be pushed down to the stomach. As it was withdrawn, the walls of the esophagus were seen to be normal all the way, and its permeability had been completely restored. The whole chestnut had been swallowed over two months before this procedure. The first two weeks the esophagus had been completely obstructed; after this, fluids could be swallowed. The chestnut had probably been impacted first at the root of the neck, and had later dropped down to the constriction of the thoracic segment, 17 cm. from the teeth. The symptoms were the usual vomiting and metallic, spasmodic cough whenever food was taken, with occasional attacks of suffocation but no pain. With a foreign body in the air passages there is pain during breathing and speaking, and the child refrains from moving about and speaking. The great danger is that the foreign body will be overlooked and the disturbances ascribed to stomach disease.

This method of introducing one endoscopic tube inside of another when the first is arrested by some obstruction, has been successfully applied by Orlandini in cases of chronic stenosis of the bronchi, without complicated apparatus. In the case described above, various other measures had been tried before but all had failed, including local application of epinephrin and cocain on probes, seeking thus to induce the subsidence of the protruding mucosa. In his second case the esophagoscope revealed the foreign body about 15 cm. from the teeth and showed an inflammatory reaction around it. Aspiration through the tube dislodged the chestnut and it dropped into the stomach. The 18 months infant bore the esophagoscopy well, without much salivation, but finally showed signs of suffocation and the tube was removed. When introduced anew, the foreign body had vanished. In both cases the foreign body was a nut, a *castagna* and a *marron*, not metal. And neither of the children seemed to experience any ill effects afterward. He mentions parenthetically a case in which a foreign body was expelled spontaneously after the boy of 8 had drunk 100 gm. olive oil and 1,300 c.c. of tepid boiled water, and had been placed slanting on the table, the head pendent, and his throat tickled with a feather. He first vomited a small amount and then came a gush that swept out the foreign body, a cravat holder, which he had been using for a whistle.

Archivos Brasileiros de Medicina, Rio de Janeiro

April, 1919, **9**, No. 4

*Pathogenic Action of Trichocephalus Dispar. Fernandes Figueira.—p. 191.

*Bacteriology of Pertussis. A. de Vasconcellos.—p. 215.

Prophylaxis of Trachoma. R. David de Sarson.—p. 234.

*Intermittent Fever in Third Stage of Syphilis. A. de Medeiros.—p. 248.

Pathogenic Action of Trichocephalus.—Fernandes found intestinal parasites in 89 per cent. of 101 cadavers at the children's clinic at Rio de Janeiro. In 15 the trichocephalus was discovered, and all in this group had had bowel trouble, but in another group of 12 the trichocephalus was found but bowel functioning had been normal. In a third group of 6 there had been bowel trouble but no parasites were discovered. In all but 4 of 62 living children examined, ascarides were associated with the trichocephalus in the stools, but blood was found only in 29 per cent. of the 58 trichocephalus cases. He was unable to discover any evidence of a constant specific anemia due to the presence of the trichocephalus, and he never found visible blood in the trichocephalus parasites although they often gave a positive response to the benzidin blood test. A trichocephalus preparation made and applied like tuberculin never elicited a positive reaction, and children with the trichocephalus in the stools but no bowel disturbance were repeatedly encountered. He gives an illustration of a segment of the intestine of one child which was studded with adherent specimens of the trichocephalus. The child had died from chronic enteritis, but at the points where the parasites were adherent the tissues seemed to be quite sound.

Bacteriology of Pertussis.—Vasconcellos treated children with whooping cough with a vaccine made from Bordet-Gengou bacilli. He tabulates the outcome in twenty-three cases of one month's standing, in nine of two months, one of four months, twenty-six of fifteen days and twenty of tèn days. Rapid improvement followed this vaccine therapy, which was applied every two or three days. His vaccine differs from others in that he makes it by adding 20 per cent. of an ethereal extract of pertussis sputum to a suspension of Bordet-Gengou bacilli killed with fluorids. With this technic there is no refractory phase. The temperature sometimes ran up afterward but there never was any aggravation of the cough but the symptoms rapidly subsided, irrespective of the duration of the disease. This suggests that the vaccine acts by correcting the tendency to anaphylaxis which seems to be responsible for the paroxysms. This bacteriotherapy is most effectual where there are large numbers present of the Bordet-Gengou bacilli. The vaccine seems to be entirely harmless, and can be used even for infants.

Intermittent Fever with Tertiary Syphilis.—De Medeiros reports four cases of intermittent fever which seemed to be due unquestionably to malaria but no benefit followed the use of quinin, while all the symptoms rapidly yielded to treatment as for syphilis. He suggests the name "syphilitic paludosis" for such cases.

Brazil-Medico, Rio de Janeiro

June 28, 1919, **33**, No. 26

*Neoarsphenamin in Treatment of Yellow Fever. H. de Beaurepaire Aragão.—p. 201.
Statistics of Influenza Epidemic. Bulhões Carvalho.—p. 202. Conc'n.

July 5, 1919, **33**, No. 27

Arteriovenous Aneurysm of the Aorta. E. Tornaghi.—p. 209.

Neo-Asphenamin in Yellow Fever.—De Beaurepaire's first report on the benefit from neo-arsphenamin in treatment of yellow fever was briefly summarized in The Journal, Feb. 23, 1918, p. 578. He here reviews the experiences in this line to date, the verdict of all who have applied this treatment being favorable. He cites eight physicians in northern Brazil who have applied this treatment. The first dose should be large, to strike hard at once. The experience to date indicates that doses of 0.45 or 0.60 gm. were borne without harm by the yellow fever patients, and he is now advising an initial dose of 0.90 gm.

Crónica Médico-Quirúrgica, Havana

July, 1919, **45**, No. 7

Education of Woman. J. Santos Fernández.—p. 204.
Spring Conjunctivitis in Cuba. J. Santos Fernández.—p. 211.

Gaceta de los Hospitales, Mexico, D. F.

Aug. 3, 1919, **2**, No. 5

*Abnormal Children. A. Lozano Garza.—p. 48. Com'd in No. 2, p. 17.
Surgery of Goiter. Velásquez Uriarte.—p. 53. Cont'n. ?
*Ether and Oil Anesthesia by the Rectum. D. Mayoral Pardo.—p. 56. Com'd in No. 4, p. 44.

Abnormal Children.—This is a general review of the various types of abnormal children and the tests for classification.

Ether and Oil Anesthesia by the Rectum.—Mayoral gives an oversight of what has been done in the line of general anesthesia by way of the rectum. In a case in his own experience the patient suddenly stopped breathing but the wound was bleeding freely, and he thinks that this aided materially in resuscitation, so that he would recommend venesection in treatment of serious by-effects with ether by the rectum. The bowel should be rinsed out at the same time. One of the great advantages of this technic is that it does not require a skilled anesthetist, and hence may be found useful in country practice. The grave disadvantage, of course, is the impossibility of exact dosage.

Medicina Ibera, Madrid

June 7, 1919, **7**, No. 83

*Leprosy in Spain. J. H. Sampelayo and Sadi de Buen.—p. 181.
*Intravenous Injection of Camphorated Oil. J. M. de Otaola.—p. 182.
*Parenteral Injections of Milk with Eye Disease. B. Carreras Duran.—p. 183. Conc'n.
Eruptions with Respiratiory and Digestive Affections. Sicilia.—p. 185.

Leprosy in Spain.—Reviewed when published elsewhere, Sept. 6,. 1919, page 801.

Camphorated Oil by the Vein.—De Otaola relates that experiments on animals with intravenous injections of camphorated and other oils apparently proved the harmlessness of the procedure, but he never ventured to apply it in the clinic until Heitz-Boyer published his success with it in a gravely wounded man. He declared that the instantaneous action of the camphor by this route had been unquestionably the means of saving the man's life, and there was nothing to suggest embolism. He applied it in eight cases and it has been used since repeatedly in the hospitals of Paris, with identical results. De Otaola here reports a case of a double mitral lesion, insufficiency and stenosis, in which a sudden attack of heart weakness, cyanosis, and loss of consciousness was relieved at once by intravenous injection of 4 c.c. of 20 per cent. camphorated oil. The woman revived at once and was restored to her usual condition, when before she seemed moribund.

Parenteral Injections of Milk in Treatment of Ocular Affections.—Carreras reports seven cases and states that the pain and photophobia were promptly arrested by this treatment, in most of the cases within twenty-four hours, and complete restitution soon followed. With the exception of one case in which special circumstances interfered, the effects of the injections of sterilized milk were truly surprising, and one might almost say marvellous (*casi diría maravillosa*), in cases of serious eczematous keratitis as also in his case of iridocyclitis. The results in treatment of trachomatous pannus were also encouraging, although not decisive to date. Aside from the constant febrile reaction, there were no signs of intolerance in any instance. He injected 5 c.c. of milk in the buttocks at about eight days' interval, never giving more than three injections, and reducing the amount a little each time. He does not attempt to explain the mechanism of the action of this parenteral milk treatment, but commends it as harmless with proper technic.

June 14, 1919, **7**, No. 84

Surgical Treatment of Gastric Ulcer and Its Complications. C. G. Peláez.—p. 201. Cont'n.
Tuberculous Iritis Plus Gummatous Keratitis. Leoz Ortín.—p. 204.
*Obsessions. A. Sánchez Herrero.—p. 205.

The Fixed Idea.—Sánchez explains that a fixed idea is like a foreign body in the consciousness. Every passion, including love, he says, is a pathologic condition, a disease of the spirit, rooted in an obsession.

Prensa Médica Argentina, Buenos Aires

May 20, 1919, **5**, No. 35

*Nerve and Muscle Response to Electric Stimuli. J. Guglielmetti.—p. 341.
*Blindness with Diabetes Insipidus in Boy of Ten. E. Dameno.—p. 345.

Response to Electric Stimulation.—Guglielmetti entitles his article "Interpretation of the Polar Laws," and discusses the various applications of electricity in diagnosis. He remarks that it is impossible to interpret the findings by clinical observation alone, but experiments on animals and study of physical laws throw light on them, as he explains in detail.

Visual Disturbances in Diabetes Insipidus.—Dameno relates that the boy of 10 had presented symptoms of diabetes insipidus for four years, and during the last year there were transient attacks of amblyopia and progressive reduction of the visual acuity to 1/50 in the left eye and no perception of light in the right. The sella turcica was somewhat enlarged but seemed of normal structure. As inherited syphilis was manifest, specific treatment was pushed and marked improvement followed but it did not last, and the child died after a period of intense headaches, neuralgia and loss of vision. The symptoms corresponded to a lesion in the vicinity of the optic chiasma. The literature on diabetes insipidus shows that different causes may be invoked in different cases, syphilis, tuberculosis, tumor and traumatism. In the present case some syphilitic process had probably induced diffuse infiltration involving the optic chiasma and the pituitary body.

Revista Española de Obstet. y Ginecología, Madrid

June, 1919, **4**, No. 42

*Radium Treatment of Cancer of Uterine Cervix. S. Recasens.—p. 241.
*Spinal Anesthesia in Gynecology. F. Navarro Blasco.—p. 247.
Histogenesis of Corpus Luteum. L. G. Guilera Moas.—p. 255.

Doses for Radium Treatment of Cancer of Uterine Cervix.—Recasens warns that low numbers of leukocytes formally contraindicate large doses in radium treatment. The patients as a rule bear medium doses, frequently repeated, better than large doses at longer intervals. Exposures for more than twenty-four hours at a time are not borne well, as a rule. Prolonged fever also requires suspension of the treatment. He regards radium treatment as the chosen method of treatment for cancer of the uterine cervix, unless it is so small and circumscribed that it is possible to eliminate all the neoplastic elements with operative removal of the tumor. In conclusion he specifies as beyond our skill the cases of cancer of the cervix in which profuse hemorrhage results from the eroding of the walls of the larger vessels. If two or three applications of large doses of radium do not rapidly arrest the disease, it is better to desist and to regard the case as beyond our best efforts.

Spinal Anesthesia in Gynecology.—Navarro expatiates on the superior advantages of the subarachnoid technic when an operation on the vagina promises to be long and tedious. Its great drawback is the liability to headache and fever, but the headache, although annoying, is not dangerous. About a third of his patients experienced it; it was usually mild but in some cases was very severe and persisting. He has never witnessed postoperative nausea or vomiting with this technic, nor any disturbance in respiration or the circulation or nervous system with the exception of one case in which bulbar symptoms developed but soon subsided under stimulants and hot compresses on the precordial region. With this technic, one assistant can be dispensed with. Another advantage is that the anesthesia is of the conductive localized type, and the bronchi and heart are not affected as with inhalation of anesthetics. The temperature usually runs up but this is not accompanied by any signs of fever; the pulse keeps normal and there does not seem to be any connection between the intensity of the fever and the other symptoms.

Revista de Medicina y Cirugía Prácticas, Madrid

June, 1919, **123**, Nos. 1557-1559

Pyretogenous Pulmonary Tuberculosis. J. Codina Castellvi.—p. 341. Conc'n.
Primary Cerebral Tuberculosis. L. Laredo Vega.—p. 381.
Hemophilic Family. A. Ballesteros Alcayde.—p. 386.

Semana Médica, Buenos Aires

May 29, 1919, **26**, No. 22

*Varicocele. R. Finochietto.—p. 559.
*Pyoculture. P. Delbet and N. Fiessinger.—p. 568.
Necessity for System of Gratuitous Midwifery. J. A. Beruti.—p. 579.
The Public Health in Spain and in Argentina. E. R. Coni.—p. 580.

Varicocele.—In this profusely illustrated article, Finochietto analyzes the experiences with eighty cases of varicocele, all on the left side, with operative treatment in all but eleven cases. The ideal treatment is to dissect out the spermatic artery and transplant the veins inside the abdomen. The more practicable procedure is the high separation of the spermatic artery and resection of the veins accompanying it, with transparietal transplantation of the anterior bunch of veins, with care not to kink or injure them.

Pyoculture.—This term was devised to express the systematic cultivation of germs from the pus of wounds as a means of keeping oversight of its course. The pus is taken with a pipet close to the tissues; the tip is then fused and the pipet incubated for from twenty to twenty-four hours. The tip is then broken off and the pus is spread on a slide and a bouillon culture is also made. This procedure is repeated, and it is by comparison of three successive slides that the course of the suppuration can be estimated according as the different bacteria grow more numerous or less, and as their proportionate numbers vary. A negative pyoculture may contraindicate amputation when the clinical condition seems to demand it, and successive pyocultures give an insight into conditions, it is said, far beyond anything otherwise attainable.

June 5, 1919, **26**, No. 23

*Pediatrics in Argentina. M. Acuña.—p. 583; Id. L. Velasco Blanco.—p. 594.
Prophylaxis of Child Abandonment. G. Araoz Alfaro.—p. 590.
Early Diagnosis of Gastric and Duodenal Ulcers. H. García Lagos.—p. 593.
Film Treatment of Burns. M. Critto.—p. 598.
*Changes in the Teeth of Children from Nutritional Derangement. C. R. Castilla.—p. 599.
Mortality from Infectious Disease. E. R. Coni.—p. 601.

Pediatrics in Argentina.—This is the inaugural lecture of Professor Acuña's regular course in pediatrics, and of Velasco's "free" course in the same subject.

Morbidity of the Teeth Secondary to Nutritional Disorder.—Castilla has been making a special study of the relations between anomalies and caries in the teeth and gastro-intestinal derangement. He found that children with a history of nutritional disorders frequently had abnormal teeth, the enamel was less perfect and tartar and caries were frequent. Children who seemed to have kept in good health had much more perfect teeth than those with a gastro-intestinal past, especially colitis. He noted also that the intensity of the morbid changes in the teeth were always proportional to the duration and intensity of the nutritional process. These changes in the teeth were found in children of 1½ to 4 years old. In older children, apparently healthy but with these changes in the teeth, investigation of the antecedents nearly always disclosed the same causes as in the others. Removal of the tartar only transiently arrests the process.

Siglo Médico, Madrid

July 5, 1919, **66**, No. 3421

*Histopathology of the Spleen in Banti's Disease. F. Jiménez Asúa.—p. 533.
*Immunization against Necrosis. Camilo Calleja.—p. 536.
Imbecility with Crises of Mania. A. Sánchez Herrero.—p. 538.

Histopathology of the Spleen in Banti's Disease.—The research here reported by Jiménez was undertaken under a grant from the Junta para ampliación de estudios en el extranjero. The work was done at the Instituto de Anatomia Pathologica at Naples. Nothing suggesting tuberculosis, syphilis, malaria or streptothrix lesions could be detected in the spleen in the six cases of Banti's disease described in detail. No one yet has succeeded in reproducing the disease by inoculation or by cultivation of germs from it. Jiménez is convinced that it has no specific agent, but that ordinary toxi-infections in persons predisposed thereto are liable to whip up the functioning of the spleen and entail finally a tendency to fibrous degeneration of the gland. He found this fibro-adenia in every one of the spleens examined, although in different phases of the process. The liver may long escape in which case the disease may be classed as merely splenic anemia, but closer study of such cases and their ultimate course confirm their identity with the first stage of Banti's disease.

Immunization Against Necrosis.—Calleja explains that the derivatives of empiric medicine, the blisters, the fixation abscess, etc., owe their efficacy to the fact that they induce an active and a passive immunization against the effects of the necrosis of the tissues in the disease process. Subcutaneous injection of 3 or 4 drops of chloroform at different points, to a total of from 3 to 50 c.c., is a convenient method of this "causticotherapy," and it can be usefully supplemented with horse serum prepared like diphtheria antitoxin, only using, instead of diphtheria bacilli, human tissue scraps rendered necrotic with chloroform. The aim in treatment is to immunize against necrosis, not to combat the inflammation, etc., which latter are salutary reactions on the part of the tissues. Antinecrosic immunization by this causticotherapy is applicable, he reiterates, as a preventive adjuvant in the pathogenic treatment of acute disease, such as pneumonia, typhoid and shock. But its special field, he adds, is in the cure of chronic disease, immunizing the patient against the necrotic products generated by the disease, instead of wasting time in the usual efforts to combat the symptomatic manifestations of the curative reaction, either toward restitution or substitution. This immunization is realized, he explains, by the polypeptids formed by the dissolution of the cauterized cells, but it is necessary to keep these cytolytic substances below the amounts that would do damage from excessive action. Calleja quotes from Turck's work, and reiterates that we must remember that bacteria are not like seeds. Seeds are sown in an inert soil, and all the development that results is in the seed and the resulting plant. Infection, on the other hand, is like a fecundation, in which the body cells are the fecundated elements. By immunizing against any resulting necrosis, we may be able to shorten the course of tuberculosis and joint disease and reduce the mortality.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 14, 1919, **1**, No. 24

Vision in Semidarkness and Night Blindness. C. O. Roelofs and W. P. C. Zeeman.—p. 2101.

Experiences with Neoarsphenamin among British Interned Prisoners of War. C. J. P. van Dijk and F. H. J. A. Wilmar.—p. 2112.

Brown Bread or White Bread? M. Hindhede.—p. 2115.

*Chronic Aspiration of Food Particles into Lung. H. van Wely.—p. 2119.

Chronic Aspiration of Food Particles Into Lung.—Roentgen examination showed numerous particles of food in the lungs of a previously healthy man of 50 who for the last year had had increasing difficulty in swallowing. After a bismuth meal some of the bismuth was seen in the lungs, and a communication with the air passages was assumed as the assumption of cancer seemed probable. Necropsy failed to show any communication; however, and the only explanation of the findings must be that the food, meeting the obstruction in the esophagus, was coughed up each time, and instead of being expelled passed over into the air passages. The absence of any inflammatory reaction to the food particles was a remarkable feature of the case.

Hospitalstidende, Copenhagen

July 23, 1919, **62**, No. 30

*Retrograde Incarceration of Hernia. E. Henningsen.—p. 873.

*Fascia Plastic Operation for Radial Paralysis. Id.—p. 881.

Retrograde Incarceration of Hernia.—Henningsen in the last two and a half years has encountered three cases of this kind, the series illustrating the various steps of the process. The patients were adults with inguinal hernia of long standing. He reviews the literature on retrograde incarceration, remarking that the diagnosis has seldom been made beforehand, but it might be suggested by the severe general symptoms and the signs of beginning peritonitis when a hernia becomes incarcerated without showing much in the way of local symptoms. The outlook is much graver, naturally, than with ordinary incarceration, on account of the disturbance in the circulation. In Wendel's compilation of seventy-five cases, the mortality was 62.5 per cent. in the twenty-four cases in which the intestine was resected; five died of the six treated by an artificial anus, and five died after the intestine had been restored to place. The total mortality was 42.7 per cent. In Henningsen's own cases he operated in two only four or five hours after the first symptoms, and the incarceration had not been so tight as to compromise seriously the circulation, so that the W hernia was readily reduced. In his third case the man was too debilitated to stand the resection which conditions demanded.

Fascia Transplantation to Correct Radial Paralysis.—Henningsen reports complete success in the correction of radial paralysis in a boy of 12 after a compound fracture of the humerus. His operation consisted in suturing a strip, taken from the fascia lata, to the tendons of the extensor digitorum, and then suturing the other end to the radius, where it was fastened under the periosteum while the hand was held supine and extended. This leaves all the muscles of the arm intact, in case the paralysis should happen to retrogress later. The boy now uses this hand as well as the other, and electric tests indicate beginning regeneration of the radial nerve.

Norsk Magazin for Lægevidenskaben, Christiania

May, 1919, **80**, No. 5

*Leonardo da Vinci as Anatomist. H. Hopstock.—p. 417.

*Duodenal Ulcer in Influenza. K. Nicolaysen.—p. 502.

*Tuberculin Skin Tests of Schoolchildren at Trondhjem. A. Arnfinsen.—p. 508.

*Convalescents' Serum in Treatment of Influenza. J. Holst.—p. 531.

Da Vinci, the Anatomist.—Hopstock gives photographic reproductions of a large number of da Vinci's famous anatomical drawings which he has been studying and interpreting under a special grant from the university. He declares that da Vinci's work placed him centuries ahead of his contemporaries in knowledge and thought, "a modern biologist in the guise of a medieval artist."

Duodenal Ulcer in Influenza.—Nicolaysen found a duodenal ulcer at necropsy in two cases of influenzal pneumonia. The ulcers seemed to be quite recent, and there seem to be grounds for assuming that they were of infectious origin. Diplostreptococci were found in the lungs and also in the duodenal ulcers. Micro-organisms were found likewise in a duodenal ulcer in a man of 50 who had died from acute myelogenous leukemia.

Tuberculin Skin Tests in Schoolchildren.—Arnfinsen gives a number of large tables showing the response to the Pirquet skin tuberculin tests in 7,969 schoolchildren. It was positive in 37.8 per cent. of the 6,978 in the public schools and in 33 per cent. of the 991 in private schools.

Convalescents' Serum in Influenza.—Holst analyzes his experience with twenty cases of influenza pneumonia in which he gave intramuscular injections of from 10 to 33 c.c. of serum from convalescents' blood, repeated from two to four times. In ten cases the crisis followed the day after the injection. In the other ten no benefit was apparent, and seven of the patients died.

Ugeskrift for Læger, Copenhagen

July 31, 1919, **81**, No. 31

*Weather and Neuroses. J. Mygge.—p. 1239.

Weather and Neuroses.—Mygge remarks that twenty years ago any physician who ascribed pathogenic importance to meteorologic conditions was ridiculed, but the progress of science, heliotherapy, etc., have demonstrated the importance of such factors. He presents further evidence to sustain the assumption that the periodical transient and apparently unmotivated pains and other ill feelings of which certain persons complain are connected with certain changes in weather conditions. They are mostly persons with a predisposition to rheumatism or joint troubles. It is not correct to call them "barometer individuals" as the changes in air pressure are not what causes the attacks, and an indirect action of heat or cold cannot be demonstrated either. It would be more accurate to call them "electroscope" or "electrometer people," for there is much to sustain the assumption that there is a causal connection between the attacks and certain changes in the electrodynamic state of the air, such as is manifested in the so-called convection currents which accompany formation of rain, snow, hail, fog, etc. He adds that it may yet be possible to obtain some control over these currents in inhabited localities. Systematic research in this line may lay the foundations for study of the electric life of the cells, and when the time is ripe for this, there may develop a theory of electrodynamics of which there are already glimmerings scattered through medical literature. The influenza epidemics point that way, as the assumption seems plausible that only atmospheric changes or something of that nature can explain the sudden acquiring of virulence the world around by ordinarily harmless saprophytes, or the sudden lowering of the resisting power against these saprophytes. Mygge suggests cooperative study along these lines by physicians and meteorologists.

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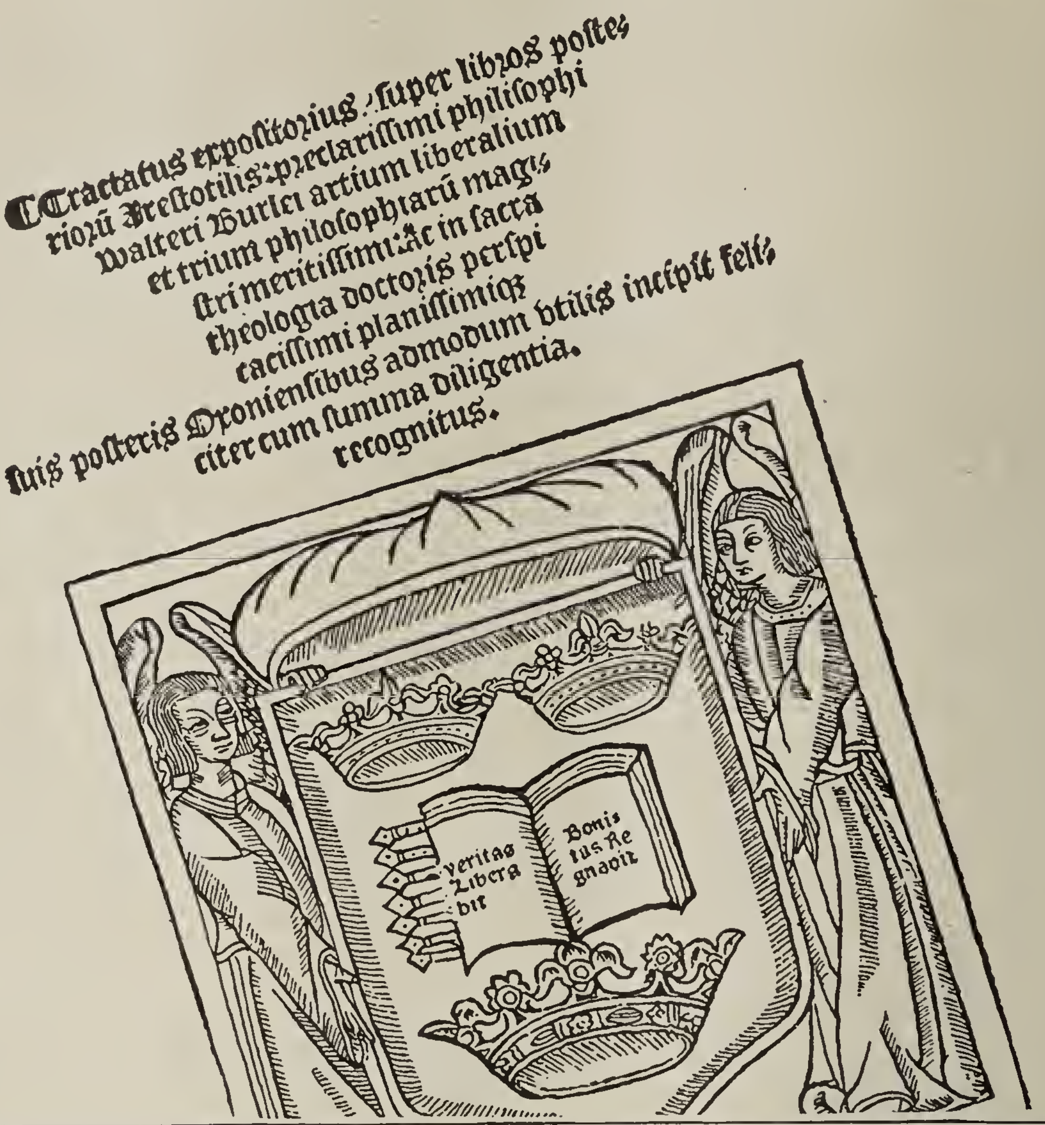

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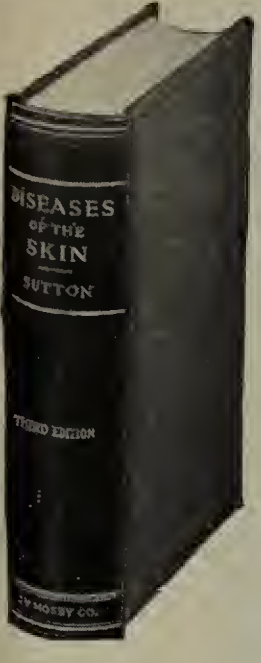

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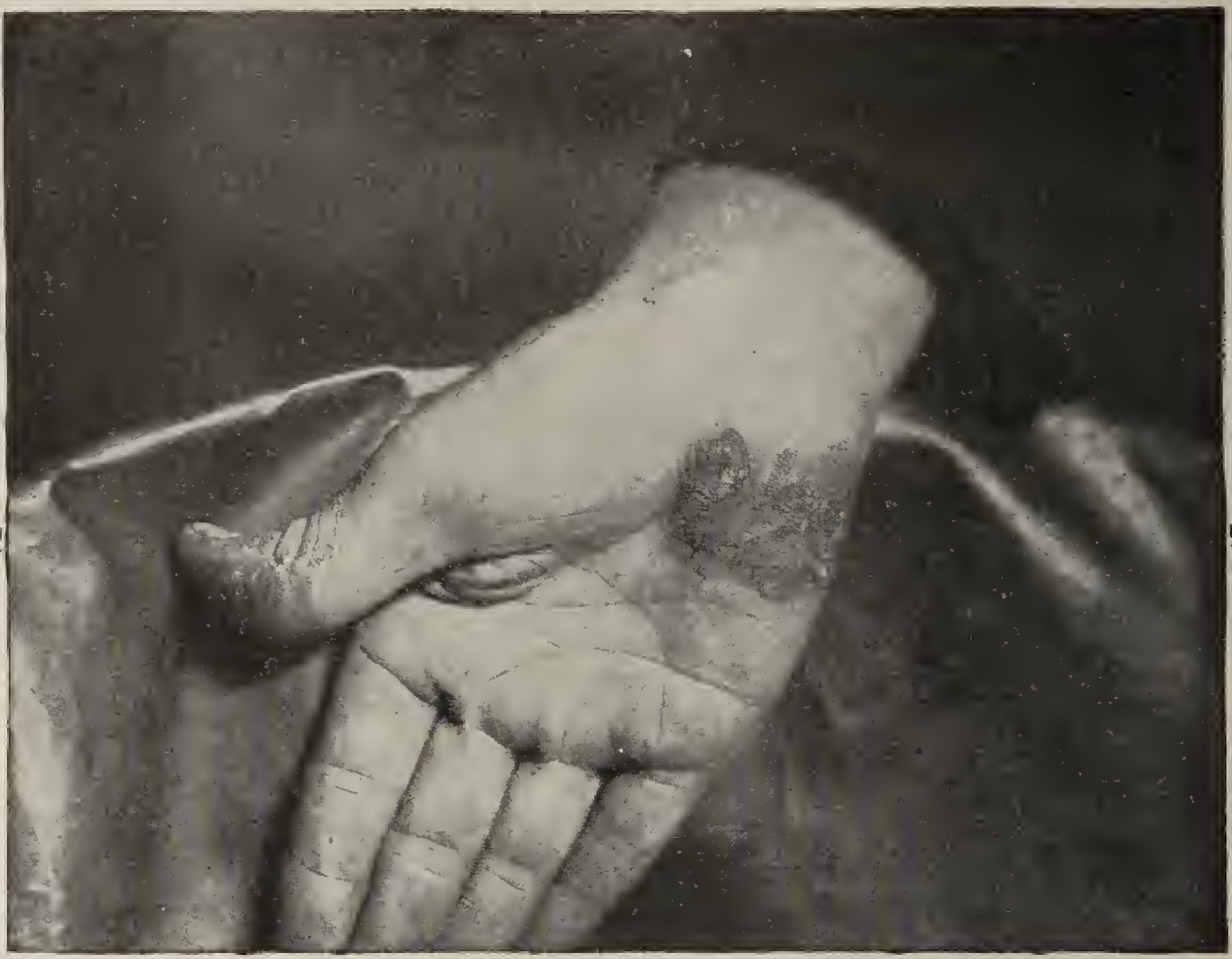

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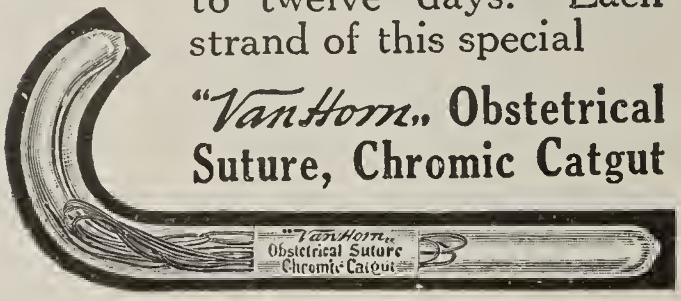

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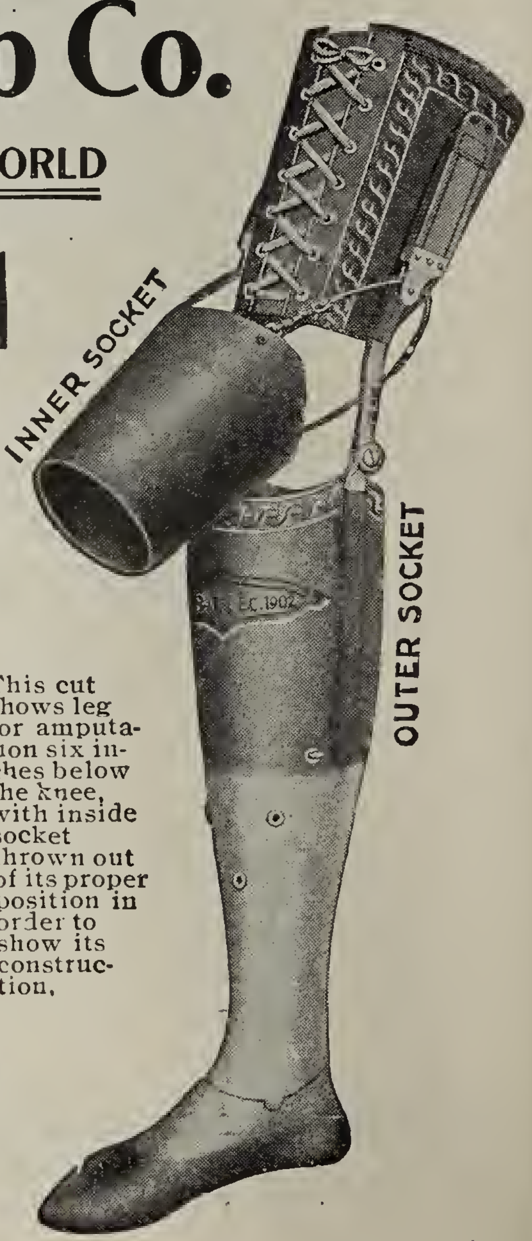

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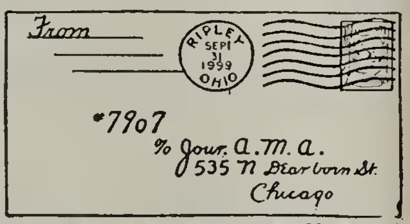

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WANTED — PHYSICIAN, EXPERIENCED and trained in genito-urinary diseases, for large city and hospital in Idaho. Add. 1967, % F. V. Kniest, Bee Bldg., Omaha, Neb. B

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(*Continued on page 22*)

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The proof of the pudding lies in the eating—the proof of most arguments lies in the statistics.

Speaking of influenza—as some people insist on doing—there is so much that is not known, compared to the little that is known, that the wise doctor will think some before he says much.

October's winds blow cold and shrill,
The influenza's with us still[1]
To prevent its spread will be quite hard
If health departments are not on guard.

Unless you happen to believe that Hawkshaw's gargle does the work, and that Fizzle's spray is a sure shot, and that Smear's salve never fails and that Shootem's vaccine hits the spot.

(1. And has been ev'ry winter).

◆

The Curse of Militarism

Philadelphia Eve. Bulletin

General Pershing paid a triumphant visit to Philadelphia today. . . . . Along the Parkway, schoolchildren hurled roses in his path. Two school girls presented him with a large bouquet of roses. "God bless you, my children, and thank you," he said, as he killed both girls."

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◆

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Such Stuff as Champs Are Made Of

When Big Jess wore the laurel wreath,
The secret of his manly power
Was BUNK'S NUXVOMICATED TIN
(A heaping teaspoon every hour).

But when Jack Dempsey snatched the crown
The dope that made him fit to win
And made a champion of him
Was BUNK'S NUXVOMICATED TIN!
B. C. C.

(*Continued on next page*)

(*Continued from page 22*)

WANTED—SECOND ASSISTANT PHYSICIAN in sanatorium for mental and nervous diseases, near New York City; must be a New York licensee, experienced in sanatorium or state hospital work, and must be unmarried; salary $1,500 per annum and maintenance; apply in own handwriting, stating nativity, age, religion, experience and references. Add. 7104 B, % AMA.

WANTED—ASSISTANT PHYSICIAN AT Cherokee State Hospital; must be graduate of Class A medical school, male, single, with some experience in mental diseases; salary $1,500, with maintenance, subject to increase. Add. George Donohoe, Superintendent, Cherokee, Iowa. B

WANTED — WELL-TRAINED EYE, EAR, nose and throat man to work in well-established group, eastern city; must be excellent operator and diagnostician; will pay good salary to good man and the future is large. Add. 7013 B, % AMA.

WANTED — ASSISTANT PHYSICIAN IN state hospital for insane; must be unmarried, graduate of A plus school, experienced in mental diseases; salary $1,500 with maintenance. Add. 7034 B, % AMA.

PHYSICIANS WANTED

WANTED—CHICAGO — PHYSICIAN FOR office established four years; dentist will share reception room; good location; two drug stores cooperate. Add. G. F. Blaylock, 5061 N. Clark St. Phone Edgewater 6628. C

WANTED—FOR COUNTY HEALTH WORK by southern state board of health, an energetic and capable young physician, graduate of Class A college; salary $2,400 and traveling expenses. Add. 6833 C, % AMA.

WANTED—RESIDENT PHYSICIAN FOR private tuberculosis sanatorium in large city; single man; opportunity for training special feature; excellent equipment. Add. 7120 C, % AMA.

WANTED—HOUSE SURGEON IN HOSPITAL of 140 beds in the northwest; salary $125 per month with room and board; state complete qualifications in first letter. Add. 7122 C, % AMA.

WANTED — PHYSICIAN IN WISCONSIN town of 500; no capital required; rich community; competition light; free office space; sponsorship of druggist; large territory; good roads; cash business; nothing to buy. Add. 7100 C, % AMA.

WANTED—PHYSICIAN — LOCATION IN town of 200 inhabitants, central west Illinois; good school and church; electric lights and railroad; one other physician; has been in town 8 months; very unpopular; field unlimited for right man; nothing to buy. Add. 7091 C, % AMA.

WANTED—IN A LARGE SANATORIUM in middle west, highly trained neurologist, a skilled diagnostician in organic nerve diseases; Gentile; single man preferred; permanent position; generous salary. Add. 7114 C, % AMA.

WANTED — PHYSICIAN IN BEAUTIFUL Wisconsin village of 500 inhabitants with 2,000 tributary population, in thickly settled farming and dairy country in the best county in the state; good roads, schools, churches, lodges, bank, stores and everything found in town of this size; on main line railroad; nothing to buy; just come and go to work; sponsorship of druggist. Add. 7113 C, % AMA.

WANTED—PHYSICIAN—FINE OPENING for a good man; good office to rent or sell; county seat town of 1,000, on Jefferson Highway; good country; large country practice. Add. Inda F. Brooks, Mound City, Kan. C

WANTED — A COMPETENT MAN AS pathologist and roentgenologist for a hospital of 120 beds in Pottsville, Pa. Apply J. W. Fleet, Supt. C

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WANTED—PHYSICIAN FOR PROMINENT position in a high class sanatorium for nervous diseases, 28 miles from New York; man with Connecticut license preferable, but not necessary; applicant must be a Christian, with excellent references and a good appearance. Add. 7079 C, % AMA.

WANTED—A RESIDENT PATHOLOGIST for Lakeside Hospital; good salary; excellent facilities for research; ample technical and stenographic assistance; close university connection. Add. Dr. A. R. Warner, Superintendent, Lakeside Hospital, Cleveland, Ohio. C

WANTED—RESIDENT PHYSICIAN FOR 180-bed tuberculosis sanatorium; good opportunity to study tuberculosis, roentgenology and laryngology. Apply Jewish Consumptive Relief Society, Edgewater, Colo. C

WANTED—CLINICAL PATHOLOGIST TO associate himself with roentgenologist in midwestern city 45,000; surrounding territory 250,000 and no other pathologist near; must be high grade man. Add. 7071 C, % AMA.

WANTED — THOROUGHLY COMPETENT eye, ear, nose and throat man, well trained, good appearance, able to do refraction; full time work with diagnostic group, middle west; state salary and experience. Add. 7073 C, % AMA.

WANTED — MEDICAL DIRECTOR FOR modern sanatorium outside of Chicago; one posted on heart and blood pressure; good surroundings and fine prospects for right man. Add. 7052 C, % AMA.

WANTED — PATHOLOGIST (WOMAN preferred), hospital 250 beds; applicant must be equal to take entire charge of pathological laboratory; state experience, salary required, etc., in first letter. Add. 7057 C, % AMA.

WANTED — MEN SPECIALIZING IN Internal medicine, surgery, gynecology, obstetrics, anesthesia, roentgenology, genito-urinary surgery, clinical laboratory, for a clinic which is being formed in a Kansas town; same to be conducted along lines of Mayo Clinic; if you can qualify in any of the above, give following information: age, religion, training and experience, salary expected; positions to be opened about November 1; none but first-class men need apply. Add. 7058 C, % AMA.

WANTED — IN CHICAGO — EXPERT roentgenologist to have charge of x-ray laboratory; must be high class man, one who is well qualified; splendid opportunity for the right man. Add. 7031 C, % AMA.

WANTED — OWING TO INCREASE IN bed capacity of Muirdale Sanatorium for Treatment of Tuberculosis, a few positions on the medical and nursing staff are now open for applicants trained in tuberculosis work. Add. for further particulars, Dr. G. L. Bellis, Supt., Wauwatosa, Wis., or Milwaukee County Civil Service Commission, Milwaukee, Wis. C

WANTED — INTERNIST WITH SOME training and experience in gastro-enterology to buy my excellent equipment (at less than value) and transfer of well-located office and valuable connections; also introduction to established practice in large growing city of the southwest; paid $6,000 last year; price, $1,000. Add. 7043 C, % AMA.

WANTED — WOMAN PHYSICIAN AS roentgenologist, pathologist and anesthetist, small southern hospital; give age, qualifications, salary and references first letter. Add. 7025 C, % AMA.

WANTED — PHYSICIAN IN ILLINOIS inland town, with large farming territory; one other physician, generally three; good practice; recent physician's house and office for sale; easy terms. For particulars add. G, 427 Jefferson Bldg., Peoria, Ill. C

WANTED—PHYSICIAN—A GOOD FIELD for general practice in a Minnesota town free to a good man; $4,000 and over made by former occupant. Add. 6892 C, % AMA.

WANTED — WOMAN PHYSICIAN TO serve as intern in the New Orleans Hospital and Dispensary for Women and Children; competent to act as radiologist and pathologist; salary $75, board and washing. Apply to Dr. S. T. Mayo, 518 Macheca Bldg., New Orleans, La. C

(*Continued on next page*)

(*Tonics and Sedatives continued*)

JOKES IN THE HOME SECTOR

COULDN'T KID HIM

The fresh-from-France man stood on a corner in the home town waiting for a trolley car. Beside him was a dusky silver-chevroned dough-boy, resplendent in brand new leather barrack shoes.

The fresh-from-France man, still in his hobnails, regarded the shoes earnestly and enviously.

"Issue?" he inquired politely.

"Huh?" replied the dark one.

"Issue?"

"Wayyamean, man? Is I wot?"

THIS WAS THE MOST UNKINDEST CUT OF ALL

They were telling him about the changes in his home town since he had gone away to war.

"And there won't be so many auto accidents on Hopkins Hill," they said. "New road's been cut—grade reduced 50 per cent."

"That's nothing," he replied. "So was my division commander's as soon as he got back."

THE RANKING OFFICER

"Wonder why that newly returned captain always salutes his wife?"

"She underwent a major operation while he was away."

CLOSER TO PERFECTION

"Does he speak French, did you ask?" repeated the buck derisively. "Why, he can't even spell liaison."

"Mebbe I can't," countered the derided one, "but I can spell it better than you can."

◆

TO SEE THE SIGHTS ON THE BEACHES

Baltimore Sun

HAVE THEIR EYES PEELED

R. D. Morgan and C. Ford Seeley Among Leaders at Atlantic City

Atlantic City, Sept. 9.—With but two shooters participating, Baltimore figured remarkably well in the preliminary shooting, etc. . . .

◆

More Facts About Lethargic Encephalitis

The Chicago Tribune

After hovering under death's wing for more than six months as a victim of sleeping sickness, former Ald. Theodore K. Long, now a member of the Illinois legislature, returned to Chicago yesterday from Battle Creek, Mich., and told for the first time the symptoms of the strange malady. . . .

The principal symptom of sleeping sickness he described as a persistent series of illusions during periods of wakefulness.

"I imagined I was at the seaside and could see hundreds of men and women in bathing," he continued. "Of course, I had other delusions, but beach scenes predominated.

"Sometimes I could hear the ringing of what seemed a million cathedral chimes.

"Again I saw wonderful examples of architecture, castles, battlements.

"Sometimes I wandered through fields of flowers, but, curiously, they had no perfume.

"And no matter what I saw, I could always hear the sound of the surf as it broke against the shore, and sooner or later I found myself on the beach again. . . .

"Finally I was compelled to give up my official duties and come to Chicago. I went to St. Luke's Hospital, where my case proved a riddle to attending physicians.

"Finally it was diagnosed as encephalitis, or African sleeping sickness, and I was confined to bed for fourteen weeks. It is a direct effect of influenza, and I have no doubt the germs spread by the tsetse fly of Africa in some manner have found their way to this country.

"After suffering from influenza, the body is especially subject to attack by the sleeping sickness germ."

(*Continued on next page*)

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R. B. H. Gradwohl, M.D., Director

(*Tonics and Sedatives continued*)

SPANISH LITERATURE

From F. P. A.'s Conning Tower

"This guy Bosco Ibanez," observes Bill Esty, "made a hit with a jockey story, 'The Four Horsemen of the Alpacalypse.' Does he think he can repeat with a novel about horse liniment—'Mare Nostrum'?"

◆

FROM THE DOCTOR'S CORRESPONDENCE

W. C. D., Wisconsin

Dear Doctor.—As I want to let you know that Our little Boy has pin wourms. he eats all day long and he seems weak and he is a year and 2 munths and he don't try to creep he dont try to set his feet down he dont want to walk he seems lazy he wants to lay all the time he has never Been as lively as all the Rest from Baby on he laid so quiet he never exercised much. I have another Baby 6 weeks old he is all together different he kicks and laughs and he even fell out the Buggy last night and this other Boy he fell out the Buggy Back ward one day I was out doors in the garden and when I came in he was hanging out the Buggy so can you do anything for wourms and do you think he will ever walk and if you want to set him on his feet he laughs at you and he is cutting teeth so try and come over if you think its Necessary or send him something for wourms.

Yours truly,

Mrs. Delia Cronk.

◆

Otherwise Not Fatal

Lincoln (Kan.) Sentinel

Mrs. J. W. Brooks was the victim of an explosion when some coal she was putting in a stove at her home, in the south part of town on Tuesday forenoon, exploded and flew in her face and a piece buried itself in her arm, about 2 inches. The doctor probably will know today whether it was a bullet, a piece of coal or something else.

Mrs. Brooks was alone in the house, the children being at school, and Mr. Brooks left a week or so ago for Oklahoma to work at his trade as harness maker. She was rendered unconscious for a while and when she regained had enough strength to go out of doors and hail the neighbors to come to her assistance. Otherwise the accident was not fatal.

◆

FAMOUS WORDS OF FAMOUS PHYSICIANS

"We shall operate tomorrow morning."

"Is the patient under?"

"Let me see your tongue."

"Count: one, two, three."

"Do you sleep alright?"

"How many children have you had?"

"For Heaven's sake, hold that retractor."

"The tumor is about as large as a crab-apple."

◆

A New Vesuvius

Salina (Kan.) Journal

Garfield Marshall, son of Mrs. Mary E. Marshall and brother of Ed and Cora Marshall of Lincoln, was taken seriously ill at his home near Barnard on Thursday morning. Physicians diagnosing his case, advised that he be rushed to the hospital at Salina. Appendicitis and eruption of the gall put an end to his life on Saturday afternoon. Deceased was a bachelor.

(*Continued on next page*)

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NURSES
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The Journal in securing positions

(*Continued from preceding page*)

WANTED — MALE GRADUATE PHYSICIAN as superintendent of a mining and industrial hospital, privately owned; must be a man of practical experience and proven executive ability, able to register in Minnesota; preference will be given to one familiar with eye, ear, nose and throat work, or one with some surgical ability; must have good address and personality, with tact to cooperate with patients and physicians; must be ethical and energetic; give full details of experience, ability, personality and salary in the first letter. Add. 6971 C, ℅ AMA.

INTERNS WANTED

WANTED—INTERN FOR 200-BED HOSPITAL, general and tubercular; medical, surgical and obstetrical service; compensation $900 per year and maintenance. Add. Dr. R. L. Bartlett, Supt., Oneida County Hospital, Rome, N. Y. D

WANTED—ONE INTERN BY NOVEMBER —Contract for one year; small private sanatorium; excellent opportunity for young doctor to increase his knowledge of medicine and surgery. For particulars write to E. T. Kelley, M.D., Kingstree, S. C. D

WANTED—INTERN FOR CHRIST HOSPITAL, Jersey City, Nov. 1, 1919; 125 beds; service in all departments; particularly active in diagnosis and surgery; $50 month. Add. Dr. G. K. Dickinson, 280 Montgomery St., Jersey City, N. J. D

WANTED—INTERNS FOR 150-BED HOSPITAL, with 220-bed addition under construction; surgical and medical services; excellent emergency work; maintenance and salary $25 a month. Apply Resident Superintendent, Receiving Hospital, Detroit, Mich. D

WANTED—TWO INTERNS—SERVICE TO begin October 1. Apply by letter for particulars of service and salary to M. M. Russell, Superintendent Jewish Hospital, Cincinnati, Ohio. D

SUPERINTENDENTS WANTED

WANTED — PHYSICIAN AND SURGEON as superintendent of Lincoln County Miners Hospital, Kemmerer, Wyo.; 50 beds; position pays $312.50 per month. Send application, references and recommendations to George A. Brown, Cumberland, Wyo.

STEWARD WANTED

WANTED — FIRST-CLASS STEWARD— Must furnish references. Hendricks Sanatorium, El Paso, Texas.

NURSES WANTED

WANTED — DIRECTRESS OF NURSES for a 65-bed general hospital; nonsectarian. Apply to Mrs. C. Hirsch, Supt., Montefiore Hospital, Pittsburgh, Pa. T

NURSES FURNISHED FOR ANY KIND work any where. Quick service; also attendants, institutional employees, office help, etc. F. V. Kniest, Bee Bldg., Omaha, Neb.

WANTED — SUPERINTENDENTS — SURGICAL and general duty nurses, dietitians; send for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan Blvd., Chicago.

LAB. TECHNICIAN WANTED

WANTED—AT ONCE—ASSISTANT LABORATORY technician 75-bed hospital, in central Pennsylvania; salary $60 and maintenance. Add. 7123 V, ℅ AMA.

WANTED—LABORATORY TECHNICIAN, graduate nurse preferred, in office and sanatorium work; state full particulars. Dr. Bassler, 21 West 74th St., New York City. V

WANTED—AT ONCE—GENERAL LABORATORY technician, thoroughly trained, rapid and accurate; college graduate preferred; new state hospital and school of medicine; moderate salary; opportunity for advancement. Add. Wann Langston, M.D., University Hospital, Oklahoma City, Okla. V

WANTED—WOMAN LABORATORY TECHNICIAN and serologist; state experience and salary expected. Drs. Soper & Mills, 316 Wall Bldg., St. Louis, Mo. V

(*Continued on page 26*)

(Tonics and Sedatives continued)

HENRY, THE VIII

Act II

In ——ed Verse

One morning,
Doctor Jones,
Of whom we last week spoke,
Rolled out of bed
With many a sigh and groan.
"My back," he said,
"Pains me most terribly.
"I cannot walk,
"I hardly make a move
"But what it hurts.
"Lord knows
"What I shall do!
"Because today
"I have an operation
"And calls a few."
Groaning he limped
Out through the kitchen door
To his garage
Where Henry lived.
Henry the eighth—
Also yclept
Henry, the stubborn,
Because of its tin will.
He twirled the crank
And Henry coughed
Then Jones just groaned.
Again he twirled;
It gave a jerk,
And Jones just moaned.
"My back," he said
To his tin tank,
"Will never stand
Another turn
Of that damn crank."
He bent
And twirled again
While utt'ring shrieks
Of awful pain.
This time old Henry
Gave a snort.
Jones thought that it
Would come apart
As it began to quiver.
Then Jones hopped in
And sat him down.
Soon he began to shiver.
The wheel he took,
Each muscle shook—
Heard 'midst his groans
Were rattling bones.
As Henry rumbled full of guile
Across Jones' face there passed a smile.
The jitney's shaking by design
Massaged the pain from Jones's spine.

Books Received

Towards Racial Health. A Handbook on the Training of Boys and Girls, Parents, Teachers & Social Workers. By Norah H. March, B.Sc., M.R. San. I., with a Foreword by J. Arthur Thompson, M.A., LL.D., Professor of Natural History in the University of Aberdeen. New American Edition with an Introduction by Evangeline W. Young, M.D. Cloth. Price, $2 net. Pp. 320, with illustrations. New York: E. P. Dutton & Company, 1919.

Dyke's Automobile and Gasoline Engine Encyclopedia. Containing 532 Charts, Inserts, Dictionary, Index, and Supplements on the Ford, Packard, Airplanes, and Liberty "12" Engine. Treating on the Construction, Operation and Repairing of Automobiles and Gasoline Engines. Also Trucks, Tractors, Airplanes, and Motorcycles. By A. L. Dyke, E.E. Tenth edition. Cloth. Price, $5. Pp. 940, with 3362 illustrations. St. Louis: A. L. Dyke, 1919.

(Continued on next page)

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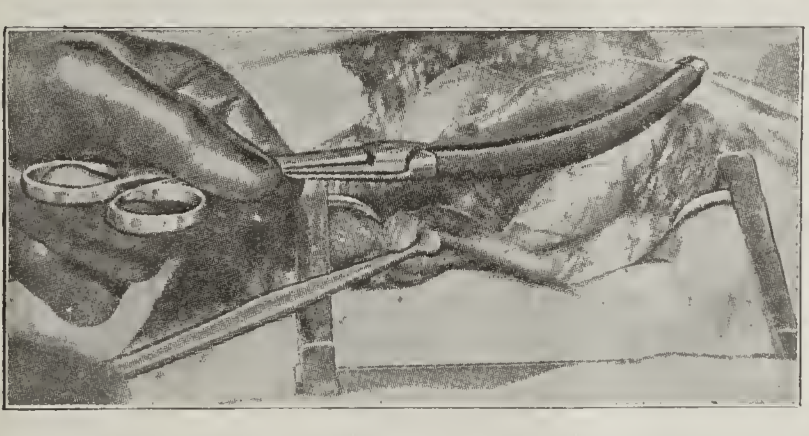

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Dr. E. Wyllys Andrews
Dr. Carl Wagner
Dr. William E. Morgan
Dr. D. N. Eisendrath
Dr. A. A. Strauss
Dr. Arthur E. Willis

(*Books Received continued*)

Venereal Disease Ordinances. Compilation of Suggested and Adjudicated Ordinances Which Have Proved Successful in Combating Venereal Diseases. Prepared by Direction of the Surgeon General. V. D. Bulletin No. 39. Treasury Department, United States Public Health Service. Paper. Pp. 36. Washington: Government Printing Office, 1919.

Administration of Child Labor Laws. Part 3. Employment-Certificate System, Maryland. By Francis Henry Bird and Ella Arvilla Merritt. Industrial Series No. 2, Part 3. Bureau Publication No. 41. Children's Bureau, U. S. Department of Labor. Paper. Pp. 127. Washington: Government Printing Office, 1919.

On Gunshot Injuries to the Blood-Vessels, Founded on Experience Gained in France during the Great War, 1914-1918. By George Henry Makins, G.C.M.G., C.B.. President of the Royal College of Surgeons of England. Cloth. Price, $5.50. Pp. 251, with 64 illustrations. New York: William Wood & Co., 1919.

The Rat. Arguments for Its Elimination and Methods for Its Destruction. Prepared by Direction of the Surgeon General. Public Health Bulletin No. 103, June, 1919. Treasury Department, United States Public Health Service. Paper. Price, 5 cents. Pp. 12. Washington: Government Printing Office, 1919.

Nevralgia Sopraorbitaria Bilaterale con Edema delle Palpebre Primo Sintomo di Un'Infezione Sifilitica. Comunicazione fatta alla Società Medica Chirurgica di Bologna nell'adunanza scientifica del 30 Maggio 1919. Per il Prof. Dott. Nino Samaja. Paper. Pp. 6. Bologna: "Bullettino delle Scienze Mediche," 1919.

1. The Effects of Diminished Tension of Oxygen, with Especial Reference to the Activity of the Adrenal Glands. 2. The Ear in relation to certain Disabilities in Flying. Medical Research Committee. Special Report Series, No. 37. London: His Majesty's Stationery, 1919. Paper. Pp. 51.

Industrial Nursing for Industrial, Public Health, and Pupil Nurses, and for Employers of Labor. By Florence Swift Wright, R.N., Bureau of Child Hygiene, New Jersey State Department of Health. Cloth. Price, $1.25. PPp. 179. New York The Macmillan Company, 1919.

Einige Erfahrungen über die Therapeutische und Diagnostische Bedeutung der Milchinjektionen Besonders in der Ophthalmologie. Von Gerda Uddgren, Med. Lic. Paper. Pp. 172. Stockholm: Ivar Hæggströms Boktryckeri, 1918.

Plastic Surgery: Its Principles and Practise. By John Staige Davis, Ph.B., M.D., F.A.C.S., Instructor in Clinical Surgery, Johns Hopkins University. Cloth. Price, $10 net. Pp. 770, with 864 illustrations. Philadelphia: P. Blakiston's Son & Co., 1919.

Standards of Child Welfare. Report of the Children's Bureau Conferences, May and June, 1919. Cloth. Pp. 459, with 4 plates. U. S. Department of Labor, Children's Bureau, Conference Series No. 1, Bureau Publication No. 60. Washington, 1919.

Camping in Comfort. By John A. Donovan, M.D., F.A.C.S., President of Butte Chamber of Commerce. Boards. Price, 60 cents. Pp. 61, with illustrations. Denver: Outdoor Life Publishing Co., 1919.

The Influence of Alcohol on Manual Work and Neuro-Muscular Co-Ordination. Medical Research Committee, Special Report Series, No. 34. Paper. Pp. 65. London: His Majesty's Stationery Office, 1919.

Proceedings of the Connecticut State Medical Society, 1919. 127th Annual Convention. Cloth.

Report of the British Association for the Advancement of Science. Cloth. 1918.

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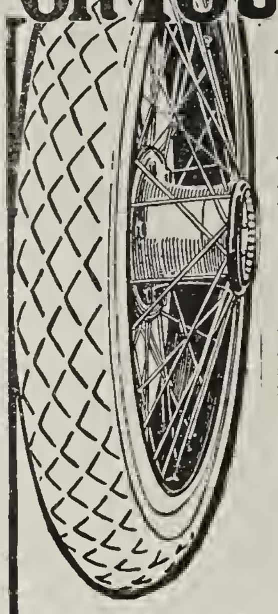

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30 x 3½	12.30	13.85	3.25	34 x 4½	26.90	29.35	5.60
31 x 3½	13.10	14.40	3.30	35 x 4½	28.20	30.70	5.70
32 x 3½	14.30	16.20	3.40	36 x 4½	28.60	31.15	5.90
34 x 3½	15.10	16.70	4.15	37 x 4½	32.65	35.60	6.70
31 x 4	18.30	20.75	4.25	35 x 5	30.90	33.80	6.95
32 x 4	18.70	21.10	4.35	36 x 5	33.55	36.75	7.65
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(*Continued from page 24*)

WANTED — LABORATORY TECHNICIAN for service with middle west diagnostic group; must be expert in serology, bacteriology and all laboratory investigations; state age, experiences, references and salary desired. Add. 7075 V, % AMA.

WANTED—SKILLED X-RAY TECHNICIAN for diagnostic group service, middle west; experience in therapy desired; state education, age, experience, references and salary. Add. 7074 V, % AMA.

WANTED—LADY LABORATORY TECHNICIAN; can use at once; must do Wassermann; tissue work not required; southern state, city of 25,000. Add. 7063 V, % AMA.

WANTED — FEMALE LABORATORY ASSISTANT in physician's office in Cincinnati; competent to do clinical blood chemistry, microscopic bacteriology; initial salary $1,200 per year. Add. 7039 V, % AMA.

WANTED—TECHNICIAN (WOMAN) FOR southern hospital of 150 beds; salary $100 a month with table board; location in one of the most progressive and pleasant cities of the south; give full information as to qualifications. Add. Visiting Pathologist, Memorial Hospital, Richmond, Va. V

HOSPITALS WANTED

WANTED—SURGICAL HOSPITAL — TWO able surgeons, one F.A.C.S., desire to secure an established private surgical hospital or surgical connections with an established hospital; must be high class and bear the most rigid investigation; can come at once; will also take over industrial or railroad hospital for corporation or establish one on right kind of a contract. Add. 7086, % AMA.

PARTNERS WANTED

WANTED—AN ETHICAL, CAPABLE PHYSICIAN to form partnership in financing and managing a recently purchased sanatorium near Chicago; 20-acre tract; beautiful buildings and surroundings; ideally located; to modernly equip will require from $10,000 to $15,000; experience and credentials desired. Add. 7077 G, % AMA.

WANTED — PARTNER — SOUTHWEST Texas; do over $5,000 cash practice; Spanish desirable; good roads and climate; railroad appointment; want to retire. Add. C. Neeper, 212 So. Alamo St., San Antonio, Texas. G

PARTNERSHIP WANTED

WANTED—PHYSICIAN, AGED 40, MARried; graduate Class A college; year's internship; 15 years' general practice, including surgery, would like to become associated with surgeon; references, ability and character. Add. 7069 H, % AMA.

WANTED—ASSOCIATION WITH GROUP or busy surgeon to do general practice and obstetrics; graduate A1 school and hospital training; 9 years' experience; best of references; capable of handling great amount of work. Add. 7110 H, % AMA.

WANTED — ASSOCIATION WITH A group of specialists or surgeon; have had 12 years of general practice, 6 years of which special attention was given to internal medicine and roentgen ray; recently finished one year's service in diagnostic, medical treatment and roentgen-ray work with a surgical clinic; now desire to specialize in gastroenterology or internal medicine; can assist in surgery, over see clinical and x-ray laboratories; can furnish roentgen-ray laboratory and office equipment; references given; will arrange personal interview. Add. 7098 H, % AMA.

WANTED — ASSOCIATION WITH PRACtitioner or surgeon, contract practice or resident physician; A school, 1917; 2¼ years' internship, large city hospital; last year chief resident physician; do any major surgery; single, Protestant, aged 26. Add. 7033 H, % AMA.

WANTED — PARTNERSHIP OR LOCATION with group of doctors or industrial concern; recently discharged from foreign service; married; can furnish own equipment and car to right proposition; references given as to capabilities and integrity. Add. 6950 H, % AMA.

WANTED—YOUNG SURGEON WISHES association or partnership with physician or group of physicians; 5 years' hospital experience in surgery; best of references. Add. 7117 H, % AMA.

DIETITIANS' LOCATIONS WANTED

DIETITIANS FURNISHED HOSPITALS anywhere in U. S. A. without charge. Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago.

LOCATIONS WANTED

WANTED—PRACTICE OR PARTNERSHIP in some large city, preferably New York, but consider other states; registered in several states; prefer office practice; also consider position; fine personality and good appearance and habits; do genito-urinary and accessory diseases treatments; married, no children; aged 56; graduate Canadian school and P. & S. College, Baltimore, Md. Add. 2047, % F. V. Kniest, Bee Bldg., Omaha, Neb. E

WANTED—LOCATION OR PRACTICE OF not less than $3,000 per year in Wisconsin, Nebraska or Illinois or a state reciprocating with Illinois; give full particulars and price. Add. 7106 E, % AMA.

WANTED—A SURGICAL PRACTICE IN an eastern state, New York or Pennsylvania preferred; surgical internships in well-known New York hospitals; specialized in surgery since 1906; aged 44; Class A school; has good hospital and school connections, but desire to return east for family reasons. Add. 7094 E, % AMA.

WANTED — LOCATION — COMPETENT, aged 30; will buy or form partnership with established eye, ear, nose and throat specialist with view of successorship; city over 20,000 only. Add. 7112 E, % AMA.

WANTED—LOCATION—MIDDLE WEST—Up-to-date city 20,000 or over; specialized pediatrics five years; five years' hospital training; recently discharged from army; aged 33; graduate Class A. Add. 7076 E, % AMA.

WANTED — PRACTICE OR PARTNERSHIP or location by surgeon and physician; aged 31; references, good appearance; prefer California or western states; do general major surgery and general medicine; married; graduated 1914 (Detroit College Medicine and Surgery); 1 year internship, 1 year postgraduate work (in surgery) and contract work experience. Add. 2045, % F. V. Kniest, Bee Bldg., Omaha, Neb. E

WANTED — LOCATION IN INDIANA, North Carolina or Ohio; will assist busy man or consider institutional work; am good clinician and laboratory man; will locate with view of buying property. Add. 7080 E, % AMA.

WANTED — LOCATION IN WEST OR southwest, offering opportunity for surgery; graduate Class A school; 16 years' experience; 10 years in emergency and general surgery; registered Michigan, Louisiana, Texas, reciprocating states; 44, married, Protestant; could make fair investment; would consider large mining or corporation contract work. Add. 7054 E, % AMA.

WANTED—CONTRACT OR INDUSTRIAL practice; 6 months' general, 14 months' hospital experience; 16 months M. R. C.; best references; graduate Class A school; aged 30; married; Illinois license; can go immediately. Add. 7036 E, % AMA.

WANTED — LOCATION, POSITION OR association; graduate A plus school; B.S. and M.D.; three years' training in best hospitals; rotating service, largely surgical; eight years' private practice; just finished year of postgraduate work; prefer town 15,000 or more in Indiana, Kansas or reciprocating state with hospital facilities; capable of doing first-class major surgery. Add. 7026 E, % AMA

WANTED—TWO MEN WHO HAVE BEEN doing general surgery, one having experience x-ray work, other special training and one year base hospital in urology, desire either location or association with group; willing to invest; west or south preferred. Add. 7011 E, % AMA.

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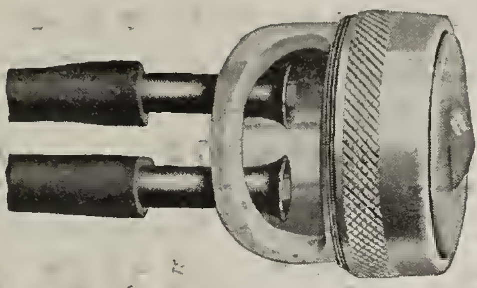

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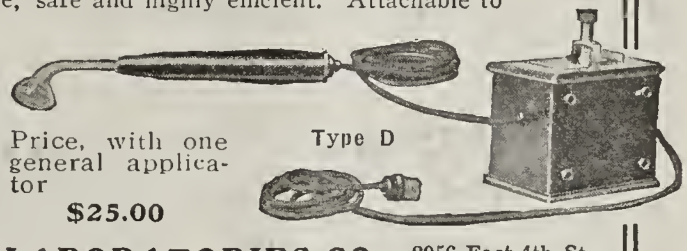

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WANTED — EYE, EAR, NOSE AND throat location or association in states reciprocating with Illinois; city 25,000 or over; highest references furnished; available October 1. Add. 7028 E, % AMA.

SITUATIONS WANTED

WANTED — WOMAN PHYSICIAN, 28 years old, desires position as resident physician or as assistant; capable; can come at once; references; year's hospital experience in large surgical hospital. Add. 7096 I, % AMA.

WANTED — POSITION DESIRED BY physician and surgeon, graduate Rush 1916; B.Sc. degree University Chicago; unmarried; very good appearance and references; also consider contract practice or income deal in medical lines; American; age 33; registered in Illinois and reciprocating states; special training obstetrics, gynecology and do general practice and general surgery; take board examination if required; do general laboratory work; hospital and contract work and private practice experience; good health; very good address. Add. 2029 % F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED—EXPERIENCED TECHNICIAN desires a position as technician, bacteriologist or research work. Add. 7119 I, % AMA.

WANTED—POSITION—PREFER OFFICE work entirely; aged 56; very good appearance; married; no children; prefer New York, but will consider other states; registered in several states; good health; graduate of Halifax (Canadian) school and P. & S. College, Baltimore, Md.; can furnishes references as to ability and character; good habits; prefer institutional, office or industrial position; also consider partnership or purchase of good office practice; experienced in particular in genito-urinary accessory diseases; good personality and appearaance. Add. 2047, % F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED — POSITION (PREFER INSTItutional) in internal medicine or branches; graduate A medical college, 1918; one year internship as internist; aged 26; married; no children; wife graduate dietitian Battle Creek Sanitarium. Add. 7089 I, % AMA.

WANTED — INTERNSHIP IN MODERN general hospital by ex-service man; graduate of Class A school, 1918; middle west preferred; salary considered but not prerequisite. Add. 7102 I, % AMA.

WANTED—ASSISTANTSHIP, CONTRACT practice or good location by young, single, American man; healthy, clean, industrious, of good appearance; B.S. degree, M.D., Northwestern Medical; 21 months' internship in 1,400-bed hospital; do general medicine, major surgery, routine laboratory work, anesthetics and some roentgenology; good references; will make good; would go anywhere. Add. 7115 I, % AMA.

(*Continued on next page*)

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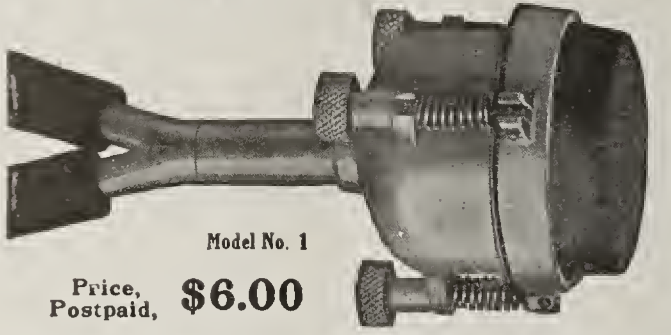

A 'scope with which you can hear the heart sounds through an overcoat, coat and vest, and with which you can easily hear the fetal heart sound. The regulation binaurals are used on this stethoscope.

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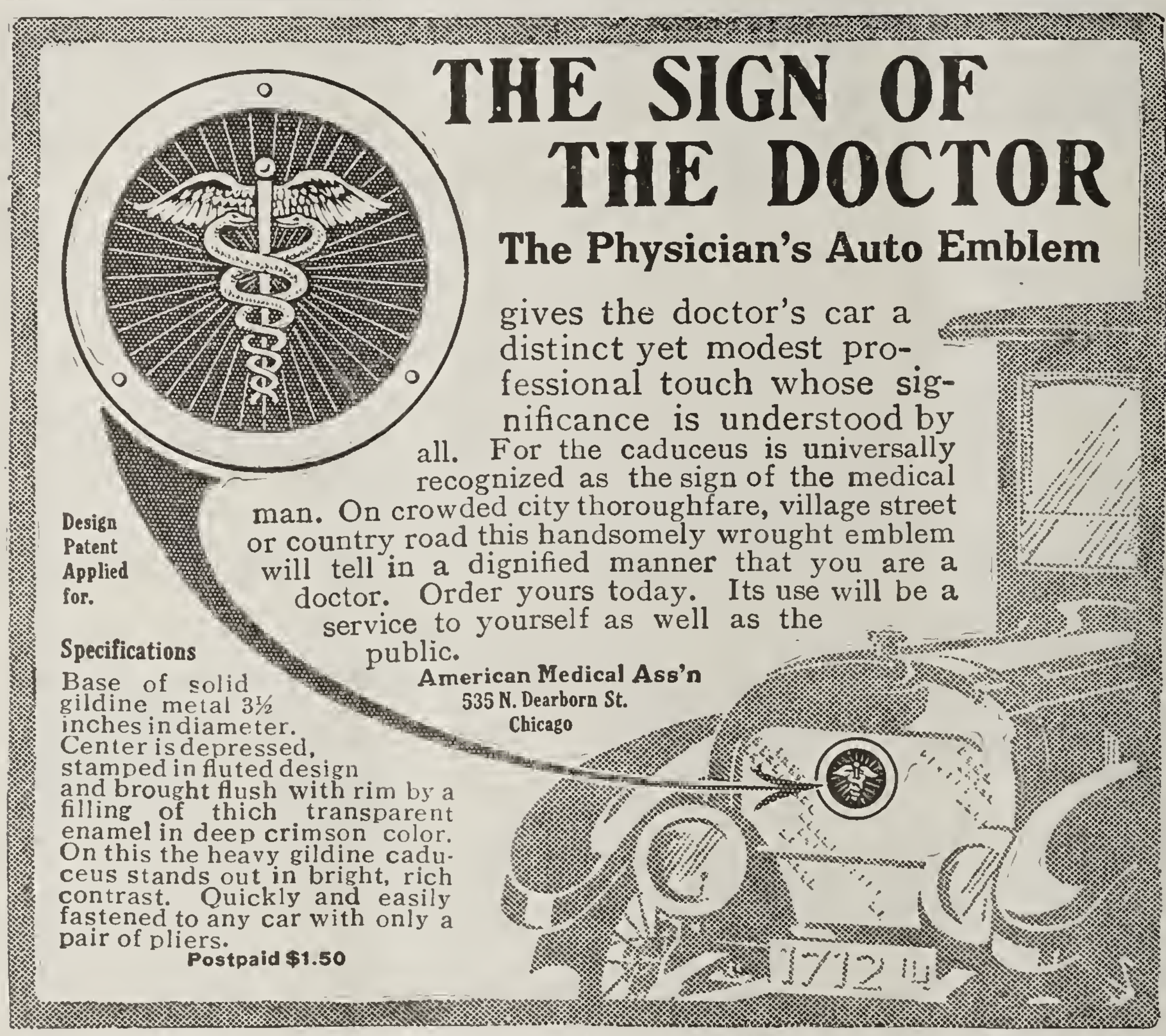

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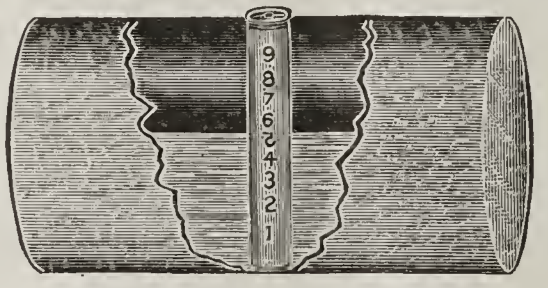

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WANTED—POSITION WITH FUTURE—Assistantship to busy practitioner; graduate Class A school; internship; experienced in general and contract practice; married, aged 35 years; available immediately; postgraduate in obstetrics, pediatrics; licensed Wisconsin. Add. 6949 I, % AMA.

WANTED—BY EXPERIENCED WOMAN refractionist, position with eye, ear, nose and throat specialist; familiar with office work, sufficient typewriting; executive ability; best of references. Add. 6982 I, % AMA.

WANTED—POSITION BY LABORATORY and x-ray technician; 7 years' experience, including army work, in serology, bacteriology, blood work and general clinical microscopy; also radiographic experience; capable of taking full charge of laboratory; references; prefer position in New York or vicinity. Add. 7088 I, % AMA.

WANTED—INTERNSHIP BY YOUNG UNmarried physician, graduate Class A school; one year's internship, three years' general practice, two years overseas' service; desires hospital work with good pediatric service; small salary expected with maintenance; excellent references. Add. 7082 I, % AMA.

WANTED — POSITION OR CONTRACT practice; do general practice and surgery; aged 43, good personality; 9 years in active practice; specialized in surgery; large experience in surgery in army base hospital. Add. 2031, % F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED—POSITION — INSTITUTIONAL work; aged 31; good clinician; know laboratory work in detail; prefer tubercular sanatorium; position must have future; have good personality; conscientious worker. Add. 7081 I, % AMA.

WANTED — TECHNICIAN, X-RAY AND clinical laboratory, thoroughly competent, desires position in vicinity of Chicago or Southwest; A1 references; availaable immediately; A.B. from University of Michigan and two years in medical school. Add. 7078 I, % AMA.

WANTED — POSITION AS MEDICAL superintendent (or assistant at first) of hospital about Oct. 1; aged 49; good health, habits and appearance. Married; three minor children; graduate College Physicians and Surgeons N. Y., 1896; practiced some years in New York City; two years experience as assistant superintendent in private hospital some years ago; experience on road in commercial lines; in military service last two years; 10 months overseaes; rank at present as Major M. C. and have command of Post Hospital at well known coast defense fort in East; must be ethical. Add. 6802 I, % AMA.

WANTED—POSITION OR ASSOCIATION or location desired by woman physician; graduate Creighton Medical College; good appearance, health; unmarried; specialized in children's diseases; also do general practice; postgraduate course in pediatrics at Harvard; registered in three states; graduated 1913; hospital experience; speaks English and German. Add. 2041, % F. V. Knist, Bee Bldg., Omaha, Neb. I

WANTED — POSITION BY GRADUATE Cornell University Medical College; exintern Bellevue and Lying-In hospitals, New York City; also in Elizabeth General Hospital; several years' successful private practice; trained state institution; experienced sanatoria administration; at present superintendent private sanatorium; Protestant; 40 years of age; married; excellent references; only first-class proposition considered. Add. 6814 I, % AMA.

WANTED — POSITION — PREFERABLY with surgeon or hospital affording opportunity to "brush up," by physician just released from government service, whose duties were executive; graduate Class A school; good address, reliable, ethical; wide experience in general practice, hospital and dispensary work; give full particulars: character of work, salary, etc., first letter. Add. 7061 I, % AMA.

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WANTED — PHYSICIAN, EXPERIENCED in hospital and institutional practice, desires position about October 1st; South or Southwest preferred; single; good health; first class references. Add. 6972 I, % AMA.

WANTED — SITUATION — COLLEGE woman, stenographer, expert; accountant; experienced in medical stenography, literary editing, writing; mornings only or evenings; $15 per week. Balint, 325 East 24th St., New York City. I

WANTED—SITUATION — LEAVE ARMY October; licensed Illinois, Wisconsin, District Columbia; tuberculosis and internal medicine; capable physician and executive; married; no children; 38 years old; Class A. Add. 6985 I, % AMA.

WANTED—ASSISTANTSHIP TO TUBERculosis specialist or position in first-class institution; interested in internal medicine; expert blood and urine chemist; degrees A.M., ScD., M.D.; internship; member faculty A1 medical school; aged 31; married; one child. Add. 7005 I, % AMA.

WANTED — POSITION AS ASSISTANT to a busy surgeon preferably in New York City by a woman physician; twelve years' experience in general practice; salary no object; but must be guaranteed plenty of work; fullest credentials given and required. Add. 6959 I, % AMA.

WANTED — ASSISTANTSHIP, PARTNERship or location; central states preferred; single, aged 38, Protestant, American; 1917 graduate; 12 months' internship; army service; Illinois and Missouri licenses; available at once. Add. 6943 I, % AMA.

WANTED—POSITION OF ANY KIND—Speak Spanish and French; several years' experience in South America. Add. 6956 I, % AMA.

WANTED—SITUATION BY WOMAN PHYsician, American; registered in five states; graduate Woman's Medical College of Pennsylvania; can reciprocate in many states; any kind of position or income deal considered; reformatory work experience and 10 years' practice; large experience with women and girl patients. Add. 2042, % F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED—POSITION AS PATHOLOGIST in hospital or with group of physicians; five years' experience; can handle x-ray and electrocardiograph; best references; aged 34, single; graduate in medicine; available immediately. Add. 6903 I, % AMA.

NURSES LOCATIONS WANTED

WANTED—POSITION AS SURGICAL ASsistant by registered nurse; eastern states preferred; references. Add. 7103 W, % AMA.

WANTED—OFFICE POSITION BY REGistered nurse; postgraduate in pediatrics; American, Protestant; aged 30; 7 years in office of well-known specialist and writer as literary assistant, office nurse and surgical assistant; typing, abstracting, filing, cross indexing and proofreading; east preferred; whole or part time; salary conditional; referenced. Add. 7109 W, % AMA.

WANTED—POSITION AS LABORATORY technician desired by registered nurse, experienced in routine laboratory work. Add. 7084 W, % AMA.

WANTED — POSITION AS OFFICE AND surgical assistant by graduate nurse. Add. 7042 W, % AMA.

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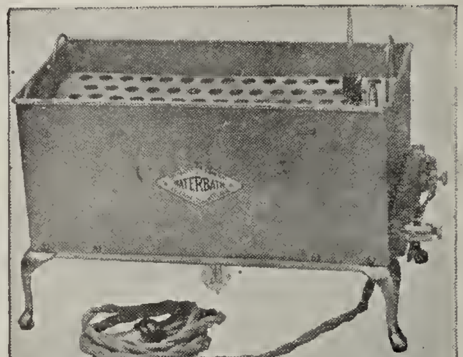

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(Continued from preceding page)

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FOR SALE—TYPE A VULCAN COIL AND Fischer tube stand, $135; guaranteed absolutely like new. B. B. Keith, Mansfield, Ohio. K

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FOR SALE—BETZ STATIC MACHINE IN first-class condition, complete with x-ray tube and stand; high frequency,, violet ray and applicators; price, $150, f.o.b. Sturgis, Ky. Dr. G. B. Carr, Sturgis, Ky. K

FOR SALE—APPARATUS—CHEAP—ONE high frequency electrical machine, King's model, Wappler, N. Y.; one Chattanooga vibrator; one Faught's sphygmomanometer; all in good condition. Add. J. W. Harper. Hot Springs, Va. K

FOR SALE—X-RAY COIL, WANTZ TYPE, 60-cycle rectifier, adjustable tube stand, with heavy lead glass bowl, assorted diaphragms, compressor for kidney work, intensifying screen and plate holder and high frequency resonator, x-ray tubes and four-person oxyoline machine; cost $400; bargain. Add. 6947 K, % AMA.

FOR SALE—A BARGAIN—VICTOR NO. 7, high frequency, fully equipped and in fine working condition; gives autocondensation, diathermy, high frequency, cautery, etc.; $150 takes it; also a $35 miliampermeter for $20. D. H. Hinckley, 3904 Cottage Grove Ave., Chicago. Phone Kenwood 6506. K

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FOR SALE — BOOKS—SELLING OUT fine up-to-date medical library containing Piersol, Keene Surgery, Johnson Operative Therapeusis, Cabot, etc. (280 Books). Rosengren, 333 Monadnock Block, Chicago. M

WANTED — AT ONCE — MARCH AND April, 1919, issues of Am. Journal Diseases of Children; also January, 1918; we will pay 25c each for the return of these issues in good condition. Add. 6386 M % AMA. M

WANTED — AT ONCE — WE WILL PAY 10c each for all January, February and March 1st, 1919, issues of the J. A. M. A. Add. 6387 M % AMA. M

WANTED—JULY, 1909, JANUARY, 1916, ISsues of *Archives of Internal Medicine.* We will pay 50 cents each for the return of these numbers in good condition. Am. Med. Assn., 535 N. Dearborn St., Chicago.

WANTED — AMERICAN JOURNAL OF Diseases of Children, Jan. and June, 1915, Aug. and Nov., 1916; We will pay 50c each for the return of these issues in good condition. Add. Am. Med. Assn., 535 N. Dearborn St., Chicago, Ill. M

PRACTICES FOR SALE

FOR SALE — CALIFORNIA — $5,000 practice; contracts amounting to $125 cash per month; good farming community and extensive mining and lumbering country; $10,000 will buy 16-room hospital and equipment, modern in every way. Add. 6992 N, % AMA.

FOR SALE—ILLINOIS—$7,000 PRACTICE and equipment two-story brick and stone office and residence, large garage; 1,200 population; rich farming community; good schools, churches, water, electric lights, hard roads; collections excellent; one other physician; electric and steam roads; hospital facilities; $6,000; $3,000 cash, balance terms; specializing. Add. 7121 N, % AMA.

FOR SALE — CHICAGO — PROPERTY worth $12,000; practice $10,000 yearly for price of property; $6,000 cash will handle; must be A1 man; property rapidly increasing in value. Add. 7092 N, % AMA.

FOR SALE—CHICAGO, ILL.—$6,000 GENeral practice on Northwest Side; I am going out west on account of my wife's health, so will dispose of my business for $1,000, including thorough introduction, office and household furniture; furniture worth more than price asked; business easily transferable; this appears but once. Add. 7105 N, % AMA.

FOR SALE—ILLINOIS — CORN BELT—Unopposed village and country practice, 100 miles from Chicago; property consists of office and residence, garage, barn, etc., centrally located; good schools, Catholic and Protestant churches, city water, cement sidewalks, oiled roads; rich farming community; good fees; collections 98 per cent.; nearest physician 5, 7 and 12 miles; insurance appointments transferable; price, $4,000; terms; drugs and fixtures optional; will introduce; practice averages $6,000 to $8,000 yearly. Add. 7107 N, % AMA.

FOR SALE—ILLINOIS PRACTICE — REtiring after many years' practice; partner and myself did almost $12,000 past year, to January, 1919, and collected over $1,000; residence, office, etc., for sale; introduction given successor. Add. 2040, % F. V. Kniest, Bee Bldg., Omaha, Neb. N

FOR SALE—NORTH CENTRAL INDIANA —$7,500 practice in country town; rich farming community; good roads, churches and schools; use auto year round; price of residence, office, garage, barn with 1½ acres well-fenced ground, $5,000; specializing in western state; immediate possession given; cash or payments. Add. 7053 N, % AMA.

FOR SALE—SOUTHERN INDIANA—GENeral and surgical practice in unopposed territory of 15 miles square; nearest M.D. 10 miles; great place for new man; $500 gets team, buggy, drugs, fixtures, etc.; reason, poor health. Add. 7087 N, % AMA.

FOR SALE — INDIANA — UNOPPOSED practice; exceptional bargain; population 300; retiring after 30 years' practice; easy terms. Add. 1839, % F. V. Kniest, Bee Bldg., Omaha, Neb. N

(Continued on page 32)

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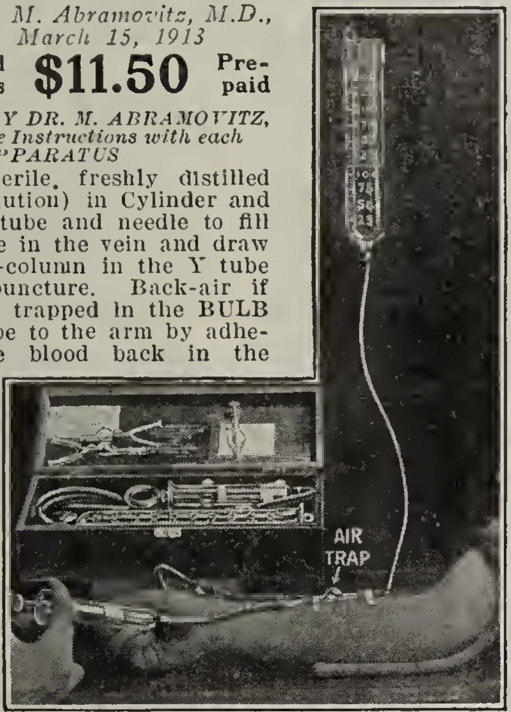

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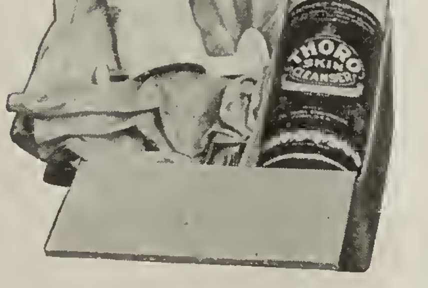

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(*Continued from page 30*)

FOR SALE—INDIANA—$5,000 PRACTICE —Good roads, churches, lodges; rich farming section; population 800; no opposition; going to specialize; price, $400 for drugs, fixtures and practice. Add. 7116 N, % AMA.

FOR SALE—INDIANA—TOWN 500—GOOD roads, schools, churches and stores; with or without property; 100 miles from Chicago; business $5,000 and more if you do surgery; write for particulars. Add. 7046 N, % AMA.

FOR SALE—INDIANA—WILL SELL OR exchange large ethical eye and ear practice and property for farm; the practice is proserous and will furnish all of the work two good men can do; can give possession at once. Add. 6986 N, % AMA.

FOR SALE—IOWA—$6,000 PRACTICE IN town of 700; population of large surrounding territory 2,000; collections 99 per cent.; fees good; must sell by October 25; doing year's P. G. work; a snap; will introduce. Add. 7118 N, % AMA.

FOR SALE—IOWA — EQUIPMENT AND lease on office; fine city 6,000; large contributing territory; excellent hospitals; opening for surgeon; also eye and ear man; reason on request; appears once. Add. 7111 N, % AMA.

FOR SALE—IOWA — FURNITURE, INstruments and practice in one of the best 2,300 towns in state; two railroads; business can be doubled by doing surgery; will introduce. Add. 7047 N, % AMA.

FOR SALE—CENTRAL KANSAS—DESIRing to specialize, I will sell my $7,000 cash practice in a modern little town of 600 people, with electric lights, waterworks and accredited high school; good auto roads; one other physician; price, $1,500 for office equipment, instruments and drugs; some instruments and library reserved; one half cash; terms on balance if desired. Add. 7067 N, % AMA.

FOR SALE—KANSAS — PRACTICE AND drug store in one of wealthiest communities in Kansas; stock invoiced $2,600; collections 99 per cent.; competition light; a good paying business; price, $5,000. Philip A. Kennicott, M.D., Woodbine, Kan. N

FOR SALE — SOUTHERN MICHIGAN— $5,000 practice to purchaser of modern home and office; collections 98 per cent.; small town; large territory; opposition just right; $2,000 cash needed; going to city; good money from start; exceptional opportunity. Add. 7093 N, % AMA.

FOR SALE — MICHIGAN — DECEASED doctor's fine 10-room brick residence, office connected, on 4 lots; fine practice; only 5 miles from Lake Michigan summer resort; 60 miles from Chicago on Michigan Central. Add. 7029 N, % AMA.

FOR SALE — SOUTHEAST MISSOURI— General practice; young doctor can make $3,000 first year; investigate; a rare opportunity; $700 for drugs, office equipment, etc. Add. 6839 N, % AMA.

FOR SALE—MISSOURI — NORTHWESTern part; $5,000 unopposed practice in a splendid inland town; population 300; surrounded by a good country; practice established 22 years; price, $2,000, which includes a fine library, office furniture and equipment, surgical instruments and drugs; will give a thorough introduction; will sell my $5,000 home if desired; a fine opportunity. Add. 6998 N, % AMA.

FOR SALE—NORTH CENTRAL MISSOURI —$5.000 practice; richest section of state; town 800; 2 railroads, electric lights; my office fixtures and large line of drugs, $500; must sacrifice on account of wife's health; going west. Add. 7044 N, % AMA.

FOR SALE — NEW YORK — WESTERN part; established town and country practice; population 3,000; competition very easy; town has railroad shops, good high school, five churches, county home and F. and A. M. and I. O. O. F. lodges, state roads, natural gas, city water perfect, no typhoid; old line insurance examinations a big asset; office has always been used by a physician and can be rented; no real estate to sell; help of druggist; all for drugs; reason for selling, specializing; come see for yourself; price, $500. Add. 7030 N, % AMA.

FOR SALE—NORTH DAKOTA — OFFICE building, fully equipped, including x-ray machine; small village of 600; crops excellent; nearest physician 17 miles; exceptional opportunity; $800 cash; averages $300 monthly. Add. 7095 N, % AMA.

FOR SALE—NORTH DAKOTA — $10,000 unopposed practice, established 9 years; fine office and private hospital equipment; good location for one capable of doing surgery; plenty of work from the start; invoice price about $2,500; part cash; balance terms; will sell or rent residence. Add. 7108 N, % AMA.

FOR SALE—SOUTHERN OHIO — $10,000 unopposed established practice in 700 railroad town; natural gas, good schools, rich oil, clay, coal and farming section; use auto nine months in the year; collections 98 per cent.; price, $1,200, includes full equipment, drugs, driving team and auto; can collect $700 per month from start; going to specialize; introduce purchaser. Add. 7083 N, % AMA.

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FOR SALE—VIRGINIA — UNOPPOSED $5,000 practice in village of 200 with rich surrounding country and churches and high school; fine roads and good collections; 10-room residence, 2-room office, outbuildings, fruit trees, garden, pasture lot, garage and delco lights; $6,000 for property and practice; equipment optional; going to specialize. Add. 6732 N, % AMA.

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FOR TUBERCULOUS PATIENTS—PHYSIcians of the middle west who recognize the value of treating patients in their own climate should find out about the complete facilities of the Chicago-Winfield Tuberculosis Sanatorium, photograph and description of which appear on page 43, this Journal. We shall be glad to communicate with you regarding treatment for any incipient or moderately advanced case.

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MISCELLANEOUS

SPECIAL ATTENTION TO DIPHTHERIA at this time of the year is in order. The opening of schools, the increasing frequency of indoor meetings and the general tendency to indoor living all conduce to the spread of diphtheria contagion. For prophylaxis or treatment of diphtheria, it is of prime impor- pure antitoxin and that he suffers no delay. pure antitoxin and that he sluffers no delay. It is for this reason that we publish on page 17 of this Journal a complete list of package sizes and prices of the Gilliland Diphtheria Antitoxin. Order direct or through your druggist.

(*Continued on page 34*)

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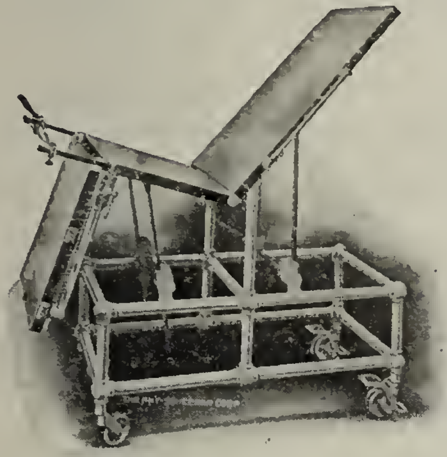

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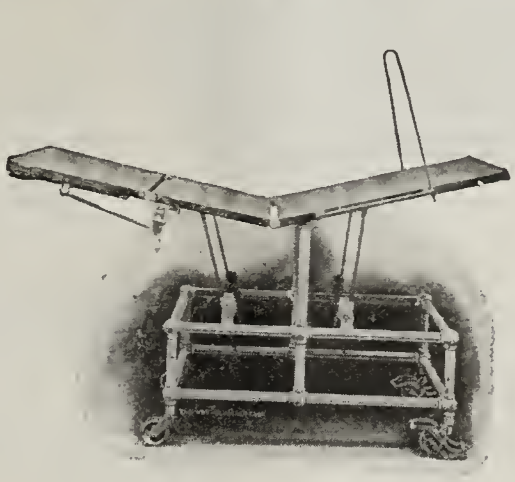

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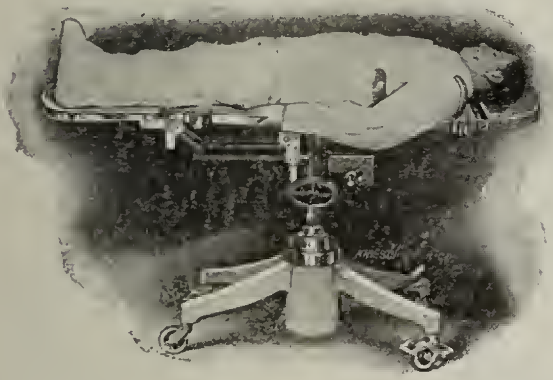

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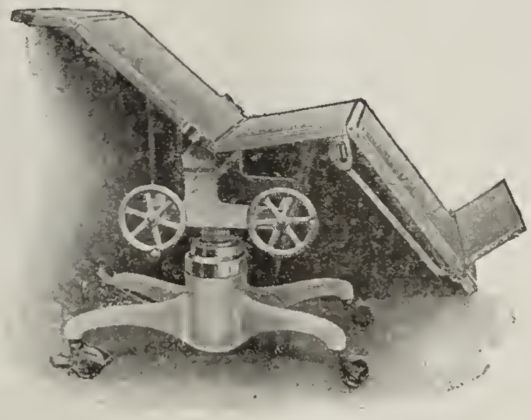

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(Continued from page 32)

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"HOW SHALL I EQUIP MY OFFICE?"—This is a little circular which gives valuable suggestions to the physician on how to secure a pleasing library effect in his office and to dispel the suggestion of a hospital or operating room. It also shows the various styles and models of the Allison line of furniture which is built with the especial view of producing a plesasing psychic effect on the patient. See our announcement, page 47, this Journal.

OVAL NECK WATER BOTTLES FOR patients' comfort. Physicians and nurses have been quick to recognize in the Faultless Patented Oval Neck Construction of the No. 40 "Wearever" Water Bottle an element of comfort. This construction eliminates the discomforts of the large round neck of the old style bottle pressing against the body. As indicated in our adv. on page 49, the complete line of The Faultless Rubber Company includes practically everything needed in the hospital or home. We invite correspondence from physicians.

AN OPERATING TABLE IS A WORK table for the surgeon, and for this reason we have built into our "Universal" every possible convenience. For example, it may be had with pedestal base admitting of height adjustments to suit the stature of the surgeon or the nature of the case he is working on. Other mechanical conveniences of the "Universal" are illustrated and explained in the complete Kny Scheerer catalogue which will be sent you on request. See announcement, page 33, this Journal.

The Pharmacology OF Useful Drugs

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MARTIN I. WILBERT,
Technical Assistant Division of Pharmacology, Hygienic Laboratory, U.S. Public Health Service.

In compiling this book the authors have endeavored to select just what the practitioner will want to know regarding pharmacology, including its modern advances and to describe each preparation in a way that the reader may at once use this information to the best advantage.

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THORO SKIN CLEANSER — A NEW saponaceous powder of special interest to physicians and surgeons. Compounded on fine sterilized corn meal. So bland that some use it as a dentifrice. So cleansing that it usually can improve the skin's appearance after it has been washed with soap. So well protected by the Thoro Dispenser that you can be sure of no contamination by human touch or atmospheric dirt. First announcement of Thoro was made to Journal readers two weeks ago. The response has indicated a great interest by physicians in this new hygienic all-round skin cleanser. The special installation offer is repeated in this issue, page 31. We will send samples on request.

NO GARBAGE PROBLEM IF YOU HAVE installed in your office and residence an "Isolator." This device will receive all the various forms of refuse about the home, the bandages, splints, dressings, etc., of the office, and convert them to a fine white ash without odor. Of special interest to physicians is the fact that the Isolator will receive and incinerate fluids. We will be glad to send catalog of different styles. See our adv., page 31, of this Journal.

AUTOMOBILES & ACCESSORIES

DOCTORS DRIVING FORDS SHOULD take special notice of our announcement regarding the Ford-o reserve gasoline tank, page 28 of this Journal. With this simple device you can always be sure of having gasoline enough to carry you a few miles farther even after the main tank is empty. Order one for use this winter and play safe against being stranded at an inopportune time or place. Sent direct on receipt of price. II

See page 20 for classified rates

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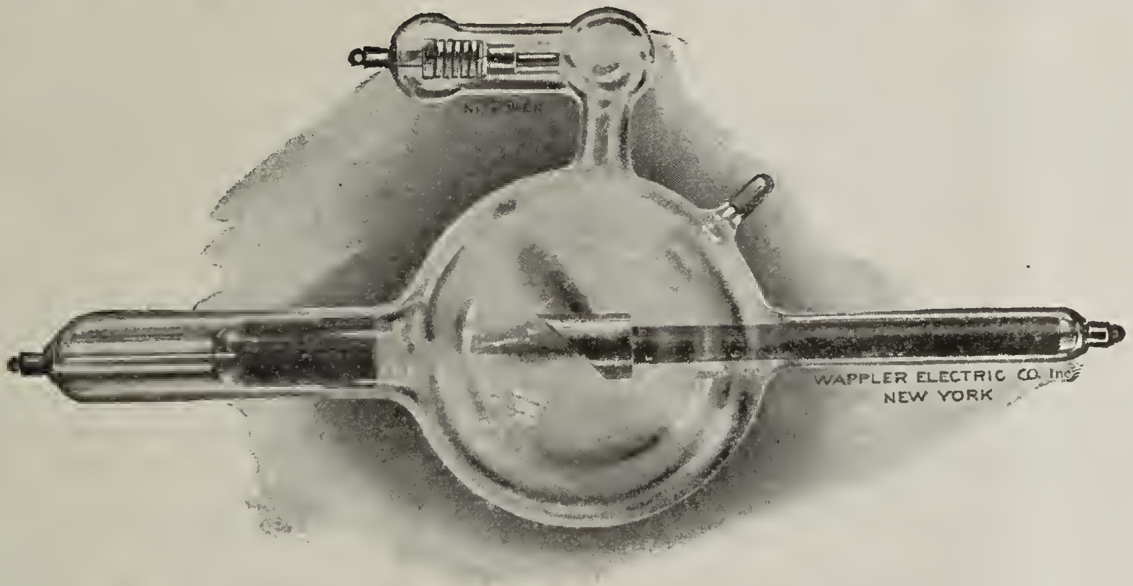

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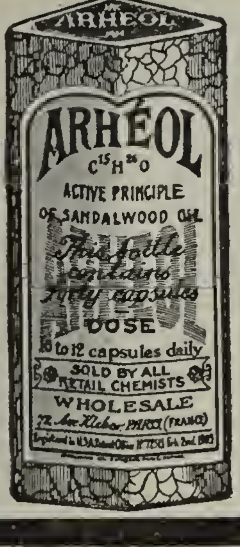
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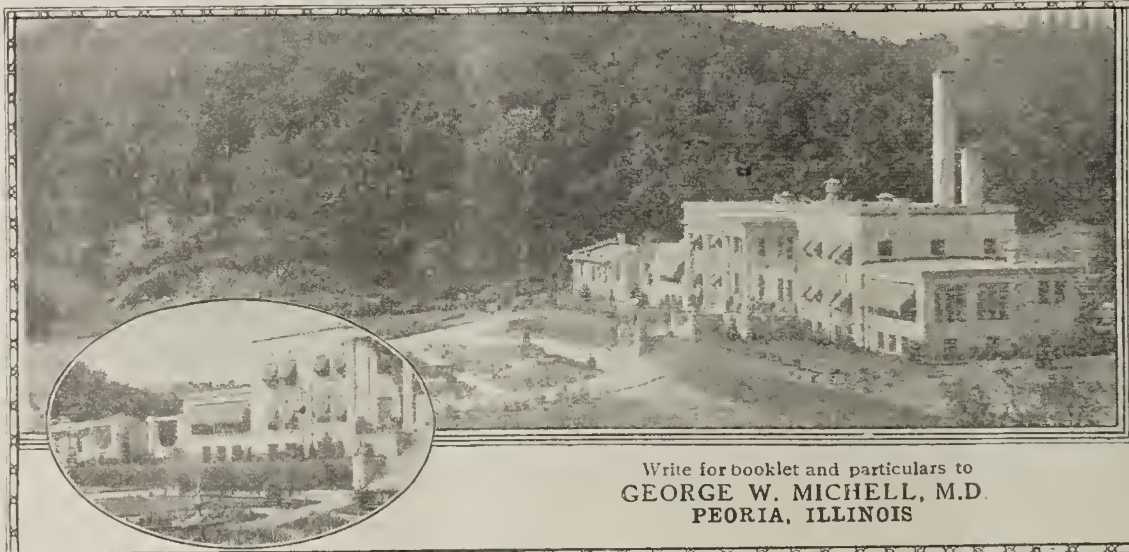

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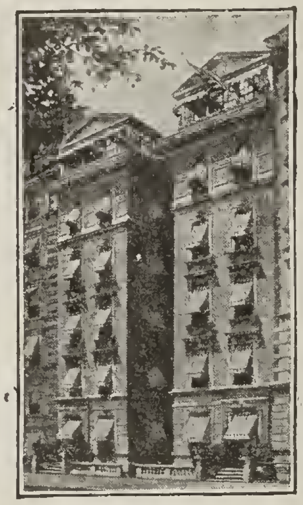

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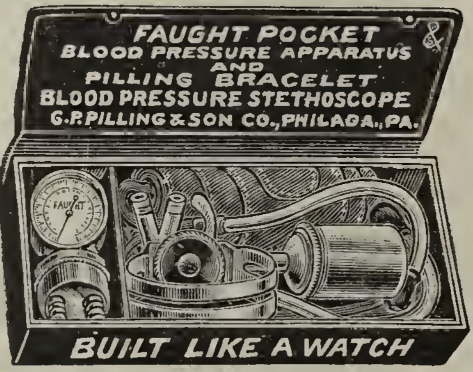

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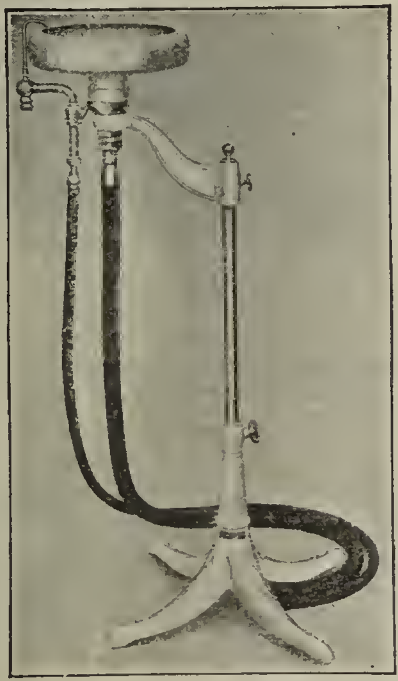

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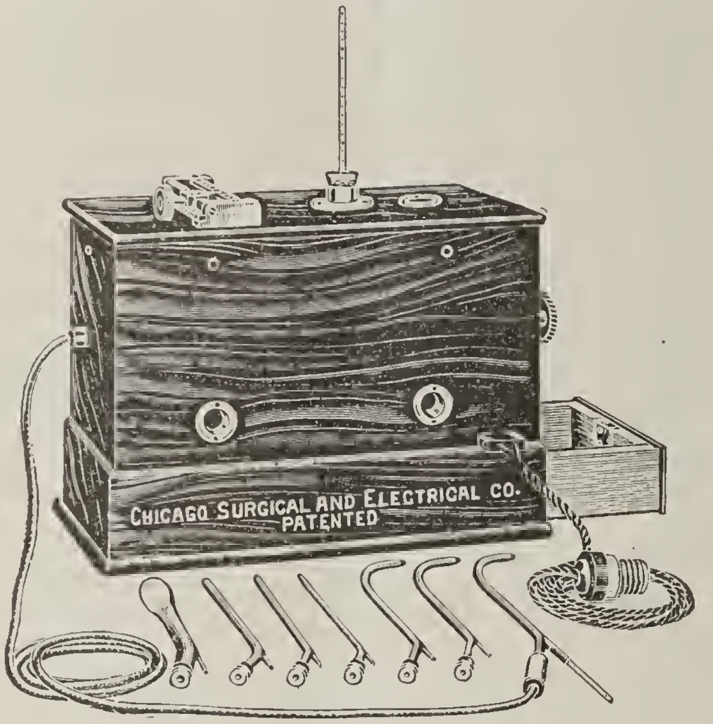
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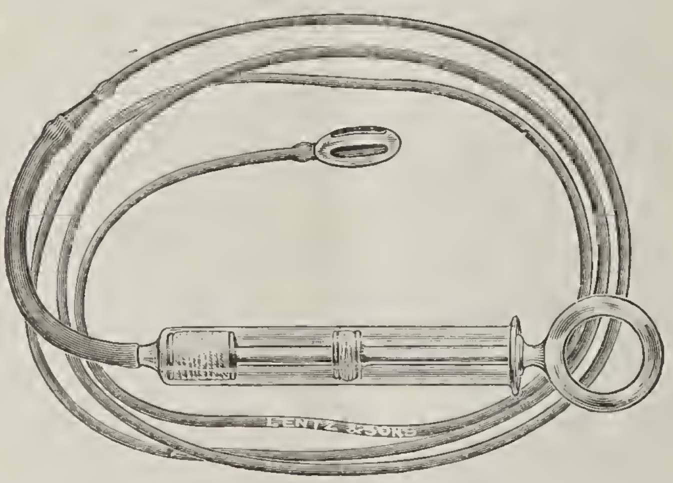

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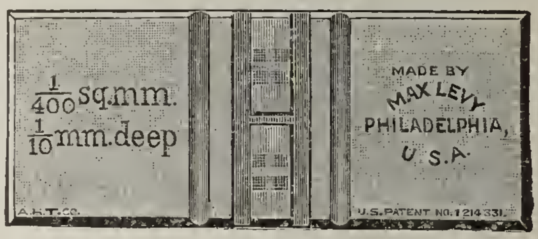

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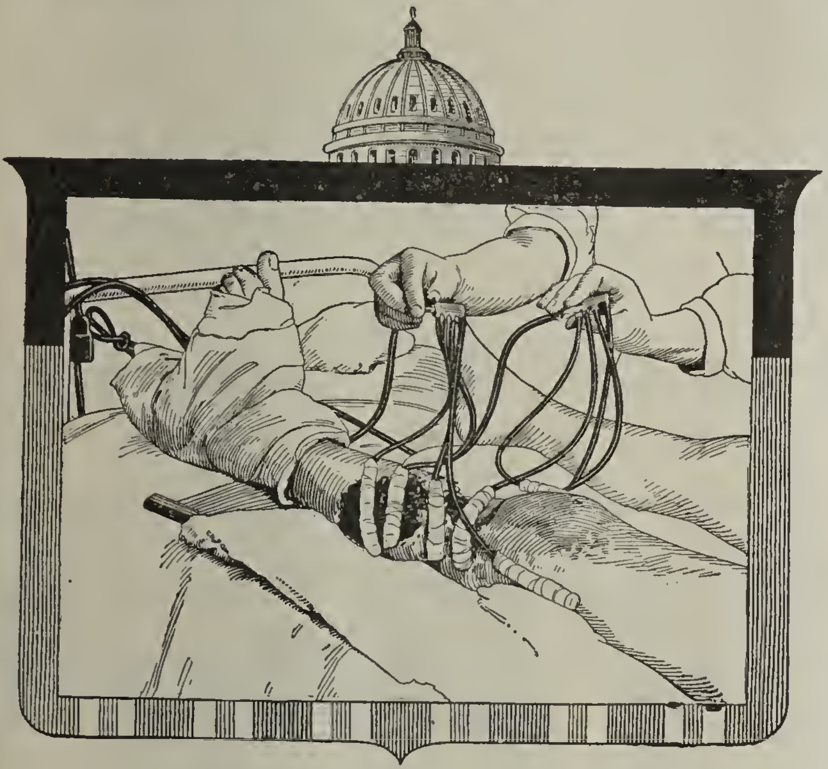

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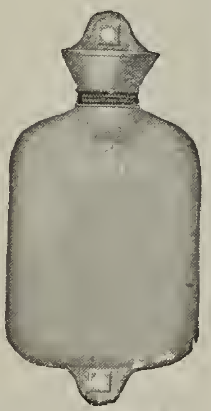

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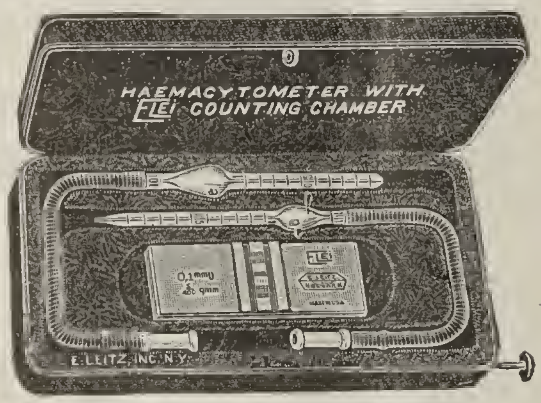

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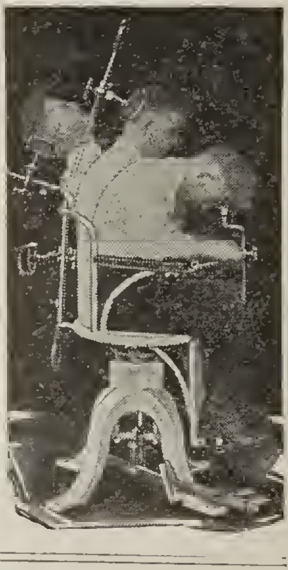

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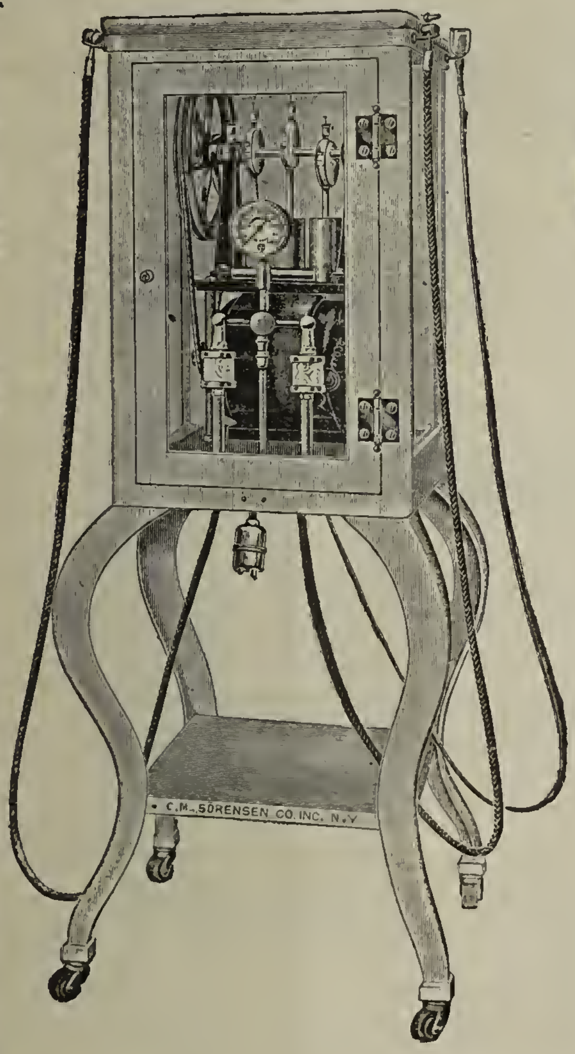

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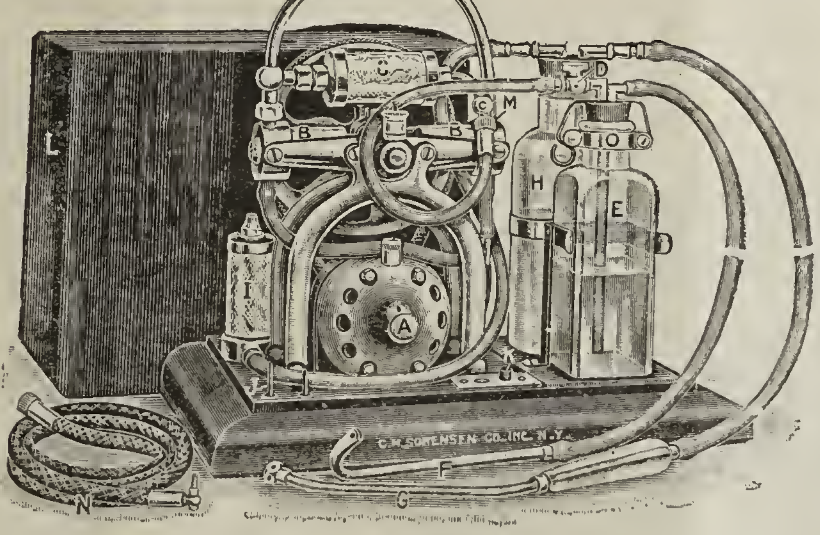

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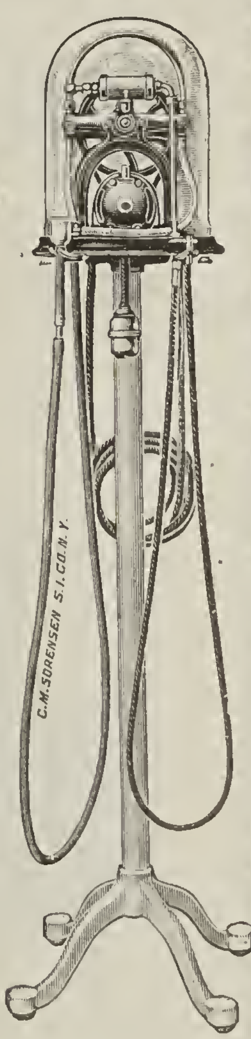

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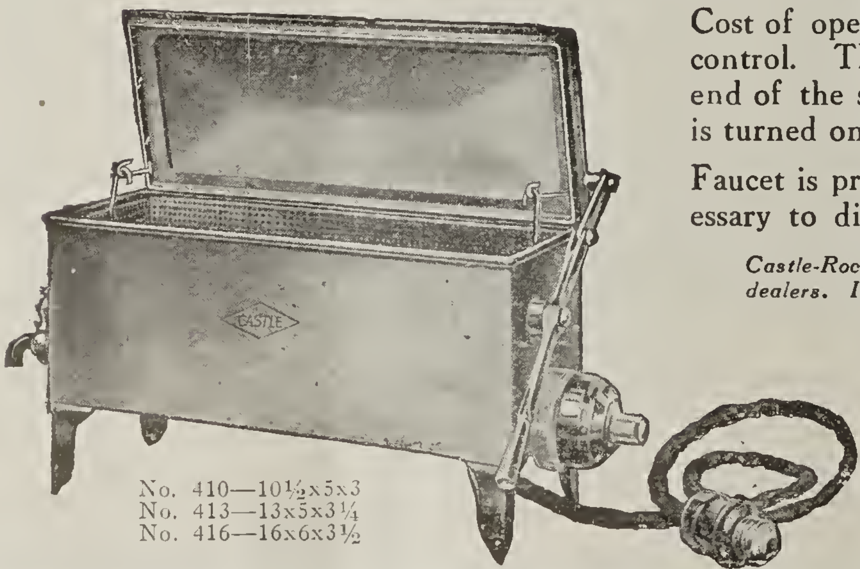

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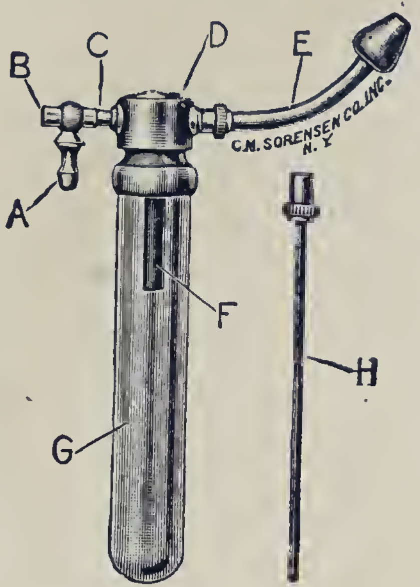

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